

Section-4 Ans-1

Internal and External Fragmentation with example:-

=> Internal Fragmentation:-

Internal Fragmentation happens when the memory is split into mounted sized blocks.

Method request for memory



Mounted sized memory is allocated to method

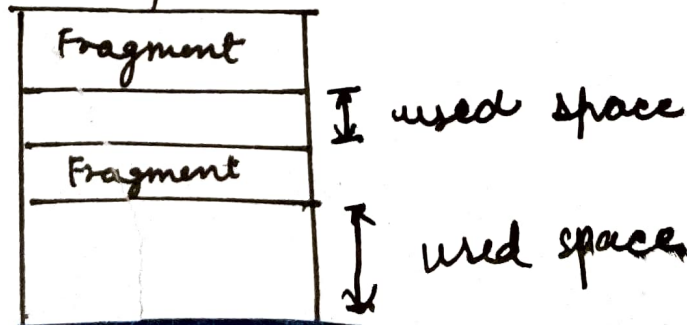


just in case memory allocated to method > memory requested



Distinction between allocated and requested memory

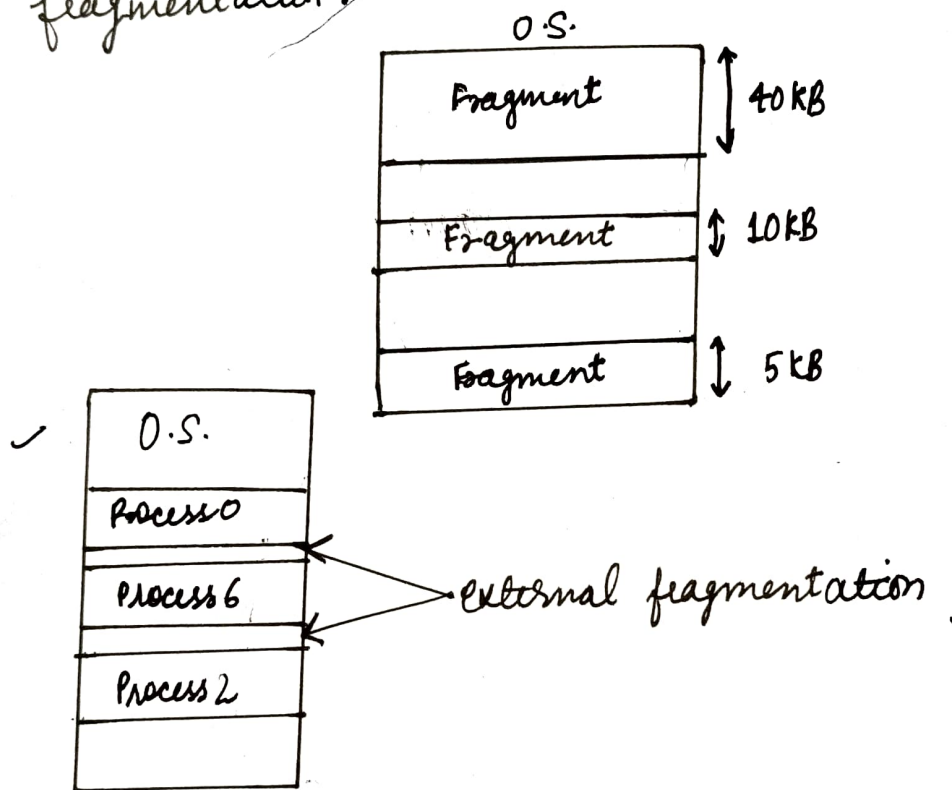
= INTERNAL FRAGMENTATION



## ⇒ External Fragmentation:-

External fragmentation happens when there is sufficient quantity of area within the memory to satisfy the memory request of a method, however, the process's memory request cannot be fulfilled because the memory offered is during a non contiguous manner.

Either you apply first-fit or best fit manner memory allocation strategy it'll cause external fragmentation.

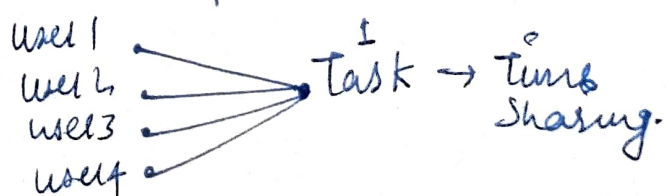


## Multi-Tasking

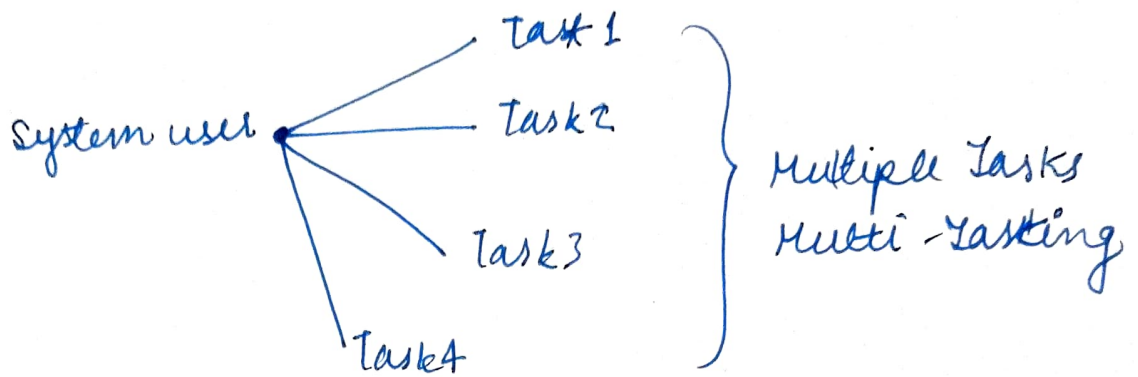
Multi-Tasking is closely related with the concept of time sharing.

