Бойко Л. М.
Мунтян Т. В.

ENGLISH
FOR INFORMATION TECHNOLOGY

навчальний посібник
для самостійної роботи студентів
спеціальності «Інженерія програмного забезпечення»

Херсон – 2017

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2-е видання

Рекомендувала вчена рада
Херсонського державного університету

Херсон – 2017

Укладачі: Л. М. БОЙКО (розділ 1, теми 1–3; розділ 3, розділ 4, контрольні завдання та глосарій до розроблених розділів);

Т. В. МУНТЯН (розділ 1, тема 4; розділ 2, контрольні завдання та глосарій до розроблених розділів)

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Навчальний посібник для самостійної роботи студентів спеціальності «Інженерія програмного забезпечення» містить англомовні автентичні тексти професійного спрямування та завдання до них, глосарій до тем, список літератури та питання для самоконтролю.

Для студентів комп'ютерних спеціальностей вищих навчальних закладів та усіх, хто цікавиться питаннями інформаційних технологій та комп'ютерної техніки і вивчає англійську мову з цього фаху.

ЗМІСТ

Передмова

Розвиток сфери інформаційних технологій зумовлює необхідність поглиблення знань у цій галузі, особливо для студентів ІТ-спеціальностей. Для виконання професійних функцій фахівець насамперед повинен мати достатній рівень володіння англійською мовою, оскільки вона є мовою технічного прогресу. У зв'язку з цим особлива увага приділяється змісту навчального матеріалу з англійської мови для студентів спеціальності «Інженерія програмного забезпечення». Головною метою навчання іноземної мови студентів цієї спеціальності є формування іншомовної компетентності, а очікуваним результатом – ефективне використання мови як умови успішного виконання професійних обов'язків та засобу спілкування у фаховій сфері. Досягнення мети залежить від якості навчального матеріалу, розробленого як для аудиторного, так і для самостійного опрацювання. Саме для позааудиторної та аудиторної самостійної роботи студентів спеціальності «Інженерія програмного забезпечення» створено навчальний посібник «English for Information Technology».

Основна мета посібника – формування англомовної компетентності, що досягається за умови виконання таких завдань: засвоєння фахового термінологічного апарату, розвиток навичок читання та письма.

Посібник містить чотири розділи з основних тем, що вивчаються студентами на профільних дисциплінах. Зміст посібника відповідає авторській програмі з дисципліни «Іноземна мова (для професійної комунікації)». Посібник містить контрольні завдання, англо-український словник, глосарій та список абревіатур до текстів, список рекомендованих літературних та електронних джерел.

У посібнику представлено неадаптовані тексти з наукових видань та сайтів технічного спрямування. Опрацювання текстів відбувається таким чином: виконання передтекстових завдань (відповіді на запитання, з'єднання частин речення або словосполучення тощо) та післятекстових завдань (добір синонімів (антонімів) до слів з текстів, доповнення речення,

визначення дефініцій, обрання істинного або хибного твердження), що сприяють ефективному опрацюванню тексту та якісному засвоєнню фахової лексики. Тематика текстів є актуальною та відповідає сучасному стану розвитку інформаційних технологій.

Для розвитку навичок письма та з метою самостійного опрацювання додаткової літератури запропоновано завдання з написання твору до певної ситуації.

Також у кожному уроці пропонується творче завдання з розділу Problem-Solving.

Завершальним блоком до кожної теми є завдання на повторення граматичного матеріалу. Перевірка граматики у посібнику передбачає закріплення таких тем: слова для позначення кількості, ступені порівняння прикметників, прислівники часу та способу дії, питальні речення, видо-часові форми англійського дієслова, наказові форми дієслова, активний та пасивний стан дієслова, модальні дієслова, безособові форми дієслова (інфінітив, герундій).

Таким чином, завдання у посібнику забезпечують ефективне опрацювання представлених тем, сприяють засвоєнню фахової термінології, розвитку навичок читання та письма, закріпленню граматичного матеріалу під час самостійної роботи. Структура посібника, особливості систематизації викладеного матеріалу дозволяють регулярно використовувати подані завдання для самостійної роботи як в аудиторії (завдання з розділів Post-reading, Grammar Revision та перевірки завдань розділу Problem-Solving, Writing), так і для позааудиторної самостійної роботи (завдання з розділів Pre-reading, Reading, Vocabulary work) студентів спеціальності «Інженерія програмного забезпечення».

UNIT 1. COMPUTER HARDWARE

Lesson 1. Hardware Components.
Grammar Revision: The Present Simple Tense.

Pre-reading:
1. **Answer the following questions:**
1) What do you know about computer hardware?
2) What are the main components of computer hardware?
2. **Match the words with their definitions:**

1)	CPU	a) information to be processed by a computer program
2)	hard drive	b) describes a system that performs operation by means of digits
3)	flash memory	c) the main circuit board of a computer
4)	motherboard	d) the part of the main memory which stores information temporarily
5)	RAM	e) a type of memory that can be erased and reprogrammed
6)	digital	f) a magnetic storage device that reads and writes data on metal disks inside a sealed case
7)	data	g) the 'brain' of the computer; it processes instructions given to it by software

3. **Complete the sentences using the pictures:**

1) Intel vice president Tom Kilroy holds a Dual-Core Xeon 5100 … at a press event in San Francisco
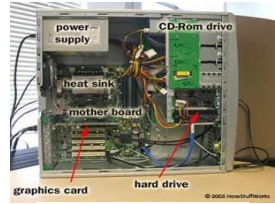
2) An additional … provides more disk space on your computer.

3) … is a general purpose tool with many parts.

4) … ties everything in your computer together.

4. Cross out the odd word:
a) desktop computer, laptop computer, tablet computer, phone
b) data, information, faction, records
c) hard drive, video disk, hard disk, fixed disk
d) motherboard, system board, main circuit board, blackboard
e) semi-permanent, long-term, long-run, momentary
Reading:
5. Read the text:

COMPUTER HARDWARE & HOW TO TROUBLESHOOT COMPUTER HARDWARE PROBLEMS

All types of computers follow a same basic logical structure and perform the following five basic operations for converting raw input data into information useful to their users.

| No.	Operation	Description
1	Take Input	The process of entering data and instructions into the computer system
2	Store Data	Saving data and instructions so that they are available for processing as and when required.
3	Processing Data	Performing arithmetic, and logical operations on data in order to convert them into useful information.

| 4 | Output Information | The process of producing useful information or results for the user, such as a printed report or visual display. |
| 5 | Control the workflow | Directs the manner and sequence in which all of the above operations are performed. |

Input unit contains devices with the help of which we enter data into computer. This unit makes link between user and computer. The input devices translate the information into the form understandable by computer.

CPU(Central Processing Unit) is considered as the brain of the computer. CPU performs all types of data processing operations. It stores data, intermediate results and instructions (program). It controls the operation of all parts of computer. CPU itself has following three components: ALU (Arithmetic Logic Unit), Memory Unit, Control Unit.
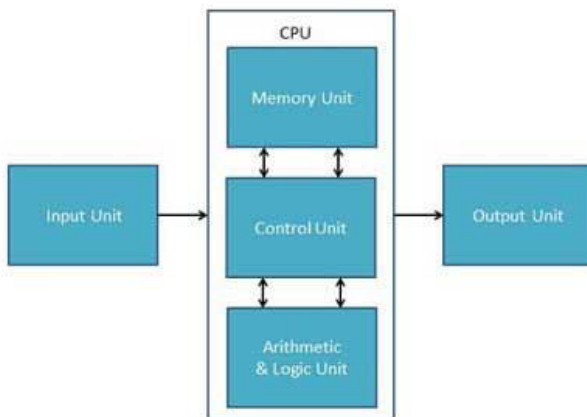
Memory or Storage Unit can store instructions, data and intermediate results. This unit supplies information to the other units of the computer when needed. It is also known as internal storage unit or main memory or primary storage or Random access memory (RAM).

Its size affects speed, power and capability. Primary memory and secondary memory are two types of memories in the computer. Functions of memory unit are: it stores all the data and the

instructions required for processing; it stores intermediate results of processing; it stores final results of processing before these results are released to an output device.

Control Unit controls the operations of all parts of computer but does not carry out any actual data processing operations. Functions of this unit are: it is responsible for controlling the transfer of data and instructions among other units of a computer; it manages and coordinates all the units of the computer; it obtains the instructions from the memory, interprets them, and directs the operation of the computer. It communicates with Input/Output devices for transfer of data or results from storage. It does not process or store data

ALU (Arithmetic Logic Unit) consists of two subsections: Arithmetic section and Logic section. Function of arithmetic section is to perform arithmetic operations like addition, subtraction, multiplication and division. All complex operations are done by making repetitive use of above operations. Function of logic section is to perform logic operations such as comparing, selecting, matching and merging of data.

Output unit consists of devices with the help of which we get the information from computer. This unit is a link between computer and users. Output devices translate the computer's output into the form understandable by users.

Troubleshooting Faulty Computer Hardware

Computer hardware components individually heat up and cool down as they're used and then not used, meaning that eventually, every single one will fail. Some may even fail at the same time. Fortunately, you can replace the non-working piece of hardware without having to replace or rebuild the computer from scratch. Replacing the memory in your computer will be necessary if a memory test has confirmed that your RAM has experienced a hardware failure of some kind.

How to replace the memory (RAM) in my computer

To replace the memory in your PC, you'll need to physically remove the old memory and install the new memory. The specific steps necessary to replace the memory in your computer depends on whether you are replacing the RAM in a desktop or laptop

computer. Replacing memory is a very simple task that anyone with a screwdriver and a little patience can easily complete in under 15 minutes.

How to replace a hard drive

To replace a hard drive, you'll need to backup any data you want to keep, uninstall the old hard drive, install the new hard drive, and then restore the backed up data. There are three required steps: 1) Backing up the data you want to keep is the most important step in this process! The hard drive isn't the valuable thing - it's the priceless files you've created and collected over the years. 2) Backing up could mean something as simple as copying files you want over to a large flash drive or other storage you're not using. Better yet, if you're not backing up regularly already, use this as an opportunity to start with a cloud backup service so you never even run the chance of losing a file again. 3) Uninstalling the existing hard drive is easy. Make sure your computer is turned off and then disconnect the hard drive and physically remove it.

Source: https://www.lifewire.com/computer-hardware-2625895

6. Answer the questions:

1) What is the so-called 'brain' of the computer?

2) What is the CPU?

3) What operations does the CPU perform?

4) What are the two most important kinds of memory?

5) What are the functions of memory unit?

6) What is the function of the control unit?

7) When is replacing the memory unit necessary?

8) What do you need to replace a hard drive?

7. Decide if the statements are true or false:

1) Function of logic section is to perform arithmetic operations like addition, subtraction, multiplication and division.

2) The CPU controls the operation of all parts of computer.

3) The input devices translate the information into the form understandable by computer.

4) Some computer hardware components may fail at the same time.

5)   Replacing memory is a very complicated task.

6) To replace a hard drive, you don't need to backup any data you want to keep.

7) Output devices translate the computer's output into the form understandable by the machines.

Post-reading:

8. Complete the sentences:

1) RAM size affects the speed, power and …

2) CPU itself has following three components: …

3) … is turned off and then disconnect the hard drive and physically remove it.

4) Function of arithmetic section is to perform … .

9. Unscramble the words:

Aftweors, titursncnoi, cpnnoomte, cgiol, edrrahwa, trumcope

10. Complete some word partnerships and expressions by matching the verbs on the left with the correct word on the right.

Model: 1 perform calculations

1) perform	operating system
2) load	calculations
3) store	interactions
4) manipulate	computers
5) buy	data
6) process	capacity
7) handle	data
8) require	instructions

11. Tick the correct sentence:

1)

a) Input unit contains devices with the help of which we enter data into computer.

b) Input unit contains devices with the help of which we get data from computer.

c) Input unit contains devices with the help of which we store data.

2)

a) You can replace the non-working piece of hardware without having to replace or rebuild the computer from scratch.

b) You can replace the non-working piece of hardware but you will have to replace or rebuild the computer from scratch.

c) You can buy the non-working piece of hardware without having to replace or rebuild the computer from scratch.

3)

a) Control unit communicates with Input/Output devices for transfer of data or results from storage.

b) Control unit communicates with Input/Output devices for transfer of data or results from input unit.

c) Control unit doesn't communicate with Input/Output devices for transfer of data or results from storage.

4)

a) Computer hardware components individually heat up and cool down as they're used and then not used, meaning that eventually, every single one will fail.

b) Computer hardware components individually heat up and cool down as they're used and then not used, meaning that eventually, every single one will never fail.

c) Computer software components individually heat up and cool down as they're used and then not used, meaning that eventually, every single one will fail.

12. *Vocabulary work*. **Write down the following words into your vocabulary. Learn them by heart.**

1) *to affect* –
2) *sequence* –
3) *to convert* –
4) *intermediate* –
5) *workflow* –
6) *interaction* –
7) *failure* –
8) *to experience* –
9) *eventually* –
10) *to transfer* –

Problem-Solving:

13. Your friend Alex is a history student. He needs a computer to write essays, assignments and letters. Choose the most suitable computer for him. Give your reasons. Use some information on products available, their prices, processor speed, RAM and hard disk capacity, monitor size.

Writing:

14. Make up a short description of your ideal computer system (10 sentences). Use the words:

It has got…, It runs at…, The standard RAM memory…, The hard disk… etc.

Grammar revision: The Present Simple tense.

We use Present Simple to talk about routines and things that are permanent or happen all the time.

For example: What do you do? – I am a developer.

What does he do? – He tests computer programs.

1. Choose the correct variant from the words in brackets:

*Model: They **work/~~works~~** for Siemens in Germany.*

*They **do/~~does~~** not work for IBM.*

***Do/~~does~~** they work for Siemens?*

1. What (do/does) you do? I (am/is) a programmer. 2. What (do/does) she do? She (is/are) a developer. 3. Where (do/does) he work? He (work/works) for IBM in France. 4. Do/does you work in IT? Yes, I (am/do). No, I (am not/do not). 5. This key (move/moves) the cursor down. 6. How long (do/does) this course last? 7. When (do/does) classes end? 8. What (do/does) you study?

2. Arrange the words below to make questions:

Model: she / to collect / stickers – She collects stickers.

1. They / to play / a game – 2. The cat / to sleep / in the cat's bed – 3. She / often / to dream – 4. He / to play / streetball – 5. You / to be / from Paris – 6. The pupils / to wear / school uniforms – 7. You / to go / to the cinema – 8. She / to have/ friends.

Lesson 2. Input-Output Devices.
Grammar Revision: The Present Continuous tense.

Pre-reading:
1. Read the passage and fill in the gaps with the words below:

(signals, divided, digitized, devices, code, instructions, output, inputting)

Peripherals are commonly … into three kinds: input devices, output devices, and storage … . An input device converts incoming data and … into a pattern of electrical … in binary … that are comprehensible to a digital computer. An … device reverses the process, translating the … signals into a form intelligible to the user. At one time punched-card and paper-tape readers were extensively used for … , but these have now been replaced by more efficient devices.

2. Fill in the table, using the words from the box:

optical mouse, keyboard, scanner, monitor, touch pad, printer, microphone, touchscreen, joystick

Input devices	Output devices

3. Match each device (1–6) with its use (a–f):
Model: 1 – b

1) **microphone**   a) copy documents
2) scanner   **b) input sound**
3) digital camera   c) input text
4) mouse   d) select from a menu
5) keyboard   e) move the cursor rapidly

6) joystick   f) produce photos without films

4. Answer the questions:

1) What is the purpose of input-output devices?

2) What types of input-output devices do you know?

3) What are the most common input devices?

4) What devices enable data to go into a computer's memory?

5) Output devices enable us to extract the finished product from the system, don't they?

Reading:

5. Read the text and complete the chart:

Input devices include typewriter-like keyboards; handheld devices such as the mouse, trackball, joystick, trackpad, and special pen with pressure-sensitive pad; microphones, webcams, and digital cameras. They also include sensors that provide information about their environment – temperature, pressure, and so forth – to a computer. Another direct-entry mechanism is the optical laser scanner that can read bar-coded data or optical character fonts.

Output equipment includes video display terminals, ink-jet and laser printers, loudspeakers, headphones, and devices such as flow valves that control machinery, often in response to computer processing of sensor input data. Some devices, such as video display terminals and USB hubs, may provide both input and output. Other examples are devices that enable the transmission and reception of data between computers – e.g., modems and network interfaces.

Input devices	Output devices	Input/Output devices

6. Read the text.

Optical mouse

The now-preferred device for pointing and clicking is the **optical mouse**.

Developed by Agilent Technologies and introduced to the world in late 1999, the optical mouse actually uses a tiny camera to take 1,500 pictures every second. Able to work on almost any surface, the mouse has a small, red **light-emitting diode** (LED) that bounces

light off that surface onto a complementary metal-oxide semiconductor (CMOS) sensor.

The CMOS sensor sends each image to a **digital signal processor (DSP)** for analysis. The DSP, operating at 18 MIPS (million instructions per second), is able to detect patterns in the images and see how those patterns have moved since the previous image. Based on the change in patterns over a sequence of images, the DSP determines how far the mouse has moved and sends the corresponding coordinates to the computer. The computer moves the cursor on the screen based on the coordinates received from the mouse. This happens hundreds of times each second, making the cursor appear to move very smoothly.

Optical mice have several benefits over wheeled mice:

- No moving parts means less wear and a lower chance of failure.
- There's no way for dirt to get inside the mouse and interfere with the tracking sensors.
- Increased tracking resolution means smoother response.
- They don't require a special surface, such as a mouse pad.
- Today's LED-based optical mice are user-friendly and reliable.

Source: http://computer.howstuffworks.com/question631.htm

7. Answer the questions:
1) When was the optical mouse developed and introduced?
2) What is the optical mouse's operation principle?
3) What does a small red diode of the optical mouse do?
4) What principle is DSP based on?
5) What are the benefits of optical mouse over wheeled one?

Post-reading:

8. Decide if the statements are true or false:
1) The wheeled mouse has benefits over the optical one.
2) The optical mouse was developed by Sunset Electronics.
3) The optical mouse was introduced in 2005.
4) The mouse can work only on a special mouse pad.
5) The mouse's red LED bounces light off that surface onto a complementary metal-oxide semiconductor (CMOS) panel.

6) The DSP determines how far the mouse has moved and sends the corresponding coordinates to the Internet.

7) The digital signal processor operates at the speed of 12 MIPS.

9. Complete the puzzle:

Across:

1 An input device with a vertical lever used in computer games to move a cursor (8)

2 An output device which converts data into printed form (7)
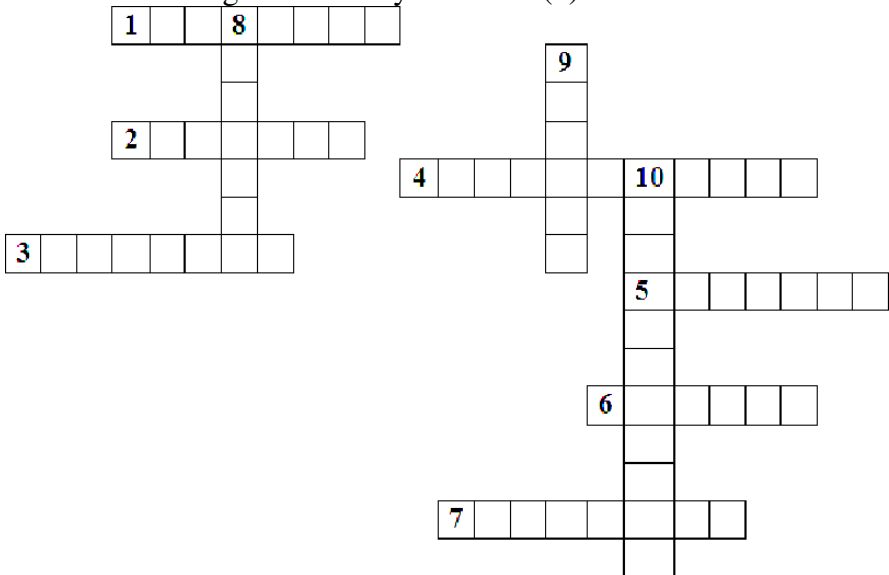
3 An input device with typewriter keys for letters, numbers and line controllers (8)

4 A thin flat round piece of plastic that stores information that can be read by laser (7, 4)

5 Storing information such as sound or pictures as numbers or electronic signals (7)

6 A machine or piece of equipment that does a particular thing (6)

7 Small enough to hold in your hands (8)

Down:

8 An input device that reads the image as a series of dots and introduces the information into the computer's memory (7)

9 A camera connected to a computer that produces images that can be seen on the website (6)

10 A piece of equipment that allows sounds or voices to be heard loudly at a distance (11)

10. Cross out the odd word:

Model: car, bicycle, ~~road~~, motorcycle

1) mouse, trackpad, bus, trackball
2) laser printer, scanner, headphones, loudspeaker
3) CD-ROM, DVD, flash memory drive, motherboard

11. *Vocabulary work.* **Write down the following words into your vocabulary. Learn them by heart.**

1) intelligible –
2) entry –
3) response –
4) to emit –
5) pattern –
6) to bounce –
7) complementary –
8) sequence –
9) to determine –
10) smooth –

Problem-Solving:

12. A friend has emailed you asking for advice about which camera to buy. Compose an e-mail to your friend comparing the two cameras. Use the words stunning, affordable, excellent, wide, easy-to-use.

