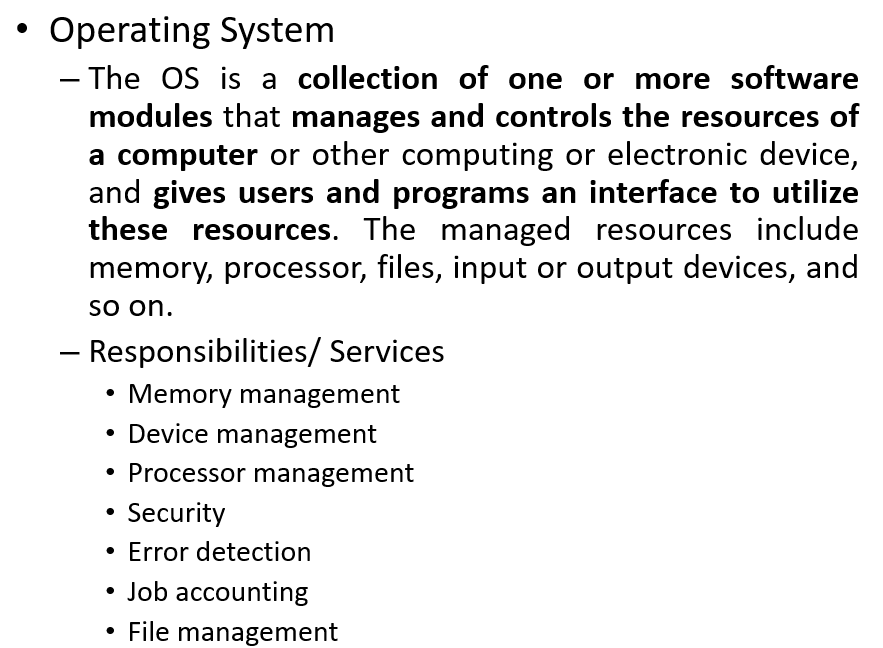
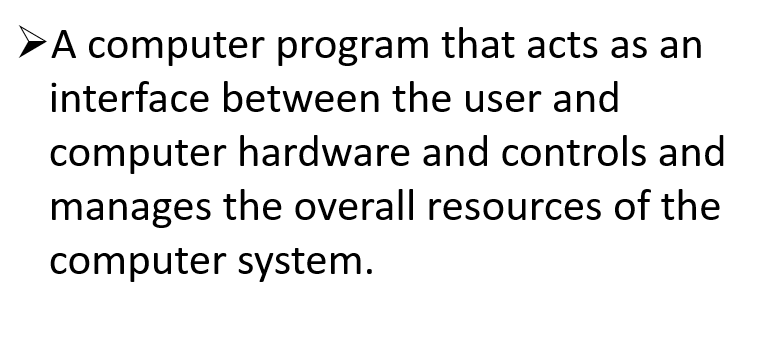
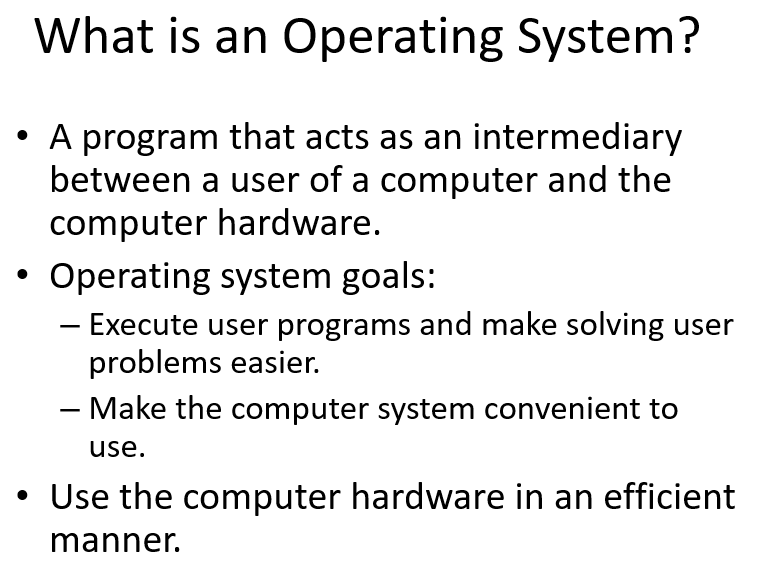
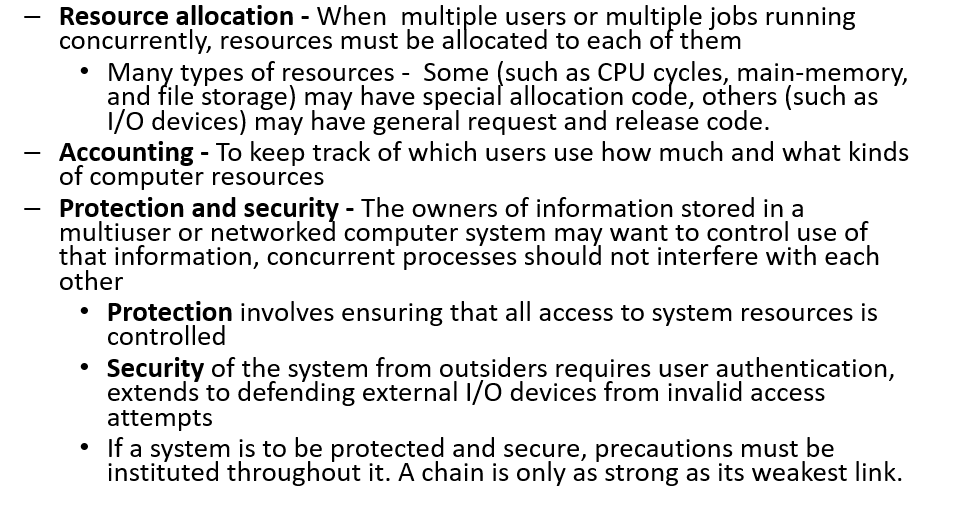
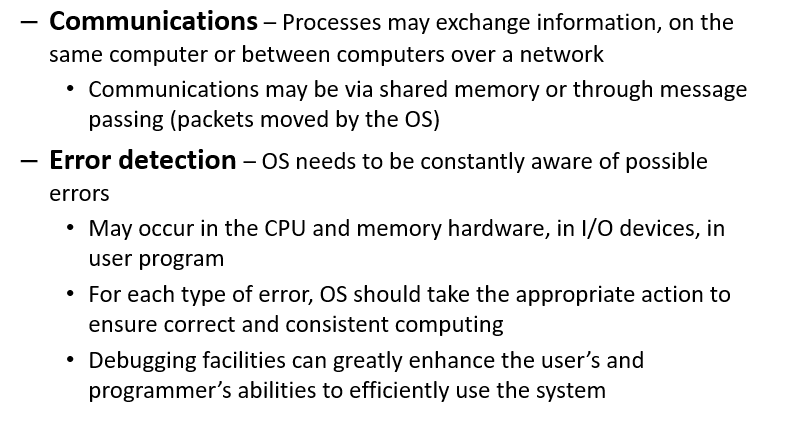
