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Subject	OPERATING SYSTEM	Class	
Semester	4TH SEMESTER	Roll No.	19402060006

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Sr. No.	Experiment Description	Experiment Date	Submission Date	Remarks / Signature
1.	Demonstrate giving brief history of OS, types of OS in use these days, how it is necessary for a computer functioning.			
2.	Prepare a report on memory management of OS			
3.	Prepare a report on file management of OS			
4.	Demonstrate the security and protection features of an OS			

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Experiment No. 1

Demonstrate giving brief history of operating system types of as in use these days how it is necessary for computer functioning.

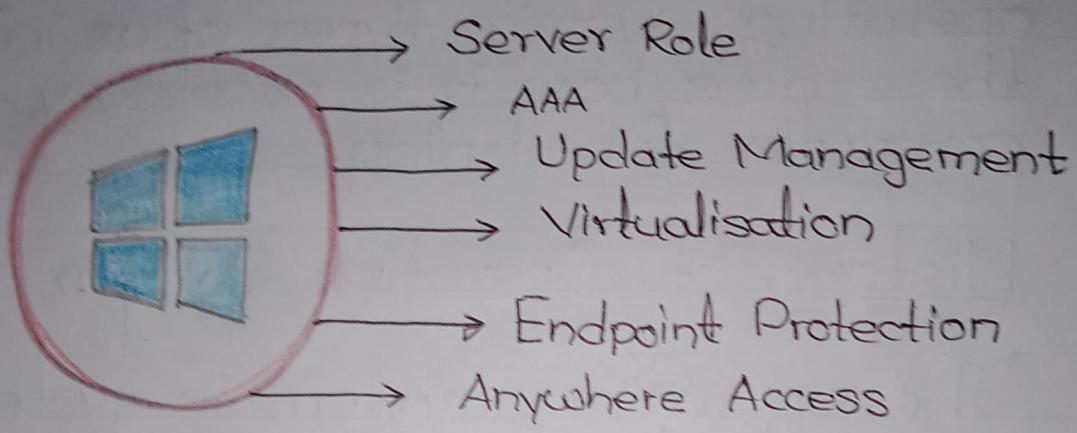
History of Operating System

The operating system is system software that manage computer hardware, software resource and provide computer server for computer program.

Early computer was built to perform a sever of single task, work, calculation. Basic Operating System were develop in the 1950s such as resident monitor function that could automatically run different program in succession to speed up processing.

'The first Generation (1940 - 1950)

When electronic where first introduced in the 1940's they were created without any operating system. All the programming was done in absolute machine language , often by wiring up plugboard to control



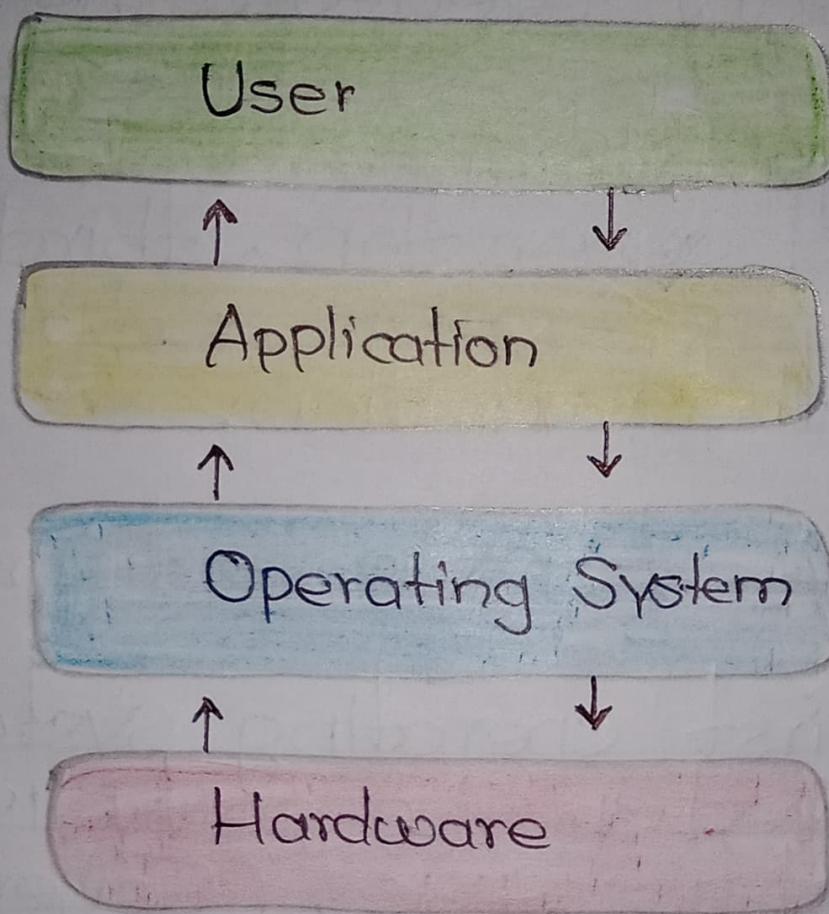
the machine basic function. During this generation computer were generally used to solve simple maths calculation, operating system were not necessary needed. The first generation having some demerits therefore the generation is used such as second generation, third generation, fourth generation and the last one is fifth generation.