AX 53 4K Handycam $350

▪ 4K Ultra HD (3840 x 2160) recording of more subtle detail and color
▪ Balanced Optical SteadyShot™ with Intelligent Active mode
▪ 1.05 inch ZEISS Vario-Sonnar® T* lens with optical 20x

zoom range

AX 100 4K Expert Handycam $ 1,600
- Cinema-quality 4K Ultra HD recording
- 1.0 in–type Exmor R® CMOS sensor
- ZEISS® Vario-Sonnar® T* lens with 12x optical zoom

Writing:
13. Make up a short story about the input-output devices you have (10 sentences).

Grammar revision: The Present Continuous tense.
We use Present Continuous to talk about things that take place at the time of speaking and are not permanent. *For example:* I am setting up a network. Are you installing the software? No, she is not installing the software. We are working with the new employees.
1. Complete the sentences using *am/am not, is/isn't, are/aren't* **:**
1) He … working in the office today. He has a day off.
2) She … working at home today.
3) We … installing a new browser.
4) What … you doing now?
5) … you working at home today?
6) They … discussing the problem now.
7) … you learning a new language of programming?
2. Make up the sentences about what is happening to some of the following:
*Model: Prices/go up – Prices **are going** up.*
1) the world's population/grow
2) your English/get better
3) days /get longer
4) you /get older
5) the political situation/get worse
6) women/live long
7) unemployment/become serious
8) men/live long

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Lesson 3. Storage Devices.
Grammar Revision: Present Simple vs. Present Continuous.

Reading:
1. Read the text and answer the questions:
Flash Memory

1. **Flash memory,** data-storage medium used with computers and other electronic devices. Unlike previous forms of data storage, flash memory is an EEPROM (electronically erasable programmable read-only memory) form of computer memory and thus does not require a power source to retain the data.

2. Flash memory was invented in the early 1980s by Japanese engineer Masuoka Fujio, who was then working at the Toshiba Corporation and who was searching for a technology that would replace existing data-storage media such as magnetic tapes, floppy disks, and dynamic random-access memory (DRAM) chips. The name *flash* was coined by Ariizumi Shoji, a coworker of Masuoka, who said the process of memory erasure, which can erase all the data on an entire chip at one time, was like a camera's flash.

3. Flash memory consists of a grid that has two transistors, the floating gate and the control gate, at each intersection, separated by an oxide layer that insulates the floating gate. When the floating gate is linked to the control gate, the two-transistor cell has a value of 1. To change the value of the cell to 0, a voltage is applied to the control gate that pushes electrons through the oxide layer into the floating gate. Storing the electrons in the floating gate allows the flash memory to retain its data when power is turned off. A voltage is applied to the cell to change the value back to 1. Flash memory is configured such that large sections of a chip, called blocks, or even the entire chip can be erased at a time.

4. Portable devices such as digital cameras, smartphones, and MP3 players normally use flash memory. USB drives (also called thumb drives and flash drives) and memory cards use flash memory to store data. As its cost became cheaper in the early 21st century, flash memory also began appearing as the hard disk in laptops. *Source:* Erik Gregersen https://www.britannica.com/technology/flash-memory.

1. Does flash memory require any power source to retain the data?
2. Who coined the name 'flash' for the data storage medium?
3. Do portable devices use flash memory? Which ones?
4. Who is known as an inventor of a flash memory?
5. When was flash memory invented?

Post-reading:

2. Complete some word partnerships and expressions by matching the words on the left with the correct word on the right:

1) data storage	source
2) flash	gate
3) floating	memory
4) memory	camera
5) power	medium
6) random-access	data
7) to retain	memory
8) digital	erasure

3. Put the sentences into the correct order:

1) Flash memory is configured such that large sections of a chip, called blocks, or even the entire chip can be erased at a time.

2) A voltage is applied to the cell to change the value back to 1.

3) Flash memory consists of a grid that has two <u>transistors</u>, the floating gate and the control gate.

4) Storing the electrons in the floating gate allows the flash memory to retain its data when power is turned off.

5) When the floating gate is linked to the control gate, the two-transistor cell has a value of 1.

6) To change the value of the cell to 0, a voltage is applied to the control gate that pushes electrons through the oxide layer into the floating gate.

4. Look back into the text. Which sentence is correct*?*

1)

a) Flash memory was invented in the early 1980s by Japanese engineer Masuoka Fujio.

b) Flash memory was invented in the early 1990s by Japanese

engineer Masuoka Fujio.

c) Flash memory was invented in the early 1980s by Japanese engineer Ariizumi Shoji.

2)

a) When the floating gate is linked to the control gate, the two-transistor cell has a value of 1.

b) When the floating gate is linked to the control gate, the three-transistor cell has a value of 1.

c) When the floating gate is linked to the control gate, the two-transistor cell has a value of 0.

3)

a) Flash memory consists of a grid that has two transistors, the floating gate and the control unit.

b) Flash memory consists of a grid that has two transistors, the floating gate and the control gate.

c) Flash memory consists of a grid that has three transistors, the floating gate and the control gate.

4)

a) Unlike previous forms of data storage, flash memory is an EEPROM (electronically erasable programmable read-only memory) form of computer memory and thus does not require a power source to control the data.

b) Unlike previous forms of data storage, flash memory is an EEPROM (electronically erasable programmable read-only memory) form of computer memory and thus does not require a power source to retain the data.

c) Unlike previous forms of data storage, flash memory is an EEPROM (electronically erasable programmable read-only memory) form of computer memory and thus requires a power source to retain the data.

5. Say if the sentences are true or false. Correct the false ones:

1) Flash memory consists of a grid that has four transistors, the floating gate and the control gate

2) The name *flash* was coined by Japanese engineer Masuoka Fujio, who said the process of memory erasure, which can erase all

the data on an entire chip at one time, was like a camera's flash.

3) Portable devices such as digital cameras, smartphones, and MP3 players normally do not use flash memory.

4) Flash memory is an EEPROM (electronically erasable programmable read-only memory) form of computer memory and thus does not require a power source to retain the data.

5) Flash memory is configured such that large sections of a chip, called blocks, or even the entire chip cannot be erased at a time.

6. Flash memory is used in many hand-held devices. Match the descriptions of each device to their pictures.

A)   B)

C)

D)

E)
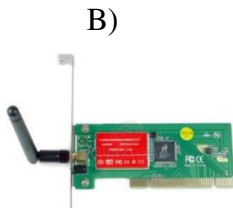
1)   This wireless LAN card allows laptop users to access the Internet from any Wi-Fi access point.

2)   This USB flash pen drive is a drive for your computer.

3)   This flash memory card is used as digital film to store images on a digital camera.

4)   This flash-based player provides everything you need to play music and store data on the go.

5)   It looks like an ordinary watch, but its hidden USB drive can store up to 1Gb flash memory.

7. Find words or phrases in the text with the following meanings:

1) memory read at high speed but not capable of being changed by program instructions (paragraph 1);

2) a type of random-access memory that stores each bit of data in a separate capacitor within an integrated circuit (par. 2);

3) a CMOS (complementary metal-oxide semiconductor) – based transistor that is capable of holding an electrical charge (par. 3);

4) a device that can easily be carried. It is a small form factor of a computing device that is designed to be held and used in the hands (par.4).

8. Read the text and fill in the gaps with the words below:

Cumbersome, hardware, programmable, designed, cells, to store, to update, flash, digital

Flash memory is a type of electrically erasable _____read-only memory (EEPROM). The name comes from how the memory is _____ – a section of memory _____ can be erased in a single action or in a "flash." A common use of flash memory is _____ the BIOS settings in a computer's ROM. When the BIOS needs to be changed, the flash memory can be written in blocks, rather than bytes, making it easy _____. Most modems use _____ memory for the same reason.

Though flash memory was originally used inside computers, it has invaded many other areas outside the box. Flash memory cards used for _____ cameras, cellular phones, networking _____, and PC cards. Though the memory's read/write speed is not lightning fast, it is nice to be able to carry a little card rather than a _____ hard drive.

Source: https://techterms.com/definition/flashmemory

9. Complete the puzzle:

Across:

4 Thousandth of a second, abbreviated to *ms,* used to measure the access time of hard drives.

6 Floating gate transistors are called _____ in flash memory technology.

7 Prefix meaning *very large* or *one thousand million.*

11 Acronym for *light amplification* by *stimulated emission of radiation.*

12 Capable of being deleted.

Down:

1 Concentric ring on the surface of a disk when the disk is formatted.

2 _____ memory retains its data when the power is switched off.
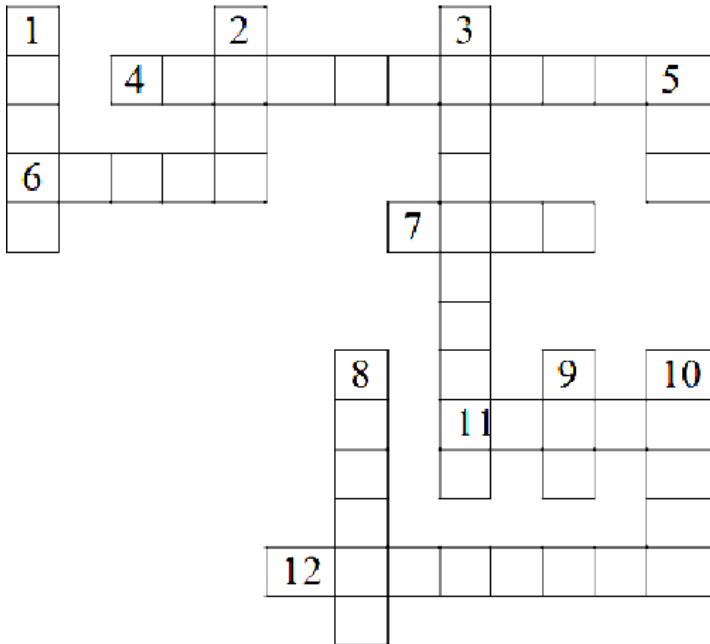
3 CD-RW means Compact Disk _____.

5 Abbreviation of Digital Versatile Disk.

8 To write information on a disk or storage area.

9 Type of external bus or connector that plugs into the computer.

10 The physical mechanism that accepts, reads and writes data on a disk.

Source: Infotech – English for computer users.

10. *Vocabulary work.* **Write down the following words into your vocabulary. Learn them by heart:**

1) erasable –
2) thus –
3) to retain –
4) to coin –
5) to insulate –
6) floating –
7) to separate –
8) external –
9) to plug –
10) integrated circuit –

Problem-Solving:
11.   Choose a flash-based device that you own and describe it.

Use the phrases: *It has a storage capacity… It features… Its battery life is … You can … It supports formats….*

Writing:
12. You are at a consumer electronics show. You want to buy a flash drive. What questions are you going to ask? (10 sentences).

Grammar revision: Present Simple vs. Present Continuous
We use the Present Simple to talk about something we do regularly. We use the Present Continuous to talk about an action happening now or a temporary situation. For example: I **work** in an IT department. Now I **am managing** the department because my boss is away.
1. Make up the phrases about what you are doing now and what you have to do regularly.
Model: We <u>are listening</u> *to music now.*
We often <u>listen</u> *to music at the English lessons.*
Use the phrases:

1) to sit in the office
2) to answer my chief's question
3) to have an English lesson
4) to study new programming languages
5) to listen to the teacher attentively

2. Ask the questions:

Model: – if it is raining now – Is it raining now?

1) if he is developing a website
2) if she is speaking English
3) if he analyses the information
4) if he/she speaks English well
5) if he/she is designing the network

Lesson 4. Graphene Computer Chips: Silicon Alternative. Grammar Revision: Adjectives. Degrees of Comparison.

Pre-reading:

1. **Match the words with the pictures:**

silicon   copper   bendable
transparent   electronic circuit   semiconductor

A)

B)

C)

D)

E)
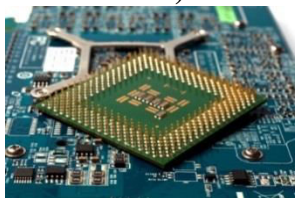
F)

2. **Join the words in column A with the words in column B. Translate them.**

A	B
1. two	tape
2. scotch	electricity
3. graphite	thin
4. conduct	dimensional
5. one atom	stone

Reading:

3. **Read the text. Translate it. Give your title to each piece of information (A-D).**

Introducing: Graphene

This is graphene, let's call him Mr. G. He is the first material that is 2D (two dimensional). This gives him a unique set of properties.

UNIT 1. COMPUTER HARDWARE

Since 1859, many scientists were looking for graphene using complex experiments. But the first crystals of graphene were discovered in 2004. During Friday evening experiments in Manchester, scientists noticed small parts of graphene on a scotch tape, used to clean a graphite stone. The two scientists, Andrew Geim and Konstantin Novoselov, were awarded with the Nobel Prize in Physics 2010 with this simple but groundbreaking experiment.

B

What makes Mr. G a really super material is the combination of his unique properties:

1. G is the first 2D crystal ever known to us, the thinnest and the lightest one.

2. G is the world's strongest material, harder than diamond, and about 300 times stronger than steel.

3. G conducts electricity much better than copper.

4. G is a transparent material.

5. G is bendable and can take any form you want.
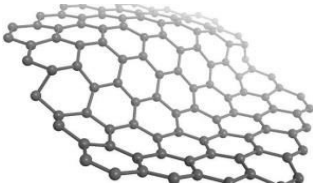
C

This unique super material gave birth to a new class of crystals that are also just one atom thin and what's more fantastic is that this can be shuffled with each other to engineer new materials on demand to meet the special needs of different industries.

All these factors moved graphene swiftly from the G research laboratory to the G marketplace driven by demand from industries where such super materials are required: aerospace, automotive, electronics, energy storage, coatings and pans, communications, sensors, solar, oil and etc.

D

The team of Science and Technology Facilities Council (STFC) facility in the UK has tested the behaviour of bilayer graphene to discover whether or not it could be used as a semiconductor. Their

results suggest that it could replace silicon transistors in electronic circuits.

Graphene transistors could make smaller, faster electronic chips than are achievable with silicon. Eventually more and more transistors could be placed onto a single microchip to produce faster, more powerful processors for use in electronic equipment.

Source: https://phys.org/news/2014-08-future-fast-chips-graphene-silicon.html#jCp

Post-reading:

4. Choose the best synonym to the marked word:

1) *unique* set of properties

a) unusual   b) interesting   c) large

2) *complex* experiment

a) unknown   b) difficult   c) scientific

3) *to be awarded* with the Nobel Prize

a) to be invited   b) to be punished   c) to be granted

4) *to meet the needs of* different industries

a) satisfy   b) require   c) propose

5) it could *replace* silicon transistors

a) substitute   b) change   c) destroy

5. Complete the sentences:

1) Graphene was discovered in …

2) The two scientists were awarded with … in …

3) Graphene is 300 times stronger than …

4) Graphene conducts electricity much better than …

5) This material is just … thin.

6. Decide if the statements are true, false or were not mentioned in the text:

1) Graphene is a new silicon alternative.

2) Graphene is two-dimensional material.

3) G is not transparent material.

4) Graphene has already been used in metallurgy.

5) Graphene doesn't conduct electricity.

7. Answer the following questions:

1) What makes graphene a unique material?

2) Who discovered graphene?

3) In what industries is graphene required?
4) Could graphene be used as a semiconductor?
5) How can graphene transistor change a processor?

8. *Vocabulary work.* **Write down the following words into your vocabulary. Learn them.**
1. bendable –
2. electronic circuit –
3. one-atom thin –
4. properties –
5. replace –
6. silicon –
7. to be required –
8. to conduct electricity –
9. transparent –
10. two-dimensional –

Problem-solving:
9. You're a sales manager in IT company. You have to persuade your clients to buy graphene-based chips. Make a short presentation about graphene. In your presentation speak about the unique properties of graphene, say how it differs from silicon, and how it makes computers work faster and more efficient.

Writing:
10. Draw a table of comparison: *Graphene vs. Silicon.* **Write down the properties of silicon in one column and the properties of graphene in another column. Use the following criteria:** *weight, size, hardness, thickness, ability to bend, conductivity.*

Grammar Revision: Adjectives. Degrees of Comparison.
1. Study these sentences. Pay attention to the marked words:
G is **the thinnest** and **the lightest** one.

G is the world's **strongest** material, **harder** than diamond, and about 300 times **stronger** than steel.

> *Harder, stronger* – are **comparative** adjectives. They are formed with *–er* suffix;
> ***The** thinn**est**, **the** light**est**, **the** strong**est*** – are **superlative** adjectives. They are formed with suffix *–est* and are used with the definite article *the*.

2. Study the charts:

	Comparative	**Superlative**
hard	hard**er**	the hard**est**
strong	strong**er**	the strong**est**
thin	thin**er** *	the thin**est***
early	earlier**	the earliest **

* adjectives with one vowel+one consonant double the consonant

Ex.: Ho**t** – ho**tt**er – the ho**tt**est.

** adjectives that end with *–y* change *y* into *i*.

Ex.: funn**y** – funn**i**er – the funn**i**est.

There are *irregular adjectives* which have the following forms:

	Comparative	**Superlative**
good	better	the best
bad	worse	the worst
far	further	the furthest

3. Open the brackets forming *comparative* adjectives:
Model:
Silicon is … *(thick)* than graphene. – Silicon is *thicker* than graphene.
1) Few materials are … *(hard)* than diamond.
2) Silicon's conductivity is … *(bad)* than graphene's.
3) Silicon chips are ... *(heavy)* than graphene chips.
4) Any material is … *(weak)* than graphene.

4. Open the brackets forming *superlative* adjectives:
Model:
It is … *(strong)* material ever known. – It is *the strongest* material ever known.
1) 2D crystal will provide ... *(fast)* processors in the world.

2) Producing graphene-based chips is … *(hard)* technology today.

3) Graphene-based chips are ... *(good).*

4) Discovering graphene appeared … *(easy)* task in the experiment.

5) Computers with graphene chips will be … *(cheap)* in the future.

Lesson 1. Understanding Computer Software. Basic Terms. Grammar Revision: Adjectives. Degrees of Comparison.

Pre-reading:
1. **Answer the following questions:**
1) What do you know about computer software?
2) What does it consist of?
3) Can you give any examples of computer software?
2. **Join the words in column A with the words in column B:**

A	B
1) computer	system
2) operating	software
3) application	components
4) programming	software
5) hardware	languages

Reading:
3. **Read the text. Translate it.**

Language of any machine

Software is the language of a computer. And like human language, there are many different computer languages. Computer software falls into two categories: *system software* and *application software.* Usually most of us interact with a computer using application software.

System Software controls various internal computer activities.

Any software falls into one of three categories: programming language, operating system and utility software.

Programming languages are various methods of writing computer instructions. This is a kind of computer software which is used exclusively by computer programmers. A simple way to understand programming languages is to think of them as bricks which can be used to create applications and

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operating system. C++, Java and Python are the most popular programming languages. We usually use applications on a day to day basis. These applications are themselves created using programming languages.

Application software: The most popular examples of application software are the Microsoft Office Suite which includes Word, Excel and PowerPoint. We use these applications extensively. Internet explorer, Mozilla Firefox are two applications used to access the Internet. E-mail software like Outlook express is used to manage Emails. The anti-virus is an application and so is the Media player.

Source: http://www.streetdirectory.com

Post-reading:

4. Rearrange the words to get the right sentences:

1) different / are / languages / There / many / computer

2) interact / us / with / Most / a / application / computer / of / using / software

3) activities / various / controls / System / computer / internal / Software

4) of / Programming / methods / instructions / writing / are / computer / languages

5) an / is / The / application / anti-virus

5. Put the letters into order to make words then use them in the sentences:

amminrporgg gulaanges, wtrasofe, piatiopclans, dneiclus , onsuctnstiri

1) … is the language of a computer.

2) Programming languages are various methods of writing computer … .

3) C++, Java and Simlab are popular … .

4) Programming languages can be used to create … and operating system.

5) The Microsoft Office Suite … Word, Excel and PowerPoint.

6. Study the scheme and describe the types of computer software.

Use the following verbs:

to consist of   to be divided   to include
into

Source: http://www.multiwingspan.co.uk
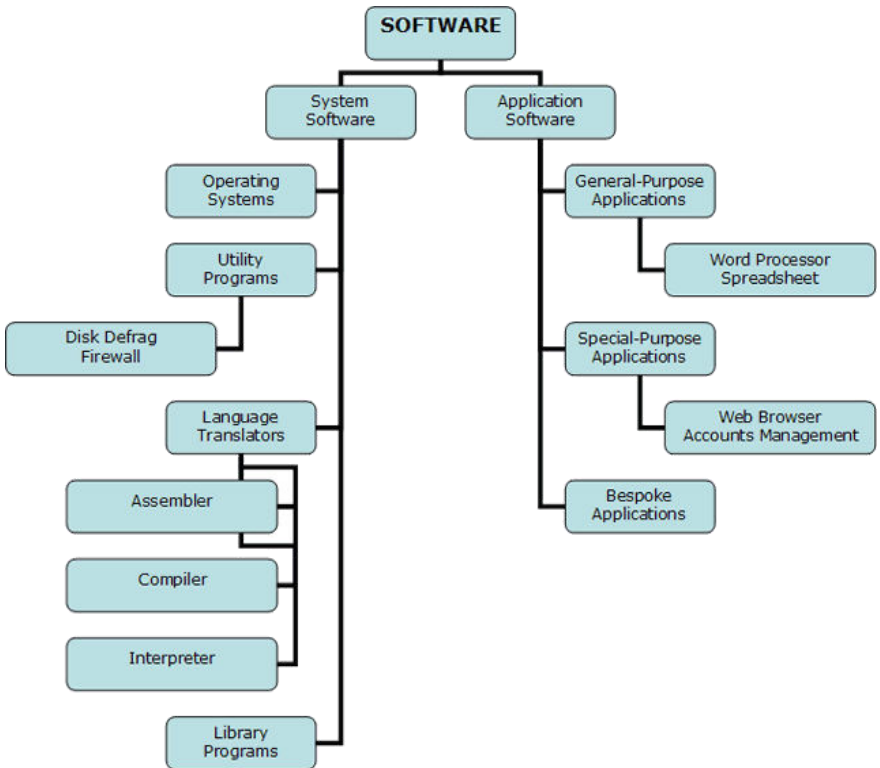
1. Software *is divided into* ...
2. System software …
3. Utility programs …
4. Language translators …
5. Application software …
6. General-purpose applications …
7. Special-purpose applications …

6. Complete the sentences:
1) Software is …
2) Computer software is divided into…
3) Operating the computer we usually interact with …
4) System software controls…
5) 'Bricks' that are used to create applications and OS are …
6) Popular programming languages are …
7) Examples of application software are …
8) To access the internet we use …
9) To manage e-mails we can use …
10) Anti-virus and Media player are also …

7. Correct these false statements:
1) Software is a human language.
2) Computer software is divided into 4 categories: system software, operating system, application software and programming languages.
3) Computer users often deal with programming languages.
4) Application software coordinates the different hardware components of a computer.
5) Word, Excel and PowerPoint are examples of popular programming languages.