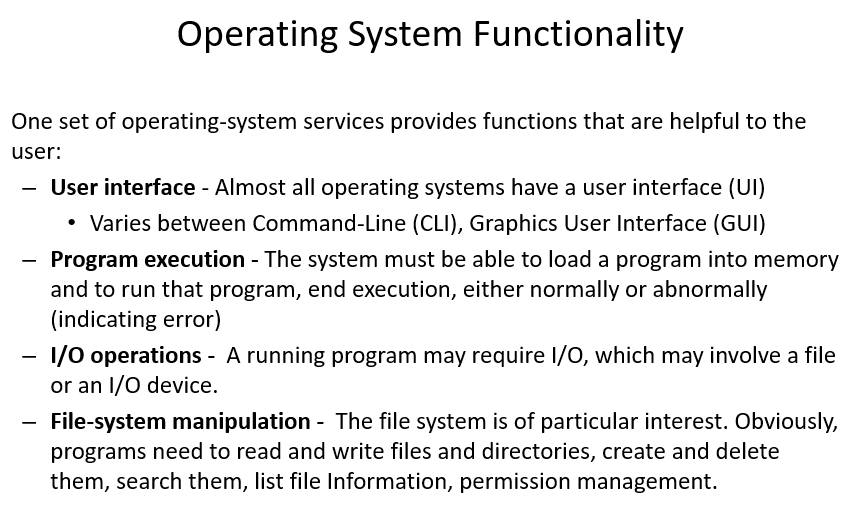
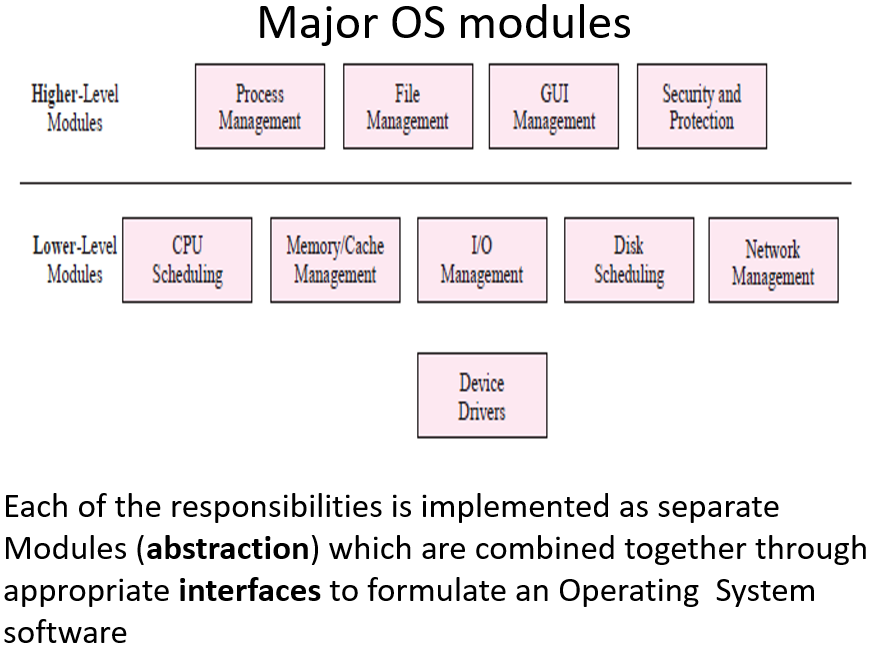
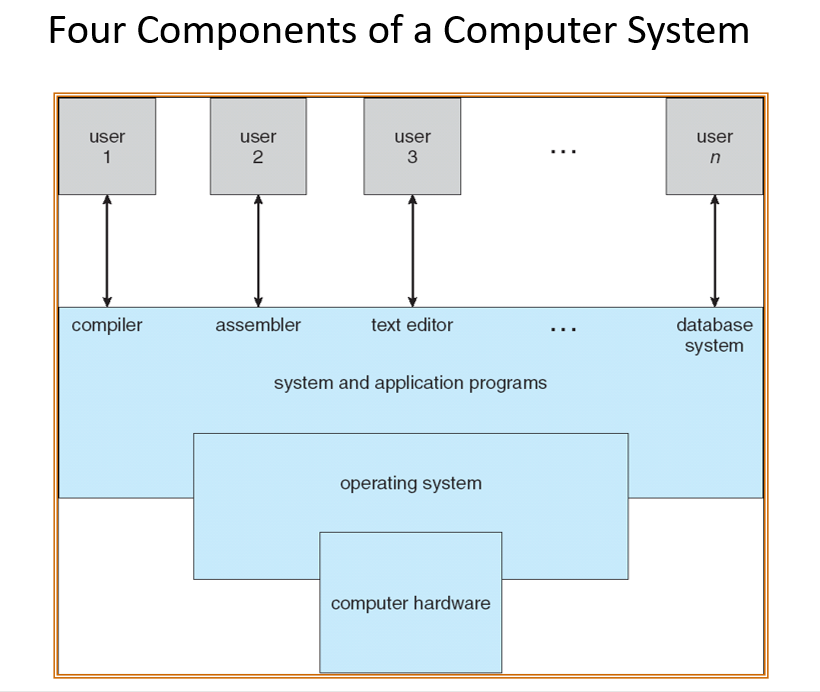
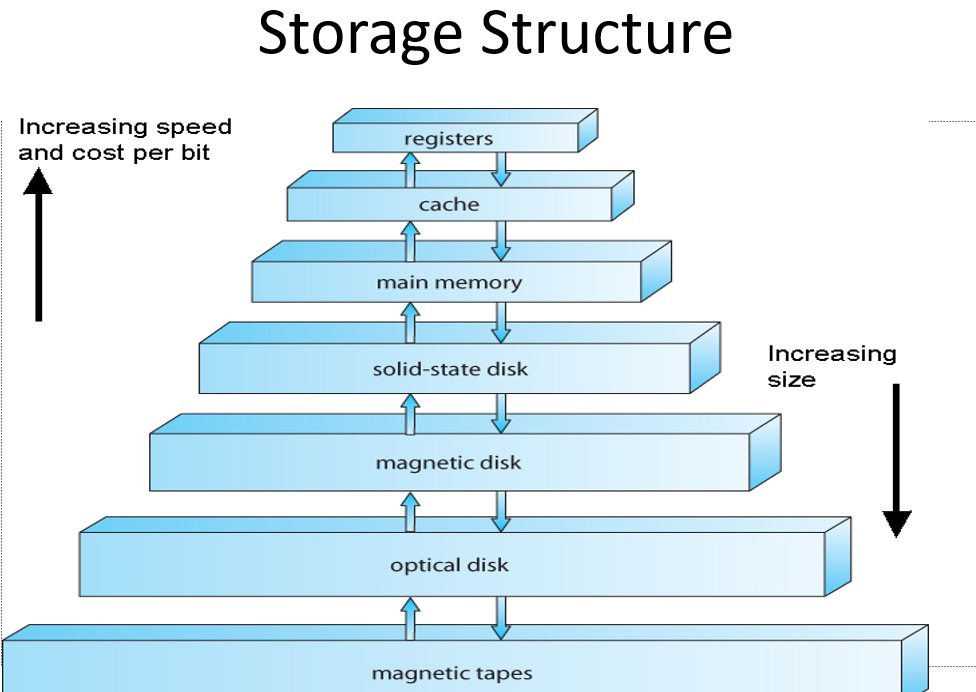
**Operating System**

