

МИНИСТЕРСТВО ОБРАЗОВАНИЯ И НАУКИ РОССИЙСКОЙ ФЕДЕРАЦИИ
Федеральное государственное бюджетное образовательное учреждение высшего образования
«Кузбасский государственный технический университет имени Т. Ф. Горбачева»

Кафедра иностранных языков

Составители
Ю. С. Ларионова
А. Г. Широколобова

АНГЛИЙСКИЙ ЯЗЫК

Методические материалы

Рекомендованы учебно-методической комиссией специальности
10.05.03 Информационная безопасность автоматизированных систем
в качестве электронного издания для использования
в образовательном процессе

Кемерово 2018

Рецензенты:

Зникина Л. С. – профессор, доктор педагогических наук, заведующий кафедрой иностранных языков КузГТУ, профессор

Прокопенко Е. В. – кандидат технических наук, доцент, председатель учебно-методической комиссии специальности 10.05.03 Информационная безопасность автоматизированных систем

Ларионова Юлия Сергеевна

Широколобова Анастасия Георгиевна

Английский язык: методические материалы по дисциплине «Иностранный язык» [Электронный ресурс] для обучающихся специальности 10.05.03 Информационная безопасность автоматизированных систем очной формы обучения / сост.: Ю. С. Ларионова, А. Г. Широколобова; КузГТУ. – Электрон. издан. – Кемерово, 2018.

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составление, 2018

Предисловие

Данные методические материалы составлены в соответствии с рабочей программой дисциплины «Иностранный язык» специальности 10.05.03 Информационная безопасность автоматизированных систем и предназначены для практических занятий и самостоятельной работы студентов.

Содержание данного учебного пособия представлено следующими тематическими разделами:

- Information technology and computer users.
- Computer application.
- Computer architecture.
- Operating systems.
- User interface.
- Networks.
- The World Wide Web.
- Websites.

В методические материалы включены задания и упражнения на основе профессионально-ориентированных текстов, содержащих лексику, характерную для данной отрасли знаний.

Каждая тема сопровождается системой коммуникативных и лексико-грамматических заданий, направленных на приобретение студентами компетенций, предусмотренных образовательным стандартом специальности 10.05.03 Информационная безопасность автоматизированных систем:

ОК-7: способность к коммуникации в устной и письменной формах на русском и иностранном языках для решения задач межличностного и межкультурного взаимодействия, в том числе в сфере профессиональной деятельности;

ОК-8: способность к самоорганизации и самообразованию.

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INFORMATION TECHNOLOGY AND COMPUTERS

1. Before reading the text answer the following questions.

1. What is electronics?
2. Can you imagine modern life without electronics?
3. Where are electronic devices used?
4. What was the beginning of electronics development?
5. What made the progress in radio communication technology possible?

Information technology

Today, the term «information technology» has ballooned to encompass many aspects of computing and technology, and the term is more recognizable than ever before. The information technology umbrella can be quite large, covering many fields. Computer professionals are often called IT specialists or Business Process Consultants, and the division of a company or university that deals with software technology is often called the IT department. Other names for the latter are information services (IS) or management information services (MIS), managed service providers (MSP). IT professionals perform a variety of duties that range from installing applications to designing complex computer networks and information databases. A few of the duties that IT professionals perform may include data management, networking, engineering computer hardware, database and software design, as well as the management and administration of entire systems.

2. Answer the questions.

1. What does IT deal with?
2. How has the term been recently broadened?
3. Why was the use of Information and Communications Technology and its tools in the field of Education grown in the recent past? What way?
4. What are the duties that IT professionals perform?
5. Define the term «information technology».

3. Read and translate the text. Give the summary of it.

The first computers

In 1930 the first *analog* computer was built by American named Vannevar Bush. This device was used in World War II to help aim guns. Many technical developments of electronic *digital* computers took place in the 1940s and 1950s. Mark I, the name given to the first digital computer, was completed in 1944. The man responsible for this invention was Professor Howard Aiken. This was the first machine that could figure out long lists of mathematical problems at a very fast rate.

In 1946 two engineers at the University of Pennsylvania, J. Eckert and J. Maushly, built their digital computer with vacuum tubes. They named their new invention ENIAC (the Electronic Numerical Integrator and Calculator). Another important achievement in developing computers came in 1947, when John von Neumann developed the idea of keeping instructions for the computer inside the computer's memory. The contribution of John von Neumann was particularly significant. As contrasted with Babbage's analytical engine, which was designed to store only data, von Neumann's machine, called the Electronic Discrete Variable Computer, or EDVAC, was able to store both data and instructions. He also contributed to the idea of storing data and instructions in a *binary code* that uses only ones and zeros. This simplified computer design. Thus computers use two conditions, high voltage, and low voltage, to translate the symbols by which we communicate into unique combinations of electrical pulses. We refer to these combinations as codes.

Neumann's stored program computer as well as other machines of that time was made possible by the invention of the vacuum tube that could control and amplify electronic signals. Early computers, using vacuum tubes, could perform computations in thousandths of seconds, called milliseconds, instead of seconds required by mechanical devices.