The Second Generation (1955 - 1965)

The first operating system was introduced in the early 1950's it was called as GMOS (General Motor Operating System). Operating system in the 1950's was called single stream batch processing system because the data was submitted in group. This new machine was called mainframe.

The Third Generation (1965 - 1980)

By late 1960, operating system designer was able to develop the system of multiprogramming in



which a computer program will be able to perform multiple job at the same time. The instruction of multi-programming was a major part in the development of Operating system because it allowed a CPU to be busy nearly 100% of the time that was in operation.

The Fourth Generation

The fourth generation of operating system says the creation of personal computing. A personal computer was so affordable that it made it possible for a single individuals could be able to own one for the personal use which minicomputer where still. One of the major factor in the creation of personal computing was the birth of microsoft and the windows operating system.

Operating System

An operating system is an interface between a computer user and computer hardware. An operating



Ubuntu 20.05

System is a software which performs all the basic task like file management, memory management, handling input and output and controlling peripheral device such as disk drive and printer.

Functions of Operating System.

(1) Security

The operating system user password protection to protect user data and similar other technique. It also prevent unauthorized allow to program and user data.

(2) Control Over System Performance

It monitor overall system health to help improve performance record the response to have a complete view of the system help.

(3) Error Detecting Aids

Operating system constantly

monitor the system to detect error and avoid the avoid the main functioning of computer system.

(4) Coordination between other software and user

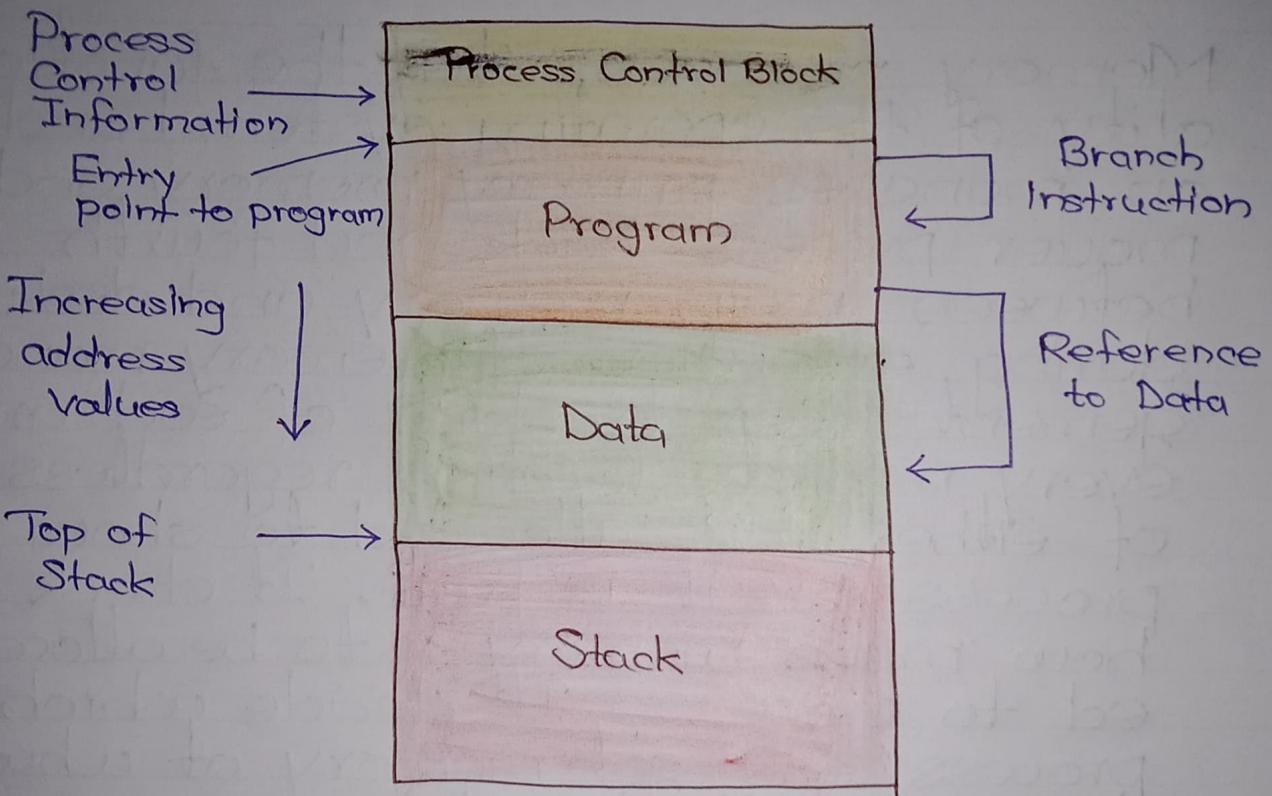
Operating system also coordinate and assign interprocess implants, assemblies and other software to the various user was of the computer system.