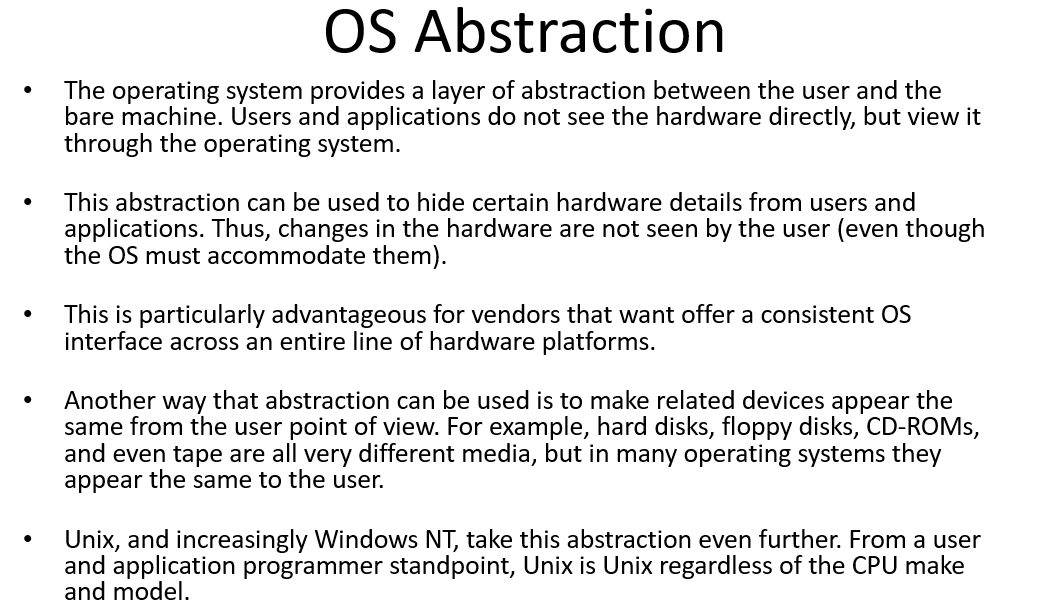


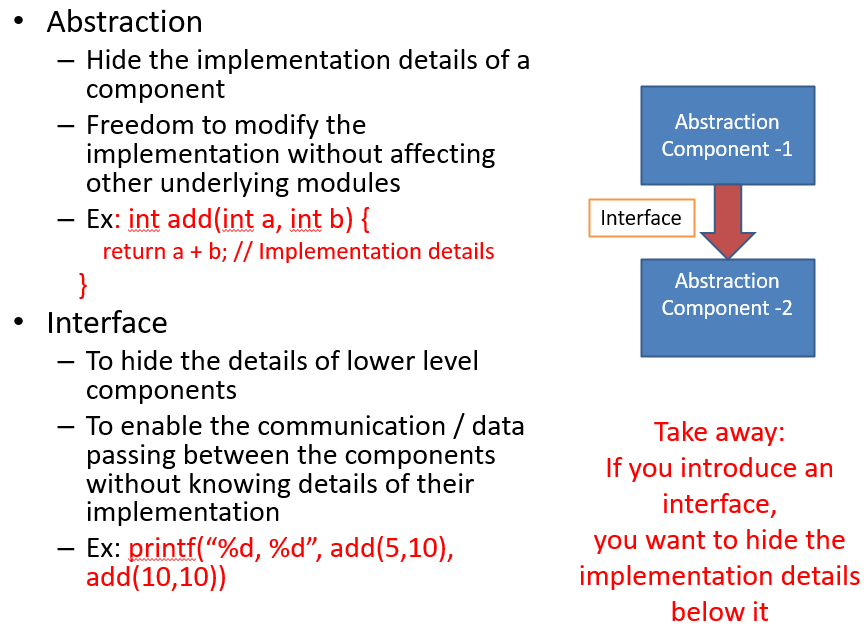


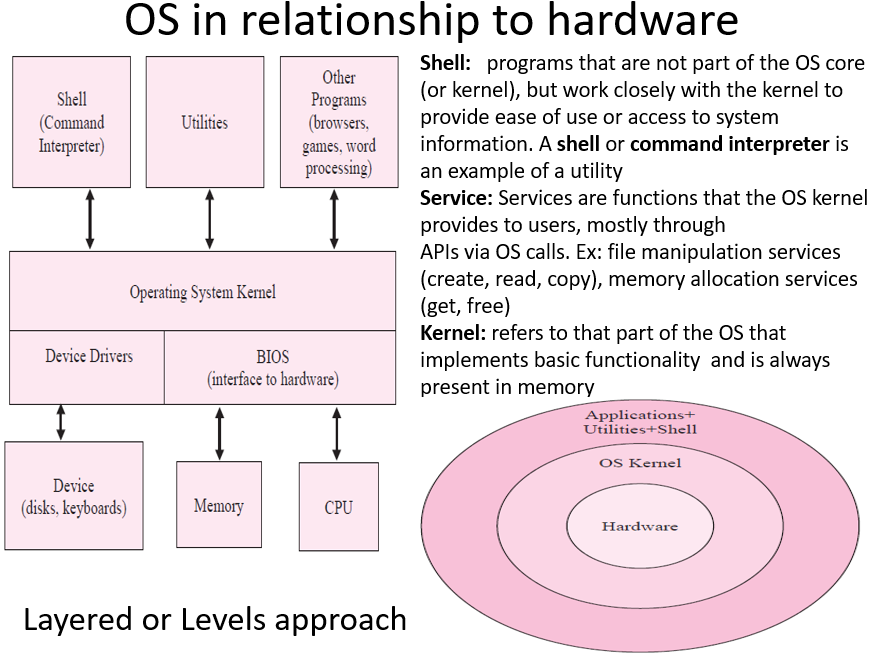


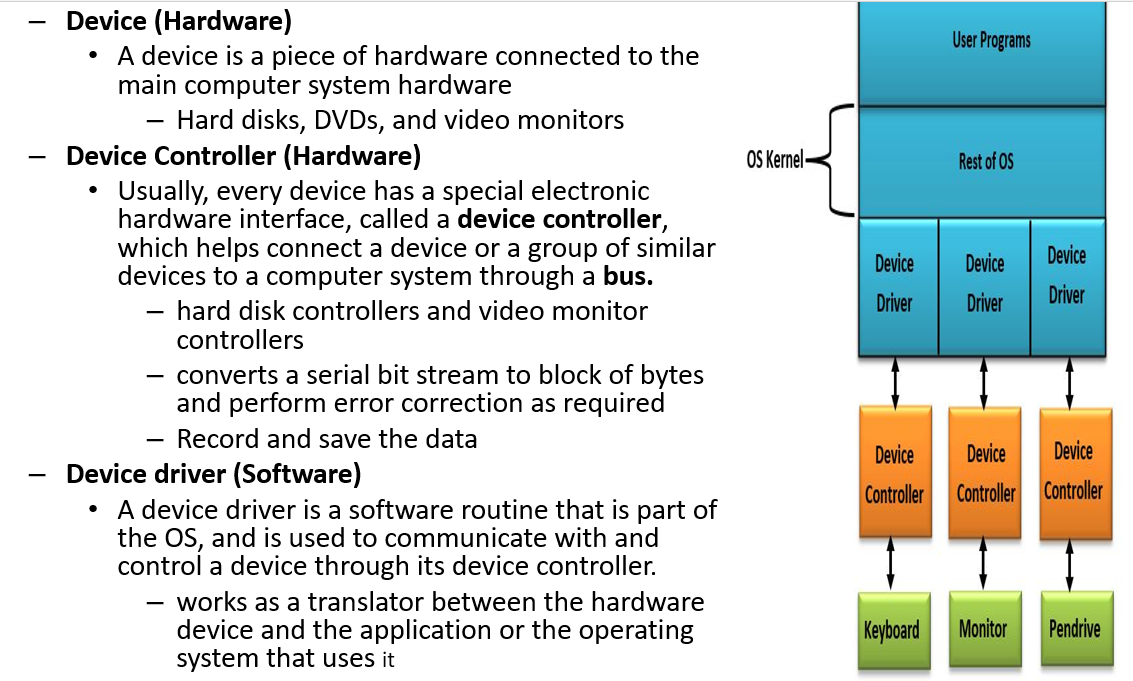


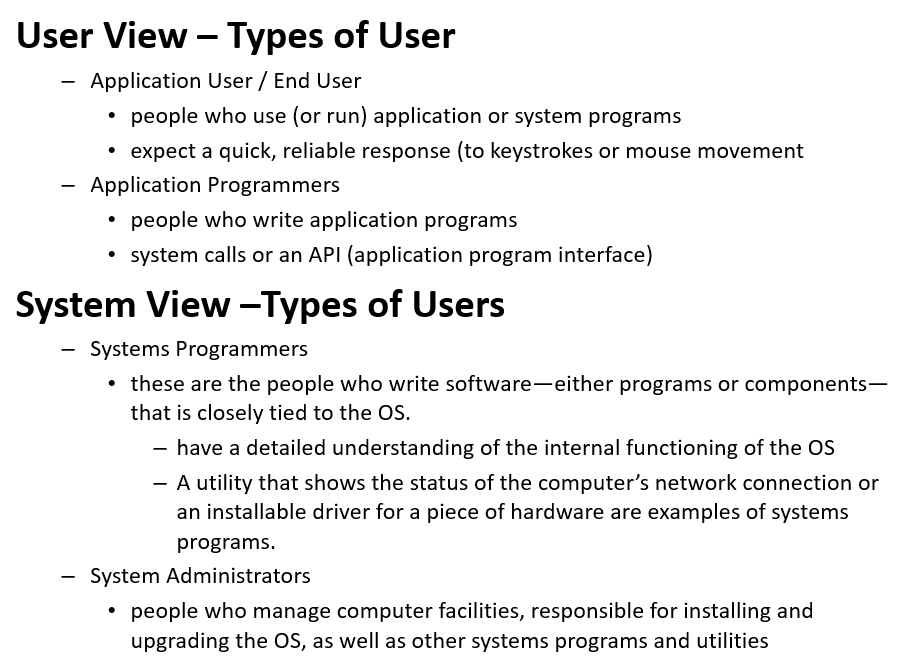