4. Answer the questions about the text.

1. When was the first analog computer built?

2. Where and how was that computer used?
3. When did the first digital computers appear?
4. Who was the inventor of the first digital computer?
5. What could that device do?
6. What is ENIAC? Decode the word.
7. What was J. Neumann's contribution into the development of computers?
8. What were the advantages of EDVAC in comparison with ENIAC?
9. What does binary code mean?
10. Due to what invention could the first digital computers be built?

5. Here are some sentences. Are they true or false? Correct the false sentences:

- 1) Computer is made of electronic components so it is referred to as electronic device.
- 2) Computer has no intelligence until software is loaded.
- 3) There are four elements of computer system: hardware, software, diskettes and data.
- 4) Without software instructions hardware doesn't know what to do.
- 5) The software is the most important component because it is made by people.
- 6) The user inputs data into computer to get information as an output.

COMPUTER APPLICATIONS

1. Find the answers to these questions in the following text.

- 1) What tool is often used in data mining?
- 2) What AI method is used for the following processes?
 - a) Separate data into subsets and then analyse the subsets to divide them into further subsets for a number of levels.
 - b) Continually analyse and compare data until patterns emerge.
 - c) Divide data into groups based on similar features or limited data ranges.
- 3) What term is used for the patterns found by neural networks?
- 4) When are clusters used in data mining?

- 5) What types of data storage can be used in data mining?
- 6) What can an analyst do to improve the data mining results?
- 7) Name some of the ways in which data mining is currently used.

Data Mining

Data mining is simply filtering through large amounts of raw data for useful information that gives businesses a competitive edge. This information is made up of meaningful patterns and trends that are already in the data but were previously unseen.

The most popular tool used when mining is artificial intelligence (AI). AI technologies try to work the way the human brain works, by making intelligent guesses, learning by example, and using deductive reasoning. Some of the more popular AI methods used in data mining include neural networks, clustering, and decision trees.

Neural networks look at the rules of using data, which are based on the connections found or on a sample set of data. As a result, the software continually analyses value and compares it to the other factors, and it compares these factors repeatedly until it finds patterns emerging. These patterns are known as rules. The software then looks for other patterns based on these rules or sends out an alarm when a trigger value is hit. Clustering divides data into groups based on similar features or limited data ranges. Clusters are used when data isn't labelled in a way that is favourable to mining. For instance, an insurance company that wants to find instances of fraud wouldn't have its records labelled as fraudulent or not fraudulent. But after analysing patterns within clusters, the mining software can start to figure out the rules that point to which claims are likely to be false.

Decision trees, like clusters, separate the data into subsets and then analyse the subsets to divide them into further subsets, and so on (for a few more levels). The final subsets are then small enough that the mining process can find interesting patterns and relationships within the data.

Once the data to be mined is identified, it should be cleansed. Cleansing data frees it from duplicate information and erroneous data. Next, the data should be stored in a uniform format within relevant categories or fields. Mining tools can work with all types of data storage, from large data warehouses to smaller desktop databases to

flat files. Data warehouses and data marts are storage methods that involve archiving large amounts of data in a way that makes it easy to access when necessary.

When the process is complete, the mining software generates a report. An analyst goes over the report to see if further work needs to be done, such as refining parameters, using other data analysis tools to examine the data, or even scrapping the data if it's unusable. If no further work is required, the report proceeds to the decision makers for appropriate action.

The power of data mining is being used for many purposes, such as analysing Supreme Court decisions, discovering patterns in health care, pulling stories about competitors from newswires, resolving bottlenecks in production processes, and analysing sequences in the human genetic makeup. There really is no limit to the type of business or area of study where data mining can be beneficial.

5. Match the terms with the statements below.

- a) data mining b) leanded data c) AI d) data warehouse
- 1) Storage method of archiving large amounts of data to make it easy to access.
 - 2) Data free from duplicate and erroneous information.
 - 3) A process of filtering through large amounts of raw data for useful information.
 - 4) A computing tool that tries to operate in a way similar to the human brain.

6. Are the following statements as True or False:

- 1) Data mining is a process of analysing known patterns in data.
- 2) Artificial intelligence is commonly used in data mining.
- 3) In data mining, patterns found while analyzing data are used for further analysing the data.
- 4) Data mining is used to detect false insurance claims.
- 5) Data mining is only useful for a limited range of problems.

7. Complete the following description of the data mining process using words from the text:

Large amounts of data stored in data ____ are often used for data ____ .The data is first ____ to remove ____ information and errors. The ____ is then analysed using a tool such as ____ . An analysis report is ____

the analysed by an ___ who decides if the need ___ to be refined, other data ___ tools need to be used, or if the results need to be discarded because they are ___.The analyst passes the final results to the ___ makers who decide on the action.

COMPUTER ARCHITECTURE

1. Name these different types of devices. Then match the possible users below to each type. Justify your choice.

- 1) student using a computer for entertainment while travelling;
- 2) large company processing payroll data;
- 3) travelling salesperson giving marketing presentations;
- 4) large scientific organisation processing work on nuclear research;
- 5) businessperson keeping in touch with clients while travelling;
- 6) graphic designer;
- 7) secretary doing general office work.