8. Vocabulary work. Write down the following words into your vocabulary. Learn them:
1. *brick* –
2. *compiler* –
3. *extensively* –
4. *interpreter* –
5. *purpose* –
6. *to be divided into* –
7. *to consist of* –
8. *to depend* –
9. *to interact* –
10. *to manage* –

Problem-solving:

9. Do your research and find out how software and hardware work together (in what way software controls hardware components). Also think if it is possible to work on computer and what kind of operation you can perform without installed software (10 sentences).

Writing:

10. Browse the net and answer the following questions:

What is software process or Software Development Life Cycle (SDLC)? What are SDLC models available? What are various phases of SDLC? Which SDLC model is the best?

Grammar Revision: Adjectives. Degrees of Comparison.

1. Study these sentences. Pay attention to the marked words*:*

1) C++, Java and Python are **the most popular** programming languages.

2) **The most popular** examples of application software are the Microsoft Office Suite which includes Word, Excel and PowerPoint.

3) Cobol, Fortran are **the least popular** programming languages nowadays.

2. Study the chart:

Adjectives with two or more syllables:

	Comparative	**Superlative**
popular	*more* popular	*the most* popular
	less popular	*the least* popular
expensive	*more* expensive	*the most* expensive
	less expensive	*the least* expensive

3. Complete the sentences with comparative form of the adjectives in the brackets:

Model:

These software tools are … *(effective).*

These software tools are *more effective.*

1) The game environment is … *(developed)* today.

2) Computer language is … *(difficult)* than a language of human.

3) It's … *(exciting)* to deal with system software.

4) Application software is … *(difficult)* to interact with.

5) Modern programmers are to become … *(creative)* than before.

4. Complete the sentences with superlative form of the adjectives in the brackets:

Model:

Coding is ... *(interesting)* task for programmers.

Coding is *the most interesting* task for programmers.

1) This application is … *(expensive).*

2) Programs in machine language are … *(difficult)* to write.

3) He is … *(talented)* software designer in our group.

4) … (*efficient*) way is to re-install operating system.

5) New material is … (required) for different industries.

Lesson 2. System software vs. Application Software.
Grammar Revision: Giving instructions.

Pre-reading:
1. Answer the questions:
1) Do you know what does system software consist of?
2) Can you give examples of application software?
3) What is the difference between system software and application software?
2. Find the definitions to the following words:

1) compiler	a) a software program used to test and find bugs (errors) in other program
2) to install	b) a person for whom a hardware or software product is designed from the developers, installers
3) end user	c) a computer program that transforms source code written in a programming language into another computer language
4) debugger	d) to process or execute
5) to run a program	e) to put a computer program onto a computer so that the computer can use it

Reading:
3. Read the text. Translate it.
Two Parts of Computer Software
System software is software on a computer that is designed to control and work with computer hardware. System software refers to the files and programs that make up your computer's operating system. System files include libraries of functions, system services, drivers for printers and other hardware, system preferences, and other configuration files. The programs that are part of the system software include assemblers, compilers, file management tools, system utilities, and debuggers.

The system software is installed on your computer when you install your operating system. You can update the software by running programs such as "Windows Update" for Windows or

"Software Update" for Mac OS X. Unlike application programs, however, system software is not meant to be run by the end user. For example, while you might use your Web browser every day, you probably don't have much use for an assembler program (unless, of course, you are a computer programmer).

Since system software runs at the most basic level of your computer, it is called "low-level" software. It generates the user interface and allows the operating system to interact with the hardware. Fortunately, you don't have to worry about what the system software is doing since it just runs in the background. It's nice to think you are working at a "high-level" anyway.
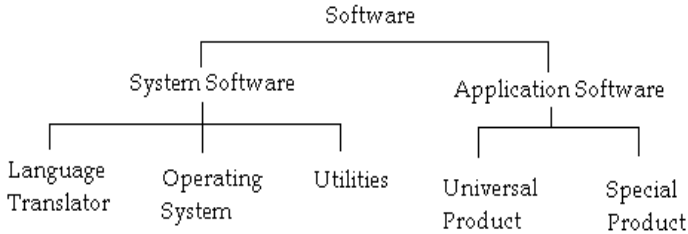
Application software is a subclass of computer software that employs the capabilities of a computer directly and thoroughly to a task that the user wishes to perform.

This should be contrasted with system software which is involved in integrating a computer's various capabilities, but typically does not directly apply them in the performance of tasks that benefit the user.

A simple, if imperfect analogy in the world of hardware would be the relationship of an electric light bulb (an application) to an electric power generation plant (a system).

The power plant merely generates electricity, not itself of any real use until harnessed to an application like the electric light that performs a service that benefits the user.

Source: https://techterms.com/definition/systemsoftware
https://www.sciencedaily.com/terms/application_software.htm

Post-reading:

4. Fill in the gaps with the words from the text:

  include update allow low-level benefit

1) Electric light that performs a service that … the user.

2) Low-level software …the operating system to interact with the hardware.

3) Since system software runs at the most basic level of your computer, it is called "…" software

4) System files … libraries of functions, system services, drivers for printers and other hardware.

5) User can … the software by running different programs.

5. Join the parts of the sentences:

1. System software refers to the files and programs …	a) to be run by the end user.
2. The system software is installed on your computer …	b) that employs the capabilities of a computer directly and thoroughly to a task that the user wishes to perform.
3. System software is not meant …	c) which is involved in integrating a computer's various capabilities, but typically does not directly apply them in the performance of tasks that benefit the user.
4. Application software is a subclass of computer software …	d) that make up your computer's operating system.
5. Application software should be contrasted with system software …	e) when you install your operating system

6. Mark the sentences with SS if they characterize System Software and AS – for Application Software.

1) Enable a computer to function.
2) Enable users to work efficiently with documentation.
3) Optional and depends on user needs.
4) Compulsory.
5) Only one is needed for each computer.

6) Each computer can have more that one of these.
7) Allow user to perform specific tasks.
8) Allow application to run.
9) Independent of user control.
10) User-dependent.

7. *Vocabulary work.* **Write down the following words into your vocabulary. Learn them:**

1) debugger –
2) directly –
3) end user –
4) light bulb –
5) power plant –
6) to be installed –
7) to generate –
8) to run a program –
9) tools –
10)   utilities –

Problem-solving:
8. Creating application software is very popular nowadays. Think about what kind of application you would like to create. Describe what functions it would have, who would use it and for what purposes.

Writing:
9. What application might be used by the people of the following professions:

an artist   an editor   a designer
a journalist   a farmer   a musician
Grammar Revision: Giving Instructions.
1. Study the chart:

• **We make simple instructions using the infinitive:**
Click on the appropriate tab.
Enter the search criteria.

- **We can add an explanation using the to+infinitive or**
  ***by + -ing*:**
  Click on the Find button *to start* the search.
  Start the search *by clicking* on the Find button.

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2. **Look through the following guidelines and fill in the gaps with the instruction words:** *choose, to authorize, open, enter, click, by choosing.*

How to authorize a computer:

1) … iTunes on the computer you want to authorize.

2) …Store > **Authorize This Computer**.

You also can access this option …the Advanced menu.

3) …your Apple ID.

4) Having entered your ID …**Authorize**.

Store	Window	Help	
Back			⌘[
Forward			⌘]
Home			⇧⌘H
Reload Page			⌘R
Turn On iTunes Match			
Turn On Genius			
Authorize This Computer…			
Deauthorize This Computer…			
Deauthorize Audible Account…			
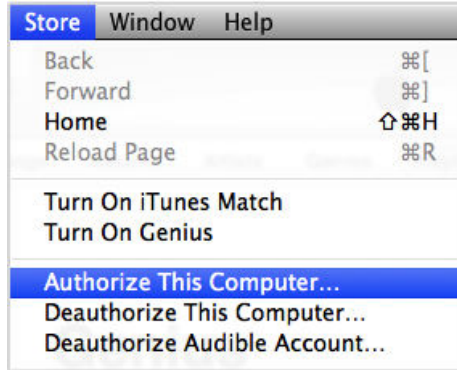
If your Apple ID uses an expired MobileMe account, use it …your computer.

If iTunes asks you to authorize your computer again, it won't use a new authorization. iTunes uses the same authorization for the same computer.

3. **Complete the dialogue with the instruction words:**
hit, boot, start, shut, turn, do, press

A: Hello, tech support. How can I help you?

B: Hello, I'm having a trouble getting my computer to start.

A: Do you know what may have caused the problem?

B: I installed a new program. And since then Windows won't come on.

A: All right, … into safe mode. Do you know how to do that?

B: No.

A: … the computer on and as it is starting up … F8. When is gives you a menu … up options.

B: Okay. No, I didn't get a menu.

A: Hmm. … the computer down and ... the same again.

B: No, I'm telling you that's not working! No matter how many times I press the keys.

A: The KEYS? I said F8! Just … F8.

B: That's what I'm pressing – the letter F and number 8!

Lesson 3. Operating System.
Grammar Revision: *–ing* **forms.**

Pre-reading:
1. Look at the figure and complete the sentences with the appropriate words:

The closest to the user is … .
This software helps a user compute a payroll or play a game or calculate the trajectory of a rocket.
The … is the set of programs between the applications programs and the hardware.

2. Answer the questions:
1) What operating systems do you know?
2) What is the main function of an operating system?
3) Can computer work without an operating system? Why?

3. Can you recognize the logos of popular Operating Systems? Write down their names below the pictures:

a)	b)	c)

d)	e)	f)

4. Join the words in column A with the words in column B:

A	B
1) initially …	friendly
2) user- …	alternative
3) personal …	large system
4) low-cost …	loaded
5) built into …	computer

Reading:

5. Read the text. Translate it.

Popular Operating Systems (OS)

An operating system (OS) is the program that, after being initially loaded into the computer by a boot program, manages all the other programs in a computer. The other programs are called applications or application programs. All major computer platforms (hardware and software) require and sometimes include an operating system.

Common desktop operating systems:

Windows is Microsoft's flagship operating system, the de facto standard for home and business computers. Introduced in 1985, the GUI-based OS has been released in many versions since then. The user-friendly Windows 95 was largely responsible for the rapid development of personal computing.

Mac OS is the operating system for Apple's Macintosh line of personal computers and workstations.

Linux is a Unix-like operating system that was designed to provide personal computer users a free or very low-cost alternative. Linux has a reputation as a very efficient and fast-performing system.

Windows operating systems have long dominated the market and continue to do so. As of August 2016, Windows systems had a market share of over 85 percent. In contrast, Mac OS was at a little over 6 percent and Linux was just over 2 percent. Nevertheless, Windows is losing market share from a long-held 90 percent and higher.

A mobile OS allows smartphones, tablet PCs and other mobile

devices to run applications and programs. Mobile operating systems include Apple iOS, Google Android, BlackBerry OS and Windows 10 Mobile.

An embedded operating system is specialized for use in the computers built into larger systems, such as cars, traffic lights, digital televisions, ATMs, airplane controls, point of sale (POS) terminals, digital cameras, GPS navigation systems, elevators, digital media receivers and smart meters.

Source: http://whatis.techtarget.com/definition/operating-system-OS

Post-reading:

6. Find the best synonyms of the marked words:

1) OS *manages* all the other programs in a computer.

a) changes   b) controls   c) interacts

2) All major computer platforms *require* and sometimes include an operating system.

a) Need   b) contain   c) want

3) The GUI-based OS has been *released* in many versions.

a) Produced   b) invented   c) programmed

4) Linux has a reputation as a very *efficient* and fast-performing system.

a) smart   b) expensive   c) productive

5) A mobile OS allows smartphones, tablet PCs to *run* applications and programs.

a) operate   b) supervise   c) modify

7. Put the letters in order to make words then use them to complete the sentences:

   vepmedelont, eddmbeed, walols, eefcifint, oretiapng stesym

1) All major computer platforms include an … .

2) The user-friendly Windows 95 was largely responsible for the rapid …of personal computing.

3) Linux has a reputation as a very …and fast-performing system.

4) A mobile OS … smartphones and other mobile devices to run applications and programs.

5) An … operating system is specialized for use in the computers built into larger systems.

8. Correct the false statements:
1) Mac OS is the operating system for Microsoft.
2) Windows was introduced in 1995.
3) Linux has a reputation as a slow and non-efficient system.
4) Google Android is an example of embedded OS.
5) Traffic lights, point of sale terminals, digital cameras are based on mobile OS.

9. *Vocabulary work.* **Write down the following words into your vocabulary. Learn them:**
      1) *efficient* –
      2) *fast-performing* –
      3) *rapid development* –
      4) *to be released* –
      5) *to include* –
      6) *to load into*–
      7) *to manage* –
      8) *to require* –
      9) *to run* –
      10) *user-friendly* –

Problem-solving:
10. Some specialists say that Linux operating system is very efficient. But Windows OS is the one that is popular and wide-spread nowadays. Do your research and find out advantages and disadvantages of each operating system. What will be the OS of your choice and why?

11. Study this version of a GUI of an iPhone. Which part of the screen would you touch if you want to: *make a phone call, send an email, access the keyboard, record an appointment, access the internet, change the settings.*

Writing:

12. The description of the Mac OS X is drawn from the table below. Write a similar one of Linux.

Mac OS X is a Unix-based operating system designed for use on Apple Mac computers. It includes memory-protection, pre-emptive multitasking and symmetric multiprocessing support. Graphics are provided by a graphics engine known as Quartz. It has advanced-PDF standards support, OpenGL and QuickTime integrated into the OS. The operating system features are accessed through a graphical user interface called Aqua.

OS	Mac OS X	Linux
type	Unix-based	Unix-based
computer	Apple Mac	wide variety
features	memory-protection, pre-emptive multi-tasking, symmetric multiprocessing support	variety of distribution kits available
graphics engine	Quartz	XFree8 6
standard support	advanced-PDF, OpenGL, Quicktime	------

50

user interface type	GUI	command
user interface	Aqua	line, GUI
source code	not available	KDE,
availability		Gnome
		freely
		available

Grammar Revision: -ing forms.
1. Study these sentences. Pay attention to the marked words:

1) *Managing* the computer's resources is an important function of the operating system.

2) The operating system starts *running* the user interface as soon as the PC is switched on.

3) Another function of the operating system is *executing* and providing services for applications.

> We can use the *-ing* form of the verb as a noun.
> It can be the subject, object, or complement of a sentence.

2. Rewrite each of these sentences according to the model:
Model:

An important function of the OS is *to manage* the computer's resources.

Managing the computer's resources is an important function of the OS.

1) One task of the supervisor program is *to load* into memory nonresident programs.

2) The role of the operating system is *to communicate* directly with the hardware.

3) One of the key functions of the operating system is *to establish* a user interface.

4) An additional role is *to provide* services for applications software.

5) Part of the work of mainframe operating systems is *to support* multiple programs and users.

6) The task in most cases is *to facilitate* interaction between a single user and a PC.

7) One of the most important functions of a computer is *to process* large amounts of data quickly.

8) The main reason for installing more memory is *to allow* the computer to process data faster.

9) To handle input and output to and from attached hardware devices, such as hard disks, printers, and dial-up ports is one of the OS services.

10) One of the important services of OS is to send messages to each application or interactive user (or to a system operator) about the status of operation.

Lesson 4. Programming Language Fundamentals.
Grammar Revision: Modal Verbs.

Pre-reading:
1. Answer the questions:
1) What is a low-level language?
2) What language can machine understand?
3) What is the difference between low-level and high-level languages?

2. Join the words in column A with the words in column B:

A	B
1) machine	operations
2) high-level	code
3) numerical	a program
4) source	code
5) to execute	language

Reading:
3. Read the text. Translate it.

What is a programming language?

Why are there so many languages? If all we're doing is writing simple instructions for computer, why isn't there just ONE computer language? Well actually that language does exist.

The CPU (the central processing unit) that is the brain of any computer, desktop, laptop, server, phone, game console, doesn't

understand any of high-level languages. We might informally say when we are programming that we're writing code the computer understands, but we are not. Not really. The only thing that chip understands is called *machine code* or *machine language*. These are the real instructions that run directly on your computer hardware.

So the question is why don't we just write machine code?

Because it's almost impossible to do! It's numerical operations, tiny instructions that work on the smallest pieces of memory inside your computer and even if you could write it, it's basically unreadable by anybody else. This is for the machine. It's not for a human being. Writing a full program in machine code would be like digging a tunnel through a mountain with only tea spoons. It's theoretically possible, but it would take you so long and so tedious that you wouldn't even try. So all of these languages are just trying to bridge the gap between us as human beings and the computer hardware.

Now, some of the languages are actually quite close to machine code. The closest is *assembly language*. In general the closer a language is to machine code the more difficult it is to write. And this what's called a low-level language.

Higher-level language's code is often easier to write and to share even across different platforms, but it can be slower when running because these languages aren't necessarily optimized directly down to the CPU level.
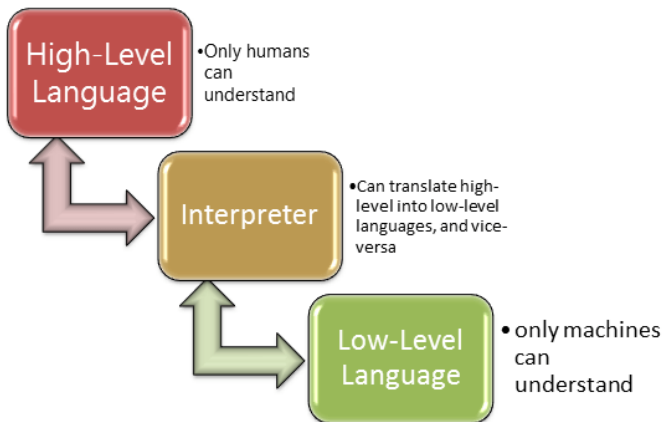
Whatever we write it has to be converted down to machine code before it can run. Working with high-level programming languages we write a *source code* that will at some point be translated then into machine code, so it can run on the computer.

So to start writing any of these programming languages, writing these statements, writing our source code, we need to understand three things:

1) how to write it and where we actually start typing this,

2) how that source code will be converted to machine code;

3) how we actually run it, how we execute our program.

Source:

https://www.lynda.com/Programming-Foundations-tutorials/What-programming-language/83603/90431-4.html

Post-reading:

4. Find the best synonyms of the marked words:

1) Machine code is the real instructions that ***run*** directly on your computer hardware.

   a) jump   b) are executed   c) rules

2) Machine code is not for a ***human being.***

   a) adult   b) child   c) person

3) These languages are trying to ***bridge the gap between*** us and the computer hardware

   a) connect   b) understand   c) ease

4) High-level languages can be slower when ***running.***

   a) writing   b) executing   c) learning

5) Whatever we write it has to be ***converted down*** to machine code before it can run.

   a) transformed   b) replaced   c) performed

5. Match the words with their definitions:

1) programming language	a) a form of interactive multimedia used for entertainment
2) machine code	b) to spend many efforts in vain
3) game console	c) to carry out a process or program on a computer
4) numerical operations	d) program that translates human readable source code into computer language
5) to dig with only tea spoon	e) a computer program that directly executes instructions written in a programming or scripting language, without previously batch-compiling them into machine language
6) to run	f) an artificial language designed to

	communicate instructions to a computer
7) a compiler	g) to perform indicated tasks according to encoded instructions
8) an interpreter	h) any collection of computer instructions written using some human-readable computer language, usually as text
9) source code	i) a set of instructions executed directly by a computer's central processing unit (CPU)
10) to execute a program	j) definite operations made with numbers

6. Mark the sentences with ML if they describe machine language and HL – for high-level languages.

1) Collection of binary digits (or bits) that computer reads and interprets.
2) It is easy to read, to write and maintain
3) It must use interpreter, compiler or translator
4) The only language that computer can understand
5) Length of the program is small
6) This language consists of 0s and 1s
7) It is close to human language
8) It does not need any translator program
9) Machine-dependent
10) Machine-independent

7. *Vocabulary work.* **Write down the following words into your vocabulary. Learn them by heart:**

1) *to exist –*
2) *source code –*
3) *to run on –*
4) *numerical –*
5) *tiny instructions –*
6) *unreadable –*

7) to dig a tunnel –
8) tedious –
9) gap –
10) to share –

Problem-solving:
8. You need to explain how a program works to a non-professional. Explain why there are so many programming languages, the difference between all of them, what language machine can understand, what a source code is and how a programmer creates any code to execute a program.

Writing:
9. Browse the net and prepare the description of programming language of your choice (10 sentences).

