



Birla Institute of Technology and Science, Pilani  
(BITS Pilani)

Assignment report on:

**“Operating System”**

(Wipro ID : GO40004666)

Submitted By:

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“Bits ID. **2017HW86610**”

Question:

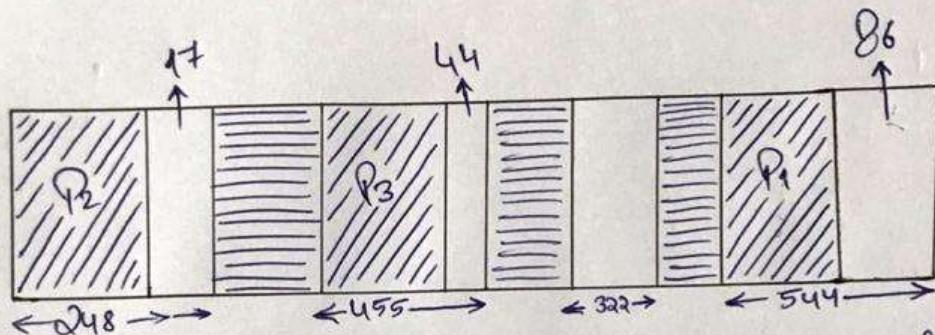
248	455	322	544
$P_1 = 459$	$P_2 = 231$	$P_3 = 411$	$P_4 = 331$

- For the fixed size partitioning, use first fit, Best fit & Worst fit to allocate the memory allocation. Calculate the Lt. & Ex. frag.
- Which algo is best suitable & why?
  - For variable size partitioning calculate First fit, Best fit & Worst fit partitioning techniques.

Solution:

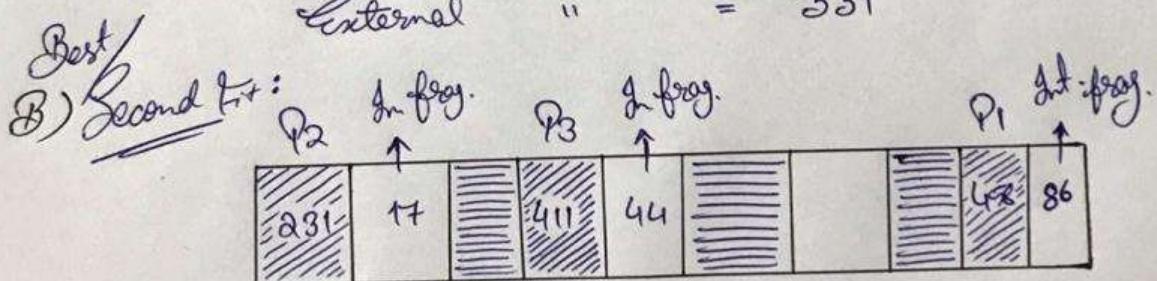
For fixed size Partitioning,

A) First Fit:  $P_1 = 458$ ,  $P_2 = 231$ ,  $P_3 = 411$ ,  $P_4 = 331$



' $P_4$ ' can not be allocated b/c '331' Contiguous space is not available.

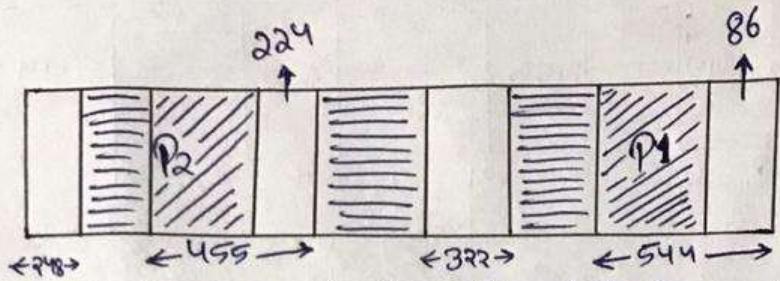
$$\begin{aligned} \text{Internal Fragmentation} &= 17 + 44 + 86 = 147 \\ \text{External } " &= 331 \end{aligned}$$



$$\begin{aligned} \text{Internal Fragmentation} &= 17 + 44 + 86 = 147 \\ \text{External } " &= 331 \end{aligned}$$

Similarly: ' $P_4$ ' can not be allocated which cause a '331' External Fragmentation.

c) Worst Fit :



Here 'P<sub>3</sub> & P<sub>4</sub>' can not be allocated any memory.

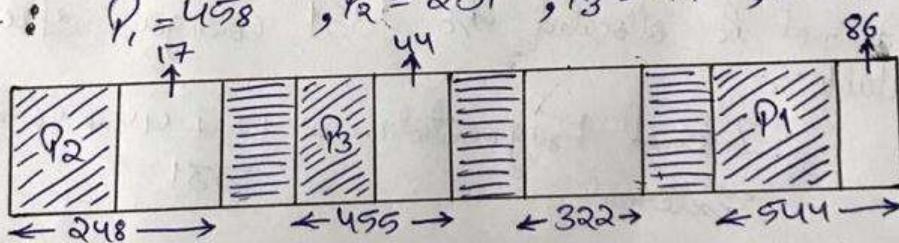
$$\text{Internal Fragmentation} = 224 + 86 = 310$$

$$\text{External Frag.} = 411 + 331 = 742$$

So, In Conclusion, Best Fit algo is best to accomodate a process if we are considering a fixed partitioning.  
Here we got some memory utilization for Best Fit and Worst Fit.

ii) For Variable Size partitioning ;

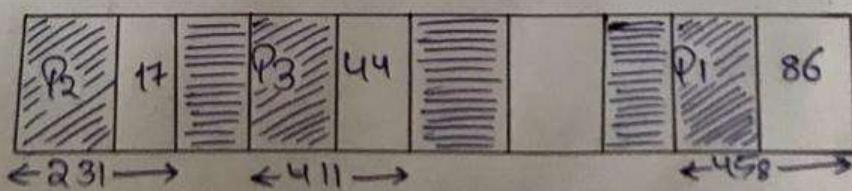
A) FIFO :  $P_1 = 458$ ,  $P_2 = 231$ ,  $P_3 = 411$ ,  $P_4 = 331$



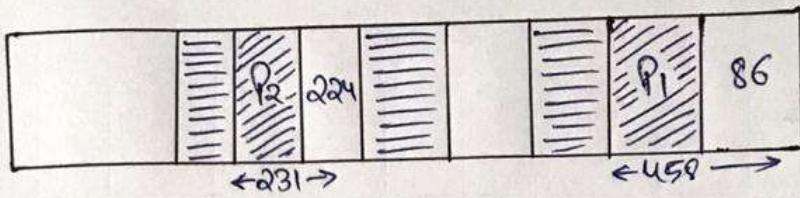
'P<sub>4</sub>' can not be allocated because space is not available to accomodate.

$$\text{External Fragmentation} = 331$$

B) Best Fit :  $P_1 = 458$ ,  $P_2 = 231$ ,  $P_3 = 411$ ,  $P_4 = 331$



c) Worst Fit:



$$\text{External Frag.} = 411 + 331 = 742$$

$$\text{Internal Frag.} = \text{No.}$$

Here, "Worst Case" is best case, since it is variable size partitioning the left space after-allocate off or process could not waste if can be allocate so, since it choose the largest possible octate for allocate the process, so the left space is also can be of large-size then the other processes can be allocated.

In best fit, there is less possibility to small unit of process thus it become little diff. to allocate the process in small size partitioning.