(Adopted from «Oxford English for Information Technology»)

2. What do these abbreviations mean? Use a dictionary if necessary. CD-ROM, FSB, TFT, SDRAM, MB, XGA, GHz.

3. Match each item in Column A with its function in Column B. Then describe its function in two ways.

We can describe the function of an item in a number of ways. Study these examples.

- a) ROM **holds** instructions which are needed to start up the computer.
- b) ROM **is used to** hold instructions which are needed to start up the computer.
- c) ROM **is used for holding** instructions which are needed to start up the computer.
- d) **The function** of ROM **is to hold** instructions which are needed to start up the computer.

A) Item

- 1) RAM
- 2) processor
- 3) mouse
- 4) dock
- 5) flashmemorykey
- 6) monitor
- 7) cache
- 8) keyboard
- 9) DVD-ROM drive
- 10) ROM

B) Function

- a) Controls the cursor
- b) inputs data through keys like a typewriter
- c) displays the output from a computer on a screen
- d) reads DVD ROMs
- e) reads and writes to electronic chips on a card
- f) holds instructions which are needed to start up the computer
- g) holds data read or written to it by the processor
- h) provides extremely fast access for sections of a program and its data
- i) controls the timing of signals in the computer
- j) controls all the operations in a computer

(Adopted from «Oxford English for Information Technology»)

4. Describe the functions of these items.

scanner, supercomputer, printer, mainframe computer, ATM, barcodes, PDA, swipe cards, hard disk drive, memory, flash memory, mouse, game controller, joystick.

5. Read the sentences and translate them. Study the examples of prepositions of place.

- 1) Data moves *between* the CPU and RAM.
- 2) Data flows *from* ROM *to* the CPU.
- 3) A program is read *from* disk *into* memory.

- 4) Data is transferred *along* the data bus.
- 5) The address number is put *onto* the address bus.
- 6) The hard disk drive is *in side* a sealed case.
- 7) Heads move *across* the disk.
- 8) Tracks are divided *into* sectors.

6. Complete each sentence using the correct preposition.

- 1) The CPU is a large chip ___ the computer.
- 2) Data always flows ___ the CPU ___ the address bus.
- 3) The CPU can be divided ___ three parts.
- 4) Data flows ___ the CPU and memory.
- 5) Peripherals are devices ___ the computer but linked ___ it.
- 6) The signal moves ___ the VDU screen ___ one side ___ the other.
- 7) The CPU puts the address ___ the address bus.
- 8) The CPU can fetch data ___ memory ___ the data bus.

OPERATING SYSTEMS

1. Study this text title. What do you think it means? Then read this text to check your answer and to find the answers to these questions:

- 1) What difference is there between applications software and operating systems?
- 2) Why is the supervisor program the most important operating system program?
- 3) What is the difference between resident and non-resident programs?
- 4) What are the main functions of an operating system?

Operating Systems: Hidden Software

When a brand new computer comes off the factory assembly line, it can do nothing. The hardware needs software to make it work. Are we talking about applications software such as word processing or spreadsheet software? Partly. But an applications software package does not communicate directly with the hardware. Between the applications software and the hardware is a software interface – an

operating system. An operating system is a set of programs that lies between applications software and the computer hardware.

The most important program in the operating system, the program that manages the operating system, is the supervisor program, most of which remains in memory and is thus referred to as resident. The supervisor controls the entire operating system and loads into memory other operating system programs (called non-resident) from disk storage only as needed.

An operating system has three main functions: (1) manage the computer's resources, such as the central processing unit, memory, disk drives, and printers, (2) establish a user interface, and (3) execute and provide services for applications software. Keep in mind, however, that much of the work of an operating system is hidden from the user. In particular, the first listed function, managing the computer's resources, is taken care of without the user being aware of the details. Furthermore, all input and output operations, although invoked by an applications program, are actually carried out by the operating system.

2. Complete the gaps in this summary of the text on operating systems using these linking words and phrases:

Although, in addition, because, such as, but, therefore

The user is aware of the effects of different applications programs:

1) ___ operating systems are invisible to most users. They lie between applications programs; 2) ___ word processing, and the hardware. The supervisor program is the most important. It remains in memory; 3) ___ it is referred to as resident. Others are called non-resident; 4) ___ they are loaded into memory only when needed. Operating systems manage the computer's resources; 5) ___ the central processing unit; 6) ___, they establish a user interface, and execute and provide services for applications software; 7) ___ input and output operations are invoked by applications programs, they are carried out by the operating system.

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

For example:

- 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 software.

4. The -ing form is also used after prepositions. This includes 'to' when it is a preposition and not part of the infinitive.

For example:

- 1) Without the user being aware of the details, the operating system manages the computer's resources.
- 2) We begin by focusing on the interaction between a user and a PC operating system.
- 3) We look forward to having cheaper and faster computers.