Experiment No. 2

Prepare a report on memory management.

Memory management is the functionality of the operating system handle which manages primary memory and moves process back and forth between main memory and disk during execution of memory management keep tracking of each and every memory location regardless of either it is allocated to show process or it is free. It checks how much memory is to be allocated to process. It decides which process will get memory at what time. It tracks whenever some memory gets freed or unallocated and corresponding update the status.

Memory management is a form of resource management applied to computer memory. The essential requirements of memory management is to provide way to dynamically allocated portion of memory to program of the



required and free at for reuse when no longer needed.

The memory management function is to keep track of the status of each memory location either allocated or free. It determine how memory is allocated.

Swapping

Swapping is a process or mechanism in which a process can be swapped temporarily. Performance is usually affected by swapping process in parallel and that's that reason. Swapping is also known as technique for memory compaction.

Fragmentation

A processor as loaded and removed from memory, the free memory space, a break into little pieces. It happen after sometimes that processes cannot be allocated to memory block.

Types of Fragmentation

① External Fragmentation

Memory block of memory is enough to satisfy a requirement to reside a process in it.

② Internal Fragmentation

Memory block assign to process is bigger. Some portion of memory is left unused, as it cannot be used by another process.

Paging

In operating system, paging is a memory management scheme by which a computer store and restore data from secondary storage.

Experiment No. 3

Prepare a report on file management of operating system.

A file system is the method and data structure that an operating system uses to keep track of file on disk or position that use the way the file are organised on the disk.