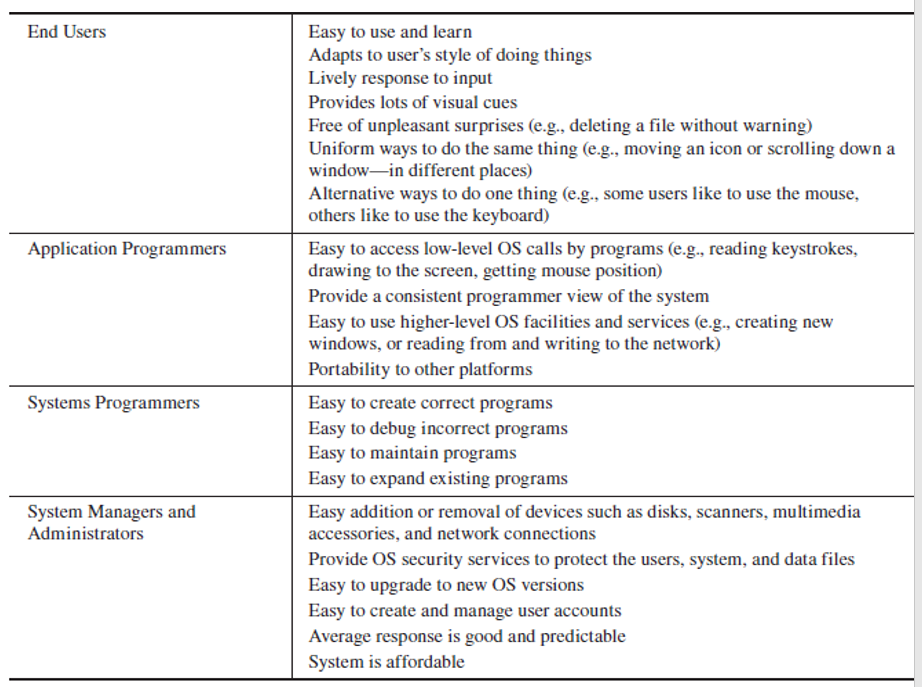






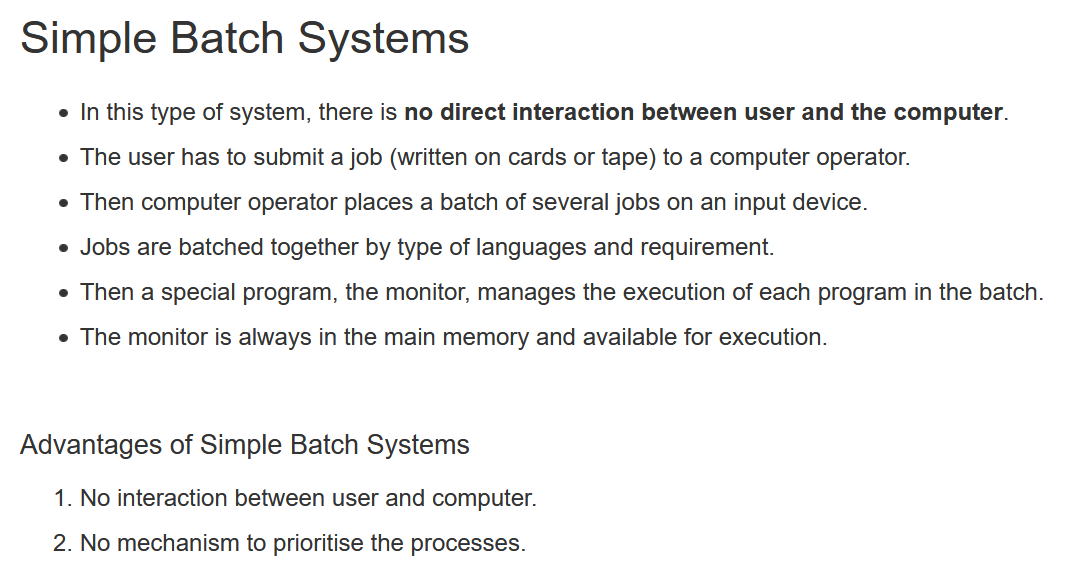




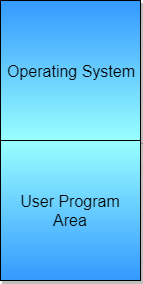


**Types of Operating System**

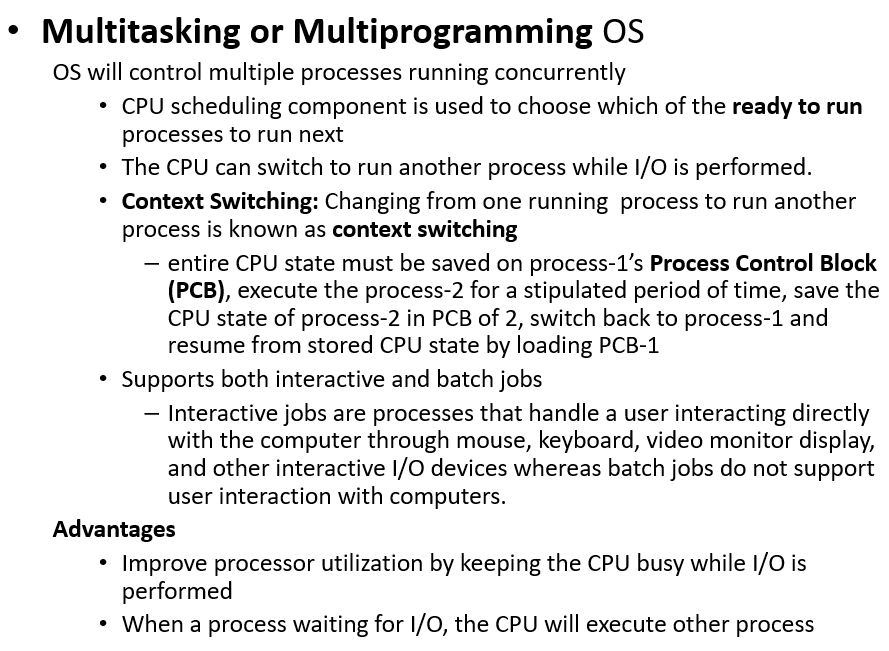