5. Rewrite each of these sentences like this:

An important function of the operating system is to manage the computer's resources. – *Managing the computer's resources is an important function of the operating system.*

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

6. Complete these sentences with the correct form of the verb: infinitive or -ing form.

- 1) Don't switch off without (*close down*) your PC.
- 2) I want to (*upgrade*) my computer.
- 3) He can't get used to (*log on*) with a password.
- 4) You can find information on the Internet by (*use*) a search engine.
- 5) He objected to (*pay*) expensive telephone calls for Internet access.
- 6) He tried to (*hack into*) the system without (*know*) the password.
- 7) You needn't learn how to (*program*) in HTML before (*design*) webpages.
- 8) I look forward to (*input*) data by voice instead of (*use*) a keyboard.

6. Try to find the commands from the lists below which will have these actions.

VMS	Unix	VMS	Unix
help	write	show users	rm
directory	cp	showtime	man
search	lpr	create	grep
copy	ls	phone	rwho
rename	mkdir	delete	mv
print	date		

Action	VMS command	Unix command
List all the files in a directory		
Delete a file		
Rename a file		
Send a file to a printer		
Obtain help		
Cleat a directory		
Show date and time		
Show users on system		
Talk to other users on system		
Search for a sting in a file		

7. Carry out a research and find answers to these questions

- 1) Which operating system is used on Apple Macintosh microcomputers?
- 2) What is Palm OS designed for?
- 3) Name one system used on IBM mainframes.
- 4) Which operating system is Linux related to?
- 5) Which operating systems are specifically designed for multimedia?
- 6) Which operating systems are produced by the Microsoft Corporation?
- 7) Which operating system is distributed as freeware?
- 8) Which network operating system is becoming less popular?
- 9) Which operating system is most suited for use in the living room of a family home?
- 10) Which operating systems are used by DEC VAX minicomputers?

USER INTERFACES

1. Find the answers to these questions in the following text.

- 1) What developments are driving the development of completely new interfaces?
- 2) What has inspired a whole cottage industry to develop to improve today's graphical user interface?
- 3) In what way have XML-based formats changed the user interface?
- 4) What types of computers are certain to benefit from speech technology?
- 5) Name a process where a mouse is particularly useful and a process where it is not so useful.
- 6) What facilities are multimodal interfaces likely to offer in the future?
- 7) What type of input device will be used to give vision to the user interface?
- 8) What development has led to an interest in intelligent agents?
- 9) List ways in which intelligent agents can be used.

User interfaces

Cheaper and more powerful personal computers are making it possible to perform processor-intensive tasks on the desktop. Breakthroughs in technology, such as speech recognition, are enabling new ways of interacting with computers. And the convergence of personal computers and consumer electronics devices is broadening the base of computer users and placing a new emphasis on ease of use. Together, these developments will drive the industry in the next few years to build the first completely new interfaces since SRI International and Xerox's Palo Alto Research Center did their pioneering research into graphical user interfaces (GUIs) in the 1970s.

True, it's unlikely that you'll be ready to toss out the keyboard and mouse any time soon. Indeed, a whole cottage industry – inspired by the hyperlinked design of the World Wide Web – has sprung up to improve today's graphical user interface. Companies are developing products that organize information graphically in more intuitive ways. XML-based formats enable users to view content, including local and network files, within a single browser interface. But it is the more dramatic innovations such as speech recognition that are poised to shake up interface design.

Speech will become a major component of user interfaces, and applications will be completely redesigned to incorporate speech input. Palm-size and handheld PCs, with their cramped keyboards and basic handwriting recognition, will benefit from speech technology.

Though speech recognition may never be a complete replacement for other input devices, future interfaces will offer a combination of input types, a concept known as multimodal input. A mouse is a very efficient device for desktop navigation, for example, but not for changing the style of a paragraph. By using both a mouse and speech input, a user can first point to the appropriate paragraph and then say to the computer, «Make that bold». Of course, multimodal interfaces will involve more than just traditional input devices and speech recognition. Eventually, most PCs will also have handwriting recognition, text to speech (TTS), the ability to recognize faces or gestures, and even the ability to observe their surroundings.

At The Intelligent Room, a project of Massachusetts Institute of Technology's Artificial Intelligence Lab, researchers have given sight

to PCs running Microsoft Windows through the use of video cameras. «Up to now, the PC hasn't cared about the world around it», said Rodney A. Brooks, the Director of MIT's Artificial Intelligence Lab. «When you combine computer vision with speech understanding, it liberates the user from having to sit in front of a keyboard and screen».

It's no secret that the amount of information – both on the Internet and within intranets – at the fingertips of computer users has been expanding rapidly. This information onslaught has led to an interest in intelligent agents, software assistants that perform tasks such as retrieving and delivering information and automating repetitive tasks. Agents will make computing significantly easier. They can be used as Web browsers, help-desks, and shopping assistants. Combined with the ability to look and listen, intelligent agents will bring personal computers one step closer to behaving more like humans. This is not an accident. Researchers have long noted that users have a tendency to treat their personal computers as though they were human. By making computers more 'social,' they hope to also make them easier to use.

