Chapter 01  Your Interactive Guide to the Digital World

Discovering computers
Living in a digital world
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Objectives

- Basic computer concepts (مفهوم)
- Components of a computer
- Networks, the Internet, and computer software
- Many different categories of computers, computer users, and computer applications in society
A World of Computers

Computers are everywhere
Computer Applications in Society

- The computer has changed society today as much as the industrial revolution changed society in the eighteenth and nineteenth centuries.
- People interact directly with computers in fields such as education, finance (الشؤون المالية), government (الحكومة), health care (الصحة), science, publishing (النشر), travel (السفر), and manufacturing (الصناعة).
- The following pages describe how computers have made a difference in people’s interactions with these disciplines (التخصصات).
The weather forecast may be as close as your fingertips (أطراف الأصابع) if plans to integrate (دمج) embedded computers in every day objects become a reality.

- Researchers are invent an umbrella with an embedded cell phone.
- The handle will glow green for good weather and flash red for coming storms.
- Other embedded computers woven into clothing can monitor heart and breathing rates.
What Is a Computer?

- **A computer** is an electronic device, contains many electric, electronic and mechanical component known as **hardware الأجهزة** operating under the control of instructions (تعليمات) stored in its own memory (الذاكرة).

Information Processing Cycle

- Collects data (input)
- Processing (تجهيز)
- Produces information (output)
What Is a Computer?

Data is a collection of unprocessed items, raw data. Information transfers meaning and is useful to people.
The Components of a Computer

**Input Device**
- Allows you to enter data and instructions into a computer

**Output Device**
- Hardware component that transfers information to one or more people

**System Unit**
- Case that contains the electronic components of the computer that are used to process data

**Storage Device**
- Holds data, instructions, and information for future use

**Communications Device**
- Enables a computer to send and receive data, instructions, and information to and from one or more computers or mobile devices
The Components of a Computer
some common computer hardware components
What is an input device?

Hardware used to enter data and instructions into a computer e.g., keyboard, mouse, microphone, scanner and web cam etc.
What is an output device?

- Hardware that Conveys (يوضح) information to one or more people e.g. printer, monitor and speakers (مكبرات الصوت) etc.
What is the **system unit**?

- Case containing Electronic components used to process data, such as the processor and memory, usually are part of or are connected to a circuit board called the motherboard.
What are two main components on the motherboard?

Central Processing Unit (CPU)

Also called a processor (المعالج للمعلومات)

The electronic component that interprets and carries out the basic instructions that operate the computer.

Memory

Consists of electronic components that store instructions waiting to be executed (منفذ) and data needed by those instructions.
The Components of a Computer

What is storage?

- Holds data, instructions, and information for future use

**Storage media**
Physical material on which data, instructions, and information are stored

**Storage device**
Records (تسجيل) and retrieves (استرداد) items to and from a storage medium
The Components of a Computer

- What is storage media (وسائط التخزين)?

- USB Flash Drives
- Hard Disks
- CDs
- Memory Cards
- DVDs
The Components of a Computer

What is a storage device (جهاز تخزين)?

- Often function as a source of input.
- Record (writes) to storage media.
- Retrieves (reads) items from storage media.
What is a USB flash drive?

- Provides greater storage capacity.
- Portable storage device small and lightweight enough to be transported on a keychain or in a pocket.
The Components of a Computer

What is a hard disk?

- Provides greater storage capacity than a USB flash drive
- Most are housed inside of the system unit
What is a optical disc?

- Flat, round, portable metal disc e.g. CDs, DVDs.
What is a communications device?

- Hardware component that enables a computer to send and receive data, instructions and information.
- Occurs over cables, telephone lines, cellular networks, satellites, and other transmission media.
Computer Applications in Society

- Education
- Finance
- Government
- Health Care
Computer Applications in Society

Science

Publishing

Travel

Manufacturing
Advantages and Disadvantages of Using Computers

Advantages of Using Computers
- Speed
- Reliability
- Consistency
- Storage
- Communications

Disadvantages of Using Computers
- Health Risks
- Violation of Privacy
- Public Safety
- Impact on Labor Force
- Impact on Environment
Green computing involves reducing the electricity consumed (المستهلكة) and environmental (البيئية) waste generated when using a computer.

