Assignment

(Hand Written Copy)

Course Name : Operating Systems

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Banker's Algorithms:

Banker's Algorithms is used to avoid deadlock and allocate resources safely to each process in computer system. It help the operating system to successfully share the resources between all the process.

Working Procedure:

When a new process is created in a computer system, the process must provide all types of information to the operating system like upcoming processes, request for their resources, counting them and delays.

Based on these criteria, the operating system decides which process sequence should be executed or waited. So, that no

deadlock occurs in a system.

Therefore it is also known as deadlock avoidance algorithm or deadlock detection in the operating system.

Advantanges of Banker's Algorithm:

→ It contains various resources that meet the requirement of each process.

→ Each process should provide information to the operating system for upcoming resources requests, the number of resources, and how long the resources will be held.

→ It helps the operating system manage and control process requests for each type of

of resource in the computer system.

→ The Algorithm has a Max resource attribute that represent indicates each process can hold the Maximum number of resources in a system.

Disadvantages of Banker's Algorithms:

→ It requires a fixed number of processes and no additional processes can be started in the system while executing the process.

→ The Algorithm does no longer allows the processes to exchange its maximum needs while processing its task.

→ Each process that has to know and state their maximum resource requirement in advance for the system.

→ The number of resource requests can be granted in a finite time, but the time limit for allocating the resources is one year.

Critical situation Handing :

→ If the system enterens a critical state, the algorithms can use various techniques to resolve the deadlock. For example : It may preempt resources from low prioriety processes to allocate them to higher priority processes on use timeouts to force processes to release their resources.

In extreme cases, the algorithm may have to resort to ~~kiddi~~ killing processes to break the deadlock and freeup resources for others processes.