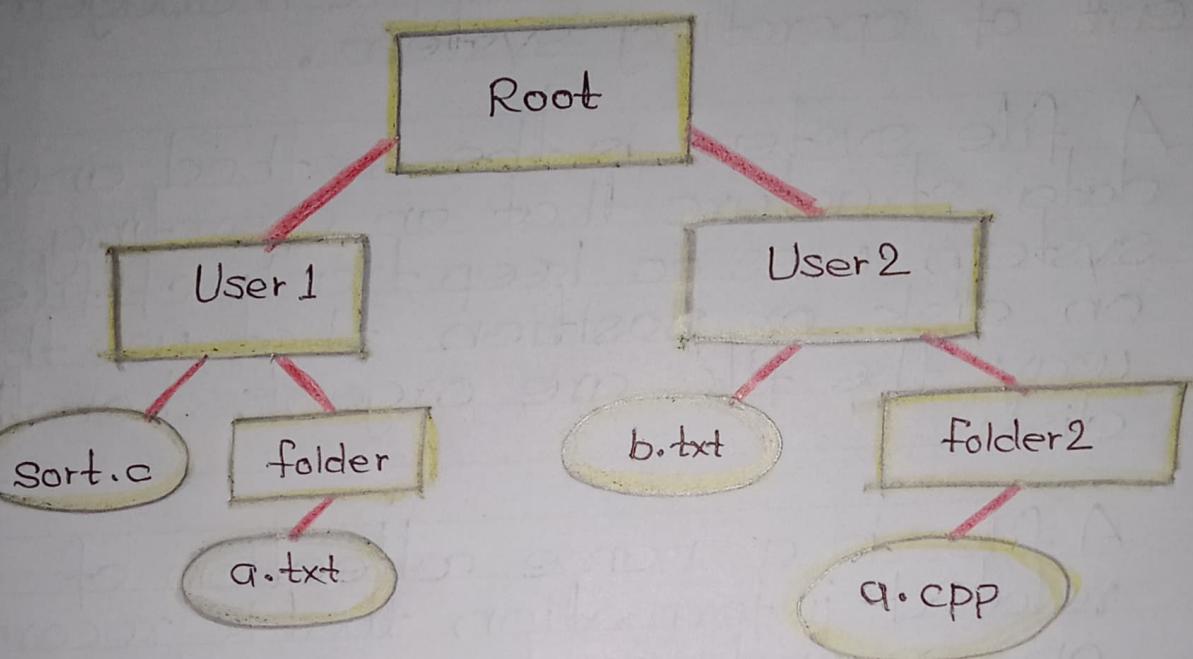
A file is a name collection of related information that is recorded on secondary storage such as magnetic disk, magnetic tape and optical disk. In general, a file is a sequence of bits, bytes, or record whose meaning is defined by the file creator and user.

Many operating system like MS-DOS and UNIX have the following types of files :-

(1) Ordinary Files

There are the files that contain user information. They may have text database or executable

Hierarchical Directory



program. The user can apply values operations.

(2) Directory Files

These files contain list of file name and other information related to their files.

(3) Special Files

These files are also known as device files. These bits represents physical device like disks terminated etc.

File Access Mechanism

File access mechanism refer to manner in which the record of the file may be occurred. There are several way to access files.

(1) Sequential Access

A sequential access is that in which the record are accessed in some sequends. This is

the most primitive one.

(2) Direct / Random Access

Random access file organisation provide accessing the record directly. Each record has its own address on the file with the help of which contain pointer to various block.

Space Allocation

File are allocated disk spaces by operating system. Operating systems develop following three main disk space to files.

(1) Contiguous Allocations

Each file occupies a long guess a continuous address space on disk address.

(2) Linked Allocation

Each file carries a bit of link to disk block. Dividing contain

link / pointer to find block of a file.

(3) Indexed Allocation

Provide solution to problem of contiguous and link allocation.

A indexed block is created having all pointers.

Security

Security refers to the providing a protection system to computer system resources such as CPU, memory disk, software program and data stored in disk.

Experiment No. 4

Demonstrate the security and production of operating system.

Security refer to providing a production system to computer system resource such as CPU memory, disk software program importantly data information about in the computer system of a computer program run by an unauthorized user then he/she may cause secure damage to computer or data stored in it so A computer system must be protected against unauthorized access.