Grammar Revision: Modal Verbs.
1. Study the charts:

We use ***must*** and ***mustn't*** for obligations	You *must study* well
	We *mustn't be* late for a lesson
We use ***can*** and ***cannot*** for possibility and ability	I *can use* my laptop but I cannot get an access to the Internet.
We use ***have to*** for something that is necessary	You *have to enter* your password before you log in
We use ***don't (doesn't) have to*** for something that is not necessary	She *doesn't have to do* all the work by herself.

2. Fill in the gaps with *must, mustn't, can, can't, have to, don't have to*.
Model: Source code *must* be converted down to the machine language.
1) I …update my application all the time otherwise it will be deactivated.
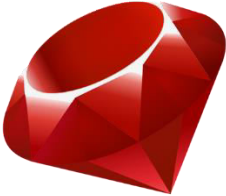
2) Whatever I do I … access this website!
3) You …eat food at your desk or put drinks on a computer.
4) You … have to back up files every day – its automatic.
5) I …log in using my username and my password.
6) I … code in Java but my groupmates …
7) She studied well. Now she … open her own website.
8) Real programmer … be creative.
9) Before it becomes readable for machine it … be compiled.
10)   She isn't very good at programming. She … work on her skills.

Lesson 5. Software Languages Uses.
Grammar Revision: Question Words.

Pre-reading:
1. Can you recognize the logos of popular software languages? Write down their names below the pictures:

A)	B)	C)
D)	G)	E)
F)		I)

2. Find the end of each sentence:
1) I generation: machine language …   used symbols instead of 0s and 1s.

2) II generation: assembly language …	require fewer lines of code, interpreter is used.
3) III generation: high-level languages …	was difficult to use, time-consuming, filled with errors.
4) IV generation: very high-level languages …	a compiler (program translator).

Reading:

3. Read given descriptions of software languages and choose the correct one for the languages in the box.

Software languages

Java	*C*	*C#*	*C++*	*Visual Basic*

(A)_____An advanced programming language used for software application development. Originally developed by Dennis Ritchie at Bell Labs in the 1970's and designed to be a systems programming language but since then has proven itself to be able to be used for various software applications such as business programs, engineering programs, and even games. The UNIX operating system is written in this language.

(B)_____This language is object-oriented. It was developed by Bjarne Stroustrup at Bell Labs and is a very popular language for graphical applications.

(C)_____A language developed by Microsoft based on the BASIC language. It is used for creating Windows applications. The VBScript language (also developed by Microsoft) is based on this language.

(D)_____A powerful and flexible language created by Sun MicroSystems that can be used to create applets (a program that is executed from within another program) that run inside

```
while (alive) {
    eat();
    sleep();
    code();
    repeat();
}
```

webpages as well as software applications. Things you can do with this programming language include interacting with the user, creating graphical programs, reading from files, and more. It is often

confused with JavaScript, but they are two different languages.

(E)_____This language is intended to be a simple, modern, general-purpose, object-oriented programming language. Source code portability is very important, especially for those programmers already familiar with C and C++. This programming language is intended to be suitable for writing applications for both hosted and embedded systems. Although its applications are intended to be economical with regard to memory and processing power requirements, the language was not intended to compete directly on performance and size with C or assembly language.

Source: http://landofcode.com/programming-intro/computer-programming-languages.php

Post-reading:
4. Find the opposites of the following words:

1) create	tough
2) advanced	same
3) powerful	inappropriate
4) flexible	unknown
5) inside	interact
6) different	destroy
7) general-purpose	outside
8) suitable	weak
9) familiar	exclusive
10) compete	elementary

5. Put the letters in order to make words then use them in the sentences:

eatingcr, ectobj-ntedorie, xifleble, esidgedn, calphgrai

1) This language was originally ... to be a systems programming language.
2) It is a very popular language for ... applications.
3) Visual Basic is used for ... Windows applications.
4) Java is a powerful and ... language.
5) C# is intended to be ... .

6. Complete the sentences:
1) C language was developed for ...

2) The function of C++ is …

3) Visual Basic is used for …

4) Java is called … language.

5) … is characterized by fast calculations and complex graphic applications.

6) … allows its program to run on any device.

7. *Vocabulary work.* **Write down the following words into your vocabulary. Learn them by heart:**

1) *create –*
2) *designed –*
3) *developed–*
4) *directly–*
5) *embedded system –*
6) *flexible –*
7) *general-purpose –*
8) *hosted –*
9) *powerful –*
10) *processing power –*

Writing:

8. Do your research and describe software language you prefer the most. Provide some facts from the history of this language (who developed it, when, for what purpose). Give a short description of the syntax of this language. Conclude with the task you intend to implement with it (10 sentences).

Grammar Revision: Question Words.
1. Study the chart:

We use *which* to ask about things	*Which* websites do you often visit?
We use *what* to ask about things	*What* tools do you use in you work?
We use *who* to ask about a person	*Who* is your programming teacher?

We use *why* to ask the reason for something	*Why* do you code in Java?
We use *when* to ask about time	*When* does the program start running?
We use *how many / how much* to ask about quantity. *How many* is used for countable nouns. *How much* is used for uncountable nouns.	*How many* students are working here?
	How much work do you have for tomorrow?

2. Fill in the gaps with the correct question word: *which, what, who, why, when, how many, how much:*
Model:
… language is the most efficient for graphical applications?
Which language is the most efficient for graphical applications?
1) … did you study programming?
2) … time does it take for you to write a code?
3) … developed Java Language?
4) … command should I use to run it?
5) … capital letters are in this line?
6) … does the video keep buffering?
7) … of these three buttons should I press?
8) … does Software Engineering study?
9) … languages can machine understand?
10) … is C difficult to learn?

Lesson 6. Database Systems.
Grammar Revision: Expression of Quantity.

Pre-reading:
1. **Answer the following questions:**
1) What is a database?
2) What does DBMS stands for?
3) What are the capabilities of Database Management System?
2. **Join the words in column A with the words in column B:**

A	B
1) pieces of …	access
2) list of …	failures
3) persistent …	data
4) simultaneous …	storage
5) recover from …	records

Reading:
3. **Read the text. Translate it.**

The World of Database

Often abbreviated *DB,* a database is basically a collection of information organized in such a way that a computer program can quickly select desired pieces of data. You can think of a database as an electronic filing system.

Traditional databases are organized by *fields*, *records*, and *files*. A field is a single piece of information; a record is one complete set of fields; and a file is a collection of records. For example, a telephone book is analogous to a file. It contains a list of records, each of which consists of three fields: name, address, and telephone number.

An alternative concept in database design is known as *Hypertext*. In a Hypertext database, any object, whether it is a piece of text, a picture, or a film, can be linked to any other object. Hypertext databases are particularly useful for organizing large amounts of

disparate information, but they are not designed for numerical analysis.

To access information from a database, you need a ***database management system (DBMS).*** This is a collection of programs that enables you to enter, organize, and select data in a database. There are many different types of DBMSs, ranging from small systems that run on personal computers to huge systems that run on mainframes.

The ***capabilities*** that a DBMS provides the user are:

1) Persistent storage. Like a file system, a DBMS supports the storage of very large amounts of data that exists independently of any processes that are using the data.

2) Programming interface. A DBMS allows the user or an application program to access and modify data through a powerful query language.

3) Transaction management. A DBMS supports concurrent access to data, i.e., simultaneous access by many distinct processes (called «transactions») at once. To avoid some of the undesirable consequences of simultaneous access, the DBMS supports *isolation,* the appearance that transactions execute one at-a-time, and *atomicity,* the requirement that transactions execute either completely or not at all. A DBMS also supports *durability,* the ability to recover from failures or errors of many types.

Author: Gabriel Pound. 17th May, 2016.
Source: http://www.webopedia.com/TERM/D/database.html
Post-reading:
4. Find the English equivalents to the following words:
1) електронна файлова система –
2) набір полів –
3) список записів –
4) мати доступ до інформації –
5) система керування базами даних–
5. Put the letters in order to form words then use them to complete the sentences:
nfilig, cceass, formination, ertHypext, gestora
1) A database is basically a collection of … .

2) You can think of a database as an electronic … system.

3) An alternative concept in database design is known as … .

4) To … information from a database, you need a database management system.

5) DBMS supports the… of very large amounts of data.

6. Match the words with their definitions:

1) data	a) the act or practice of handling, supervision, or control.
2) software	b) a system of interaction between a computer and another entity (a printer, another computer, a network, or a human user)
3) managing	c) data is information, usually in the form of facts or statistics that can be analyzed
4) interface	d) the transmission and processing of an item of data
5) access	e) to obtain or retrieve (information) from a storage device
6) transaction	f) the collection of computer programs that can be used with a particular computer

7. All the statements are false. Correct them:

1) Database is often abbreviated as DS.

2) Traditional databases are organized by cells.

3) Hypertext databases are designed for numerical analysis.

4) A DBMS doesn't allow the user to access and modify data.

5) The ability to recover from failures or errors of many types is called transaction.

8. Complete the following sentences:

1) Databases are organized by …

2) One complete set of fields is called …

3) Hypertext databases are useful for …

4) A collection of programs that enables you to enter, organize, and select data in a database is called …

5) A DBMS also supports durability which means …

9. *Vocabulary work.* **Write down the following words into your vocabulary. Learn them by heart:**

1) *amount of data –*
2) *failure –*
3) *persistent storage –*
4) *query language –*
5) *simultaneous access –*
6) *to avoid –*
7) *to execute –*
8) *to select –*
9) *to support –*
10) *transaction management –*

Problem-solving:
10. Browse the net and draw a scheme of how the database components are connected and interrelated to each other. Explain the algorithm of data transferring.

Writing:
11. Write an annotation to this text according to the following plan:

I. Title:	*The title of the article (material) is… The head-line of the article (material) is…*
II. Author:	*The author of the given article is… The material is written by…*
III. Source:	*The article was published in "The Times", 7th June, 2005. The source of the material is…*
IV. What the text is about:	*The plot of the article is… The article is about…*
V. Text	*At first (Firstly) the author gives*

structure:	*information about…*
	Then the narrator writes about…
	Finally he/she concludes that…
VI. Target audience:	*The article is written (prepared) mostly for…*
	It is going to be interesting for…

Grammar Revision: Expression of Quantity.
1. Study the chart:

| We use *many* and *few* with countable nouns: | I have *many* flesh cards. Even *few* mistakes can disable a program. |
| We use *much* and *little* with uncountable nouns: | There is too *much* space on the web page. Mary makes *little* progress in programming. |

2. Write C (countable) and U (uncountable):

device …   time …
data …   success …
information …   problem …
progress …   mistake …
minute …   line …

3. Complete the sentences with *much* or *many*:
Model:
Scientists have … problems to solve.
Scientists have *many* problems to solve.
1) I have … time to complete the program.
2) She always makes … mistakes in her code.
3) … data has been lost, we can't restore it.
4) With this new system we will make … success.
5) This table has … columns, delete them.
4. Complete the sentences with *few* or *little*:
Model:
There is … information in the base.
There is *little* information in the base.

1) Last century … devices were developed.
2) The processing will take … minutes.
3) Why does this code contain so … lines?
4) The research team has been working but they reached … progress.
5) Unfortunately this machine has … power.

Lesson 7. A New Word in Software World.
Grammar Revision: Adverbs of Frequency.

*Pre-reading***:**
1. Can you name the taste that the following products have?
Define the taste of each: *salty, sweet, bitter, sour, minty, spicy*.

a)	b)	c)
d)	e)	f)

2.Match the words in column A with the words in column B:

A	B
1) digital	signals
2) electrical	sensation
3) to transmit	device
4) taste	environment
5) gaming	stimulation

Reading:
3. Read the text. Choose the right word from the brackets.
Translate the text.

Virtual taste online?

Online viewing and 1 … *(hearing, listening)* are now new of those who live the 2 … *(digital, numeral)* life. But online tasting? This may be happening sooner than one 3 … *(waits, expects)*, with a simulator invented by an engineer with the Keio-NUS CUTE Center at NUS.

The brainchild of Dr Nimesha Ranasinghe, Researcher at the Center who led the project, the digital device can recreate the taste of virtual 4 … *(meal, food)* and drinks by non-invasive electrical and 5 … *(temperature, thermal)* stimulation of the tongue. This generates signals transmitted through a silver electrode touching the tip of the 6 … *(language, tongue)* to produce salty, sweet, sour and bitter sensations. By combining different levels of electrical 7 … *(currents, streams)* and varying the temperature of the electrode, simulation of the tastes can be reproduced.
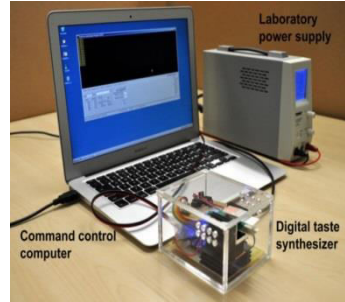
From experiments, sour, salty and bitter sensations are reported from electrical stimulation, while minty, spicy and sweet sensations are reported through thermal stimulation. The research team developed taste-over-Internet protocol for taste messaging, a 8 … *(data, news)* format that facilitates the delivery of information on recreating the different tastes via the electrode.

Dr Ranasinghe said that a new reward system is based on taste sensations in a gaming environment could be an early adopter of the simulator. As an illustration, if a gamer completes a task or level successfully, a sweet or minty dose will be rewarded. However, 9 … *(mistake, failure)* is delivered with a bitter taste.

The simulator could have healthcare applications. For instance, diabetics could use the 10 … *(device, mechanism)* for a taste of sweetness without affecting their blood sugar levels.

However, the four major tastes form only part of the flavour equation. Smell and texture play key roles, which the researchers want to add on for the full tasting experience.

Source: https://www.sciencedaily.com/releases/2014/01/140102114807.htm
Post-reading:
4. Match the words with their definitions:

1) digital	non-interventional, without penetration the body
2) non-invasive	an irritating of agents on muscles or

	nerves
3) to transmit	representing data as a series of numerical values
4) stimulation	the net movement of electrons along a conducting medium
5) electrical current	to transfer data electronically

5. Rearrange the words to get the right sentences:

1) device / of / virtual / recreate / The / taste / can / digital / the / food

2) and / sensations / bitter / Sour, / from / are / electrical / stimulation / salty / reported

3) with / is / a / bitter / taste / delivered / Failure

4) could / healthcare / have / The / applications / simulator

5) want / to / texture / add / and / researchers / smell / The

6. Decide if the statements are true or false. Correct the false ones:

1) Online tasting is new as well as online viewing and listening.

2) The digital device recreates virtual taste by non-invasive electrical thermal stimulation of the tongue.

3) Different tastes can be produced by combining different levels of electrical current.

4) Thermal stimulation provides bitter, sour and salty sensation.

5) The team wants to develop taste messaging in the future.

6) Taste-over-Internet protocol facilitates the delivery of information on recreating the different tastes via the electrode.

7) The example of this device implementation can be observed in game industry.

8) The taste stimulator device can be used in healing diabetics.

9) The researchers plan to add other tastes to their experience.

10) The investigations were made by the scientists from Malaysian University.

7. *Vocabulary work.* **Write down the following words into your vocabulary. Learn them.**

1) application –

2) delivery –
3) digital –
4) failure –
5) non-invasive –
6) to be reported –
7) to generate signals
8) to reproduce –
9) to transmit –
10)   virtual –

Problem-solving:
8.   Virtual Taste online is not a fantasy any more. Imagine what will be the next step in technology. Create your own device that extends one of human sensations or even interacts with the brain. Describe its hardware components, software, how they work and its application in modern life.

Writing:
9.   Find out more devices that have been developed recently. Provide their description and application. Define if it is a useful invention for the mankind.

Grammar Revision: Adverbs of Frequency
1.   Study the chart:

We use adverbs of frequency *(usually, sometimes, hardly, ever, never*) before the main verb.	I *always* update my programs. John installed the application but he *hardly* uses it.
Some adverbs *(sometimes, occasionally, normally)* can also go at the beginning or at the end of the sentence.	*Normally* it doesn't require an anti-virus program
Time expressions	I visit this website *two or three*

(once a week, from time to time, all the time) go at the end of a sentence	*times in a month*.

2. Answer the following questions using adverbs of frequency:

Model:

Do you enjoy writing code? – *Sometimes* I do.

1) Do you go the scientific websites?
2) Do you read books on programming?
3) Do you update your programs?
4) Do you reinstall your operating system?
5) Does your teacher miss the lessons**?**

3. Answer the following questions using time expressions:

Model:

–How often do you ask your teacher to help you?

–I ask my teacher from time to time.

1) How often do you read articles on programming?
2) How often do you edit your code?
3) How often do you use Microsoft Office Suite?
4) How often do you check your e-mail box?
5) How often do you play computer games?

UNIT 3. THE INTERNET

Lesson 1. Network of Networks.
Grammar Revision: The Future Simple tense.

Pre-reading:
1. Read the text and answer the questions:
1) What is the Internet?
2) Why was the Internet designed?
3) What is IP?
4) What type of information resources and services does the Internet carry?
5) What was the name of the primary precursor network of the Internet?
6) How are traditional communications media being reshaped by the Internet?
7) What industry was the fastest growing segment on the Internet?

Reading:
1. Read the text:

The Internet

1 The **Internet** is the global system of interconnected computer networks that use the Internet protocol suite (TCP/IP) to link devices worldwide. It is a network of networks that consists of private, public, academic, business, and government networks of local to global scope, linked by a broad array of electronic, wireless, and optical networking technologies. The Internet carries an extensive range of information resources and services, such as the inter-linked hypertext documents and applications of the World Wide Web (WWW), electronic mail, telephony, and peer-to-peer networks for file sharing.

2 The origins of the Internet date back to research of the United States federal government in the 1960s to build robust, fault-tolerant communication via computer networks. The primary

precursor network, the ARPANET, initially served as a backbone for interconnection of regional academic and military networks in the 1980s. The linking of commercial networks and enterprises by the early 1990s marks the beginning of the transition to the modern Internet, and generated a sustained growth as generations of institutional, personal, and mobile computers were connected to the network. Although the Internet was widely used by academia since the 1980s, the commercialization incorporated its services and technologies into virtually every aspect of modern life.

3   Internet use grew rapidly in the West from the mid-1990s and from the late 1990s in the developing world. Since 1995, Internet use has grown 100-times, to over one third of the world population. Most traditional communications media, including telephony, radio, television, paper mail and newspapers are being reshaped or redefined by the Internet, giving birth to new services such as email, Internet telephony, Internet television music, digital newspapers, and video streaming websites. Newspaper, book, and other print publishing are adapting to website technology, or are reshaped into blogging, web feeds and online news aggregators. The entertainment industry was initially the fastest growing segment on the Internet. The Internet has enabled and accelerated new forms of personal interactions through instant messaging, Internet forums, and social networking. Online shopping has grown both for major retailers and small businesses and entrepreneurs, as it enables firms to extend their presence to serve a larger market or even sell goods and services entirely online.

4   The Internet has no centralized governance in either technological implementation or policies for access and usage. Future belongs to the Internet and new revolutionary technologies in computer industry.

Source: https://en.wikipedia.org/wiki/Internet

Post-reading:

2. Fill in the gaps in this text. Each clue is an anagram. The first and the last letters are correct.

The Internet is generally defined as a … (gablol) network connecting millions of … (crtmopues). More than 190 countries are

linked into exchanges of data, news and opinions. Unlike online services, which are centrally controlled, by design, the Internet is decentralized. Each Internet computer, called a host, is … (iddedpneennt). Operators can choose which Internet … (srvciees) to use and which local services to make … (aallviabe) to the global Internet community.

3. Decide if the statements are true or false Correct the false ones:

1) The Internet is a local network to link devices in one and the same area.

2) The Internet carries an extensive range of information resources and services.

3) The ARPANET initially served as a backbone for interconnection of worldwide academic and military networks in the 1980s.

4) Internet use grew rapidly in the West from the mid-1990s and from the late 1990s in the developing world.

5) The military industry was initially the fastest growing segment on the Internet.

6) The Internet has no centralized governance in either technological implementation or policies for access and usage.

4. Find words in the text which mean:

1) expressed as series of the digits 0 and 1, typically represented by values of a physical quantity such as voltage or magnetic polarization

2) the act of posting content on a blog (a Web log or online journal)

3) a set of related web pages located under a single domain name

4) having all constituent parts linked or connected

5) a person or thing that comes before another of the same kind; a forerunner

6) a system of computer devices interconnected so that information and resources can be shared by a large number of users

7) the use of dedicated websites and applications to interact with other users, or to find people with similar interests to one's own

5. Match these words and phrases with their definitions:

1) interconnected	a) to maintain or add new entries to a blog
2) hypertext	b) a network of personal computers, each of which acts as both client and sever, so that each can exchange files and email directly
3) peer-to-peer network	c) a method of storing data through a computer program that allows a user to create and link fields of information at will
4) to reshape	d) to become interrelated
5) blogging	e) to shape again or into different form
6) entertainment	f) something affording pleasure, diversion, or amusement, especially a performance of some kind

6. *Vocabulary work.* **Write down the following words into your vocabulary. Learn them by heart:**

1) *extensive –*
2) *to share –*
3) *robust –*
4) *fault-tolerant –*
5) *precursor –*
6) *transition –*
7) *virtually –*
8) *aggregator –*
9) *to enable –*
10) *to accelerate –*
11) *implementation –*

Problem-Solving:

Visit your favourite website. Take notes on any special features. Evaluate it using the plan:

1   Design

2   *Navigation*
3   *Ease of use*
4   *Accuracy*
5   *Up-to-date*
6   *Helpful graphics*
7   *Compatibility*

Make a short presentation on what makes your favourite website so special.

Writing:
7. Make up a short annotation to the text "The Internet*"* *(see the plan – Lesson 6, Unit 2).*

Grammar Revision: The Future Simple tense.
We use Future Simple to talk about plans for the future, when we believe, think or know that something will happen. We use **will** + infinitive without *to*.

