Contiguous Memory Allocation – Fixed Size Partitioning

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Recap

- **Contiguous Memory Allocation-** Contiguous memory allocation is a memory allocation method that allocates a single contiguous section of memory to a process or a file.

- **Variable Size Partitioning-** the partition size is not declared initially. It is declared at the time of process loading. The size of each partition will be equal to the size of the process.

- Three techniques for space location:
    1. First Fit: allocate first hole that is big enough.
    2. Best Fit: allocate the smallest hole that is big enough.
    3. Worst Fit: allocate the largest hole.

Fixed Size Partitioning

- It divides the memory in certain partitions.

- The partitions cannot overlap.

- A process must be contiguously present in a partition for the execution.

- If a process of 4 KB has to be uploaded, it will accommodate first block, where remaining 1 KB is wasted. This is called internal fragmentation
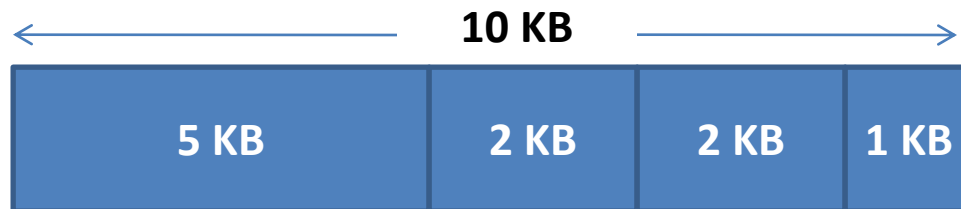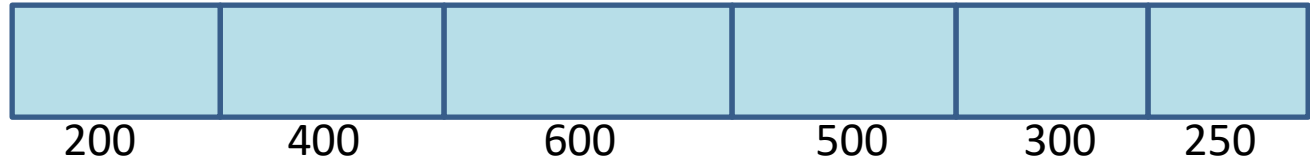
Fixed Size Partitioning

P1=357
P2=210
P3=468
P4=491

First Fit

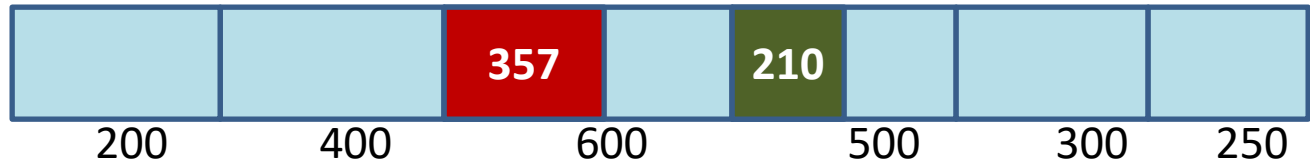Internal fragmentation=43, 390, 32, External Fragmentation=491.

200 400 600 500 300 250

357 210 468

Best Fit

Internal Fragmentation=43, 40, 32, 110
No External Fragmentation

200 400 600 500 300 250

357 491 468 210

Worst Fit

Internal Fragmentation= 243, 290
P3 and P4 can not accommodate.
External Fragmentation: 959

200 400 600 500 300 250

357 210

Difference between fixed & variable partitioning

- **Fixed partitioning:**
  - The main memory is not utilized effectively. The memory assigned to each process is of the same size that can cause some processes to have more memory than they need.
  - Suffers from internal fragmentation.

- **Variable partitioning:**
  - The main memory is utilized very effectively.
  - The memory assigned to each process is exactly what is needed for the execution of the process.
  - No Internal Fragmentation.

Thank you