As these technologies enter mainstream applications, they will have a marked impact on the way we work with personal computers. Soon, the question will be not «what does software look like» but «how does it behave»?

2. Match the terms with the statements below.

- | | |
|-------------------------|-------------------------|
| a) GUI | b) Multimodal interface |
| c) TTS | d) Intelligent agent |
| t) The Intelligent Room | |
- 1) Software assistant that performs tasks such as retrieving and delivering information and automating repetitive tasks
 - 2) Text to speech
 - 3) Graphical user interface
 - 4) A project of the Massachusetts Institute of Technology's Artificial Intelligence Lab
 - 5) A system that allows a user to interact with a computer using a combination of inputs such as speech recognition, handwriting recognition, text to speech, etc.

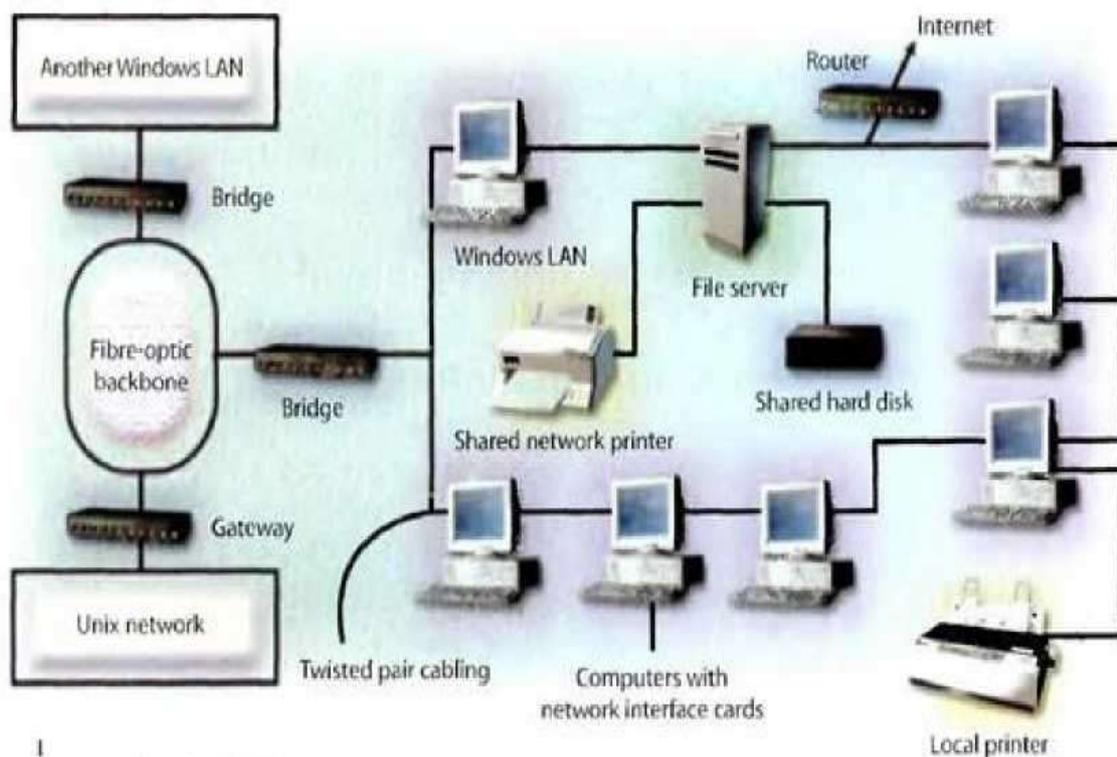
3. Are the following statements True or False?

- 1) Fewer people are using computers because computer functions are becoming integrated into other electronic devices.
- 2) Keyboards and mice will soon not be required for using personal computers.
- 3) There have been no improvements in interface design since the development of the GUI.
- 4) Speech recognition is likely to completely replace other input devices.
- 5) Computer speech and vision will free the user from having to sit in front of a keyboard and screen.
- 6) Intelligent agents will make computers seem more like humans.

NETWORKS

1. With the help of this diagram, try to describe the function of these components of a typical network system:

a file server, a bridge, a router, a backbone, a LAN, a gateway, a modem



2. Read these definitions to check your answers. You may also refer to a dictionary.

A bridge is a hardware and software combination used to connect the same type of networks. Bridges can also partition a large network into two smaller ones and connect two LANs that are nearby each other.

A router is a special computer that directs communicating messages when several networks are connected together. High-speed routers can serve as part of the Internet backbone.

A gateway is an interface that enables dissimilar networks to communicate, such as two LANs based on different topologies or network operating systems.

