

Practice Questions

Q1. Assuming there are 3 frames and the page reference string is

- a) 7 0 1 2 0 3 0 4 2 3 5 3 2 1 2 0 1 7 0 1
- b) 1 2 3 4 5 1 3 1 6 3 2 3
- c) 5 0 1 2 0 3 5 1 2 0 3 3 2 1 4 0 1 7 2 1

Compute number of page faults and number of hits using FIFO, LRU and Optimal page replacement algorithms. Also, give the hit ratio and page fault ratio

Q2. Given 3 processes A, B and C, three single instance resources X, Y and Z and following events happen in the sequence as given,

- 1) A requests X, A requests Y, B requests Y, B requests Z, C requests Z, C requests X, C requests Y
- 2) A requests X, B requests Y, C requests Z, A requests Y, B requests Z, C requests X, C requests Y

Assuming that initially all resources are free and once requested gets allocated to the requesting process if it is available. Draw the single instance resource allocation graph for the sequences. And also mention whether it is a deadlock, justify if yes or if no?

Q3. Given below are the matrices for maximum need of resources by 5 processes, already allocated resources to each individual processes and total available resources:

Process	Max			Allocation			Available			Need Matrix		
	A	B	C	A	B	C	A	B	C	A	B	C
P0	6	0	1	4	0	0	3	2	1			
P1	2	7	5	1	1	0						
P2	2	3	5	1	2	5						
P3	1	6	5	0	6	3						
P4	2	6	5	1	2	1						

Using Banker's algorithm, answer the following questions:

- i) How many resources of type A, B, C are there?
- ii) What are the contents of need matrix?
- iii) Find if the system is in safe state? If it is, find the safe sequence.

Q4. Given memory partitions of 100 K, 500 K, 200 K, 300 K and 600 K (in order) how would each of the first fit, best fit and worst fit algorithms work to place processes of 212 K, 417K, 112 K and 426 K (in order)? Which algorithm makes the most efficient use of memory? Represent each allocation with the help of neat diagram.