1. Change the following sentences from affirmative to negative*:*
Model: I'll do that tomorrow. – I won't do that tomorrow.
1. I'll finish this work tomorrow. 2. As I am too tired to walk home, I'll get a taxi. 3. The company will provide Internet access to all the employees. 4. The new system will have a firewall. 5. He will do the security checks on Friday. 6. She will find a lot of changes when she returns.

2. Change the sentences above to the questions:
Model: I'll do that tomorrow. – Will you do that tomorrow?

Lesson 2. Internet security. Computer malware.
Grammar Revision: The Past Simple tense.

Pre-reading:
1. Answer the following questions:

1) What is a computer virus?
2) Why are computer viruses called viruses like biological ones?
3) What are the main threats for a user in the Internet?

Reading:
2. Read the text to check your answers to exercise 1:
Computer Malware

1 When you listen to the news, you hear about many different forms of electronic infection. The most common are:

2 **Viruses**: A virus is a small piece of software that adjoins real programs. Almost all viruses are attached to an executable file, which means the virus may exist on your computer but it actually cannot infect your computer unless you run or open the malicious program. For example, a virus might attach itself to a program such as a spreadsheet program. Each time the spreadsheet program runs, the virus runs, too, and it has the chance to reproduce (by attaching to other programs) or cause destruction.

3 **E-mail viruses**: An e-mail virus travels as an attachment to e-mail messages, and usually replicates itself by automatically mailing itself to dozens of people in the victim's e-mail address book. Some e-mail viruses don't even require a double-click – they launch when you view the infected message in the preview.

4 **Trojan horses**: A Trojan horse is simply a computer program. The program claims to do one thing (it may claim to be a game) but instead does damage when you run it (it may erase your hard disk). Trojan horses have no way to replicate automatically.

5 **Worms**: A worm is a small piece of software that uses computer networks and security holes to replicate itself. A copy of the worm scans the network for another machine that has a specific

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security hole. It copies itself to the new machine using the security hole, and then starts replicating from there, as well.

6 Computer viruses are called viruses because they share some of the traits of biological viruses. A computer virus passes from computer to computer like a biological virus passes from person to person.

Source: http://computer.howstuffworks.com/virus.htm

3. Using the paragraph references given, look back in the text and find words or phrases with a similar meaning to:

a) general (1)
b) replicate (2)
c) joining (2)
d) demand (3)
e) harm (4)
f) safety (5)
g) divide (6)

4. *Using the paragraph references given, look back in the text and find words or phrases with an opposite meaning to:*

a) similar (1)
b) restoration (2)
c) manually (3)
d) create (4)
e) danger (5)
f) duplicate (5)

Post-reading:

5. Decide if the statements are true or false. Correct the false ones:

1) A virus is a small piece of hardware that adjoins real programs.

2) An e-mail virus replicates itself by automatically mailing itself to dozens of people in the victim's apartment by ordinary mail.

3) A Trojan horse may erase your hard disk.

4) Trojan horses replicate themselves automatically.

5) Worms have no way to replicate automatically.

6) Computer viruses are called viruses because they were called after Ahmed Virus.

6. These are the answers to questions about the text. Write the questions:

1) A virus is a small piece of software that adjoins real programs.

2) Some e-mail viruses don't even require a double-click

3) Trojan horse does damage when you run it (it may erase your hard disk).

4) A worm starts replicating from there.

5) Computer viruses are called viruses because they share some of the traits of biological viruses.

7. *Vocabulary work*. **Write down the following words into your vocabulary. Learn them by heart:**

1) to adjoin –
2) to replicate –
3) to reproduce –
4) destruction –
5) to attach –
6) to erase –
7) worm –
8) spreadsheet –

Problem-Solving:
8. Make up a short story "Checking your own security" using the words and word combinations:

eating, drinking, smoking, extreme temperatures, to clean, backup copies, install software, viruses.

Writing:
9. Compose a short description of the virus you once got on your computer (10 sentences).

Grammar Revision: The Past Simple tense.
We use Past Simple to talk about finished actions in the past. Regular verbs usually add *–ed*. Irregular verbs have their own Past

Simple forms. We use *did/didn't* plus infinitive in questions and negative forms. *I start**ed** the network last year. **Did** you **start** your network last year? We **didn't take** part in the video conference yesterday.*

1. Change the following sentences from affirmative to negative:

Model: I checked the formulae in the spreadsheet. – I didn't check the formulae in the spreadsheet.

1. She saved it in another folder by mistake. 2. He found one mistake in the spreadsheet. 3. He discussed this problem with the manager. 4. Mr. White corrected the mistake. 5. He chose the wrong formula. 6. The secretary warned us about it.

2. Change the sentences above to questions.

Model: I checked the formulae in the spreadsheet. – Did you check the formulae in the spreadsheet?

Lesson 3. Different Types of Malware.
Grammar Revision: The Present Perfect tense.

Reading:
1.Read the text and find answers to these questions:
1) How do worms travel from one computer to another?
2) What is the typical way of spreading for a worm?
3) Do Trojans copy themselves like viruses?
4) What do you know about a botnet? What is it used for?
5) What is malware?
6) What type of malware can be called the most powerful one?
7) What is spyware?

Worms

Just like regular worms tunnel through dirt and soil, computer worms tunnel through your computer's memory and hard drive. A computer worm is a type of virus that replicates itself, but does not alter any files on your machine. However, worms can still cause havoc by multiplying so many times that they take up all your computer's available memory or hard disk space. If a worm consumes your memory, your computer will run very slowly and possibly even crash. If the worm affects your hard disk space, your computer will take a long time to access files and you will not be able to save or create new files until the worm has been eradicated.

Worms are hard to detect because they are typically invisible files. They often go unnoticed until your computer begins to slow down or starts having other problems. Unlike viruses and Trojan horses, worms can replicate themselves and travel between systems without any action from the user. For these reasons, it is good to have an antivirus program installed on your system that can detect and remove worms before they have a chance to replicate or spread to other computers. So keep your security updates and virus definitions up-to-date and you should be able to keep your computer worm-free.

Source: https://techterms.com/definition/worm

Trojans

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Like the wooden horse that was used to fool the people of Troy into letting the Greeks in, malware Trojans allow other people to gain access to your devices. Like a virus or a worm, a Trojan can run code that will damage or otherwise alter a device and its data. However, most Trojans are designed to open a back door into a system that a hacker can use to control and manipulate the device.

Unlike viruses and worms, Trojans don't copy themselves or attempt to spread to multiple computers. They are generally contained in a disguised file that depends on the user to activate it.

Bots: When Robots Rule the World

Bots are automated programs that carry out a specific process. There are many legitimate bots that help the Internet run smoothly, such as the Googlebot. However, bots can also be used to carry out more dubious processes, such as infecting unprotected computers and adding them to a malicious bot network (botnet).

By remotely controlling a number of computers, the individual running the botnet can carry out many different types of attacks. For example, bots can steal data from the infected computer, including the user's contacts, passwords and other private information. Computers infected by bots may also become nodes for spreading spam, malware and other nasty surprises to other users. And finally, bots can use the infected network to launch denial-of-service attacks and other large-scale attacks. Bots are perhaps the most powerful type of malware in that they can be spread in many different ways and can attack using multiple methods.

Spyware: I Am Looking At You Right Now

Spyware doesn't attack your computer. Spyware collects information from your computer and sends it back to the program's creator, so he or she can log in to your bank account or sell your personal information. Spyware is most often disguised as a free program to carry out another function, or it may be packaged with a legitimate piece of software.

Source: https://www.techopedia.com/2/27528/security/malicious-software-worms-trojans-and-bots

2.Match the words with their definitions:

1) spyware   a) to open to attack or damage

2) malicious   b) any software that covertly gathers user information through the user's Internet connection without his or her knowledge, usually for advertising purposes

3) bot   c) to become transmitted and copied to

             d) having or showing a desire

4) vulnerable   e) to cause harm to someone unsolicited

5) to infect   f) usually commercial e-mail sent to a large number of addresses

6) spam   g) a computer that controls communications in a network or that administers a database

7) host   h) short for *robot*, a computer program that runs automatically

3.Tick the correct sentence:

1)

a) Like viruses and Trojan horses, worms can replicate themselves and travel between systems without any action from the user.

b) Unlike viruses and Trojan horses, worms can replicate themselves and travel between systems without any action from the user.

c) Unlike viruses and Trojan horses, worms can not replicate themselves and travel between systems without any action from the user.

2)

a) A computer bot is a type of virus that replicates itself, but does not alter any files on your machine.

b) A computer worm is a type of virus that replicates itself, but does not alter any files on your machine.

c) A computer worm is a type of virus that replicates itself and alter files on your machine.

3)

a) Spyware collects information from your computer and sends it back to the program's creator.

b) Spyware collects information from your computer, alter it

and sends it back to the program's creator.

c) Spyware steals information from your computer and sends it to your friends.

Post-reading:

4.Cross out the odd word:

1) damage, harm, alter, fix
2) replicate, copy, reproduce, carry out
3) nasty, harmful, troublesome, smooth
4) to control, to examine, to alter, to check

5.Fill in the gaps with the suitable words:

malware, a user, spyware, havoc, protective, data, anti-virus, malicious, files

Common examples of … include viruses, worms, trojan horses, and … . Viruses, for example, can cause … on a computer's hard drive by deleting … or directory information. Spyware can gather … from a user's system without the user knowing it. This can include anything from the Web pages a user visits to personal information, such as credit card numbers.

It is unfortunate that there are software programmers out there with malicious intent, but it is good to be aware of the fact. You can install … and anti-spyware utilities on your computer that will seek and destroy the … programs they find on your computer. So join the fight against badware and install some … utilities on your hard drive!

6.Look at the word snake. Find the title of the text:

SpywareuyertIasdmnhamnbfhgdtrylookingystdreatmngftraeyo ujhseporightmnnow

7. *Vocabulary work.* **Write down the following words into your vocabulary. Learn them by heart:**

1) *to tunnel –*
2) *malicious –*
3) *legitimate –*
4) *to launch*
5) *smoothly –*

6) dubious –
7) to gain –
8) to cause –
9) vulnerable –
10) to disguise –

8. Read the text and translate it using the definitions of the words:

1) revenue –	the income that a business has from its normal business activities, usually from the sale of goods and services to customers
2) legitimate –	allowed by law; reasonable and acceptable
3) adware –	software that automatically puts advertisements onto a computer screen when a person is using the internet
4) to inject –	to put a drug into someone's body using a needle
5) to facilitate –	to make something possible or easier
6) to weaken –	to become less strong or powerful, or to make someone or something less strong or powerful
7) to gain –	to get something useful or positive
8) scam –	an illegal plan for making money

Investigation Finds 75 Percent of Organizations Affected by Adware Infections
(Cisco Annual Cybersecurity report 2017)

Adware, when used for legitimate purposes, is software that downloads or displays advertising through redirections, pop-ups, and ad injections and generates revenue for its creators. However, cybercriminals are also using adware as a tool to help increase their revenue stream. They use malicious adware not only to profit from injecting advertising, but also as a first step to facilitate other malware campaigns, such as DNSChanger malware.

Malicious adware is delivered through software packets; publishers create one installer with a legitimate application along with dozens of malicious adware applications. Bad actors use adware to:

● Inject advertising, which may lead to further infections

● Change browser and operating system settings to weaken security

● Break antivirus or other security products

● Gain full control of the host, so they can install other malicious software

● Track users by location, identity, services used, and sites commonly visited

● Steal information such as personal data, credentials, and infrastructure information (for example, a company's internal sales pages).

To assess the scope of the adware problem for enterprises, Cisco threat researchers examined 80 different adware variants. About 130 organizations across verticals were included in our investigation, which took place from November 2015 to November 2016.

We categorized the adware into four groups, based on the primary behavior of each component:

● **Ad injectors:** This adware usually resides in the browser and can affect all operating systems.

● **Browser-settings hijackers:** This adware component can change computer settings to make the browser less secure.

● **Utilities:** This is a large and growing category of adware. Utilities are web applications that offer a useful service to users, such as PC optimization. These applications can inject advertising, but their primary purpose is to convince users to pay for the service. However, in many cases, utilities are nothing more than scams and provide no benefits to users.

● **Downloaders:** This adware can deliver other software, such as a toolbar.

We determined that 75 percent of the organizations in our study were affected by adware infections.

All the adware components we identified during our investigation can place users and organizations at risk for malicious activity. Security teams must recognize the threat that adware infections pose and make sure that users in the organization are fully aware of the risks.

Source: www.b2me.cisco.com/en-us-annual-cybersecurity-report-2017

9. Answer the questions:

1) What is adware?
2) What can adware be used by the cybercriminals for?
3) What are the four groups of adware, categorized by Cisco?
4) How many organizations were affected by adware infections (according to the Cisco report 2017)?

Problem-Solving:
10. Make up a summary of the text "Investigation Finds 75 Percent of Organizations Affected by Adware Infections".

Writing:
11. Browse the Web and compose a short essay on DNSChanger and what you know about it (10 sentences).

Grammar Revision: The Present Perfect tense.
We use the Present Perfect tense to talk about the recent actions. They are actions that have happened in the past and have a result in the present. We use **have/has** and the *Past Participle* of the verb. The Past Participle of the regular verbs have endings *–ed*.
1. Use the Present Perfect to make positive or negative sentences:
*Model: I /not /upgrade /the operating system – I **haven't upgraded** the operating system.*
1) I/defragment/your drive.
2) She/not/install/the applications.
3) They /not/change/the Internet provider.
4) He/open/the file.
5) We/not/install/the updates.
6) I/delete/ all the information from the disk.
7) The computer/stop/working.
8) I/not/charge/the battery.
2. Complete these sentences in any way you like.
Model: I've always been interested in music.
1) I've always…
2) I've often….
3) All my life I have…

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4) I've known…
5) I've had my… since...
6) I've …times this year.
7) I've lived…
8) I've never lived…

Lesson 4. Antivirus Software.
Grammar Revision: Present Perfect vs. Past Simple.

Pre-reading:
1.Before reading the text, match the words and definitions listed below:

1)	threat	a)	someone who can gain unauthorized access to other computers
2)	hacker	b)	free software that is supported by advertisements
3)	adware	c)	a barrier between a trusted system or network and outside connections, such as the Internet
4)	installer	d)	a data structure that stores organized information
5)	firewall	e)	this program unpacks compressed data and writes new information to your hard drive
6)	database	f)	a possible danger that might exploit a vulnerability to breach security and therefore cause possible harm
7)	rootkit	g)	a software program designed to provide a user with administrator access to a computer without being detected

Reading:
2. Read the text and try to answer these questions:
1) What is antivirus software?
2) What is a hacker?
3) Is antivirus software able to protect your computer against any other types of malware?

Now that you know about all the threats, how do you protect yourself?

It's pretty simple: don't open email attachments from people you don't know, and don't click on links from strangers. The limitation on viruses is that they have to be spread through infected files. In the vast majority of cases, a user must open the file to activate the virus.

The second thing you can do is always have up-to-date antivirus software on your computer. The term "anti-virus" is getting somewhat dated. Most packages will protect you not just against viruses, but also other threats like worms and Trojans, but also spyware. There are many options out there both free and paid, that will give you solid protection from the vast majority of threats.

Most antivirus programs include both automatic and manual scanning capabilities. The automatic scan may check files that are downloaded from the Internet, discs that are inserted into the computer, and files that are created by software installers. The automatic scan may also scan the entire hard drive on a regular basis. The manual scan option allows you to scan individual files or your entire system whenever you feel it is necessary.

Since new viruses are constantly being created by computer hackers, antivirus programs must keep an updated database of virus types. This database includes a list of "virus definitions" that the antivirus software references when scanning files. Since new viruses are frequently distributed, it is important to keep your software's virus database up-to-date. Fortunately, most antivirus programs automatically update the virus database on a regular basis.

While antivirus software is primarily designed to protect computers against viruses, many antivirus programs now protect against other types of malware, such as spyware, adware, and rootkits as well. Antivirus software may also be bundled with firewall features, which helps prevent unauthorized access to your computer. Utilities that include both antivirus and firewall capabilities are typically branded "Internet Security" software or something similar.

While antivirus programs are available for Windows, Macintosh, and Unix platforms, most antivirus software is sold for Windows systems. This is because most viruses are targeted towards Windows computers and therefore virus protection is especially important for Windows users. If you are a Windows user, it is smart to have at least one antivirus program installed on your computer. Examples of common antivirus programs include Norton Antivirus, Kaspersky Anti-Virus, and ZoneAlarm Antivirus.

Finally, keeping your OS and your antivirus system up-to-date is often enough to keep the malware out. Companies like Microsoft that make operating systems work very hard to keep on top of any new threats. You might not notice anything different while using a PC after a Windows update, but know that there are significant updates that serve to plug any newly discovered security holes.

Source: https://techterms.com/definition/antivirus

3. Read the text again and choose the right answer:

1) Antivirus software
a) will protect you just against viruses.
b) will protect you not just against viruses, but also other threats like worms, Trojans and also spyware.
2) Most antivirus programs include
a) both automatic and manual scanning capabilities.
b) only automatic scanning capabilities.
3) Most antivirus programs
a) automatically update the virus database on a regular basis.
b) must be manually updated on a regular basis.
4) Most antivirus software is sold for
a) Windows systems.
b) Macintosh and Unix platforms.
5) The automatic scan may
a) scan the entire hard drive on a regular basis.
b) scan individual files or your entire system whenever you feel it is necessary.

Post-reading:

4. Identify what the Internet crimes sentences (1–6) refer to. Then match them with the advice below (a–f).

1) Crackers try to find a way to copy the latest game or computer program.
2) A study has revealed that half a million people will automatically open an email they believe to be from their bank and happily send off all their security details.
3) This software's danger is hidden behind an attractive appearance. That's why it is often wrapped in attractive packages promising photos of celebrities like Jennifer Lopez or Julia Roberts.

4) There is a particular danger in Internet commerce and emails. Many people believe they have been offered a special gift only to find out later they have been deceived.

5) "Nimda" spreads by sending infected emails and is also able to infect websites, so when a user visits a compromised website, the browser can infect the computer.

6) Every day, millions of children spend time in Internet chat rooms talking to strangers. But what many of them don't realize is that some of the surfers chatting with them may be sexual predators.

a) People shouldn't buy cracked software or download music illegally from the Internet.

b) Be suspicious of wonderful offers. Don't buy if you aren't sure.

c) It's dangerous to give personal information to people you contact in chat rooms.

d) Don't open attachments from people you don't know even if the subject looks attractive.

e) Scan your email and be careful about which websites you visit.

f) Check with your bank before sending information.

Source: Esteras S.R., Fabre E.M. Professional English in Use: Computers and Internet.

5. Complete some word partnerships and expressions from the text by matching the words on the left with the correct word on the right:

Model: antivirus software

1)	**antivirus**	capabilities
2)	antivirus	scan
3)	virus	**software**
4)	unauthorized	installer
5)	automatic	protection
6)	email	access
7)	vast	attachment
8)	firewall	program
9)	software	hole
10)	security	majority

6. Complete the sentences by using a term from the text. Then write the words in the puzzle.

1) A computer … can infect your files and corrupt your hard disk.

2) In order to install new software on your computer, you often need to run an … program.

3) … software is a type of utility used for scanning and removing viruses from your computer

4) A … is a device which allows limited access to an internal network from the Internet.

5) Common … programs are toolbars that sit on your desktop.

6) … is a series of operating systems developed by Microsoft.

7) Hundreds of … break into computer systems every year.

8) The … scan may also scan the entire hard drive.

1	v	**i**	r	u	s				
2	i	**n**	s	t	a	l	l	e	r
3	a	n	**t**	i	v	i	r	u	s
4	f	i	r	**e**	w	a	l	l	
5	a	d	w	a	**r**	e			
6	w	i	**n**	d	o	w	s		
7	h	a	c	k	**e**	r			
8	a	u	**t**	o	m	a	t	i	c

7. Find words or phrases in the text which mean:
1) illegal, unapproved, wrongful
2) become obsolete, show signs of age
3) modern, contemporary
4) defend, preserve
5) someone proficient at computers

8. *Vocabulary work.* **Write down the following words into your vocabulary. Learn them by heart:**

1) to design –
2) to download –
3) common –
4) significant –
5) smart –
6) available –
7) a threat –
8) to spread –
9) to target –
10) a rootkit –

Problem-Solving:

9. Carry out a research on antivirus software. Access the websites of the major antivirus companies. Find out what their research centres are doing. Make a report (10 sentences).

Writing:

10. Describe your own security on the Internet. What antivirus software do you use to protect your computer and your personal information? (10 sentences).

Grammar Revision: Present Perfect vs. Past Simple

We use the Present Perfect when the time period we are thinking about is not finished. We use *yet* if we expected the action to happen before speaking but it didn't. We use *already* if we expected the action later but it happened early.

***Have** you **installed** the software? No, I **haven't**. I **haven't** finished the program yet. I **have** already **recharged** the battery.*

We use the Past Simple for completed actions in a finished time in the past. *I **repaired** the computer last week. **Did** you **repair** the computer last week? I **didn't repair** the computer last week.*

1. Choose the correct form:

*Model: I (**haven't seen**/ ~~didn't see~~) much of him.*

1   I (*haven't checked/didn't check*) the manual yet.
2   I (*have done/did*) a lot of stupid things in my life.
3   She (*has contacted/contacted*) support yesterday.

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4   When (*have you got/did you get*) married?

5   I'm sorry. I (*haven't reinstalled/didn't reinstall*) the software yet.

6   I (*have often wondered/often wondered*) what he does for a living.

7   He (*has not had/did not have*) time to finish the repair.

2. Are the underlined parts of these sentences right or wrong? Correct the ones that are wrong.

Model:

1. Do you know about Sue? <u>She's given up</u> her job. – RIGHT.

2. The Chinese <u>have invented</u> printing. – WRQNG: The Chinese invented printing.

3 How many plays <u>has Shakespeare written?</u>

4 <u>Have you read</u> any of Shakespeare's plays?