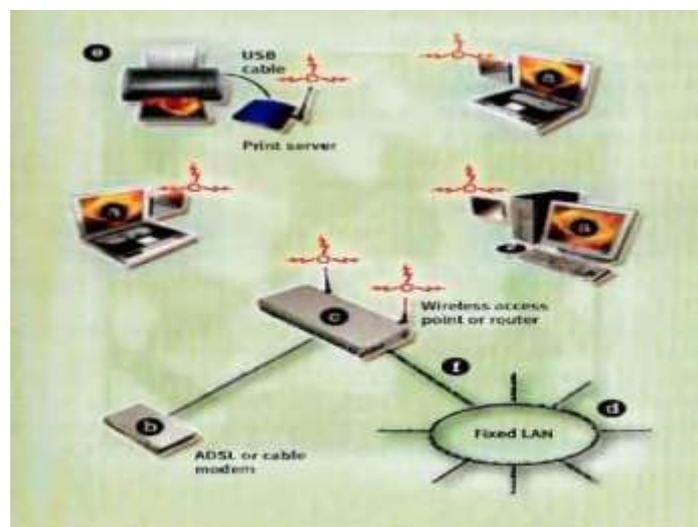
A backbone is the main transmission path, handling the major data traffic, connecting different LANs together.

A LAN is a network contained within a small area, for example a company department.

A modem is a device for converting digital signals to analogue signals and vice versa to enable a computer to transmit and receive data using an ordinary telephone line.

3. Now study the diagram of a wireless network setup and the text below. Match the diagram key to the components of the network.

Wireless networking



Wireless (WiFi) networks are just like fixed LANs but instead of using cables, devices are linked by radio waves.

Each computer in a wireless network requires a wireless network interface card (NIC). These can be built in or you can use plug-in adaptors. These allow each component in the network to communicate with a wireless access point (AP) to create a wireless local area network (WLAN). The AP operates like a router in a fixed LAN. It also provides a bridge which plugs into the hub of a fixed LAN allowing both fixed and wireless users to talk to each other. If your LAN is connected to the Internet, the WLAN can also use it. If not, you can connect the WLAN to the Internet via an ADSL or cable modem.

What are the advantages of a wireless network? You don't need cabling. In older buildings, it can be expensive to install cables and access points. With WiFi, one access point can cover an entire floor or even a building. You can work anywhere within range of the access point. On a sunny day, you could work outside. You can make any room in the house your study. There are now WiFi hotspots in hotels, libraries and airports so you can link to a network away from home or your office.

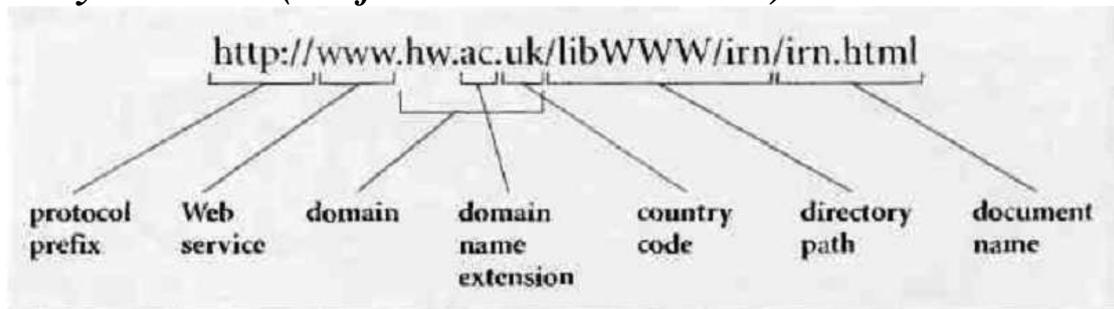
There are disadvantages. Fixed LANs can run at 1000 Mbps. Wireless networks are much slower and the further you are from an access point, the slower the rate. Although there are savings on the cost of cabling, wireless NICs are more expensive than the wired versions. Then there is the problem of interference, if a neighbour is using the same channel, and security. Other users may be able to intercept your data. Encryption programs like Wired Equivalent Privacy (WEP) can help.

Key to the diagram:

- 1) A modem providing access to the Internet.
- 2) A wireless AP enabling computers to connect to the fixed LAN.
- 3) Computers equipped with wireless NICs.
- 4) A fixed LAN linking computers with cables.
- 5) A network printer connected to a wireless print server.
- 6) A data line linking fixed LAN clients to a wireless access point.

THE WORLD WIDE WEB

1. Study this URL (*Uniform Resource Locator*)



Which part of the address tells you:

- 1) the university is in the UK?
- 2) this is a webpage?
- 3) the type of transmission standard your browser must use to access the data?
- 4) this points to the computer where the webpage is stored?
- 5) this is where the webpage is stored in the computer?
- 6) this is a university?
- 7) this uses the Web service?

2. Study these approved domain name extensions and their meanings. Then match these suggestions for new extensions to their meanings.