Strategies include:
- Recycling (إعادة التدوير)
- Regulating manufacturing processes
- Extending the life of computers
- Immediately donating or properly disposing (التخلص) of replaced computers
A network is a collection of computers and devices connected together through transmission media.
What are the reasons to network?

To share

Resources

Hardware devices

Software programs

Data

Information

To save time and money
What is a server?

- A server manages the resources on a network
- Clients access the resources on the server
- Online
- Describe the state of a computer when it is connected to a network
Networks and the Internet

What is the Internet?

- Worldwide collection of networks that connects millions of businesses, government agencies, educational institutions, and individuals
What is the Web?

- Billions of documents, called Web pages, available to anyone connected to the Internet

A Web site is a collection of related Web pages

A Web page contains text, graphics, sound, video, and links to other Web pages
People use the Internet for a variety of reasons:

- Communicate
- Research and Access Information
- Shop
- Bank and Invest
- Online Trading
- Entertainment
- Download Music
- Share Videos
- Web Application
The World Wide Web, or Web, consists of a worldwide collection of electronic documents (Web pages)
A Web site is a collection of related Web pages and associated items
A Web server is a computer that delivers requested Web pages to your computer
Web 2.0 refers to Web sites that provide a means for users to interact, allow users to modify web site content, and have application software built into the site for visitors to use e.g. (e-mail processing programs) and word
The world wide web

What is a web browser?

- Program that allows you to view Web pages

Internet Explorer  Firefox  Opera
Safari  Google Chrome
A **home page** is the first page that a Web site displays.

Web pages provide **links** to other related Web pages—*(Surfing the Web)*

**Downloading** is the process of receiving information.

Some Web pages are designed specifically for micro browsers.
The World Wide Web

A Web page has a unique address called a **URL (uniform resource locator)** or **Web address**.

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http://www.nps.gov/grsm/planyourvisit/wildlifeviewing.htm
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Computera Software

Software, also called a program, consists of series of instructions that tells the computer what tasks to perform and how to perform them.
what is Systems Software?

- Operates in “Background”
  - Manages Computer Internal Resources (الموارد)
  - Operating System
  - Coordinates Resources
  - Provides User Interface (UI)
  - Runs Applications

- Utilities: (type of system software that allow the user to perform maintenance type tasks)

- Device Drivers: (small program that tells an operating system
  - How to communicate with a specific device)
What is system software?

- Programs that control or maintain the operations of the computer and its devices

**Operating System (OS)** is a set of programs that coordinates all activities among computer hardware devices and allows users to run application software.

**Language translators** is used to convert high-level language into machine language.

**Utility Programs** (الأداة المساعدة) allow the user to perform maintenance-type tasks usually related to managing a computer, its devices or its programs.
What is application software?

- Programs that perform specific tasks for users

Word Processing  Spreadsheet

Database  Presentation Graphics

Mobile

Designed for Smart phones, Tablets
A programmer develops software or writes the instructions that direct the computer to process data into information.
A personal computer can perform all of its input, processing, output, and storage activities by itself.

Two popular architectures are the PC and the Apple.

Desktop computer
Mobile Computers and Mobile Devices

**Mobile Computer**

- Personal computer you can carry from place to place

- Examples include *notebook computers, laptop computers, and Tablet PCs*

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**Mobile Device**

- Computing device small enough to hold in your hand

- Examples include **smart phones, PDAs, handheld computers, portable media players, and digital cameras**
A smart phone is an Internet-enabled telephone that usually provides PDA capabilities.
What is a personal digital assistant (PDA)?

- Provides personal organizer functions
  - Calendar
  - Appointment book
  - Address book
  - Calculator
  - Notepad
A game console is a mobile computing device designed for single-player or multiplayer video games.
servers

- **What types of servers are there?**

  A *server* controls access to the hardware, software, and other resources on a network and provides centralized storage area for programs, data, and information.

  **Mainframe** Very powerful, expensive computer that supports thousands of connected users simultaneously.

  **Supercomputer** The fastest, most powerful, most expensive computer. Used for applications requiring complex mathematical calculations.
An embedded computer is a special-purpose computer that functions as a component in a larger product.