**Batch Operating System**

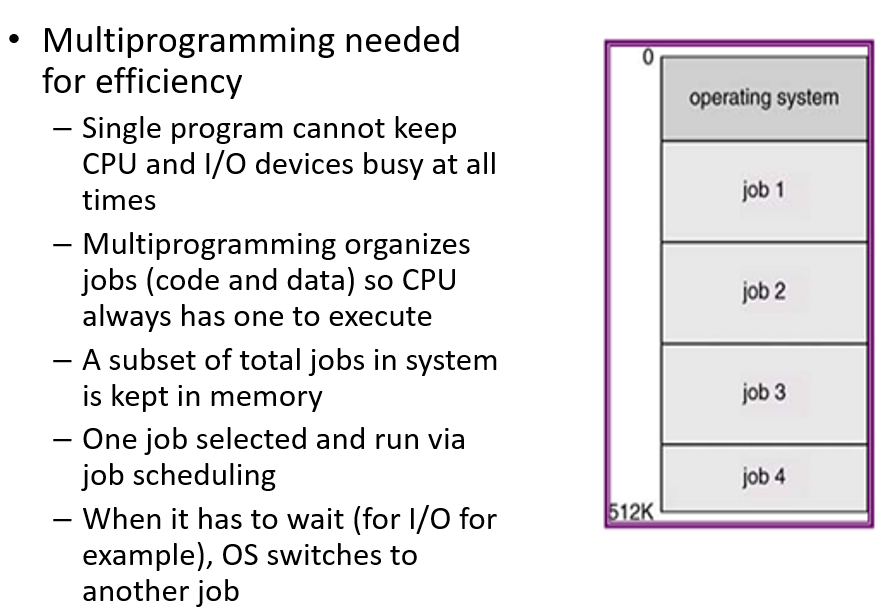


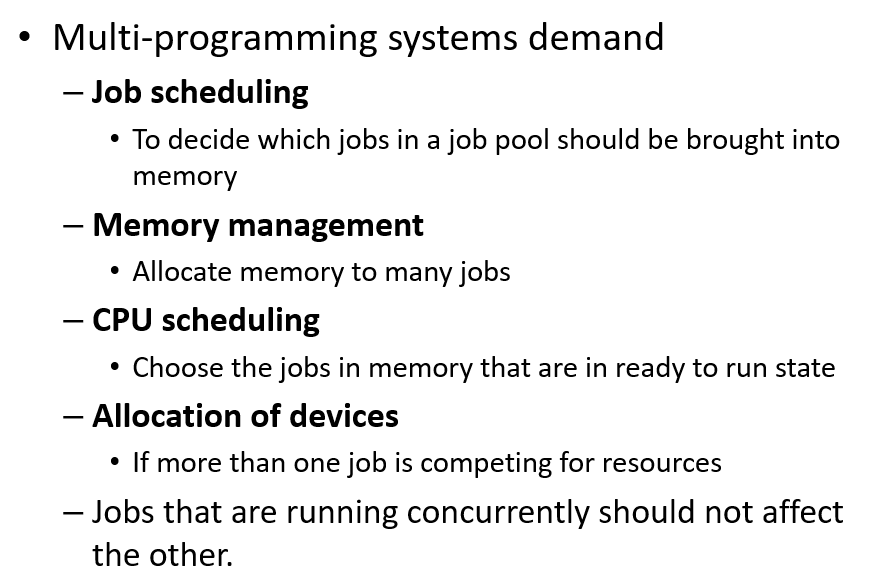




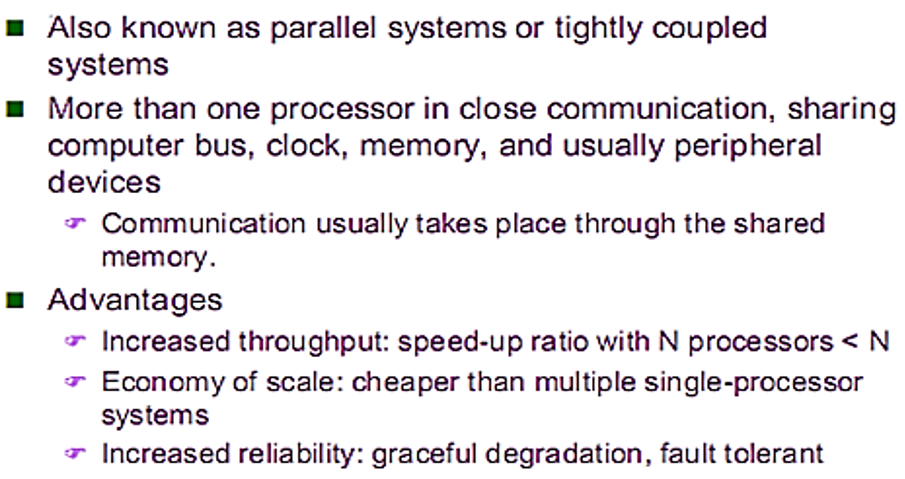
**Multi-programming or Multi-tasking Operating System**

