M.WAQAS

ID 6908

Course Title: OPRATING SYSTEM

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MID PAPER

Q.1: explain the main purpose of an operating system ?

ANS

An operating system has three main functions:

(1) manage the computer's resources, such as the central processing unit, memory, disk drives, and printers,

(2) (2) establish a user interface, and

(3) (3) execute and provide services for applications software. Keep in mind, however, that much of the work of an operating system is hidden from the user; many necessary tasks are performed behind the scenes. In particular, the first listed function, managing the computer's resources, is taken care of without the user being aware of the details. Furthermore, all input and output operations, although invoked by an applications program, are actually carried out by the operating system. Although much of the operating system functions are hidden from view, you will know when you are using an applications software package, and this requires that you invoke-call into action-the operating system. Thus you both establish a user interface and execute software.

Q.2: what are the advantages of multiprocessor system ?

ANS

Multiprocessing operating system or the parallel system support the use of more than one processor in close communication.
The advantages of the multiprocessing system are:
Increased Throughput − By increasing the number of processors, more work can be completed in a unit time.
Cost Saving − Parallel system shares the memory, buses, peripherals etc. Multiprocessor system thus saves money as compared to multiple single systems. Also, if a number of programs are to operate on the same data, it is cheaper to store that data on one single disk and shared by all processors instead of using many copies of the same data.
Increased Reliability − In this system, as the workload is distributed among several processors which results in increased reliability. If one

processor fails then its failure may slightly slow down the speed of the system but system will work smoothly.

Q.3: Describe the objective of multiprogramming ?

Multiprograming is the feature of oprating system and the processor which suport parallel processing

parallel processing. Proceds to execution of multil program by the computer at the same time parallel processing deals helps in optiu

utillstation of the computer processor .it saves the timme and gets executed parallel prossing and multi programming saves money and promotes utilisation of resoures

The main **objective of multiprogramming** is to have process running at all times. With this design, CPU utilization is said to be maximized. Answer: **Multiprogramming** is a feature of the Operating system with the help of it can run multiple programs at the same time

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Q 4 What are benefits of multithreaded programming?

ANS

Some of the most important benefits of MT are:

Responsiveness Resource sharing. Economy. Scalability etc

Improved throughput. Many concurrent compute operations and I/O requests within a single process.

Simultaneous and fully symmetric use of multiple processors for computation and I/O

Superior application responsiveness. If a request can be launched on its own thread, applications do not freeze or show the "hourglass".

Improved server responsiveness. Large or complex requests or slow clients don't block other requests for service.

Minimized system resource usage. Threads impose minimal impact on system resources.

Program structure simplification. Threads can be used to simplify the structure of complex applications, such as server-class and multimedia applications.

Better communication. Thread synchronization functions can be used to provide enhanced process-to-process communication.

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Q.5 *What is Round-Robin Scheduling Algorithm?*

The name of this algorithm comes from the round-robin principle, where each person gets an equal share of something in turns. It is the oldest, simplest scheduling algorithm, which is mostly used for multitasking.

In Round-robin scheduling, each ready task runs turn by turn only in a cyclic queue for a limited time slice. This algorithm also offers starvation free execution of processes.

- Round robin is a pre-emptive algorithm
- The CPU is shifted to the next process after fixed interval time, which is called time quantum/time slice.
- The process that is preempted is added to the end of the queue.
- Round robin is a hybrid model which is clock-driven
- Time slice should be minimum, which is assigned for a specific task that needs to be processed. However, it may differ OS to OS.
- It is a real time algorithm which responds to the event within a specific time limit.
- Round robin is one of the oldest, fairest, and easiest algorithm.
- Widely used scheduling method in traditional OS.

Question 6 : What are the primary differences between Network Operating System and Distributed Operating System?

ANS

Network Operating System

1 A network operating system is made up of software and associated protocols that allow a set of computer network to be used together
2 Environment users are aware of multiplicity of machines.
3 Control over file placement is done manually by the user.
4 Performance is badly affected if certain part of the hardware starts malfunctioning.
5 Remote resources are accessed by either logging into the desired remote machine or transferring data from the remote machine to user's own machines.

Distributed Operating System

1 A distributed operating system is an ordinary centralized operating system but runs on multiple independent CPUs.
2 Environment users are not aware of multiplicity of machines.
3 Environment users are not aware of multiplicity of machines.
4 It can be done automatically by the system itself.
5 It is more reliable or fault tolerant i.e distributed operating system performs even if certain part of the hardware starts malfunctioning
6 Users access remote resources in the same manner as they access local resources.

Question 7 : What inconveniences that a user can face while interacting with a computer system, which is without an operating system?

Answer: Operating system is a required component of the computer system.
Without an operating system computer hardware is only an inactive electronic machine, which is inconvenient to user for execution of programs.
As the computer hardware or machine understands only the machine language. It is difficult to develop each and every program in machine language in order to execute it.

Thus without operating system execution of user program or to solve user problems is extremely difficult.