5 Aristotle <u>has been</u> a Greek philosopher.

6 Ow! <u>I've cut</u> my finger. It's bleeding.

7 My grandparents <u>have got</u> married in London.

8 Where <u>have you been born?</u>

9 Mary isn't at home. <u>She's gone shopping.</u>

Lesson 5. Hackers or Crackers?
Grammar Revision: Present Perfect – situations 'up to now'.

Pre-reading:
1. Complete the text by replacing the underlined words with the corresponding ones from the list:
   Clever, capable, hacker, solution, to crack, maliciously, expert
Eric Raymond, compiler of The New Hacker's Dictionary, defines a hacker as a smart programmer. A "good hack" is a clever answer to a programming problem and "hacking" is the act of doing it. Raymond lists five possible characteristics that qualify one as a cracker:

*   A person who enjoys learning details of a   programming language or system
*   A person who enjoys actually doing the programming rather than just theorizing about it
*   A person able of appreciating someone else's hacking
*   A person who picks up programming quickly
*   A person who is a master at a particular programming language or system, as in "UNIX hacker"

Raymond disapproves of the use of this term for someone who attempt to break open someone else's system or otherwise uses programming or expert knowledge to act nastily. He prefers the term 'cracker' for this meaning.
Source: http://searchsecurity.techtarget.com/definition/hacker.
Reading:
2.   Match the titles 1–7 with the paragraphs a–g:
1) How are computer hackers and predators a threat to computer security?
2) How do computer hackers and predators find me?
3) What can computer hackers and predators do to me?
4) How will I know?
5) What can I do about computer hackers and predators?
6) To protect your computer from hackers and predators:
7) Take these steps to protect your computer from hackers right

away:

Computer Hackers and Predators

a   People, not computers, create computer threats. Computer predators victimize others for their own gain. Give a predator access to the Internet – and to your PC – and the threat they pose to your security increases exponentially. Computer hackers are unauthorized users who break into computer systems in order to steal, change or destroy information, often by installing dangerous malware without your knowledge or consent. Their clever tactics and detailed technical knowledge help them access information you really don't want them to have.

b   Anyone who uses a computer connected to the Internet is susceptible to the threats that computer hackers and predators pose. These online villains typically use phishing scams, spam email or instant messages and bogus Web sites to deliver dangerous malware to your computer and compromise your computer security. Computer hackers can also try to access your computer and private information directly if you are not protected with a firewall. They may also monitor your chat room conversations or peruse your personal Web page. Usually disguised with a bogus identity, predators can lure you into revealing sensitive personal and financial information, or much worse.

c   While your computer is connected to the Internet, the malware a hacker has installed on your PC quietly transmits your personal and financial information without your knowledge or consent. Or, a computer predator may pounce on the private information you unwittingly revealed. In either case, they may:

- Hijack your usernames and passwords
- Steal your money and open credit card and bank accounts in your name
- Ruin your credit
- Request new account Personal Identification Numbers (PINs) or additional credit cards
- Make purchases
- Add themselves or an alias that they control as an authorized user so it's easier to use your credit

- Obtain cash advances
- Use and abuse your Social Security number
- Sell your information to other parties who will use it for illicit or illegal purposes

Predators can pose a serious physical threat. Use extreme caution when agreeing to meet an online "friend" or acquaintance in person.

d Check the accuracy of your personal accounts, credit cards and documents. Are there unexplained transactions? Questionable or unauthorized changes? If so, dangerous malware installed by predators or hackers may already be lurking.

e When you arm yourself with information and resources, you're wiser about computer security threats and less vulnerable to threat tactics. Hackers and predators pose equally serious and but very different threats.

f Continually check the accuracy of personal accounts and deal with any discrepancies right away

- Use extreme caution when entering chat rooms or posting personal Web pages
- Limit the personal information you post on a personal Web pages
- Carefully monitor requests by online "friends" or acquaintances for predatory behavior
- Keep personal and financial information out of online conversations
- Use extreme caution when agreeing to meet an online "friend" or acquaintance in person

g Use a 2 way firewall
- Update your operating system regularly
- Increase your browser security settings
- Avoid questionable Web sites
- Only download software from sites you trust. Carefully evaluate free software and file-sharing applications before downloading them.
- Practice safe email protocol:
- Don't open messages from unknown senders

- Immediately delete messages you suspect to be <u>spam</u>
- Make sure that you have the best security software products installed on your PC:
  - Use antivirus protection
  - Get antispyware software protection

An unprotected computer is like an open door for computer hackers and predators. To take it a step further, protect your computer from hackers by using a spam filter or gateway to scan inbound email or IM messages. While free anti-spyware and antivirus downloads are available, they just can't keep up with the continuous onslaught of new malware strains. Previously undetected forms of malware can often do the most damage, so it's critical to have up-to-the-minute, guaranteed protection.

Source: https://www.webroot.com/us/en/home/resources/articles/pc-security/computer-security-threats-hackers.

3. Match the words with their definitions:

1)	to hijack	a)	a utility that searches a hard disk for viruses and removes any that are found
2)	onslaught	b)	the act of sending an email to a user falsely claiming to be an established legitimate enterprise in an attempt to scam the user into surrendering private information that will be used for identity theft
3)	to evaluate	c)	to spy on the infected computer's internet browsing activity
4)	antivirus program	d)	electronic junk mail or junk newsgroup postings
5)	spam	e)	to judge or determine the significance, worth, or quality of; assess
6)	phishing	f)	a violent attack
7)	firewall	g)	a conflict or variation, as between facts, figures, or claims
8)	discrepancy	h)	a computer system that isolates another computer from the internet in order to prevent unauthorized access

4. Complete the sentences by using a term from the text:

1) While your computer is connected to the Internet, the malware a hacker has installed on your PC quietly … your personal and financial information.

   a) transmits

   b) hides

   c) keeps

2) Computer hackers can also try to access your computer and … information.

   a) private

   b) public

   c) known

3) Check the accuracy of your personal accounts, … cards and documents.

   a) credit

   b) gift

   c) game

4) Previously undetected forms of … can often do the most damage.

   a) malware

   b) software

   c) hardware

5) Computer hackers are … users who break into computer systems in order to steal, change or destroy information.

   a) unauthorized

   b) legal

   c) lawful

6) Anyone who uses a computer connected to the Internet is … to the threats that computer hackers and predators pose.

   a) susceptible

   b) insensitive

   c) resistant

7) Hackers may also monitor your chat room conversations or … your personal Web page.

   a) peruse

   b) neglect

c) develop

5. Which statement is true, false or isn't mentioned in the text?

1. An unprotected computer is like an open door for computer hackers and predators.

a) true   b) false   c) isn't mentioned

2. Do not update your operating system regularly.

a) true   b) false   c) isn't mentioned

3. While your computer is connected to the Internet, the malware a hacker has installed on your PC quietly transmits your personal and financial information with your knowledge or consent.

a) true   b) false   c) isn't mentioned

4. Limit the personal information you post on a personal Web pages.

a) true   b) false   c) isn't mentioned

5. Hackers never sell your information to other parties who will use it for illicit or illegal purposes.

a) true   b) false   c) isn't mentioned

6. Hacker is a person who enjoys learning details of a programming language or system.

a) true   b) false   c) isn't mentioned

7. Computer hackers can also try to access your computer and private information directly if you are not protected with a firewall.

a) true   b) false   c) isn't mentioned

6. *Vocabulary work.* **Write down the following words into your vocabulary. Learn them by heart:**

1) *compiler –*
2) *nastily –*
3) *predator –*
4) *unauthorized –*
5) *susceptible –*
6) *bogus –*
7) *phishing –*
8) *to compromise –*

9) to disguise –
10) unwittingly –
11) to abuse –

Problem-Solving:
7. Browse the Internet and find some information on latest cyber crimes. Make a report on the one you think is the most challenging for the computer security specialists.

Writing:
8. Compose a short essay "Hackers: heroes or criminals?" (10 sentences).

Grammar Revision: Present Perfect – situations 'up to now'
We use Present Perfect to talk about situations continuing up to now, especially when we say how long they have been lasted. *He has worked in IT all his life. She went to the Silicon Valley ten years ago and she's lived there ever since.* We do not use a present tense to say how long something has lasted. *I've known him for years.*

1. Put the expressions in brackets into the sentences and choose the correct tenses:
Model: I (like) sport. (always) – I have always liked sport.
1. She (be) a software engineer (all her life). 2. He (be) unemployed (since 2008). 3. (you live) in this city? (How long). 4. I sent you my CV last week. (Receive) you it (yet)? 5. (you ever work) as an IT consultant? 6. I (learn) a lot. (in this job). 7. My boss and I (know) each other. (for ages). 8. (Since 2009) I (be) a computer operator for PromoPrint.

2. Complete the sentences with the Present Perfect for actions repeated up to now:
Model: I (play) a lot of tennis this year. – I have played a lot of tennis this year.
1. How many cups of coffee you (drink) today? 2. Since my brother lost his job he (write) two books. 3. Would you believe I (make) twenty-three phone calls today? 4. Our footballers (just lose)

eight games one after the other. 5. She (have) six different jobs since she left school. 6. Ben (be) in Africa several times this year. 7. I (climb) a lot of mountains, but I (never be) up the Everest. 8. I (do) four exercises today.

UNIT 4. COMPUTER NETWORKS

Lesson 1. Types of Networks.
Grammar Revision: The Passive Voice.

Reading:
1.   Read the text and answer the questions:

1) What does Computer Network mean?

2) What are computer networks used for?

3) Are there different types of networks?

4) What is LAN?

5) What is WAN?

6) What other computer networks do you know?

7) What does PAN stand for?
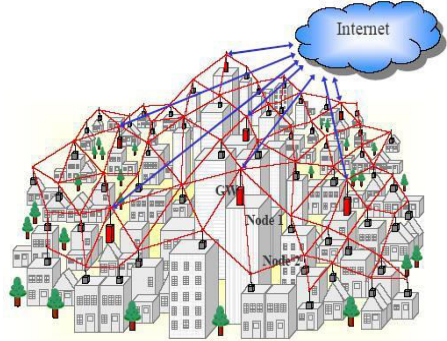
A **computer network** is a group of computer systems and other computing hardware devices that are linked together through communication channels to facilitate communication and resource-sharing among a wide range of users. Networks are commonly categorized based on their characteristics.

One of the earliest examples of a computer network was a network of communicating computers that functioned as part of the U.S. military's Semi-Automatic Ground Environment (SAGE) radar system. In 1969, the University of California at Los Angeles, the Stanford Research Institute, the University of California at Santa Barbara and the University of Utah were connected as part of the Advanced Research Projects Agency Network (ARPANET) project. It is this network that evolved to become what we now call the Internet.

Networks are used to:

• Facilitate communication via email, video conferencing, instant messaging, etc.

• Enable multiple users to share a single hardware device like

a printer or scanner
- Enable file sharing across the network
- Allow for the sharing of software or operating programs on remote systems
- Make information easier to access and maintain among network users

There are many types of networks, including:
- Local Area Networks (LAN)
- Personal Area Networks (PAN)
- Home Area Networks (HAN)
- Wide Area Networks (WAN)
- Campus Networks
- Metropolitan Area Networks (MAN)
- Enterprise Private Networks
- The Internet

Local Area Network

A local area network (LAN) is a computer network within a small geographical area such as a home, school, computer laboratory, office building or group of buildings.

A LAN is composed of inter-connected workstations and personal computers which are each capable of accessing and sharing data and devices, such as printers, scanners and data storage devices, anywhere on the LAN. LANs are characterized by higher communication and data transfer rates and the lack of any need for leased communication lines.

In the 1960s, large colleges and universities had the first local area networks (LAN). In the mid-1970s, Ethernet was developed by Xerox PARC (Xerox Palo Alto Research Center) and deployed in 1976. Chase Manhattan Bank in New York had the first commercial use of a LAN in December 1977. In the late 1970s and early 1980s, it was common to have dozens or hundreds of individual computers located in the same site. Many users and administrators were attracted to the concept of multiple computers sharing expensive disk space and laser printers.

From the mid-1980s to through the 1990s, Novell's Netware dominated the LAN software market. Over time, competitors such

as Microsoft released comparable products to the point where nowadays, local networking is considered base functionality for any operating system.

Wide Area Network

A wide area network (WAN) is a network that exists over a large-scale geographical area. A WAN connects different smaller networks, including local area networks (LANs) and metro area networks (MANs). This ensures that computers and users in one location can communicate with computers and users in other locations. WAN implementation can be done either with the help of the public transmission system or a private network.

A WAN connects more than one LAN and is used for larger geographical areas. WANs are similar to a banking system, where hundreds of branches in different cities are connected with each other in order to share their official data.

A WAN works in a similar fashion to a LAN, just on a larger scale. Typically, TCP/IP is the protocol used for a WAN in combination with devices such as routers, switches, firewalls and modems.

Personal area network

A personal area network (PAN) refers to the interconnection of information technology devices or gadgets within the environment of an individual user (typically within 10 meters or 33 feet.

These interconnected devices might include laptop computers, PDAs, cellphones, printers, PCs or other wearable computer devices. Also known as a wireless personal network (WPAN).

Metropolitan Area Network

A metropolitan area network (MAN) is similar to a local area network (LAN) but spans an entire city or campus. MANs are formed by connecting multiple LANs. Thus, MANs are larger than LANs but smaller than wide area networks (WAN).

MANs are extremely efficient and provide fast communication via high-speed carriers, such as fiber optic cables.

A MAN is ideal for many kinds of network users because it is a medium-size network. MANs are used to build networks with high data connection speeds for cities and towns.

The working mechanism of a MAN is similar to an Internet Service Provider (ISP), but a MAN is not owned by a single organization. Like a WAN, a MAN provides shared network connections to its users. A MAN mostly works on the data link layer, which is Layer 2 of the Open Systems Interconnection (OSI) model.

Distributed Queue Dual Bus (DQDB) is the MAN standard specified by the Institute Of Electrical And Electronics Engineers (IEEE) as IEEE 802.6. Using this standard, a MAN extends up to 30–40 km, or 20–25 miles.

Global Area Network

A global area network (GAN) refers to a network composed of different interconnected networks that cover an unlimited geographical area. The term is loosely synonymous with Internet, which is considered a global area network.

Unlike local area networks (LAN) and wide area networks (WAN), GANs cover a large geographical area.

Because a GAN is used to support mobile communication across a number of wireless LANs, the key challenge for any GAN is transferring user communications from one local coverage area to the next.

The most GAN type is a broadband GAN. The broadband GAN is a global satellite Internet network that uses portable terminals for telephony. The terminals connect laptop computers located in remote areas to broadband Internet.

Source: https://www.techopedia.com/definition/25597/computer-network

2. Match the words on the left with the explanations on the right:

1) interconnected	a) a network contained in a relatively small area
2) global	b) far away in distance or space
3) LAN	c) to be connected to o with each other
4) satellite	d) not using wires
5) remote	e) including or affecting the whole world
6) wireless	f) an object that is sent into space to

	travel round the Earth
7) protocol	g) a company that sells the same goods or services
8) competitor	h) a set of rules that allows the exchange of information over a network

3. Which statement is true, false or isn't written in the text. Correct the false ones:

1) A MAN is ideal for many kinds of network users because it is a medium-size network.

a) true   b) false   c) isn't mentioned

2) A global area network (GAN) refers to a network composed of different interconnected networks that cover an limited geographical area.

a) true   b) false   c) isn't mentioned

3) A WAN connects more than one PAN and is used for smaller geographical areas.

a) true   b) false   c) isn't mentioned

4) The portable terminals connect desktop computers located in remote areas to broadband Internet.

a) true   b) false   c) isn't mentioned

5) A local area network (LAN) is a good example of a network that shows both a logical and physical topology.

a) true   b) false   c) isn't mentioned

6) Nowadays local networking is considered base functionality for any operating system.

a) true   b) false   c) isn't mentioned

7) Networks are used to facilitate communication via email, video conferencing, instant messaging, etc.

a) true   b) false   c) isn't mentioned

4. Read the text and fill in the gaps with the suitable word from the box:

> *Hardware, network, topologies, combined, standard, interchangeable,*
> *physical, logical, both, terminals, linked, data, topology*

A network topology may be physical, mapping … configuration, or logical, mapping the path that the data must take in order to travel around the … .

There are many identified … but they are not strict, which means that any of them can be … . However, each topology has a different … and may use different hardware methods so they are not … .

… topology refers to the physical design of the network, while … topology refers to how data is handled within the network regardless of its physical topology.

A local area network (LAN) is a good example of a network that shows … a logical and physical topology. All the … in the LAN are … together; the mapping of this interconnection is the physical topology, while … flow determines the logical … of the network.

There are seven basic types of physical topology:
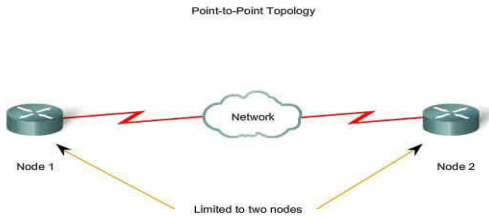
1) Point-to-point topology
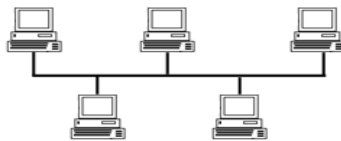
2) Bus (point-to-multipoint) topology
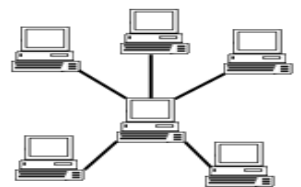
3) Star topology

4) Ring topology
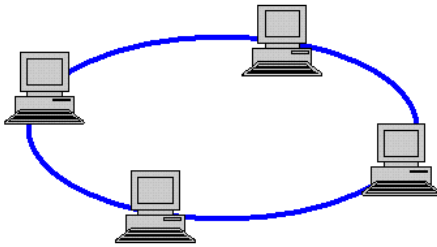
TREE TOPOLOGY

5) Tree topology
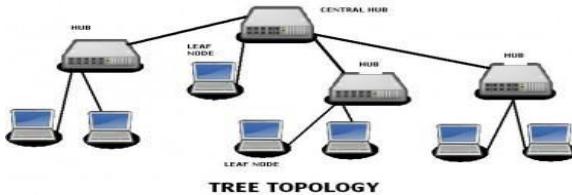
Mesh Topology

6) Mesh topology
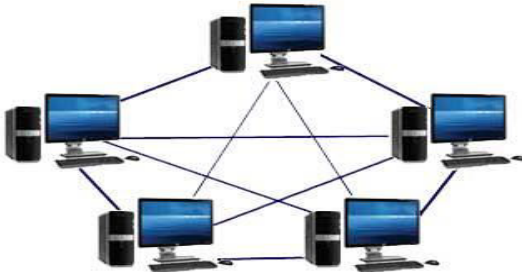
HYBRID NETWORK

7) Hybrid topology
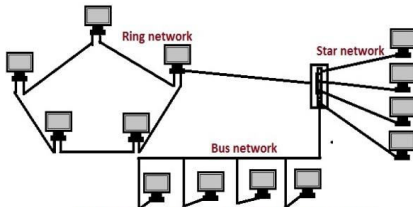
5. Match each text with the correct illustration:

a) A network setup where each computer and network device is interconnected with one another, allowing for most transmissions to be distributed, this topology is commonly used for wireless networks.

b) A network setup in which each computer and network device are connected to a single cable.

c) In this configuration, every node connects to a central network device, like a hub, switch, or computer. The central network device acts as a server and the peripheral devices act as clients.

d) In this topology there can be only one connection between any two connected nodes.

e) A computer network configuration where the devices are connected to each other in a circular shape.

f) A type of network topology that uses two or more other network topologies.

6. These are answers to the text. What are the questions?

1) MANs are formed by connecting multiple LANs.

2) These interconnected devices might include laptop computers, PDAs, cell phones, printers, PCs or other wearable computer devices.

3) A local area network (LAN) is a computer network within a small geographical area such as a home, school, computer laboratory, office building or group of buildings.

4) It is a group of computer systems and other computing hardware devices that are linked together through communication channels to facilitate communication and resource-sharing among a wide range of users.

5) Networks are used to make information easier to access and maintain among network users.

7. *Vocabulary work.* **Write down the following words into your vocabulary. Learn them by heart:**

1) *network* –
2) *to share* –
3) *topology* –
4) *node* –
5) *to facilitate* –
6) *broadband* –
7) *remote* –

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8) to span –
9) competitor –
10) comparable –
11) to evolve –

Problem-Solving:
8.   List all the advantages and disadvantages of a network. Consider how the disadvantages can be minimized.

Writing:
9. If you use a network, write a short description of it, with details of its architecture and protocol. What you and your groupmates use the network for (10 sentences).

Grammar Revision: The Passive Voice (I).
We use the Passive when the action is more important than the person doing the action, or when it isn't necessary to mention the person at all. We form the present simple passive with *am/is/are* + Past Participle, for example: *The program **is written** in a special computer language. Programs **are** usually **stored** on disks*.
1.   Rewrite the sentences in the Passive voice.
Model: People store data on this disk. – Data is stored on this disk.

1. People can watch video on this website. 2. One can download useful PDFs from this website. 3. They used PHP for this website. 4. They found a problem. 5. He links my website to his website. 6. We use hard disks for the permanent storage of information. 7. We develop this program in high level language. 8. We know microcomputers as PCs.