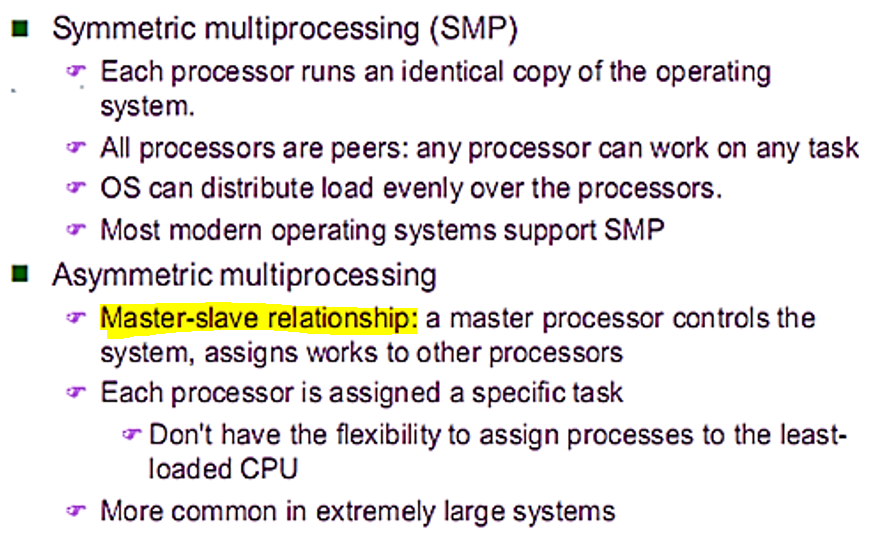


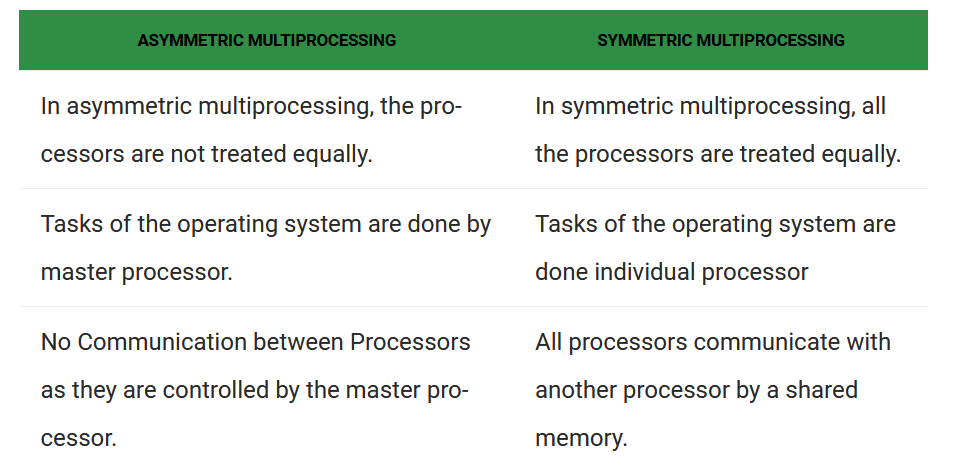


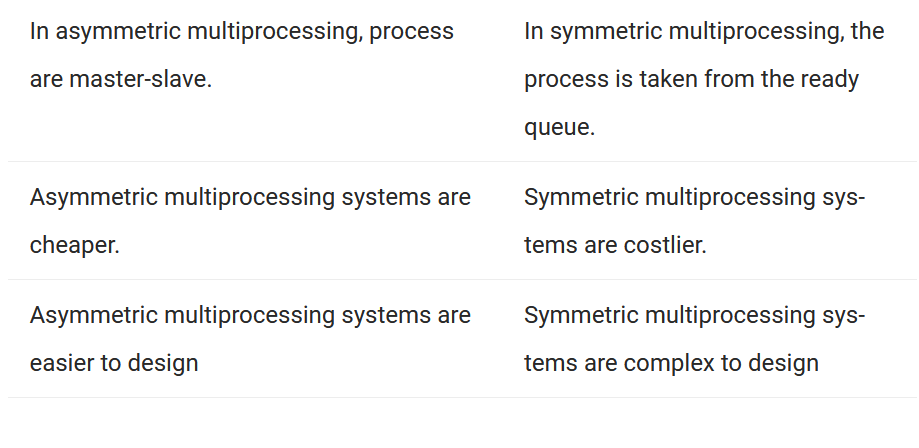


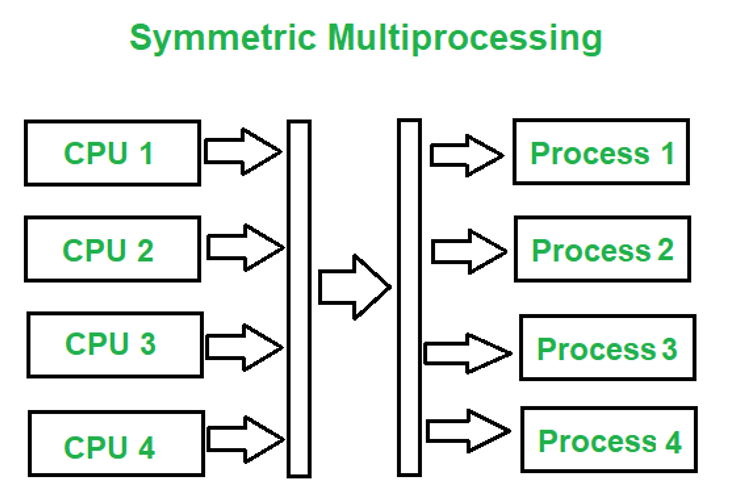
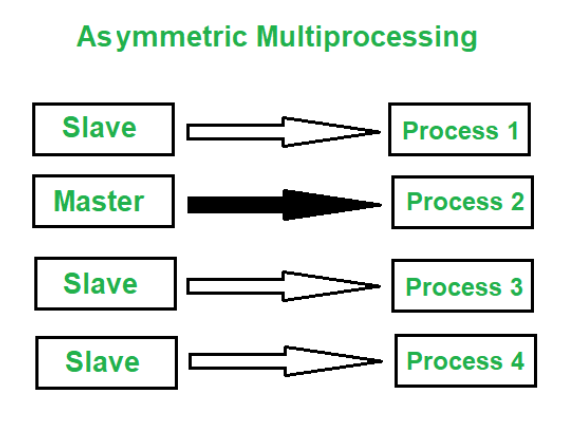
**Multi-processor Operating System**











**Symmetric:**

Processor-1 : 10 min

Processor-2 : 5 min

After Processor-2 finishes it does not sit idle, it takes the work from Processor-1 and do that work. No head for scheduling the processor to do 🡪 Present technology

**As-symmetric :**

Processor-1 : 10 min

Processor-2 : 5 min

A head will be there to schedule the processor.

**Clustered Operating System**

\* Clustered systems are typically constructed by combining multiple computers into a single system to perform a computational task distributed across the cluster.

\* Multiprocessor systems on the other hand could be a single physical entity comprising of multiple CPUs.

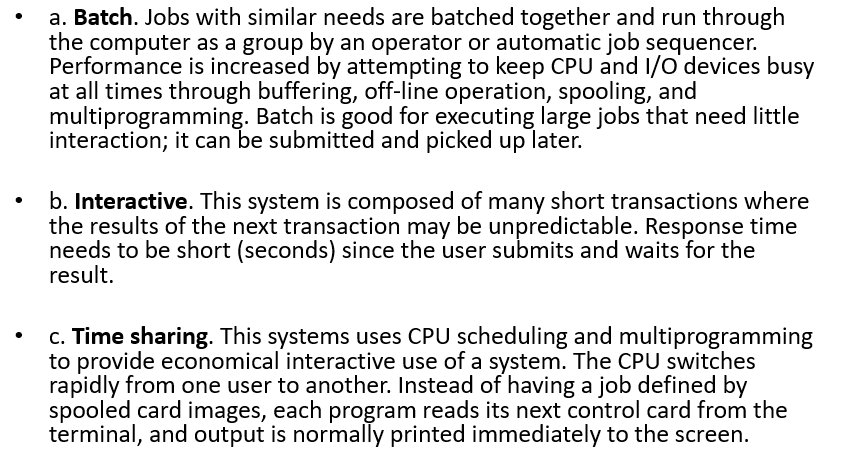
\* *A clustered system is less tightly coupled than a multiprocessor system.*

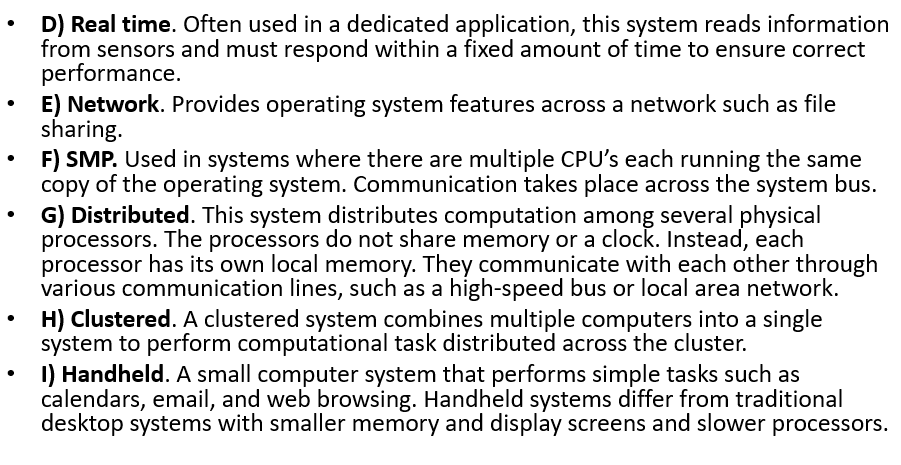
\* Clustered systems communicate using messages, while processors in a multiprocessor system could communicate using shared memory.

\* In order for two machines to provide a highly available service, the state on the two machines should be replicated and should be consistently updated.

\* When one of the machines fail, the other could then take-over the functionality of the failed machine.