Time sharing → was implemented on main frame systems

↓  
where more than one user worked together to complete one task



Multi-tasking makes multiple task execution possible in micro-computers, Multi-tasking implies that multiple tasks can be handled simultaneously by system user.



Multi-tasking comes in two flavours

cooperative  
Multi-tasking

(Eg. MACOS (upto Mac OS8))

- Basic scheme for multitasking.
- Total hold of the processor is given to the active program.
- Improper use of resources.
- Risk in process execution.

Preemptive (Interruptive)  
Multi-tasking

(Eg. Windows NT, LINUX)

- scheduler keeps all the control to itself.
- prevents any one process to keep the total control with itself.
- Preemption (Interruption) can occur in many ways.
- RRS with preemption.

Multiprocessing :-

Multiprocessor O.S. refers to the use of two or more central processing units (CPU) within a single computer system.

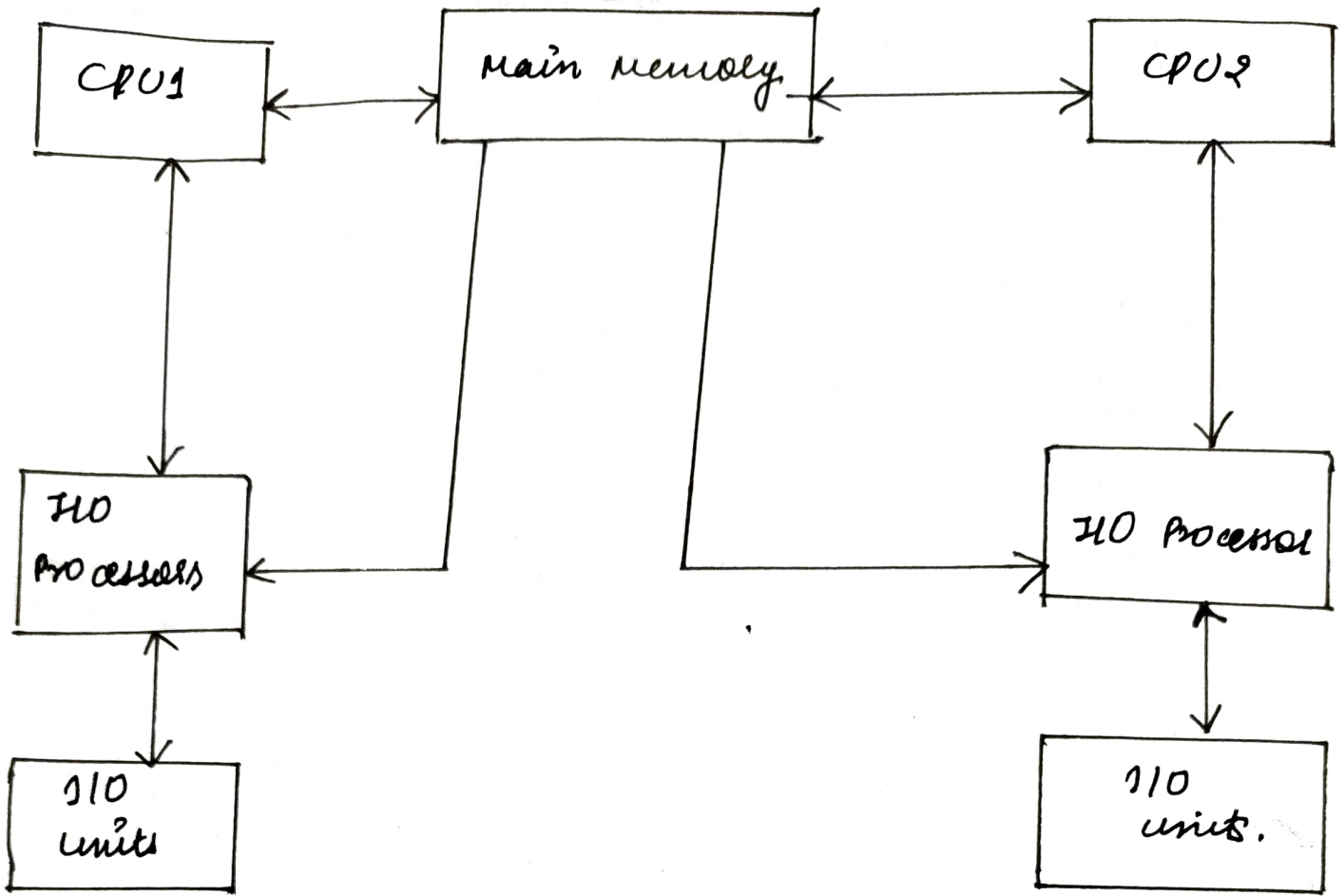


Fig: Multi-Processor Operating system.

Multiprocessing system is based on the symmetric multiprocessing model, in which each processor runs an identical copy of O.S. and these copies communicate with each other:

The multiple CPU's are in a close communication sharing the computer bus, memory and other peripheral devices.

These systems are referred to as tightly coupled systems.

These types of systems are used when high speed is required to process large volume of data.

used in satellite control, weather forecasting etc.