(8)

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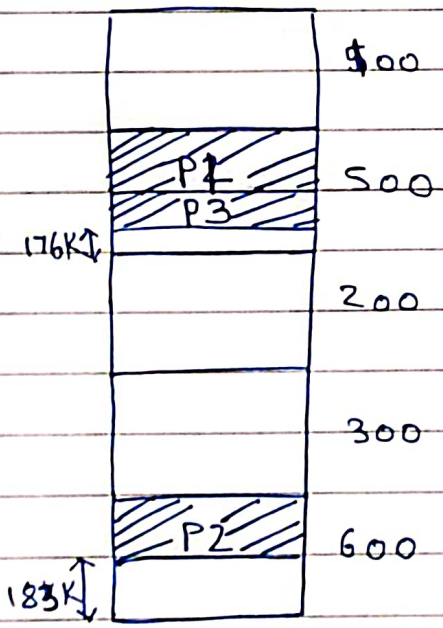
Q) Following is the list of available blocks in the main memory and the process size for each process (P0 to P3)

BlockSize[] = {100, 500, 200, 300, 600}
ProcessSize[] = {212, 417, 112, 426}

Find which memory block is allocated to which process using following placement strategies:

1) First Fit:



212 K is put in 500K partition
417 K is put in 600K partition
112 K is put in 288K partition (New partition 288K = 500K - 212K)
426K must wait.

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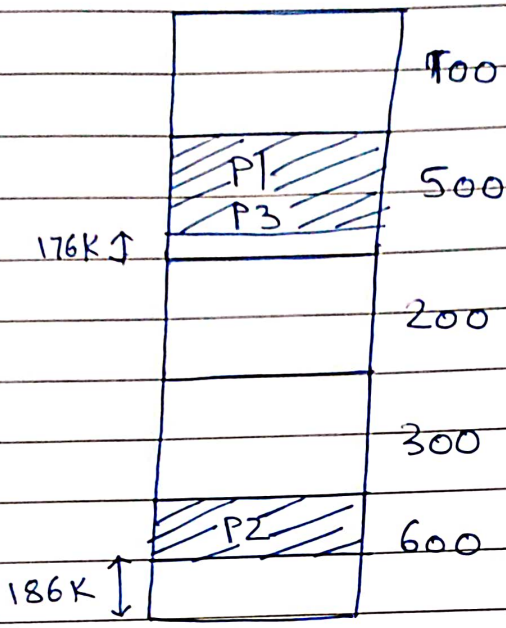
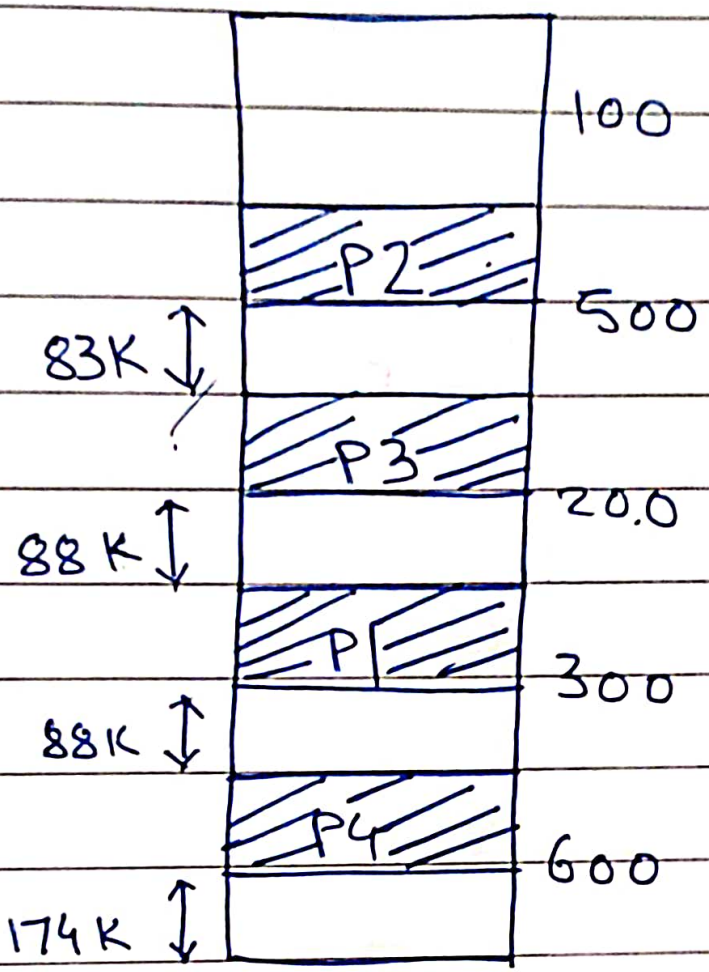
2) Best Fit:



Similar to First Fit, Next Fit will start searching of block # from that who has previously filled.

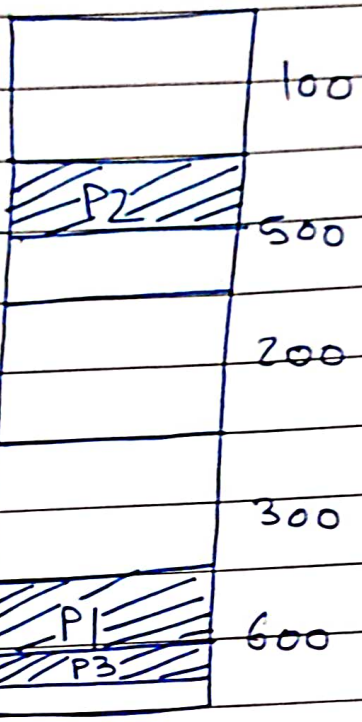
212 K is put in 500K partion (Block 2)
417 K is put in 600K partion (Block 5)
112K is put in 288K partion (Block 2)
426K must wait (Waiting)

3)



P1 (212K) is put in block 4
P2 (417K) is put in block 2
P3 (112K) is put in block 3
P4 (426K) is put in block 5

4) Worst Fit:



P1 is put in 600K block (Block 5)
P2 is put in 500K block (Block 2)
P3 is put in 600K block (Block 5)
P4 must wait

Q2. Consider the page replacement string as 7, 10, 2, 1, 1, 0, 5, 4, 2, 3, 0. page fault using page replacement algorithm first in first out.

7	1	0	2	0	3	4	2	3	0	3	2	1	2	0
	0	0	0	0	4	4	4	4	4	4	4	1	1	1
1	1	1	1	3	3	3	3	3	3	3	3	2	2	2
7	7	7	2	2	2	2	2	0	0	0	0	0	0	0

page hit = 11 Hit ratio → $\frac{\text{No. of hit}}{\text{No. of refer}} = \frac{11}{21} \times 100$

Page fault = 9.

Optimal page replacement.

7	1	0	2	0	0	3	4	2	3	0	3	2	1	2	0
	0	0	0	0	3	3	3	3	3	3	3	1	1	1	
1	1	1	1	1	1	4	4	4	0	0	0	0	0	0	
7	7	7	2	2	2	2	2	2	2	2	2	2	2	2	

Page hit = 11 page fault : 3.

Least Recently used (LRU).

7	1	0	2	0	0	3	4	2	3	0	3	2	1	2
	0	0	0	0	0	0	0	3	3	3	3	3	3	
	1	1	1	1	1	1	4	4	4	0	0	0	0	0
7	7	7	2	2	2	2	2	2	2	2	2	2	2	2

Page fault = 12 page hit = 8

Second Chance (clock)

7	1	0	2	0	0	3	4	2	3	0	3	2	1	2	0
	0	0	0	0	0	0	0	2	2	0	0	2	2	2	2
	1	1	1	1	1	3	3	3	3	3	3	3	1	1	1
7	7	7	2	2	2	2	4	4	4	4	4	4	4	4	0

Page fault = 5 page hit = 11.