All Computers, Great & Small: The Categories of Machines

they

come in a variety of shapes and sizes, which can be classified according to their processing power:

1. *supercomputers,*

2. *mainframe computers,*

3. *workstations,*

4. *microcomputers,*

5. *and microcontrollers.*

We also consider servers.

1. Supercomputers

are high-capacity machines with thousands of processors that can perform more than several trillion calculations per second.

These are the

most expensive and fastest computers available. "Supers," as they are called, have been used for tasks requiring the processing of enormous volumes of

data, such as doing the U.S. census count, forecasting weather, designing aircraft, modeling molecules, and breaking encryption codes.

2. Mainframe Computers

Are used in many large businesses , mainfremes computers are

water- or air-cooled computers are vary in

size from small, to medium, to large, depending on their use.

banks, airlines, insurance companies, and colleges—for processing millions of transactions.

3. Workstations

Are used for graphics, special effects, and certain professional applications.

workstations are expensive, powerful

personal computers usually used for complex scientific, mathematical, and engineering calculations and for computer-aided design and computer-aided manufacturing.

4. Microcomputers

Microcomputers are use by individuals as well as businesses, and they can be connected to networks of larger computers. They are many types of microcomputeres, also called personal computers (PCs), can fit next to a desk or on a desktop or can be carried around.

A *local area network (LAN) connects, usually by special cable, a group of* desktop PCs and other devices, such as printers, in an office or a building.

Microcomputers are of several types:

a. **DESKTOP PCs** *: (left) are the original style of* microcomputers whose case or main housing sits on a desk, with keyboard in front and monitor (screen) often on top.

b.**TOWER PCs** *: PCs are microcomputers* whose case sits as a "tower," often on the floor beside a desk, thus freeing up desk surface space.

c.**NOTEBOOKS:** *Notebook computers , also called laptop computers , are lightweight portable* computers with built-in monitor, keyboard, hard-disk drive, CD/DVD drive, battery, and AC adapter that can be plugged into an electrical outlet; they weigh anywhere from 1.8 to 9 pounds.

d.Netbooks and Tablet computers :

Netbooks computers: *are mini-notbooks -* low cost, lightweight, small computers with functions designed for basic tasks, such as web searching, email, and word processing.

Tablet computers: are a combination of smartphone and laptop computer with wireless connections.

e.MOBILE INTERNET DEVICES (MIDs): Smaller than notebook computers but larger and more powerful than PDAs and cellphones, *mobile internet devices (MIDs) are multimedia devices for consumers* and business professionals.

g. PERSONAL DIGITAL ASSISTANT and E-reader

PERSONAL DIGITAL ASSISTANT: *Personal digital assistants (PDAs) , also called handheld computers or palmtops, combine personal organization tools—schedule*

planners, address books, to-do lists—with the ability in some cases to

send email and faxes.

E-reader: are electronic devices that can download e-books, digital versions of regular books, articles, and magazines from various suppliers.

5. Microcontrollers

Microcontrollers : also called embedded computers , are the tiny, specialized microprocessors installed in "smart" appliances and automobiles.

6. Servers

Are computers and special sofware dedicated to providing services to other computers.

A *server , or network server , is a central computer that holds collections* of data (databases) and programs for connecting or supplying services to PCs, workstations, and other devices, which are called *clients.*

These clients: are linked by a wired or wireless network. The entire network is called a *client/server network*

How Computers Work: Three Key Concepts

1. PURPOSE OF A COMPUTER: TURNING DATA INTO INFORMATION

2. DIFFERENCE BETWEEN HARDWARE & SOFTWARE

3. THE BASIC OPERATIONS OF A COMPUTER

1.PURPOSE OF A COMPUTER: TURNING DATA INTO INFORMATION

- **Data:** *Data consists of the raw facts and figures that are processed* into information.

- **Information:** *Information is data that has been summarized or* otherwise manipulated for use in decision making .

2.DIFFERENCE BETWEEN HARDWARE & SOFTWARE

- **Hardware:** *Hardware consists of all the machinery and equipment* **in a computer system.**

- **Software:** *Software , or programs , consists of all the electronic* **instructions that tell the computer how to perform a task.**

3. THE BASIC OPERATIONS OF A COMPUTER

Regardless of type and size, all computers usthe same four basic operations:

(1) input.

(2) processing.

(3) storage.

(4) output.

(5) communications