2. Complete the sentences (Active or Passive). Use the Past Simple tense.
*Model: They (visit) their teacher. – They **visited** their teacher. We (visit) by our teacher. – We **were visited** by our teacher.*

1. In some systems information (hold) in optical disks. 2. All the activities of the computer system (coordinate) by the CPU. 3. The drug-detecting test in the Tour de France (support) by computers. 4.

When a particular program is run, the data (process) by the computer very rapidly. 5. Microcomputers (know) as PCs. 6. This program (write) in a special computer language. 7. Various terminals (connect) to this workstation. 8. Computers (use) by airline pilots to help them control the plane.

Lesson 2. Wireless Networking.
Grammar Revision: The Passive Voice.

Pre-reading:
1. **Answer the questions before reading the text:**
1) What is Wi-Fi?
2) What is the Wi-Fi Alliance?
3) What is wireless?
4) What is wireless LAN?
5) What is 802.11?
6) What is Wi-Fi enabled?

Reading:
2. **Read the text and check your answers:**

Wi-Fi

a Wi-Fi is the name of a popular wireless networking technology that uses radio waves to provide wireless high-speed Internet and network connections. A common misconception is that the term Wi-Fi is short for "*wireless fidelity*," however this is not the case. Wi-Fi is simply a trademarked phrase that means *IEEE 802.11x*.

b Wi-Fi networks have no physical wired connection between sender and receiver by using radio frequency (RF) technology – a frequency within the electromagnetic spectrum associated with radio wave propagation. When an RF current is supplied to an antenna, an electromagnetic field is created that then is able to propagate through space. The cornerstone of any wireless network is an access point (AP). The primary job of an access point is to broadcast a wireless signal that computers can detect and "tune" into. In order to connect to an access point and join a wireless network, computers and devices must be equipped with wireless network adapters.

c The Wi-Fi Alliance, the organization that owns the Wi-Fi registered trademark term specifically defines Wi-Fi as any "*wireless local area network (WLAN) products that are based on the*

Institute of Electrical and Electronics Engineers' (IEEE) 802.11 standards." Initially, Wi-Fi was used in place of only the 2.4GHz 802.11b standard, however the Wi-Fi Alliance has expanded the generic use of the Wi-Fi term to include any type of network or WLAN product based on any of the 802.11 standards, including 802.11b, 802.11a, so on, in an attempt to stop confusion about wireless LAN interoperability.

d Wi-Fi is supported by many applications and devices including video game consoles, home networks, PDAs, mobile phones, major operating systems, and other types of consumer electronics. Any products that are tested and approved as "Wi-Fi Certified" (a registered trademark) by the Wi-Fi Alliance are certified as interoperable with each other, even if they are from different manufacturers. For example, a user with a Wi-Fi Certified product can use any brand of access point with any other brand of client hardware that also is also "Wi-Fi Certified". Products that pass this certification are required to carry an identifying seal on their packaging that states "Wi-Fi Certified" and indicates the radio frequency band used (2.5GHz for 802.11b, 802.11g, or 802.11n, and 5GHz for 802.11a).

Source: http://www.webopedia.com/TERM/W/Wi_Fi.html

3. Match each paragraph with the appropriate title:

___How Wi-Fi Networks work

___The Wi-Fi Alliance

___Wi-Fi Support in Applications and Devices

___Wi-Fi

4. Match the words from the text with their definitions:

1) propagation	a) personal digital assistant
2) cornerstone	b) an object that allows you to connect two pieces of equipment of different types
3) access point	c) a continuous range of frequencies, esp. in the radio spectrum, between two limiting frequencies
4) adapter	d) a person or thing of prime importance; basis

5) trademark	e) a name, symbol, or other device identifying a product, officially registered and legally restricted to the use of the owner or manufacturer
6) interoperability	f) transmission or dissemination
7) PDA	g) a hardware device or a computer's software that acts as a communication hub for users of a wireless device to connect to LAN
8) frequency band	h) the ability of software and hardware on different machines from different vendors to share data

5. Using the paragraph reference given, look back in the text and find words or phrases with a similar meaning to:

1   reproduction (paragraph **b**)
2   mistake (paragraph **a**)
3   basic idea (paragraph **b**)
4   mix-up (paragraph **c**)
5   producer (paragraph **d**)
6   logo (paragraph **d**)

6. Using the paragraph reference given, look back in the text and find words or phrases that have an opposite meaning to:

1   unconventional (paragraph **a**)
2   wired (paragraph **b**)
3   disconnect (paragraph **b**)
4   incompatibility (paragraph **c**)
5   deny (paragraph **d**)
6   unbox (paragraph **d**)

Post-reading:

7. Rearrange the words*:*

      wroetnk, oyoptlog, qyfcerakvn, scscae, srleiswe

8. Complete the sentences by using one of the terms given:

1) Wi-Fi uses radio waves to provide … high-speed Internet and network connections.

a) wired

b) wireless

c) neutral

2) The cornerstone of any wireless network is a … point.

a) access

b) check

c) break

3) When an RF current is supplied to an …, an electromagnetic field is created that then is able to propagate through space.

a) antenna

b) satellite

c) airplane

4) Products that … this certification are required to carry an identifying seal on their packaging.

a) pass

b) test

c) skip

5) The primary job of an access point is to … a wireless signal that computers can detect and "tune" into.

a) lose

b) broadcast

c) see

9. *Vocabulary work.* **Write down the following words into your vocabulary. Learn them by heart:**

1) misconception –

2) propagation –

3) cornerstone –

4) to equip –

5) confusion –

6) manufacturer –

7) to expand –

8) vendor –

9) attempt –

10) to supply –

Problem-Solving:

10. Browse the Internet and find out the tips to boost wireless speed, range and reliability. Make up a short story to discuss with the groupmates.

Writing:

11. Browse the Internet and prepare a short story about the differences of Wi-Fi and Bluetooth (10 sentences).

Grammar Revision: The Passive Voice II.

We use the Passive when the action is more important than the person doing the action, or when it isn't necessary to mention the person at all. We form the past simple passive with *was/were* + Past Participle, for example: *The program **was written** in a special computer language. Programs **were stored** on disks.*

1. Rewrite the following sentences. Instead of 'somebody/they/people' etc. write a passive sentence.

*Model: Somebody **cleaned** the room yesterday. – The room **was cleaned** yesterday.*

1. People didn't use that road very often. 2. Somebody accused me of stealing a laptop. 3. They advised us not to go out at night. 4. They cancelled the flights because of fog. 5. Somebody stole my camera from my hotel room. 6. Where did you take those photos? 7. My grandfather built this house 50 years ago. 8. A loud noise woke us up last night.

2. Put the verbs in brackets in the right form:

*Model: This book (write) **was written** by our teacher.*

1. These computers (make) in Japan. 2. These houses (design) with the help of computers. 3. The program (to be tested) now. 4. I (tell) to wait for the system analyst. 5. The mail you receive (store) on the server of your ISP. 6. Video chatting (base) on IRC protocols. 7. Nowadays this utility (build) into Web browser.

Unit 1

Answer the questions:

1. What do you know about computer hardware?
2. What are the main components of computer hardware?
3. What is the so-called 'brain' of the computer?
4. What is the CPU?
5. What are the two most important kinds of memory?
6. How much data can contemporary hard drives store?
7. What is the main function of the motherboard?
8. Why do most companies pre-load the operating system onto the hard drive?
9. What is the purpose of input-output devices?
10. What types of input-output devices do you know?
11. What are the most common input devices?
12. What devices enable data to go into a computer's memory?
13. When was the optical mouse developed and introduced?
14. What are the benefits of optical mouse over wheeled one?
15. Do portable devices use flash memory? Which ones?
16. Who is known as an inventor of a flash memory?
17. When was flash memory invented?
18. What is CD-ROM?
19. What is DVD?
20. What is the difference between CD-ROM and DVD?
21. What is graphene?
22. How was it discovered?
23. Why is graphene better than silicon?
24. In what industries can graphene be used?
25. What will graphene-based chips change in computers?

TEST

Choose the best variant:

1. A laptop computer with a screen you can write on is called a … .

a. tablet PC   *b. table PC*   *c. flat screen PC*

2. An image on TV or computer screen is made up of thousands

of … .

a. points   *b. pixels*   *c. bits*

3. You can draw directly onto a computer screen with a … .

a. bright pen   *b. light pen*   *c. pixel pen*

4. A camera connected directly to the internet is called … .

a. an internet camera   *b. a web watcher*   *c. a webcam*

5. Scanners, printers and webcams are … .

a. peripherals   *b. extras*   *c. externals*

6. Add extra USB … to your computer.

a. ports   *b. doors*   *c. windows*

7. With a wireless router you can … your broadband connection with other users.

a. divide   *b. combine*   *c. share*

8. In the car it is safer to use a … phone.

a. handless   *b. no-hands*   *c. hands-free*

9. The screen on my laptop is not very … .

a. light   *b. white*   *c. bright*

10. My video camera is very … .

a. easy to use   *b. uncomplicated*   *c. obvious*

Unit 2

Answer the questions:

1. What is computer software?
2. What types of computer software are there?
3. What is the difference between system software and application software?
4. What is OS?
5. What services does OS perform?
6. Why are there so many programming languages?
7. What language does computer understand and why?
8. What does machine code look like?
9. What is the difference between low-level and high-level programming languages?
10. What are the compiler and interpreter? How are they different?
11. What is a database?
12. What is Database Management System and what does it do?

TEST:

Choose the best variant:

1. Most users interact with a computer using …

a) application software   *b) programming language*   *c) machine code*

2. What coordinates different hardware parts of a computer?

a) system software   *b) application software*   *c) programming language*

3. The … is the set of programs between the applications programs and the hardware.

a) machine language   *b) operating system*   *c) user interface*

4. … allows smartphones, tablet PCs and other mobile devices to run applications and programs

a) embedded OS   *b) software*   *c) mobile OS*

5. The only language that chip can understand is …

a) C++   *b) assembler*   *c) machine language*

6. High-level languages are translated into low-level with the help of …

a) interpreter   *b) assembler*   *c) operating system*

7. Why don't programmers write code in machine language?

a) nobody knows how to do that   *b) it's tedious*   *c) it's impossible*

8. Sun MicroSystems developed …

a) C   *b) C#*   *c) Java*

9. The Unix operating system is written in …

a) C   *b) C++*   *c) Java*

10. Databases are organized by …

a) folders and files   *b) fields, records and files*   *c) items and directories*

Unit 3

Answer the questions:

1. What is the Internet?
2. Why was the Internet designed?

3. What is IP?

4. What type of information resources and services does the Internet carry?

5. What was the name of the primary precursor network of the Internet?

6. How are traditional communications media being reshaped by the Internet?

7. What industry was the fastest growing segment on the Internet?

8. What is a computer virus?

9. Why are computer viruses called viruses like biological ones?

10. What are the main threats for a user in the Internet?

11. How do worms travel from one computer to another?

12. What is the typical way of spreading for a worm?

13. Do Trojans copy themselves like viruses?

14. What do you know about a botnet? What is it used for?

15. What is malware?

16. What type of malware can be called the most powerful one?

17. What is spyware?

18. What is antivirus software?

19. What is a hacker?

20. Is antivirus software able to protect your computer against any other types of malware?

TEST

Choose the best variant:

1. A person who illegally accesses somebody else's computer over the internet is called a … .

a. pirate   *b. hack*   *c. hacker*

2. A website which (in theory) cannot be accessed by a hacker is … .

a. strong   *b. secure*   *c. clean*

3. A website which can only be viewed by authorized people has … access.

a. reduced   *b. small*   *c. restricted*

4. Unwanted advertising emails are popularly known as … .

a. meatloaf   *b. spam*   *c. sausages*

5. Software which blocks attempts by others to access your computer over the internet is called a … .

a. firewall   *b. fire blanket*   *c. fire engine*

6. It's essential to … your anti-virus protection regularly.

a. up-to-date   *b. date*   *c. update*

7. Anti-virus software can … your computer for viruses.

a. detect   *b. review*   *c. scan*

8. Anti-virus software can also … viruses on removable media, such as floppy disks.

a. detect   *b. control*   *c. see*

9. When your anti-virus software subscription … .

a. ends   *b. stops*   *c. expires*

10. … it's a good idea to … it immediately.

a. renew   *b. renovate*   *c. replace*

Unit 4

Answer the questions:
1. What is a network?
2. What are its hardware components?
3. What are computer networks used for?
4. Are there different types of networks?
5. What is LAN?
6. What is WAN?
7. What is the difference between them?
8. What advantages do you think networks have?
9. What other computer networks do you know?
10. What does PAN stand for?
11. What is Wi-Fi?
12. What is the Wi-Fi Alliance?
13. What is wireless?
14. What is wireless LAN?
15. What is 802.11?
16. What is Wi-Fi enabled?
17. What network configurations do you know?
18. How do networks operate?
19. A bus network consists of one piece of cable to which all

devices are connected, doesn't it?

20. What was the first computer network?

TEST

Choose the best variant:

1. "The website gets a thousand hits a week" means the website has a thousand ... a week.

a. sales   *b. visits*   *c. search engine matches*

2. The words, images and other material that make up a website are called ... .

a. the contents   *b. the content*   *c. the filling*

3. Designs and drawings in websites are usually called … .

a. web pictures   *b. web graphics*   *c. web illustrations*

4. Moving pictures in websites are usually called … .

a. cartoons   *b. movies*   *c. animations*

5. Websites with sounds and/or video clips and/or animations have ... content.

a. multimedia   *b. many-media*   *c. mixed-media*

6. A hyperlink (see 3.3) is often called just ... .

a. a link   *b. a hyper*   *c. an HL*

7. A place with computers for public internet use is usually called an internet cafe or ... even if they don't serve coffee.

a. web cafe   *b. computer cafe*   *c. cyber cafe*

8. Internet cafes offer internet ... .

a. connection   *b. availability*   *c. access*

9. A program that adds functions to a browser is called a ... .

a. plug   *b. plugged-in*   *c. plug-in*

10. Temporary internet files are stored in the ... .

a. cash   *b. cache*   *c. cashe*

АНГЛО-УКРАЇНСЬКИЙ СЛОВНИК

A

abuse [əˈbjuːz] – неправильно вживати, зловживати
accelerate [əkˈsɛləreɪt] – прискорювати
accuracy [ˈakjʊrəsi] – точність
adapter [əˈdaptə] – адаптер
adjoin [əˈdʒɔɪn] – приєднувати, прилягати
advertising [ˈadvətʌɪzɪŋ] – реклама
affect [əˈfɛkt] – впливати
aggregator [ˈagrɪgeɪtə] – поєднувач, агрегатор
allow [əˈlaʊ] – дозволяти, допускати, погоджуватися
alter [ˈɔːltə] – змінювати
amount of data [əˈmaʊnt ɒv ˈdeɪtə] – кількість даних
application [aplɪˈkeɪʃ(ə)n] – застосування
apply [əˈplʌɪ] – застосовувати, уживати
attach [əˈtatʃ] – приєднувати, прикріпляти, додавати
attempt [əˈtɛm(p)t] – спроба; намагатися
available [əˈveɪləb(ə)l] – доступний, наявний
avoid [əˈvɔɪd] – уникати

B

beam [biːm] – промінь
belong [bɪˈlɒŋ] – належати
bendable [ˈbɛndəb(ə)l] – гнучкий
benefit [ˈbɛnɪfɪt] – вигода, перевага
bogus [ˈbəʊgəs] – підроблений, фіктивний
bounce [baʊns] – підстрибувати
brick [brɪk] – цегла
broadband [ˈbrɔːdband] – широкосмуговий

C

calculation [kalkjʊˈleɪʃ(ə)n] – обчислення
capacity [kəˈpasɪti] – ємність, місткість, робочий об'єм
carry out [ˈkari aʊt] – виконувати
cause [kɔːz] – причина, призводити, спонукати
caution [ˈkɔːʃ(ə)n] – обережність
coin [kɔɪn] – монета; створювати, вигадувати

common [ˈkɒmən] – загальний, звичайний, поширений

comparable [ˈkɒmp(ə)rəb(ə)l] – порівняний; такий, що порівнюється

competitor [kəmˈpɛtɪtə] – конкурент, суперник

compiler [kəmˈpʌɪlə] – компілятор, укладач, упорядник

complementary [kɒmplɪˈmɛnt(ə)ri] – додатковий

comprehensible [kɒmprɪˈhɛnsɪb(ə)l] – зрозумілий

compromise [ˈkɒmprəmʌɪz] – компрометувати, ставити під загрозу

conduct electricity [kənˈdʌkt ˌɪlɛkˈtrɪsɪti] – проводити струм

confusion [kənˈfjuːʒ(ə)n] – плутанина, безлад

consist of [kənˈsɪst ɒv] – складатися з

contain [kənˈteɪn] – вміщувати

contemporary [kənˈtɛmp(ə)r(ər)i] – сучасний

convenience [kənˈviːnɪəns] – зручність

convert [kənˈvəːt] – перетворювати

cornerstone [ˈkɔːnəstəʊn] – наріжний камінь

create [kriːˈeɪt] – створювати

current [ˈkʌr(ə)nt] – струм

D

delivery [dɪˈlɪv(ə)ri] – постачання

depend on [dɪˈpɛnd ɒn] – залежити від

design [dɪˈzʌɪn] – план, конструкція; конструювати, планувати

designed [dɪˈzʌɪnt] – спроектований

destination [ˌdɛstɪˈneɪʃ(ə)n] – пункт призначення

destroy [dɪˈstrɔɪ] – знищувати, псувати

destruction [dɪˈstrʌkʃ(ə)n] – руйнування, знищення

detect [dɪˈtɛkt] – виявляти, помічати

determine [dɪˈtəːmɪn] – визначати, обумовлювати

developed [dɪˈvɛləpt] – розроблений

digital [ˈdɪdʒɪt(ə)l] – цифровий

directly [dʌɪˈrɛktli] – безпосередньо

discrepancy [dɪsˈkrɛp(ə)nsi] – невідповідність

disguise [dɪsˈɡʌɪz] – маскувати, перекручувати, приховувати

divide into [dɪˈvʌɪd ˈɪntə] – розділити на

download [ˈdaʊnləʊd] – скачувати, завантажувати

dual [ˈdjuːəl] – подвійний
dubious [ˈdjuːbɪəs] – сумнівний, підозрілий

E

efficient [ɪˈfɪʃ(ə)nt] – ефективний
electronic circuit [ɪlɛkˈtrɒnɪk ˈsəːkɪt] – електронна схема
embedded system [ɪmˈbɛdɪd ˈsɪstəm] – вбудована система
emit [ɪˈmɪt] – випромінювати
enable [ɛˈneɪb(ə)l] – давати змогу, робити можливим
end user [ɛnd ˈjuːzə] – кінцевий користувач
entrepreneur [ˌɒntrəprəˈnəː] – підприємець
entry [ˈɛntri] – запис, вхід
equip [ɪˈkwɪp] – обладнувати, оснащувати
eradicate [ɪˈradɪkeɪt] – викорінювати
erasable [ɪˈreɪzəb(ə)l] – такий, що стирається
erase [ɪˈreɪz] – стирати
evolve [ɪˈvɒlv] – еволюціонувати, розвиватися
execute [ˈɛksɪkjuːt] – виконувати
exist [ɪgˈzɪst] – існувати
expand [ɛkˈspand] – розширювати/ся, поширювати/ся
extensive [ɪkˈstɛnsɪv] – обширний, далекосяжний
extensively [ɪkˈstɛnsɪvli] –широко (використовувати)
external [ɪkˈstəːn(ə)l] – зовнішній

F

facilitate [fəˈsɪlɪteɪt] – полегшувати, сприяти
failure [ˈfeɪljə] – невиконання
fast-performing [fɑːst pəˈfɔːmɪŋ] – швидкодіючий
fault-tolerant [fɔːlt ˈtɒl(ə)r(ə)nt] – відмовостійкий
flexible [ˈflɛksɪb(ə)l] – гнучкий
floating [ˈfləʊtɪŋ] – рухомий
focus [ˈfəʊkəs] – фокусувати, зосереджуватися

G

gap [gap] – розрив, прогалина
general-purpose [ˈdʒɛn(ə)r(ə)l ˈpəːpəs] – загального призначення
generate [ˈdʒɛnəreɪt] – виробляти
gain [geɪn] – досягати, одержувати
governance [ˈgʌv(ə)nəns] – управління

130

grid [grɪd] – сітка, решітка

H

handle [ˈhand(ə)l] – поводитися, управляти
havoc [ˈhavək] – безлад, хаос, спустошення
hijacker [ˈhʌɪdʒakə] – викрадач
hole [həʊl] – діра
hosted [həʊstid] – розміщений

I

identity [ʌɪˈdɛntɪti] – особистість
illicit [ɪˈlɪsɪt] – незаконний, протиправний
implementation [ɪmplɪmɛnˈteɪʃ(ə)n – здійснення, виконання
include [ɪnˈkluːd] –включати (в себе)
infect [ɪnˈfɛkt] – заражати
installation [ɪnstəˈleɪʃ(ə)n – установка, встановлення
installed [ɪnˈstɔːlt] – встановлений
insulate [ˈɪnsjʊleɪt] – ізолювати
integrated circuit [ˈɪntɪɡreɪtɪd ˈsəːkɪt] – інтегральна схема
intelligible [ɪnˈtɛlɪdʒɪb(ə)l] – зрозумілий
interact [ɪntərˈakt] – взаємодіяти
interaction [ɪntərˈakʃ(ə)n] – взаємодія
interfere [ɪntəˈfɪə] – впливати, втручатися
interoperability [ˌɪntərˌɒp(ə)rəˈbɪlɪti] – сумісність
interpreter [ɪnˈtəːprɪtə] – перекладач
intersection [ɪntəˈsɛkʃ(ə)n] – точка перетину