Extension	Meaning
.aero	aviation industry
.biz	businesses
.com (.co in UK)	commercial
.coop	cooperatives
.edu (.ac in UK)	educational and research
.gov	government
.info	general use
.int	international organisation
.mil	military agency
.museum	museums
.name	individuals
.net	gateway or host
.org	non-profit organisation
.pro	professionals

Suggested extension	Meaning
1 .firm	a informative
2 .store	b cultural or entertainment
3 .web	c personal
4 .arts	d firm or agency
5 .rec	e online retail shop
6 .info	f Web-related
7 .nom	g recreational

3. Find the answers to these questions in the following text.

- 1) Name three different email protocols mentioned in the text.
- 2) Which email protocol is used to transfer messages between server computers?
- 3) Why is SMTP unsuitable for delivering messages to desktop PCs?
- 4) Name two host-based mail systems mentioned in the text.
- 5) Where are email messages stored in an SMTP system?
- 6) What happens when you use your Web mail account to access a POP3 mailbox?
- 7) Give an advantage and a disadvantage of having an option to leave POP3 messages on the server.
- 8) What are the advantages of using the IMAP4 protocol?

Email Protocols

Although the format of a mail message, as transmitted from one machine to another, is rigidly defined, different mail protocols transfer and store messages in slightly different ways. The mail system you're probably used to employs a combination of SMTP and POP3 to send and receive mail respectively. Others may use IMAP4 to retrieve mail, especially where bandwidth is limited or expensive.

Simple Mail Transfer Protocol

SMTP is used to transfer messages between one mail server and another. It's also used by email programs on PCs to send mail to the server. SMTP is very straightforward, providing only facilities to deliver messages to one or more recipients in batch mode. Once a message has been delivered, it can't be recalled or cancelled. It's also deleted from the sending server once it's been delivered. SMTP uses 'push' operation, meaning that the connection is initiated by the sending server rather than the receiver. This makes it unsuitable for delivering messages to desktop PCs, which aren't guaranteed to be switched on at all times.

In host-based mail systems, such as Unix and Web mail, SMTP is the only protocol the server uses. Received messages are stored locally and retrieved from the local file system by the mail program. In the case of Web mail, the message is then translated into HTML and transmitted to your browser. SMTP is the only protocol for

transferring messages between servers. How they're then stored varies from system to system.

Post Office Protocol

POP is a message-retrieval protocol used by many PC mail clients to get messages from a server, typically your ISP's mail server. It only allows you to download all messages in your mailbox at once. It works in 'pull' mode, the receiving PC initiating the connection. PC-based POP3 mail clients can do this automatically at a preset interval. When you use your Web mail account to access a POP3 mailbox, the mail server opens a connection to the POP3 server just as a PC-based application would. The messages are then copied into your Web mailbox and read via a browser.

Since POP3 downloads all the messages in your mailbox, there's an option to leave messages on the server, so that they can be picked up from different machines without losing any. This does mean that you'll get every message downloaded every time you connect to the server. If you don't clean out your mailbox regularly, this could mean long downloads. When using a Web mail account to retrieve POP3 mail, be careful about leaving messages on the server – if too many build up, each download will take a long time and fill up your inbox. Many Web mail systems won't recognise messages you've already downloaded, so you'll get duplicates of ones you haven't deleted.

Internet Mail Access Protocol

IMAP is similar in operation to POP, but allows you more choice over what messages you download. Initially, only message headers are retrieved, giving information about the sender and subject. You can then download just those messages you want to read. You can also delete individual messages from the server, and some IMAP4 servers let you organise your mail into folders. This makes download times shorter and there's no danger of losing messages.

4. Are the following statements True or False?

- 1) Different mail systems transfer emails in different ways.
- 2) IMAP4 requires more bandwidth than the other email protocols.
- 3) SMTP is used for sending emails from a PC to a server.
- 4) SMTP delivers messages one at a time.
- 5) SMTP does not allow a delivered message to be cancelled.

- 6) SMTP is only one of many protocols used to send mail between servers.
- 7) POP protocol allows the user to download one message at a time.

5. Match the terms with the statements below.

- | | |
|---------------------|---------------------|
| a) «Push» operation | b) «Pull» operation |
| c) SMTP | d) POP |
| e) IMAP | |
- 1) An email transfer process in which the connection is initiated by the sending computer rather than the receiving computer.
 - 2) A mail transfer protocol that initially only retrieves the message headers.
 - 3) An email transfer process in which the receiving computer initiates the connection.
 - 4) A simple mail transfer protocol that is used to send messages between servers.
 - 5) A message-retrieval protocol that downloads all email messages at the same time.

WEBSITES

1. Study these seven points for evaluating websites. What questions would you ask to evaluate a website on each point?

- 1) Design.
- 2) Navigation.
- 3) Ease of use.
- 4) Accuracy.
- 5) Up to date.
- 6) Helpful graphics.
- 7) Compatibility.

2. Summarise the advice in each text you read in one sentence.

1) Trust Text

It's tempting to spice up pages with graphics – but sometimes even a little is too much. If possible your navigation system should be

based on text links, rather than image maps or graphical buttons. Studies have shown that visitors will look at and try text links before clicking on graphical buttons.

2) Next Best ALternative

If you must use a graphical navigation system, include descriptive ALT text captions. The ALT text will make it possible for visitors who use text browsers such as Lynx or who browse with graphics turned off, to find their way around. In addition to the graphical navigation buttons, be sure to include text links at the bottom of every page that provide a clear route to the main areas of your site.

