Chapter 1: What is UNIX?

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- Computer System : Hardware + Software

- Hardware: CPU, Memory (RAM/ROM), Disk drives, CD-ROM drives,
            Monitor, Graphics card, Keyboard, Mouse, Printer,
            Tape drive, Modem, Ethernet interface, Other peripherals.

- Software: Operating System, Application Programs

- UNIX is the name of a popular operating system.
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- Unix provides a framework for executing programs and storing files.
- File: collection of data normally stored on disk.
- Program: collection of instructions/data that is stored in a file.
- When a program is executed, it is loaded into memory. It is called a process when it is executing.
- Most processes read/write data from/to files
- Processes and files have an owner
- UNIX supports hierarchical directory structure
- Files and processes have a location within the directory structure
- UNIX provides the capabilities to create, modify and destroy files, programs, and processes.

- Sharing of resources: CPU (time slices), memory (pages), disk (blocks)
- Communication: process-device controller, process-process, etc. (pipes 1-way, sockets 2-way)
- Utilities: Unix comes with a large collection of utilities; we will study many of these.
- Programmer support: All kinds of compilers available; Access to parallel processing, file handling and interprocess communication via System calls in C
- Two varieties of Unix: System V (AT&T) and BSD (Berkeley Standard Distribution); Both are merging now. SunOS, IRIX, AIX, HP-UX have features from both varieties although most are System V Unix.

Philosophies of Unix

- Pipe mechanism: Output of one process can be used as input for another process. e.g.

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$ who | sort
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- Using the pipe mechanism, complex tasks can be broken down into simpler ones and combined using pipes etc.
- Super user: user who has complete control over the system resources. Typically the System's Administrator.