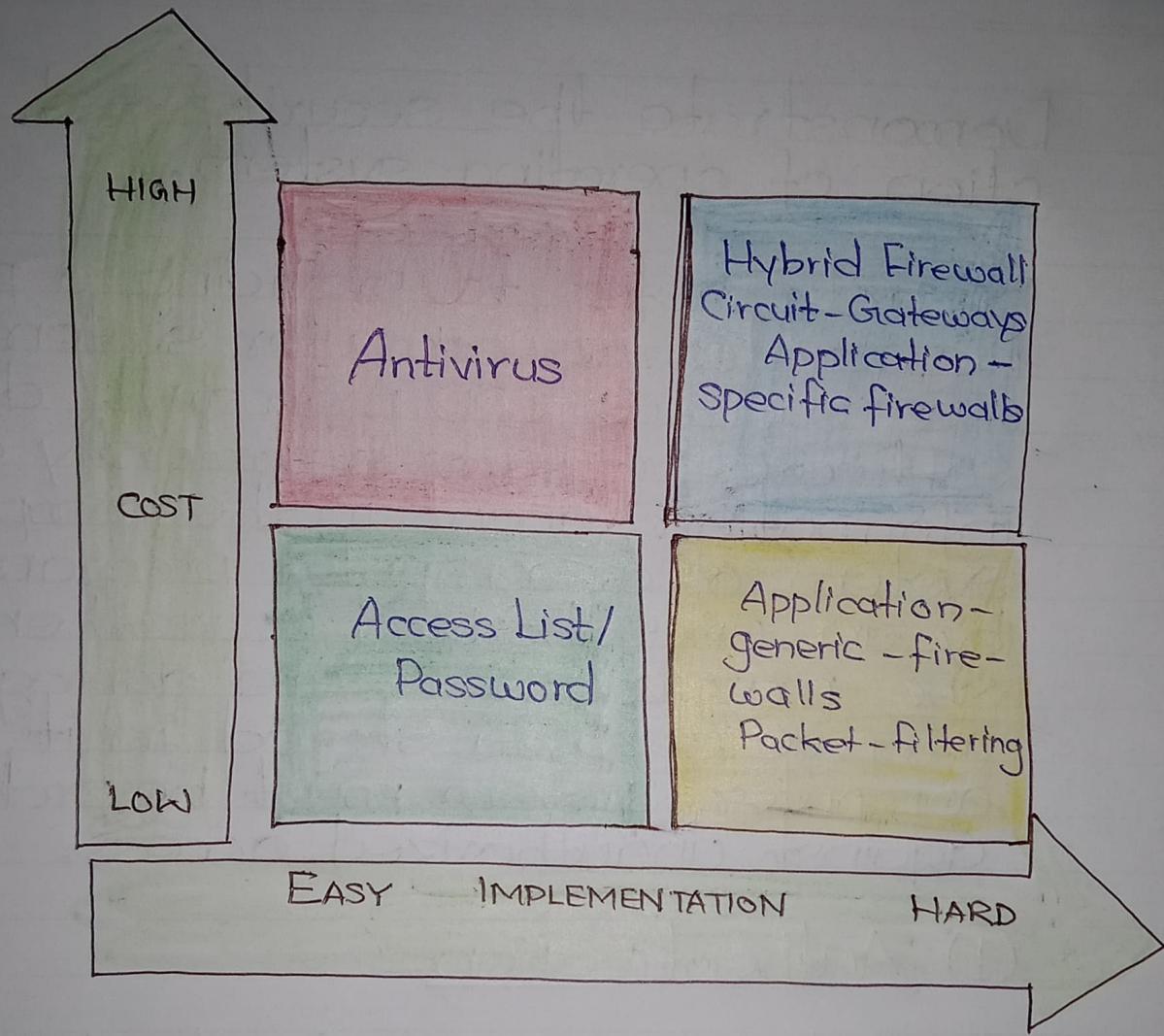
(1) Authentication

Authentication refer to the identifying each user of the system and associating the execution program in authen.

(a) Username / Password

User need to enter a registered username and password.

(b) User card / Key



User need to punch card.

(2) OTP (One Time Password)

OTP (One time password) provide additional security

- (i) Random number
- (ii) Network password

(3) Program Threat

Operating System process and kernel do the designated task as instructed. If a user program made then following is the threat some will know program that :

- (i) Trojan Horse
- (ii) Logic Bomb
- (iii) Virus

(4) System Threat

System threat refer to unuseless of system service and network connections to put was in trouble system threat :

- (i) Wound
- (ii) Port scanning
- (iii) Denial of Service

Classification of Computer Security

As per the U.S. department of defense trusted computer system evaluation guidance there are four security classification in computer systems.

They are as follows :-

- (i) Type A
- (ii) Type B

It is of three types :-

- (a) B1
- (b) B2
- (c) B3

- (iii) Type C
 - (a) C1
 - (b) C2

- (iv) Type D

It is of lowest level. It has minimum protection. MS-DOS windows fall in their category.

Experiment No. 5

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Demonstrate the function of multi-processor system.

