Types of User Interface

- Command Interface
- Menu Interface
- Graphical User Interface
- Voice–actuated Interface
- Web-form Interface
User interface

- Controls how you enter data and instructions and how information displays on screen

command-line interface

menu-driven interface
Graphical User Interface (GUI)

- User interacts with menus and visual images such as icons and buttons.
Voice – actuated interface
Which accept input and provide output by generating voice prompts. The user is made by pressing keys or buttons, or responding verbally to the interface.
Web-Form Interface

Accept input and provide output by generating web pages which are transmitted via the internet and viewed by the user using a web browser program.
FILE SYSTEM

- File systems support directories which contain the names of files and other directories along with additional information about the files and directories (e.g. when they were created and last modified).

- A file is the long term storage entity: a named collection of persistent information that can be read or written.

- Secondary storage devices (disk) are too crude to use directly for long term storage. The file system provide logical objects and operation on these object (files).
The file system provides file management, a standard interface to:
- To **create and delete files and directories**.
- **Manipulate** (read, write, extend, rename, copy, protect) files and directories.
- map files onto secondary storage.

The file system also provides general services such as backups, maintaining mapping information, accounting and quotas.
I/O Control System

- The I/O system supports communication with external devices: terminal, keyboard, printer, mouse.

- The I/O system:
  - Support buffering and spooling of I/O.
  - Provides a general device driver interface, hiding the differences among devices, often mimicking the file system interface.
  - Provides device driver implementations specific to individual devices,
Logical I/O an Physical I/O

- Physical" I/O is an actual fetch of data from a storage device such as a disk.
- Logical" I/O is a programmatic request for data satisfied by a memory (block, buffer) access.
- A logical I/O may cause a physical I/O in the first place, or a logical I/O may retrieve a part of a block (buffer) of data from memory.
A **hard disk** is a rigid disk inside a computer that stores and provides relatively quick access to large amounts of data. It is the type of storage most often used with Windows. The system also supports removable media.

A hard disk can contain one or more logical regions called **partitions**. Partitions are created when the user formats a hard disk as a **basic disk**.

The creation of multiple partitions on a drive allows the appearance of having separate hard drives. For example, a system with one hard disk that has one partition contains a single volume, designated by the system as drive C. A system with a hard disk with two partitions typically contains drives C and D. Having multiple partitions on a hard disk can make it easier to manage the system, for example to organize files or to support multiple users.
A *directory* is a hierarchical collection of directories and files. The only constraint on the number of files that can be contained in a single directory is the physical size of the disk on which the directory is located.
Boot Process

- **Booting**
  - Process of starting or restarting a computer
    - **Cold boot**
      Turning on computer that has been powered off
    - **Warm boot**
      Restarting computer that is powered on
A personal computer boot up process

**Step 1.** Power supply sends signal to components in system unit

**Step 2.** Processor accesses BIOS to start computer

**Step 3.** BIOS runs tests, called the POST, to check components such as mouse, keyboard, and adapter cards

**Step 4.** Results of POST are compared with data in CMOS chip

**Step 5.** BIOS looks for system files on a USB drive, in floppy disk drive or CD/DVD drive, and then hard disk

**Step 6.** Kernel (core) of operating system loads into RAM

**Step 7.** Operating system loads configuration information and displays desktop on screen