

Computers

Unit 1



Objectives

In this unit, you will learn about:

- computers and their applications
- the main components of a computer
- computer language
- the history of hardware development
- the history of software development

◆ Computers ¹

Computers and their Uses

You know what **computers** are and what they do for us. But computers have not really been with us for a very long time. Computers started to become **popular** with big companies in the 1960s. They did not become **widespread** at homes and schools until the 1980s.



Today, there is hardly any aspect of life in which computers are not being used. People use computers in many ways. Stores use computers to keep track of products and check you out at the cash register. Banks use computers to **transfer** money all over the world. Computers help teachers keep track of lessons and grades. They help students do research and learn. Computers let you connect to the **Internet**. Scientists use computers to solve research problems. Engineers use computers to make cars, trucks, and airplanes. Architects use computers to **design** houses and other buildings.

Computers are not just **desktops** and **laptops**. Computers are everywhere around your house. There are tiny computers inside microwave ovens, television sets, videocassette recorders (VCRs), or digital videodisc (DVD) players. There are even tiny computers in cars to help them run more efficiently.

¹ Adapted from: Snyder, Timothy Law. "Computer." Microsoft® Student 2008 [DVD]. Redmond, WA: Microsoft Corporation, 2007.

I. Find a synonym for each of the following items in the passage.

1. known:..... 2. being everywhere:..... 3. follow:.....
 4. goods:..... 5. score:..... 6. designers:.....
 7. small:..... 8. work:..... 9. better:.....

II. Check true or false.

1. Computers have a long history.
 True False
2. There was a computer in most houses in the 1970s.
 True False
3. Nowadays, computers are used in almost every aspect of life.
 True False
4. The Internet is a worldwide network by which so many computers are connected.
 True False
5. Computers are all external machines that we can see.
 True False

III. Complete the following sentences based on the passage.

1. Computers became popular among then about years later among people.
2. The educational use of computers is when and use them at schools and universities.
3. In architecture, computers are used for buildings and houses.
4. Two major kinds of computers are and
5. VCR stands for and DVD stands for

Hardware and Software

Computers need hardware and software in order to work. Your desktop or laptop and all the internal components are called hardware. The Central Processing Unit (CPU) makes the computer work. The keyboard, mouse, printer, and monitor are also pieces of computer hardware. Memory chips are also hardware that can store information and instructions. Information also gets stored on the hard disk drive.



The programs that run the computer are called software. The computer operating system is software that tells the computer how to run. Applications or programs are pieces of software that do certain tasks. Word-processing programs, for example, let you write school reports and letters.

Computer Language

One reason that computers can do so much is that they have a special language that tells them what to do. Computer language has only two letters: zeros and ones. Computers can read these ones and zeros extremely quickly.

Each zero or one is called a bit. Eight zeros and ones together are called a byte. Bits and bytes get stored in computer memory chips. Every

year, computer engineers make chips that can hold more bytes. The chips can hold more information. Programmers can write applications that can do more things.

I. Find a synonym for each of the following items in the passage.

- | | | |
|---------------------|-----------------|-------------------|
| 1. inside:..... | 2. parts:..... | 3. causes:..... |
| 4. saves:..... | 5. orders:..... | 6. specific:..... |
| 7. activities:..... | 8. very:..... | 9. keep:..... |

II. Check true or false.

1. *To run a computer, both software and hardware are necessary.*

True False

2. *Memory chips and hard disk drive can save information.*

True False

3. *Applications tell the computer how to work.*

True False

4. *Word processing programs are operating systems.*

True False

5. *Computer languages have fewer letters than human languages.*

True False

6. *Nine zeros and seven ones make 2 bytes of information.*

True False

III. Complete the following sentences based on the passage.

1. *Examples of hardware are,, and*

2. *Examples of software pieces are, and*

3. Two small units of measuring data are and

Early Inventions

Many inventions have contributed to the development of modern computers. French mathematician Blaise Pascal and other inventors in the 1600s began making machines that could **add** and **subtract** numbers. Wheels and other moving parts made these machines work. In the 1800s, British mathematicians Charles Babbage and Augusta Ada Byron worked on plans for machines that could store information on cards with holes punched in them.

American inventor Herman Hollerith made a machine that automatically totaled population **figures**. His company joined with other companies to become International Business Machines (IBM) in 1924. Other inventors built better computers. Nevertheless, none of these early computers were **digital**. That is, none used the digits zero and one.

The first digital computer, which was called ENIAC, was built in the 1940s. It was huge. It was as big as a house. It had more than 18,000 glass tubes inside and weighed more than five elephants. Big computers like ENIAC were called **mainframes**. The desktop or laptop computer that you use today is much more powerful than those big machines.

In the 1940s, scientists at Bell Telephone Laboratories invented

a tiny electric switch, which was called the transistor. In the 1960s, scientists and engineers invented integrated circuits (IC) or computer chips. Computer chips cram millions of transistors into a space as small as the size of your little fingernail. Computer chips allowed computers to be smaller.