3) Map It

A site map offers a good overview of your site and will provide additional orientation for visitors. It should be in outline form and include all the major sections of your site with key subpages listed beneath those sections. For example, you may group your FAQ, Contact and Troubleshooting pages so they're all accessible from a Support page. It's a good idea to visit a few larger sites to get some ideas on designing an effective site map.

4) Forego Frames

Avoid frames wherever possible. Most veteran browsers dislike them and they can be confusing for visitors who are suddenly presented with multiple scrollbars. If you're committed to using frames on your site, you'd better commit yourself to some extra work too, because you'll have to create a no-frames version of your site for visitors whose browsers don't support frames.

5) Consistency Counts

Don't change the location of your navigation elements, or the color of visited and not-visited links from page to page. And don't get clever with links and buttons that appear and disappear: turning things on and off is usually done as an attempt to let visitors know where they are at a site but more often than not it ends up confusing them.

6) Just a Click Away

Keep content close at hand. Every page on your site should be accessible from every other one within four clicks. You should regularly reexamine your page structure and links, and make necessary adjustments. People come to your site to find information – don't make them dig for it.

7) Shun Search

Most sites have a search function, but try to discourage its use as much as possible. Even the best search engines turn up irrelevant matches. and visitors may not know how to use yours effectively. Logical, clearly placed links are more likely to help visitors find what they want.

8) Passing Lanes

Provide multiple paths through your site so visitors aren't restricted to one style of browsing. For most sites, a pull-down navigation menu is an easy addition that offers an alternative route through your pages, without wasting space.

9) Overwhelming Options

Don't overwhelm visitors by presenting dozens of places that they can go. A large number of choices is not necessarily a good thing.

3. Complete this table summarizing the whole text.

Text	Advice
1	
2	
3	
4	
5	
6	
7	
8	
9	

4. Find the answers to these questions in the following text.

- 1) What languages were derived from SGML?
- 2) What type of language is used to structure and format elements of a document?
- 3) Name two metalanguages.
- 4) What elements of data is XML (but not HTML) concerned with?
- 5) What is meant by the term 'extensible'?
- 6) What makes XML a more intelligent language than HTML?

- 7) What does the HTML markup tag <p> indicate?
- 8) Why are search engines able to do a better job with XML documents?
- 9) What type of website is particularly likely to benefit from XML?

XML Takes on HTML

Standard Generalized Markup Language (SGML) is the language that spawned both HTML (HyperText Markup Language) and XML (extensible Markup Language). SGML is not a true language, it is a metalanguage, which is a language from which you can create other languages. In this case, it is the creation of a markup language (a system of encoded instructions for structuring and formatting electronic document elements).

HTML is an application-specific derivation of SGML. It is a set of codes, generally used for web pages, that creates electronic documents according to rules established by SGML. HTML is a language that is all about the presentation of your information, not what the actual data is. You can, therefore, say that HTML is a presentation language.

XML is a subset of SGML, but it is also, like SGML, a metalanguage. XML defines a specific method for creating text formats for data so that files are program independent, platform independent, and support internationalisation (able to read different languages, etc.). In fact, because XML is an extensible language, you don't even have to have a browser to interpret the page. Applications can parse the XML document and read the information without any human intervention.

XML, unlike HTML, is concerned with the identity, meaning and structure of data. XML is extensible because it lets website developers create their own set of customized tags for documents. This ability to define your own tags is the main feature of XML, and it is what gives developers more flexibility.

By defining your own markup tags, you can explicitly define the content in the document. This makes XML a more intelligent markup language than HTML. For example, in HTML, you could have a paragraph tag <p> preceding a paragraph about baseball. Your Web browser sees this tag and knows to present the following text as a

paragraph. All your browser knows about the text, however, is that it is text; it doesn't know that it is specifically about baseball. In an XML document, you could define a <BASEBALL> tag to refer specifically to 45 the text in the paragraph in your document. This way, when your XML browser examines the document, the document knows what data it contains, and that makes the content more intelligent. Search engines that make use of XML data can do a better job of finding the pages you are looking for because of the intelligent nature of XML content.

XML, by design, does not deal with how the data is displayed to the end user. Because HTML is a presentation language, XML documents use HTML tags to help handle the visual formatting of the document. Also, you can use XML in your HTML documents to provide metadata, which is data about data in the document.

XML will do to the Web and e-commerce what HTML originally did to the Internet. XML and its associated applications have the potential to blow the roof off the Internet and how we do business.

5. Are the following statements True or False?

- 1) HTML is no longer useful for creating web pages.
- 2) SGML is more complex than XML.
- 3) XML files can only be used on Unix systems.
- 4) XML files can only be read by browser programs.
- 5) HTML is a markup language.
- 6) Internet searches will be better with XML files.

6. Match the terms with the statements below.

- | | |
|--------------------|-----------------|
| a) Metadata | b) Metalanguage |
| c) HTML | d) XML |
| e) Markup language | |
- 1) Extensible markup language
 - 2) A coding system used for structuring and formatting documents
 - 3) Data about data
 - 4) An example of a page presentation language
 - 5) A language from which you can create other languages