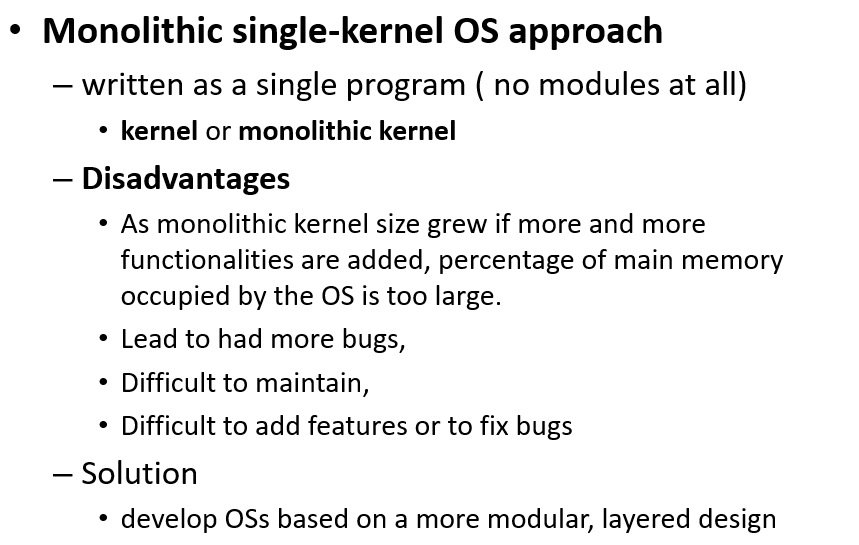
**Final Over-view**



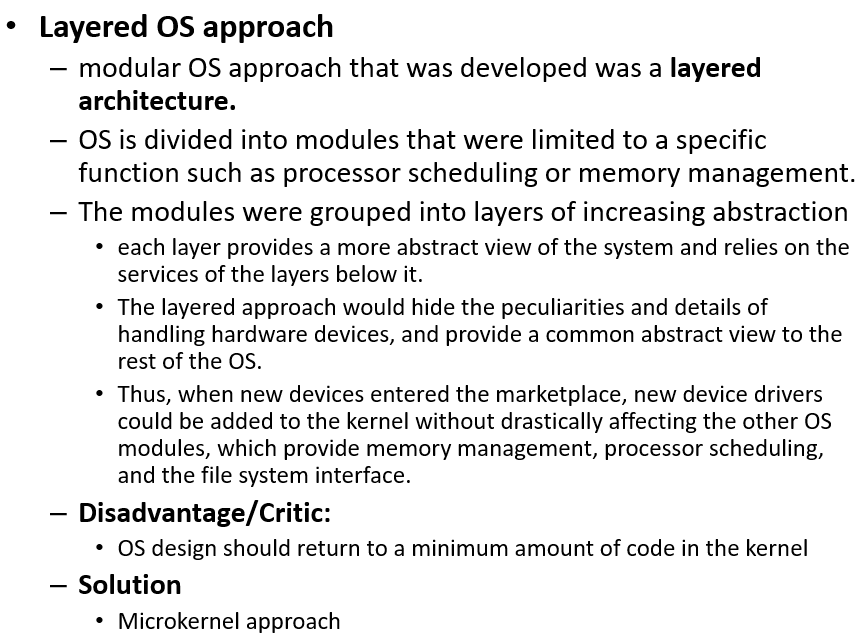


**Architectural approaches in building an OS**

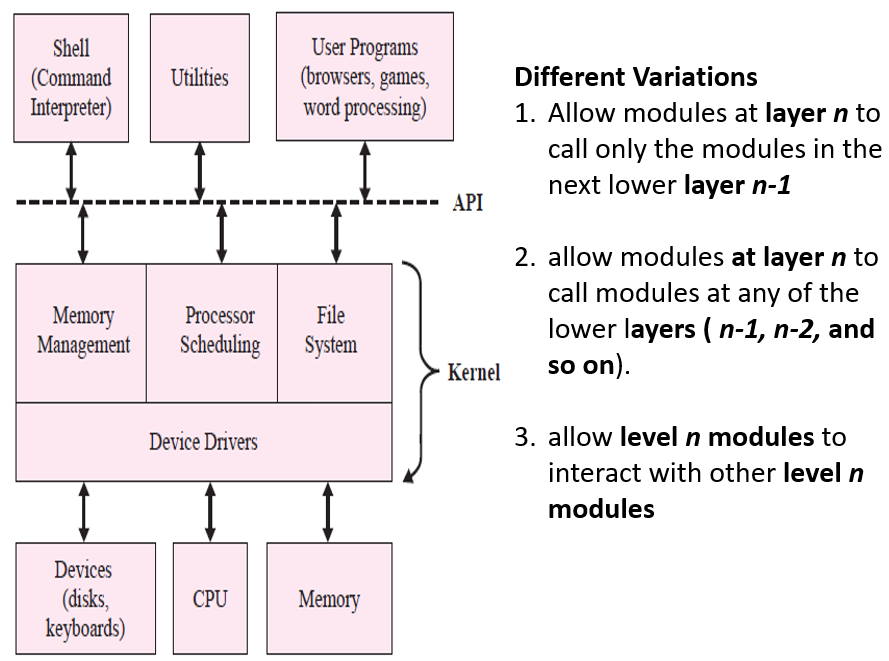
**1. Monolithic single-kernel OS approach  
2. Layered OS approach  
3. Modular approach  
4.Microkernel OS approach**

