**OPERATING SYSTEM**

O.S. is a program that acts as an interface between the user and the computer hardware and controls the execution of all kinds of programs.

**Important functions of operating system are:**

1. Memory Management
2. Processor Management
3. Device Management
4. File Management
5. Security
6. Error Detecting Aids
7. Control Over System Performance
8. Co-Ordination Between Other Software’s and Users

**Components of computer system**

USER4

USER 3

USER 2

USER 1

Compiler Assembler Text-Editor ……….. Database System

Operating System

Computer Hardware

A computer system can be divided into components:

* Hardware
* Operating System (software)
* Application Program (data)
* Users

**Views**

Operating System can be explored from two viewpoints the User View and the System View.

1. USER VIEW

* The goal of the operating system is to maximize the work and minimize the effort of the user.
* Most of the systems are designed to be operated by single user, however in some systems multiple users can share resources, memory.

In these cases, operating system is designed to handle available resources among multiple users and CPU efficiently.

* Operating System must be designed by taking both usability and efficient resources utilization into view.
* In embedded systems (Automated System) user view is not present.

Example: embedded computers in home devise and auto mobiles may have numeric keypad and turn indicator lights on and off to indicate status.

* Operating System gives an effect to the user as if processor is dealing only with the current task but in background processor is dealing with several processes.

1. SYSTEM VIEW

* From the system point of view O.S. is a program involved with the hardware.
* O.S. is allocator, which allocates memory, resources among various processes. It controls the sharing of resources among programs.
* It prevents improper usage, error and handle deadlock conditions.
* It is a program that runs all the time in the system in the form of kernel.
* It controls application programs that are not part of kernel.

**SYSTEM GOALS**

1. The primary goals of an O.S. is:

* Convenience of the user (small pc’s).
* Efficient operation of the computer system (large/ shared/ multi-user system).

1. These two goals- convenience and efficiency are sometimes contradictory.

In the past efficiency was often more important than convenience. So systems concentrated more on optical use of computer resources. But O.S. have evolved overtime.

Example: UNIX was less convenient for the user in the past focusing on the efficiency of the system. Overtime UNIX was ported with more user-friendly interfaces. Many GUI’s (Graphical User Interfaces) were added allowing it to be more convenient and efficient at the same time.

1. Identification of O.S. problems lead to the introduction of new hardware features.