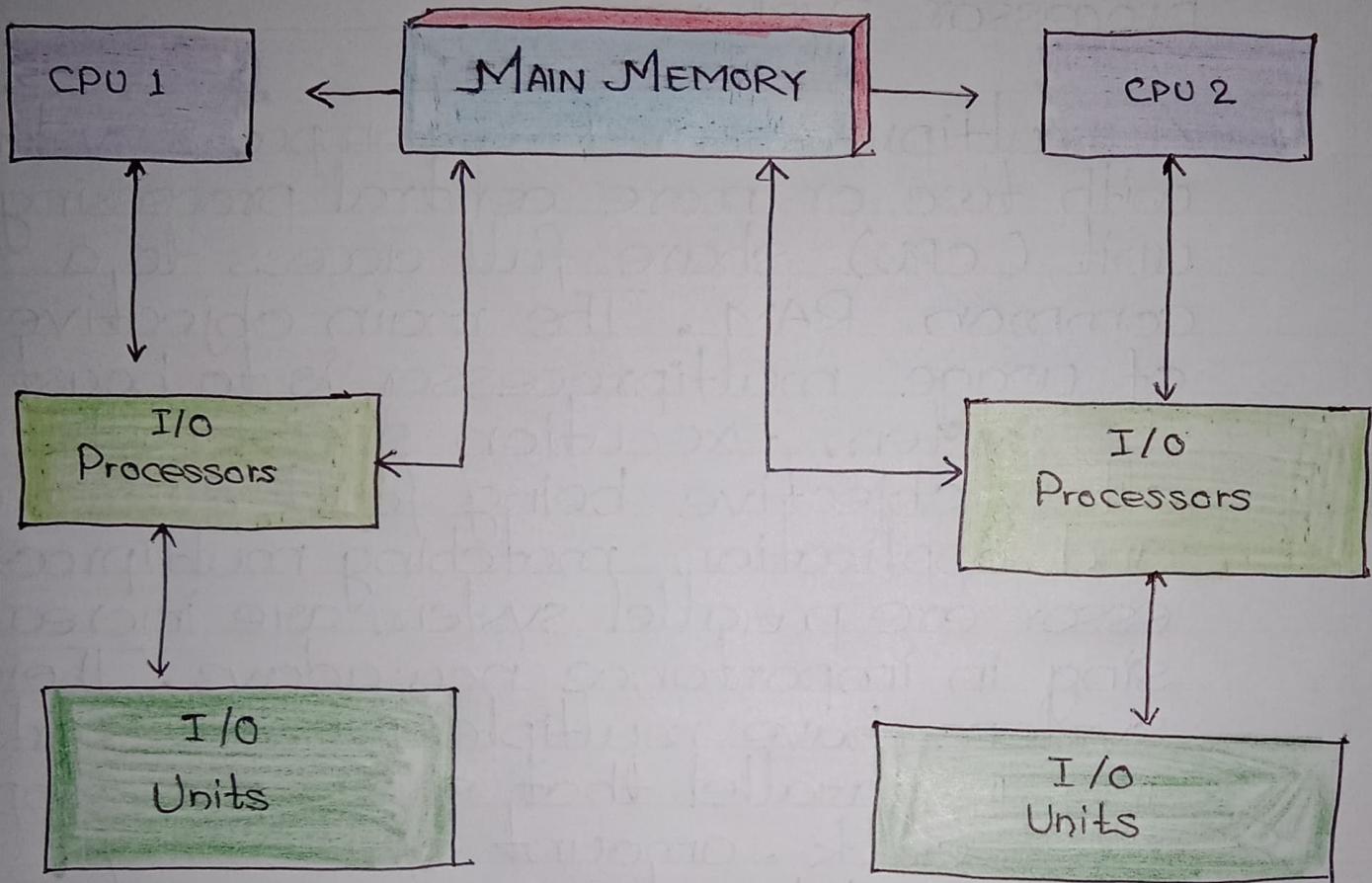
A multiprocessor is a computer system with two or more central processing unit (CPU) share full access to a common RAM. The main objective of usage multiprocessor is to boast the system execution speed with other objective being fault tolerance and application matching multiprocessor are parallel system are increasing in importance nowadays. These system have multiple process working in parallel that share the computer clock, amount of memory, bus, peripheral.

Types of Multiprocessors :

There are mainly two types of multiprocessor that are given as follow :

(1) Symmetric Multiprocessor

In these types of system each process contain a similar copy



MICROPROCESSOR OPERATING SYSTEM

of the operating system and they all communicate with each other. All the process are in peer to peer relations.

(2) Asymmetric Multiprocessor

In Asymmetric multiprocessor system each process given a predefined task. There is a master process that given insulation.

Advantage of Multiplexer System:

- (i) More reliable System
- (ii) More economic System

Disadvantage of Multiplexer System:

- (i) Increased Expense
- (ii) Complicated OS required
- (iii) Large main memory required