Personal computers (PCs) were invented in the 1970s. Most PCs are produced to be used by only one person at a time. They are small enough to fit on a desk. The Altair 8800 was the initial PC. Apple Company made its first PC in 1977. IBM made its first PC in 1981.

I. Find a synonym for each of the following items in the passage.

- | | | |
|-------------------|--------------------|-----------------|
| 1. helped:..... | 2. not fixed:..... | 3. caused:..... |
| 4. added up:..... | 5. numbers:..... | 6. first:..... |
| 7. big:..... | 8. pipe:..... | 9. change:..... |
| 10. mixed:..... | 11. put:..... | 12. let:..... |
| 13. made:..... | 14. be good:..... | 15. first:..... |

II. Check true or false.

- The first computers were in fact calculators.
True False
- The first IBM computer was a digital one.
True False
- A digital computer is a computer that uses two digits of zero and one.
True False

4. The first transistors were small electric switches.

True False

5. Computer chips are the house of so many transistors.

True False

6. IBM and Apple began developing PCs in the same year.

True False

III. Complete the following sentences based on the passage.

1. The first computers were not They were analog.

2. The punch cards in early computers were devices.

3. The first digital computers were very and

4. Computer chips contain so many which are

5. PCs are called desktop computers since

Early Software Development

Computer programs are sets of instructions that tell a computer what to do. Many people worked on early computer programs. The first programs were very hard to write and understand. They were extremely long strings of zeros and ones.

American naval officer and mathematician Grace Murray Hopper in 1952 wrote the first program that turned English computer instructions into the strings of ones and zeros that made the computers work. These

programs are called **compilers**. In 1957, she helped to develop the first programming language that companies could buy and use. It was called FLOW-MATIC. Hopper was also the first to use the word **bug** to mean a problem with a computer. She found a moth that was trapped in one of the computers that she worked with. She taped the moth and wrote in her notebook, "First actual case of a bug was found."

I. Find a synonym for each of the following items in the passage.

1. groups:..... 2. orders:..... 3. lines:.....
 4. changed:..... 5. translators:..... 6. an insect:.....

II. Check true or false.

1. *The first computer programs were written digitally.*
 True False
2. *Computers of the 1950s could understand human languages.*
 True False
3. *The results of compilers are strings of zeros and ones.*
 True False
4. *A bug is an insect in a computer case.*
 True False

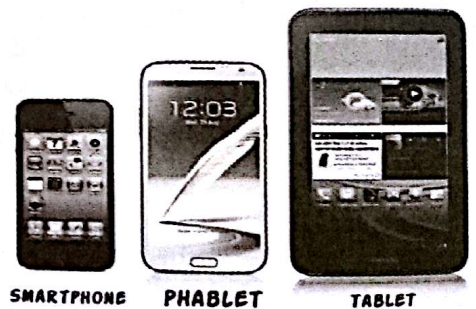
III. Complete the following sentences based on the passage.

1. *The first computer instructions were very difficult to write because of their*
2. *Compilers turn into*
3. *Nowadays, "bug" means*

Later Software Development

As computers have become more powerful and widespread, operating systems have become extremely complex. Nobody can use a computer without an operating system. Scientists at AT&T developed an operating system called UNIX in 1969. Nowadays, UNIX and related operating systems such as **Linux** are popular at universities and among computer **professionals**. In 1975, Bill Gates and his friend Paul Allen wrote a program for the Altair 8800 and **founded** the Microsoft Corporation. Microsoft later developed the DOS and Windows operating systems such as XP, Vista, Seven, and Eight that are used on many home and office PCs.

Computers keep getting smaller and more powerful. **Smart phones, tablets, or phablets** that fit on your palm today are more powerful than early “supercomputers” that filled entire rooms. Cell phones contain tiny



computers that can store information such as telephone numbers, addresses, and appointments. These devices allow you to surf the Web and play games. Many computer experts think that computers have only begun to make their mark on history.

I. Find a synonym for each of the following items in the passage.

1. *very*:

2. *designed*:

3. *experts*:

4. hand:.....

5. have:.....

6. search:.....

