**Name: Javed Mehmood**

**Roll NO: BS AI 029 (A)**

**Department : Artificial Intelligence**

**STUDY OF FUNDAMENTALS OF OPERATING SYSTEM**

**INDRODUCTION:**

An Operating System (OS) is a system software that is responsible for managing computer hardware and software resources and provides wide range of services for computer programs. The OS is an essential component of the system software in a computer system. Application programs frequently involve an operating system to function.

**TYPE OF DIFFERENT OPERATING SYSTEM**

**1.UNIX OPERATING SYSTEM:** UNIX OS is multitasking, multiuser computer OS that exists with many of its versions. The actual Unix was developed at AT&T’s Bell Labs research center by Ken Thompson, Dennis Ritchie, and others from the power user’s or programmer’s point of view, Unix systems are characterized by a modular design that is sometimes called the, ”UNIX philosophy” which means the OS provides a set of simple tools and each of them perform a limited, welldefined function, with a unified file system as the main means of communication and shell scripting and command language to combine the tools to perform complex workflows.

1. **LINUX OPERATING SYSTEM:** Linux is a Unix-like and mostly POSIXacquiescent computer OS assembled under the model of free and open-source software development and distribution. The defining component for Linux is the Linux kernel, an operating system kernel which was first released on 5 October 1991 by Linus Torvalds. The Free Software Foundation that uses the name GNU/ Linux, which has led to some disagreement. \*Associate Professor, Department of Computer Science and Engineering, Prestige Institute of Engineering, Management & Research, Indore (M.P) \*\*,\*\*\* and \*\*\*\* Student in Department of Electronics and Communication Engineering, Prestige Institute of Engineering, Management & Research, Indore (M.P) 51 Study of Fundamentals of Operating System
2. **WINDOWS NT:** Windows NT is a family of operating systems introduced by Microsoft, the first version of which was released in July 1993. It is a processor-independent, multiprocessing, multiuser operating system.  
    **4. ANDROID OS** Android is a mobile operating system (OS) based on the Linux kernel and currently developed by Google with a user interface based on direct manipulation Android is designed primarily for touch screen mobile devices such as Smartphone and tablet computers, with specialized user interfaces for televisions (Android TV), cars (Android Auto), and wrist watches (Android Wear). The OS uses touch inputs that loosely correspond to real-world actions, like swiping, tapping, pinching, and reverse pinching to manipulate on-screen objects, and a virtual keyboard.

**FUNCTIONS OF OPERATING SYSTEM**

1. Booting Booting is a process of starting the computer operating system starts the computer to work. It checks the computer and makes it ready to work.
2. Memory Management Memory Management is also an important function of operating system. The memory cannot be managed without operating system. Different programs and data execute in memory at one time. if there is no operating system, the programs may mix with each other. The system will not work properly.
3. Loading and Execution A program is loaded in the memory before it can be executed. Operating system provides the facility to load programs in memory easily and then execute it.
4. Data security Data is an important part of computer system. The operating system protects the data stored on the computer from illegal use, modification or deletion.
5. Disk Management Operating system manages the disk space. It manages the stored files and folders in a proper way.
6. Process Management CPU can perform one task at one time. if there are many tasks, operating system decides which task should get the CPU.
7. Device Controlling Operating system also controls all devices attached to computer. The hardware devices are controlled with the help of small software called device drivers.
8. Printing controlling Operating system also controls printing function. It a user issues two print commands at a time, it does not mix data of these files and prints them separately.

**MANAGEMENT IN OPERATING SYSTEM**

The management in operating system can be done as:-

**1) File management :** File system is normally organized into directories for easy navigation and usage. These directories may contain files and other directions. An Operating System does the following activities for file management −

1. Keeps track of information, location, uses, status etc. The collective facilities are often known as file system.
2. Decides who gets the resources
3. Allocates the resources.
4. **Process management :** In multiprogramming environment, the OS decides which process gets the processor when and for how much time. This function is called process scheduling. An Operating System does the following activities for processor management − 52 PACE A Journal of Research of Prestige Institute of Management Dewas, Vol 6 (2), July-2017, pp. 50-52, ISSN 0976-0938

• Keeps tracks of processor and status of process. The program responsible for this task is known as traffic controller.

• Allocates the processor (CPU) to a process.

• De-allocates processor when a process is no longer required.

1. **Memory Management :** Memory management refers to management of Primary Memory or Main Memory. Main memory is a large array of words or bytes where each word or byte has its own address. Main memory provides a fast storage that can be accessed directly by the CPU. For a program to be executed, it must in the main memory. An Operating System does the following activities for memory management −

• Keeps tracks of primary memory, i.e., what part of it are in use by whom, what part are not in use.

• In multiprogramming, the OS decides which process will get memory when and how much.

• Allocates the memory when a process requests it to do so.

• De-allocates the memory when a process no longer needs it or has been terminated.