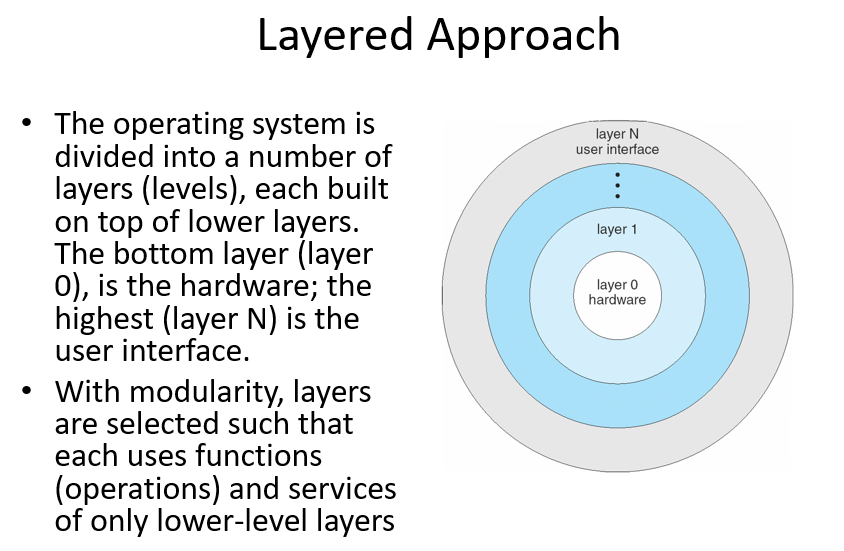


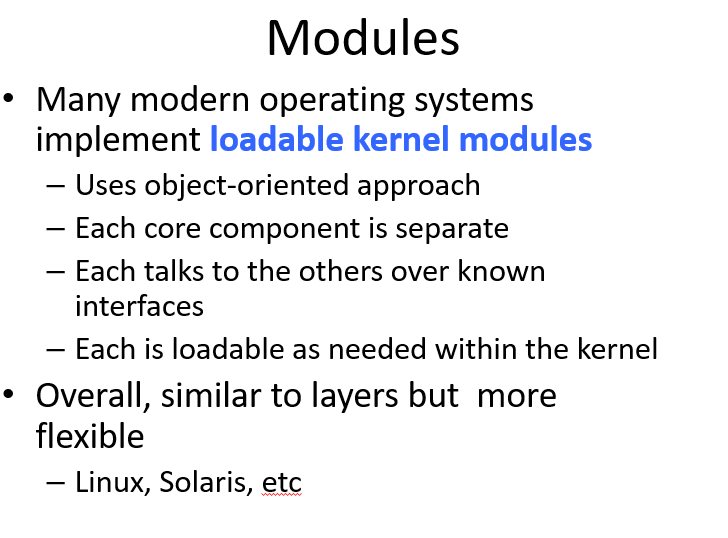




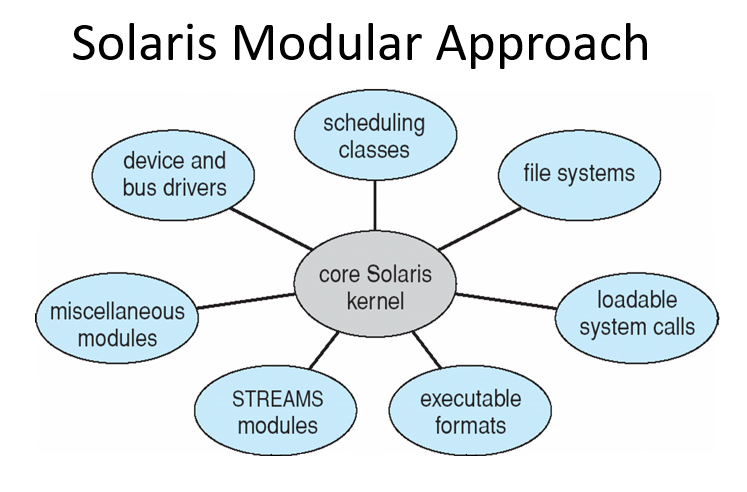


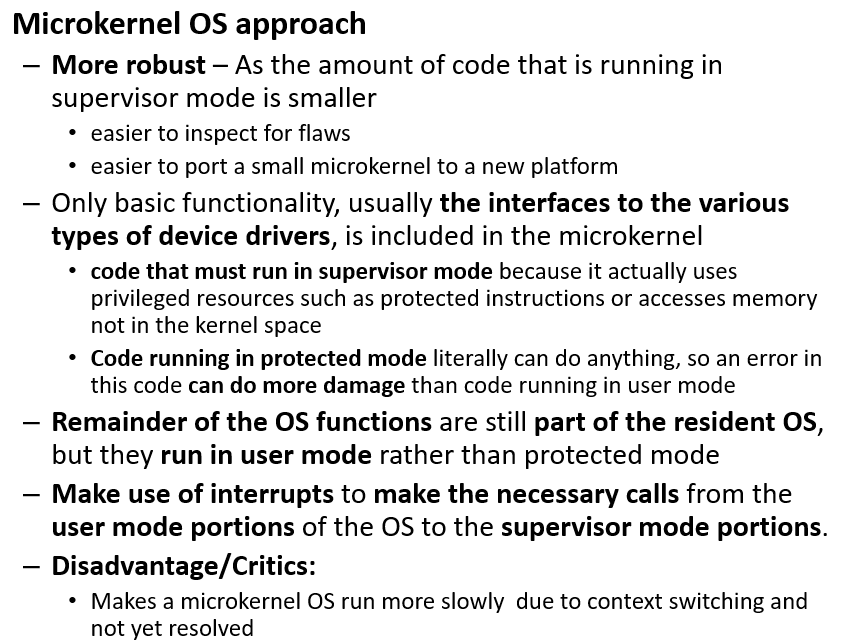




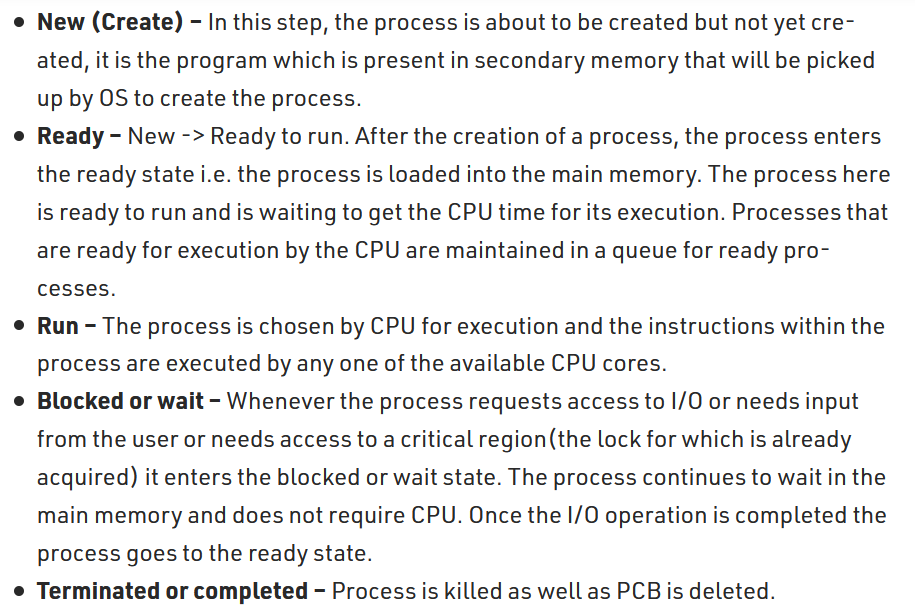


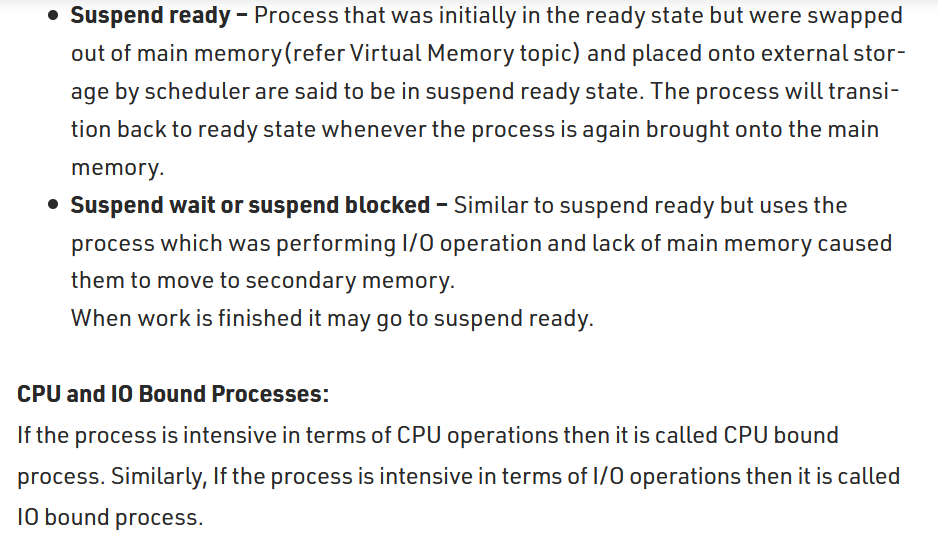


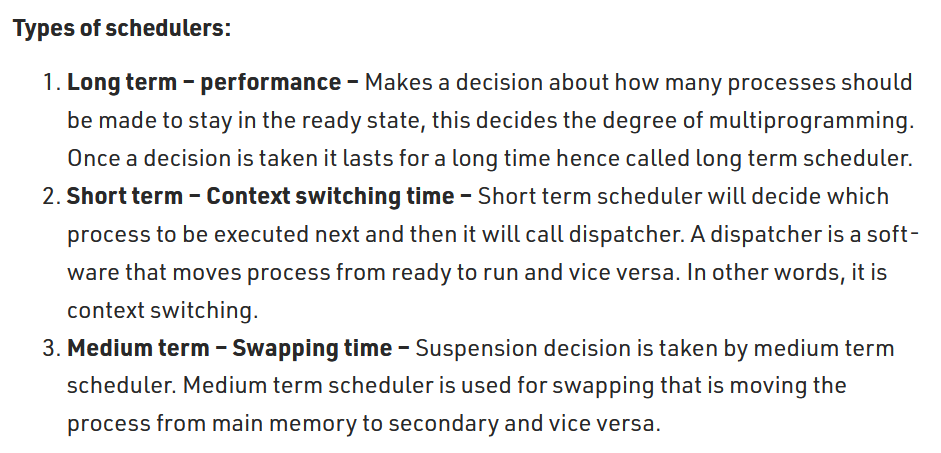




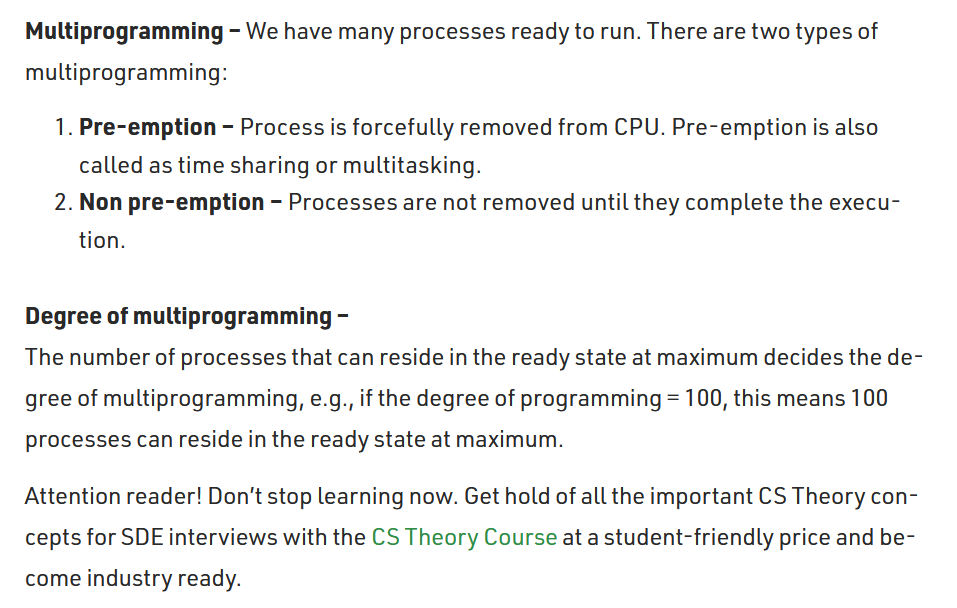












User Mode and Kernel Mode