II. Check true or false.

1. A computer cannot work without an operating system.

True False

2. If you are not good at computer, UNIX is a good operating system for you.

True False

3. Windows 8 is the latest product of Microsoft Corporation.

True False

4. Today's PCs are as strong as early supercomputers.

True False

5. Cell phones and computers are getting closer to each other.

True False

III. Complete the following sentences based on the passage.

1. Professionals prefer and amateurs prefer as their operating system.

2. As time passes, we have butcomputers.

3. Surfing the Web is now possible via small computers such as
....., or

■ Exercises

1. Translate the following technical terms into Persian.

New Word , Pronunciation, & Definition	Translation
add /'æd/ put a number on another one

application /,æplɪ'keɪʃən/
a computer program

bit /'bɪt/
the smallest unit of data

bug /bʌg/
a problem in a computer program

byte /'baɪt/
a unit of computer data (eight bits)

chip /'tʃɪp/
computer hardware for storing data

compiler /kəm'paɪlər/
a kind of software for translating

component /kəm'pəʊnənt/
a piece of computer hardware

computer /kəm'pjʊ:tər/
a machine that does processing information

CPU /,si: pi: 'ju:/
Central Processing Unit

cram /'kræm/
to put into a small space

design /dɪ'zaɪn/
to make a drawing of something

desktop /'desktp:
a personal computer that is good on a desk

development /dɪ'veləpmənt/
designing and producing

device /dɪ'vaɪs/
a tool for doing something

digital /'dɪdʒɪtl/ <i>in numerical form</i>	.....
drive /draɪv/ <i>a piece used to get information from a disk</i>	.....
electric /ɪ'lektrɪk/ <i>something that works with electricity</i>	.....
expert /'ekspɜ:rt/ <i>a skillful person</i>	.....
figure /'fɪgjər/ <i>a number</i>	.....
found /'faʊnd/ <i>to start a company</i>	.....
hardware /'hɑ:rdwɛr/ <i>pieces in computers</i>	.....
IC /aɪ 'si:/ <i>Integrate Circuits</i>	.....
instruction /ɪn'strʌkʃən/ <i>what is given to a computer</i>	.....
internal /ɪn'tɜ:nl/ <i>being inside of something</i>	.....
Internet (the Internet) /'ɪntənet/ <i>a communication system of many computers</i>	.....
invention /ɪn'venʃən/ <i>something made for the first time</i>	.....
keyboard /'ki:bɔ:rd/ <i>computer hardware for entering data</i>	.....
language /'læŋgwɪdʒ/ <i>a system of communication</i>	.....

laptop /'læp.tə:p/
a light kind of personal computer

letter /'letə/
a part of the alphabet

Linux /'laɪnʌks/
an operation system

monitor /'mɔ:nətə/
computer hardware for displaying data

mouse /maʊs/
computer hardware with 3 buttons

operating system /'ɑ:pə'reɪtɪŋ 'sɪstəm/
the most important computer software

phablet /'fæblət/
a device between smart phones and tablets

popular /'pɔ:pjələr/
famous

printer /'prɪntə/
a machine that produces hardcopy of data

professional /prə'feʃənəl/
a skillful person

run /'rʌn/
to operate or start

smart phone /'smɑ:t 'fəʊn/
a cellphone with computer module

software /'sɒf.tweɪ/
a computer program

store /'stɔ:r/
to save

string /'strɪŋ/ <i>a line of some parts</i>	.....
subtract /səb'trækt/ <i>to take something away from something else</i>	.....
supercomputer /'su:pərkəm'pjʊ:tər/ <i>a very powerful computer</i>	.....
surf /sɜ:rf/ <i>to search on the Internet</i>	.....
switch /'swɪtʃ/ <i>a device for changing something</i>	.....
tablet /'tæblət/ <i>a kind of small computer</i>	.....
task /'tæsk/ <i>a kind of activity</i>	.....
transfer /træns'fɜ:r/ <i>to send something to somewhere</i>	.....
transistor /træn'zɪstər/ <i>an electronic device for controlling electricity</i>	.....
widespread /'waɪd'spred/ <i>being in everywhere</i>	.....
word-processing /wɜ:rd 'prɔ:sesər / <i>analyzing words</i>	.....

2. Match the items in column A with the items in column B. There is one extra item in column B.

Column A	Column B
1) application ()	a. a problem in computer programming
2) bug ()	b. in a numerical format
3) development ()	c. a computer program for doing a task
4) digital ()	d. to search on the Internet
5) expert ()	e. designing and producing a piece of software
6) instruction ()	f. a tablet-like device with some features of tablets
7) monitor ()	g. found in everywhere
8) phablet ()	h. to start or operate a computer
9) surf ()	i. a professional person in a field
10) widespread ()	j. a TV-like device for displaying data
	k. a set of commands given to a computer

3. Fill in the blanks with the given words. There is one extra word in each set.

byte / compiler / components / device / figures / founded / invention

- Human language is translated into machine language via a/an
- Computer hardware is those which can be seen.
- A unit of measuring data which is bigger than bit is called
- Microsoft Corporation was by Bill Gates and his friend.
- Phablet is the latest communication handheld
- The of transistor was a turning point in the history of the computer.

letters / popular / string / subtracting / tasks / transfer / transistor

1. Tablets are capable of doing the once done by just computers.
2. Samsung is a very.....brand in the smart phones market.
3. The reverse operation of is adding.
4. A group of letters or numbers in a computer program is called a
5. The rate depends on both hardware and software.
6. It is amazing that computer language has just two