L

launch [lɔːn(t)ʃ] – запускати, починати
layer [ˈleɪə] – шар, пласт
legitimate [lɪˈdʒɪtɪmət] – законний
light bulb [lʌɪt bʌlb] – лампочка
link [lɪŋk] – посилання; пов'язувати, поєднувати
load [ləʊd] – завантажувати
lure [l(j)ʊə] – приваблювати, спокушати

M

malicious [məˈlɪʃəs] – злісний, зловмисний
manage [ˈmanɪdʒ] – керувати

manufacturer [ˌmanjʊˈfaktʃ(ə)rə] – виробник
misconception [mɪskənˈsɛpʃ(ə)n] – неправильне уявлення
moving [ˈmuːvɪŋ] – рухомий
multiply [ˈmʌltɪplʌɪ] – збільшуватися, розмножуватися

N

nastily [ˈnɑːstɪli] – злісно, мерзенно
network [ˈnɛtwəːk] – мережа
node [nəʊd] – вузол
non-invasive [nɒnɪnˈveɪsɪv] – неінвазивний
numerical [njuːˈmɛrɪk(ə)l] – чисельний

O

one-atom thin [wʌn ˈatəm θɪn] – завтовшки в один атом
onslaught [ˈɒnslɔːt] – напад, атака

P

paramount [ˈparəmaʊnt] – першорядний
pattern [ˈpat(ə)n] – шаблон, зразок
perform [pəˈfɔːm] – виконувати
permanent [ˈpəːm(ə)nənt] – постійний
persistent storage [pəˈsɪst(ə)nt ˈstɔːrɪdʒ] – постійне зберігання
plug [plʌg] – пломбувати
powerful [ˈpaʊəf(ə)l] – потужний
precursor [prɪˈkəːsə] – попередник
predator [ˈprɛdətə] – хижак
processing power [ˈprəʊsɛsɪŋ ˈpaʊə] – обчислювальна потужність
propagation [prɒpəˈgeɪʃ(ə)n] – поширення
properties [ˈprɒpətis] – властивості
proponent [prəˈpəʊnənt] – прихильник
purpose [ˈpəːpəs] – мета

Q

quantity [ˈkwɒntɪti] – кількість
query language [ˈkwɪəri ˈlaŋgwɪdʒ] – мова запиту

R

rapid development [ˈrapɪd dɪˈvɛləpm(ə)nt] – стрімкий розвиток
reception [rɪˈsɛpʃ(ə)n] – прийом, сприйняття
released [rɪˈliːst] – випущений
remote [rɪˈməʊt]– віддалений

replace [rɪˈpleɪs] – заміщувати
replicate [ˈrɛplɪkeɪt] – копіювати, повторювати
reported [rɪˈpɔːtid] – такий, що передається
reproduce [riːprəˈdjuːs] – відтворювати
require [rɪˈkwʌɪə] – вимагати
required [rɪˈkwʌɪəd] – необхідний
reside [rɪˈzʌɪd] – перебувати
response [rɪˈspɒns] – відповідь, реакція
retailer [ˈriːteɪlə] – роздрібний торговець
retain [rɪˈteɪn] – зберігати, утримувати
robust [rə(ʊ)ˈbʌst] – міцний, важкий
run a program [rʌn ə ˈprəʊgram] – запустити програму
<p align="center">**S**</p>
satellite [ˈsatəlʌɪt] – супутник; супутниковий
secure [sɪˈkjʊə] – безпечний
select [sɪˈlɛkt] – обирати
separate [ˈsɛp(ə)rət] – розділяти, відокремлювати
sequence [ˈsiːkw(ə)ns] – послідовність
share [ʃɛː] – ділити, розділяти
significant [sɪgˈnɪfɪk(ə)nt] – значний, істотний
silicon [ˈsɪlɪk(ə)n] – кремній
simultaneous access [ˌsɪm(ə)lˈteɪnɪəs ˈaksɛs] – одночасний доступ
slow down [sləʊ daʊn] – сповільнювати
smart [smɑːt] – розумний
smooth [smuːð] – гладкий, плавний
smoothly [ˈsmuːðli] – плавно
source code [sɔːs kəʊd] – вихідний код
span [span] – перекривати
spread [sprɛd] – поширювати
spreadsheet [ˈsprɛdʃiːt] – таблиця
statement [ˈsteɪtm(ə)nt] – заява, судження
supply [səˈplʌɪ] – постачати, доставляти
support [səˈpɔːt] – підтримка
susceptible [səˈsɛptɪb(ə)l] – сприйнятливий, вразливий
<p align="center">**T**</p>
target [ˈtɑːgɪt] – мішень; робити мішенню

<p align="center">133</p>

tedious [ˈtiːdɪəs] – виснажливий
threat [θrɛt] – загроза
thus [ðʌs] – таким чином, отже
tiny instructions [ˈtʌɪni ɪnˈstrʌkʃ(ə)ns] – крихітні інструкції
toolbar [ˈtuːlbɑː] – панель інструментів
tools [tuːls] – інструменти
topology [təˈpɒlədʒi] – топологія
trademark [ˈtreɪdmɑːk] – товарний знак, торгова марка
transaction management [trɑːnˈzakʃ(ə)n ˈmanɪdʒm(ə)nt] – керування операціями
transition [tranˈsɪʃ(ə)n] – перехід
transmission [transˈmɪʃ(ə)n] – передача
transmit [trɑːnsˈmɪt] – передавати
transparent [trɑːnˈspar(ə)nt] – прозорий
tunnel [ˈtʌn(ə)l] – тунель
two-dimensional [ˌtuːdʌɪˈmɛnʃ(ə)n(ə)l] – двовимірний
U
unauthorized [ʌnˈɔːθərʌɪzd] – недозволений, самовільний
undergo [ʌndəˈɡəʊ] – зазнавати
unreadable [ʌnˈriːdəb(ə)l] – неможливий для читання
unwittingly [ʌnˈwɪtɪŋli] – мимоволі
update [ʌpˈdeɪt] – оновлювати, модернізувати
user-friendly [ˈjuːzə ˈfrɛn(d)li] – зручний для користувача
V
vendor [ˈvɛndə] – продавець, торговець
villain [ˈvɪlən] – лиходій, негідник
virtually [ˈvəːtʃʊəli] – фактично
voltage [ˈvɒltɪdʒ] – напруга
vulnerable [ˈvʌln(ə)rəb(ə)l] – вразливий
W
wavelength [ˈweɪvlɛn(t)θ] – довжина хвилі
wireless [ˈwʌɪələs] – бездротовий
worm [wəːm] – черв'як

GLOSSARY

A

Access time *[ˈaksɛs tʌɪm] n* The total time it takes the computer to read data from a storage device such as computer memory, hard drive, CD-ROM or other mechanism.

Adware *[ˈadwɛː] n* A program installed without a user's consent or knowledge during the install of another program. Much like spyware, adware tracks individuals Internet activities and habits to help companies advertise more efficiently.

Application Software *[aplɪˈkeɪʃ(ə)n ˈsɒf(t)wɛː] n* A program or group of programs designed for end users.

Arithmetic Logic Unit *[arɪθˈmɛtɪk ˈlɒdʒɪk ˈjuːnɪt] n* A complex digital circuit; one of many components within a computer's central processing unit. It performs both bitwise and mathematical operations on binary numbers and is the last component to perform calculations in the processor.

Arrow keys *[ˈarəʊ kiːz] n* Direction or cursor keys that allow the user to move the insertion point around the screen.

Assembly Language *[əˈsɛmbli ˈlaŋgwɪdʒ] n* A low-level programming language for microprocessors and other programmable devices.

B

Backing storage *[ˈbakɪŋ ˈstɔːrɪdʒ] n* Non-volatile data storage that will retain a computer's data even after the computer is powered off. Common types of backing storage devices are hard drives, SSD, external hard disk drives, optical media such as CDs or DVDs, and flash media such as thumb drives and memory sticks.

Backup *[bakʌp] n* An operation or procedure that copies data to an alternative location, so it can be recovered if deleted or becomes corrupted.

Binary digit *[ˈbʌɪnəri ˈdɪdʒɪt] n* The smallest unit of data in a computer. A bit has a single binary value, either 0 or 1.

Blu-Ray *[ˈbluːˌreɪ] n* an optical disc format developed by thirteen consumer electronics and PC companies. These companies include Dell, Hitachi, Hewlett Packard, LG, Mitsubishi, Panasonic, Sony, and TDK. Blu-ray was first introduced at the CES on January 4, 2006 and

can store up to 25 GB single-layer disc and 50 GB on a dual-layer disc, each disc being the same size as a standard CD.

Botnet *[ˈbɒtnɛt] n* A group of infected computers that are under the control of one or more individuals. The infected computers are used to perform tasks impossible for a single computer, such as distributing millions of spam e-mail's.

Browser *[ˈbraʊzə] n* A software program created as a simplified means to present and explore content on the World Wide Web.

Bus *[bʌs] n* A channel which carries signals between units in the CPU.

C

Central Processing Unit (CPU) *[ˈsɛntr(ə)l ˈprəsɛsɪŋ ˈjuːnɪt] n* The 'brain' of the computer. A computer's CPU handles all instructions it receives from hardware and software running on the computer.

Chip *[tʃɪp] n* A tiny piece of silicon containing complex electronic circuits. They are used to make hardware components of a computer.

Circuit board *[ˈsəːkɪt bɔːd] n* A flat card with connections for electronic components; part of an electronic system.

Compact disk *[ˈkɒmpakt dɪsk] n* A storage device which uses optical laser techniques and which provides mass storage capacity.

Compiler *[kəmˈpʌɪlə] n* A software program that transforms high-level source code that is written by a developer in a high-level programming language into a low level object code (binary code) in machine language, which can be understood by the processor.

Configuration *[kənˌfɪgəˈreɪʃ(ə)n] n* The physical components of a computer system.

Control unit *[kənˈtrəʊl ˈjuːnɪt] n* Circuitry that directs operations within a computer's processor. It lets the computer's logic unit, memory, as well as both input and output devices know how to respond to instructions received from a program.

Coprocessor *[kəʊˈprəʊsɛsə] n* A special purpose processor that helps the CPU perform special operations such as math operations, encryption, and computer graphics.

Cracker *[ˈkrakə] n* An individual who can decipher codes and

passwords being able to break security systems for illegal reasons.

D

Data *[ˈdeɪtə] n* Information to be processed by a computer program.

Database *[ˈdeɪtəbeɪs] n* A large quantity of indexed digital information.

Debugger *[diːˈbʌgə] n* A computer program used by programmers to test and debug a target program.

Desktop *[ˈdɛsktɒp] n* An area of work – the menu bar and other sections of the screen.

Digital camera *[ˈdɪdʒɪt(ə)l ˈkam(ə)rə] n* A camera that produces digital images that can be stored in a computer, displayed on a screen and printed.

Disk *[dɪsk] n* A storage device made of flat circular plates with magnetizable surfaces.

Domain name *[də(ʊ)ˈmeɪn neɪm] n* When referring to an Internet address or name a domain or domain name is the location of a website. For example, the domain name "computerhope.com" points to the IP address "45.79.151.23", but it is generally easier to remember a name rather than a long string of numbers.

Download *[daʊnˈləʊd] v* the process of copying data from another computer, either over a network or modem. For example, each time you visit a web page on the Internet, you download the information on the page, including any pictures, to your computer.

E

Electronic mail (e-mail) *[ɛlɛkˈtrɒnɪk meɪl]* A facility which allows users to exchange messages electronically or a message that may contain text, files, images, or other attachments sent through a network to a specified individual or group of individuals.

Electronic circuit *[ɛlɛkˈtrɒnɪk ˈsəːkɪt] n* Composed of individual electronic components, such as resistors, transistors, capacitors, inductors and diodes, connected by conductive wires or traces through which electric current can flow.

Embedded system *[ɪmˈbɛdɪd ˈsɪstəm] n* A special-purpose system in which the computer is completely encapsulated by the device it controls.

End user *[ɛnd ˈjuːzə] n* The person for whom a hardware or software product is designed from the developers, installers, and servicers of the product.

Execute (a program) *[ˈɛksɪkjuːt] v* To carry out a program on a computer.

Expansion card *[ɪkˈspanʃ(ə)n kaːd] n* Connection or port located inside a computer on the motherboard or riser board that allows a computer hardware expansion card to be connected.

F

Fault tolerance *[fɔːlt ˈtɒl(ə)r(ə)ns] n* A setup or configuration that prevent a computer or network device from failing in the event of an unexpected problem or error.

File *[fʌɪl] n* An object on a computer that stores data, information, settings, or commands used with a computer program.

File compression *[fʌɪl kəmˈprɛʃ(ə)n] n* The encoding of a file into a more compact format so that it occupies less disk space.

Firewall *[ˈfʌɪəwɔːl] n* A software utility or hardware device that acts as a filter for data entering or leaving a network or computer. A firewall works by blocking or restricting network ports. Firewalls are commonly used to help prevent unauthorized access to both company and home networks.

Flash memory *[flaʃ ˈmɛm(ə)ri] n* Electronic (solid-state) non-volatile computer storage medium that can be electrically erased and reprogrammed.

G

Game console *[ɡeɪm ˈkɒnsəʊl] n* A form of interactive multimedia used for entertainment.

Graphene *[ˈɡrafiːn] n* A thin layer of pure carbon; it is a single, tightly packed layer of carbon atoms that are bonded together in a hexagonal honeycomb lattice.

H

Hacker *[ˈhakə] n* An individual who had an advanced understanding of computers, networking, programming, or hardware, but did not have any malicious intents. Today, a malicious hacker is usually referred to as a malicious user, black hat, or criminal hacker, which describes any individual who illegally breaks into computer

systems to damage or steal information.

High-level Programming Language *[ˌhʌɪˈlɛv(ə)l ˈprəʊgramɪŋ ˈlaŋgwɪdʒ] n* a programming language with strong abstraction from the details of the computer. It may use natural language elements, be easier to use, or may automate (or even hide entirely) significant areas of computing systems (e.g. memory management).

Host *[həʊst] n* The computer or other device connected to a computer network that delegates to the other nodes. A network host handles user requests; offering services, software applications, and information resources to users or other nodes within the network.

Hypertext *[ˈhʌɪpətɛkst] n* Text that contains links to other documents. A method of organizing and accessing text or other data, such as tables, presentational content and images, through the use of hyperlinks.

I

Input devices *[ˈɪnpʊt dɪˈvʌɪs] n* Units of hardware which allow the user to enter information into a computer, e.g. the keyboard, mouse, voice recognition devices etc.

Internal memory *[ɪnˈtəːn(ə)l ˈmɛm(ə)ri] n* A medium that holds memory for short periods of time while a computer is running.

Interpreter *[ɪnˈtəːprɪtə] n* A computer program that directly executes instructions written in a programming or scripting language, without previously batch-compiling them into machine language.

J

Joystick *[ˈdʒɔɪstɪk] n* An input device with a vertical lever, used in computer games.

K

Keyboard *[ˈkiːbɔːd] n* A set of keys on a computer, including the standard typewriter keys, function keys and several special keys.

L

Laptop *[ˈlaptɒp] n* A small portable computer.

Low-level Programming Language *[ləʊˈlɛv(ə)l prəʊgramɪŋ ˈlaŋgwɪdʒ] n* **A** programming language that deals with a computer's hardware components and constraints. It has no (or only a minute level of) abstraction in reference to a computer and works to manage a computer's operational semantics.

M

Machine Language *[mə ˈʃiːn ˈlaŋgwɪdʒ] n* A set of instructions executed directly by a computer's central processing unit (CPU).

Malware *[ˈmalwɛː] n* Malicious software designed to change your settings, delete software, cause errors, watch browsing habits, or open computer to attacks.

N

Node *[nəʊd] n* Any active, physical, electronic device attached to a network. These devices are capable of either sending, receiving, or forwarding information; sometimes a combination of the three.

O

Operating System *[ˈɒpəreɪtɪŋ ˈsɪstəm] n* A system software that manages computer hardware and software resources and provides common services for computer programs.

Output device *[ˈaʊtpʊt dɪ ˈvʌɪs] n* Any peripheral that receives data from a computer, usually for display, projection, or physical reproduction.

P

Password *[ˈpaːswəːd] n* A set of secret characters or words utilized to gain access to a computer, web page, network resource, or data.

Peer-to-peer network *[pɪə tʊ pɪə ˈnɛtwəːk] n* a network that does not have a central computer or dedicated server; in other words, all computers are independent.

Peripherals *[pə ˈrɪf(ə)r(ə)l] n* Hardware input devices or output devices that give a computer additional functionality.

Phishing *[ˈfɪʃɪŋ] n* description of a malicious individual or group of individuals who scam users. They do so by sending e-mails or creating web pages that are designed to collect an individual's online bank, credit card, or other login information.

Program *[ˈprəʊgram] n* A specific set of ordered operations for a computer to perform.

Programming Language *[prəʊgramɪŋ ˈlaŋgwɪdʒ] n* An artificial language designed to communicate instructions to a computer.

Q

Query Language *[ˈkwɪəri ˈlaŋgwɪdʒ] n* A computer languages

used to make queries in databases and information systems.

R

Rootkit *[ˈruːtkɪt]* *n* A collection of software tools that help enable someone to gain unauthorized access to a computer or other network device. Rootkits often hide the actions of the user and have been created for Unix variants, Linux variants, and Microsoft Windows.

Router *[ˈruːtə]* *n* A hardware device designed to receive, analyze and move incoming packets to another network; or used to connect various LANs.

Run *[rʌn]* (a program) *v* To perform indicated tasks according to encoded instructions.

S

Scam *[skam]* *n* A term used to describe any fraudulent business or scheme that takes money or other goods from an unsuspecting person. With the world becoming more connected thanks to the Internet, online scams have increased, and it's often up to you to help stay cautious with people on the Internet.

Semiconductor *[ˌsɛmɪkənˈdʌktə]* *n* A material that allows some electricity to move through it and that is used in electronic devices.

Software *[ˈsɒf(t)wɛː]* *n* A program that enables a computer to perform a specific task, as opposed to the physical components of the system (hardware).

Source Code *[sɔːs kəʊd]* *n* The set of instructions and statements written by a programmer using a computer programming language. This code is later translated into machine language by a compiler. The translated code is referred to as object code.

Spyware *[ˈspʌɪwɛː]* *n* A software program that has been designed to secretly gather information about a user's activity. Spyware programs are often used to track users' habits to better target them with advertisements.

System Software *[ˈsɪstəm ˈsɒf(t)wɛː]* *n* A platform comprised of Operating System (OS) programs and services, including settings and preferences, file libraries and functions used for system applications. System software also includes device drivers that run basic computer hardware and peripherals.

T

Terminal *[ˈtəːmɪn(ə)l]* *n* A group of hardware devices that commonly consists of a keyboard and a monitor that enables a user to communicate with the internal CPU or another network device or computer.

Trackball *[ˈtrakbɔːl]* *n* An input device that looks like an upside-down mouse. The onscreen pointer is moved by the trackball with a thumb or finger. A trackball requires less arm and wrist motion that a regular mouse

Trackpad/Touchpad *[ˈtrakpad / ˈtʌtʃpad]* *n* An input device on laptops and some keyboards to move a cursor with your finger. It can be used in place of an external mouse.

U

User Interface *[ˈjuːzə ˈɪntəfeɪs]* *n* Visual part of computer application or operating system through which a user interacts with a computer or a software.

User-friendly *[juːzəˈfrɛndli]* *adv* Application, equipment, facility, process, or system that is compatible with its intended user's ability to use it easily and successfully.

Utility *[juːˈtɪlɪti]* *n* Computer system software intended to analyze, configure, monitor, or help maintain a computer.

V

Virtual *[ˈvəːtʃʊ(ə)l]* *adj* A digitally replicated version of something real. The replication, which is created with software, may not be an exact copy of the actual item, but it is similar enough in essence to be described as a digital rendition.

Virus *[ˈvʌɪrəs]* *n* A program, script, or macro designed to cause damage, steal personal information, modify data, send e-mail, display messages, or some combination of these actions.

W

Webcam *[ˈwɛbkam]* *n* A hardware camera and input device that connects to a computer and the Internet and captures either still pictures or motion video of a user or other object.

Workstation *[ˈwəːksteɪʃ(ə)n]* *n* A computer system which usually includes a defined collection of input and output devices.

ABBREVIATIONS

2D Two Dimensional
AP Access Point
ATM Automated Teller Machine
BIOS Basic Input-Output System
Bit Binary Digit
CD-ROM Compact Disk Read Only Memory
CD-RW Compact Disk ReWritable
CPU Central Processing Unit
DB Database
DBMS Database Management System
DNSChanger Domain Name System Changer
DQDB Distributed Queue Dual Bus
DRAM Dynamic Random-Access Memory
DVD Digital Versatile Disk
EEPROM Electronically Erasable Programmable Read-Only Memory
GNOME GNU Network Object Model Environment
GPS Global Positioning System
GUI Graphical User Interface
HD High-Definition
IT Information Technology
LAN Local Area Network
MP3 MPEG (Moving Pictures Experts Group) Layer 3
OS Operating System
OSI Open Systems Interconnection
PAN Personal Area Network
PC Personal Computer
PDA Personal Digital Assistant
PDF Portable Document Format
PIN Personal Identification Number
POS Point of Sale terminals
RAM Random Access Memory
RF Radio Frequency

ABBREVIATIONS

ROM Read-Only Memory
SAGE Semi-Automatic Ground Environment
TCP/IP Transmission Control Protocol/Internet Protocol
USB Universal Serial Bus
VBScript Visual Basic Script
WAN Wide Area Network
Wi-Fi Wireless Fidelity
WPAN Wireless Personal Network
WWW World Wide Web

Список рекомендованих джерел:

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