Branch : CSE & IT Batch:Hinglish

Subject : Operating System

Topic : Memory Management

DPP-04

[NAT]

1. Consider a system with page fault service time of 158ns and page fault hit ratio is 75%. If memory dues time is 10ns then effective memory access time (EMAT) is?

[MCQ]

2. Consider a main memory with five page frames and the following sequence of page references are 4, 9, 3, 4, 10, 2, 7, 4, 9, 10, 4, 7, 3, 2, 4. Which of the statement is true with respect to page replacement policies, first in first out (FIFO) and least recently used (LRU)?

(a) Page faults in FIFO is more than LRU.
(b) Page faults in LRU is more than FIFO.
(c) Both LRU and FIFO has some number of page faults .
(d) Page faults in FIFO has 2 more than LRU.

[MCQ]

3. Virtual memory is an illusion of _____.

(a) Large main memory
(b) Large secondary memory
(c) Both (a) and (b)
(d) None of the above

[MSQ]

4. The Belady's phenomenon is commonly experienced in

(a) First in first out
(b) Second chance algorithm
(c) Random page replacement algorithm
(d) Least recently used algorithm

[MCQ]

5. _____ manages virtual addresses, physical memory and the paging files on disk.

(a) Virtual memory manager
(b) Configuration memory
(c) Power manages
(d) None

[NAT]

6. Given reference to the following page by a program :
1, 10, 1, 2, 9, 2, 9, 8, 9, 8, 2, 3, 9, 3, 8, 9, 3, 4, 9, 3
If the program contains 4 page frames. How many page fault will occur in optimal page replacement policy?

[NAT]

7. Given 3 pages frames and page references in the order: 2, 3, 4, 5, 2, 3, 6, 2, 3, 4, 5, 6. By using optimal page replacement algorithm, the number of pages faults will be?

Answer Key

1. **(47)**
2. **(c)**
3. **(a)**
4. **(a, b, c)**
5. **(a)**
6. **(7)**
7. **(7)**

Hints and Solutions

1. (47)

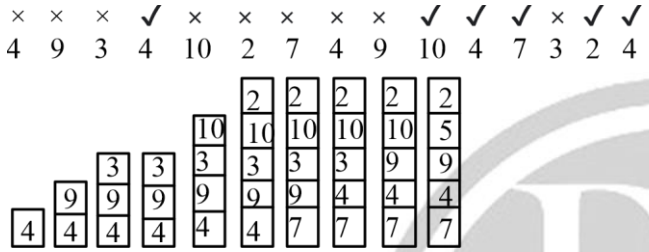
EMAT = (1 – P)M + PS

= (0.75)10 + 0.25(158)

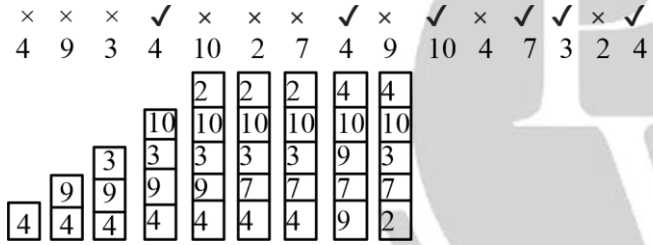
= 47 ns

2. (c)

FIFO



LRU:



Both FIFO and LRU has same number of page faults

3. (a)

Virtual memory is an illusion of large main memory.

Virtual memory: Virtual memory (or) virtual storage is a memory management technique that provides an idealized abstractions of the storage resources that are actually available on a given machine. Which creates the illusion to users of a very large main memory.

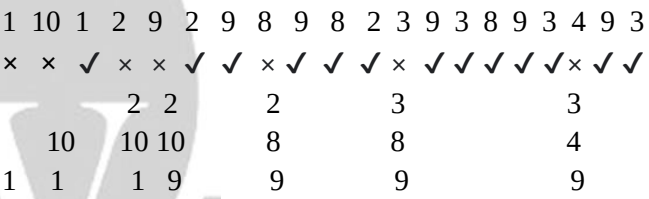
4. (a, b, c)

Belady's anomaly can never occur in LRU and optimal page replacement algorithm because these two algorithm belong to a class of stack-based page replacement algorithm.

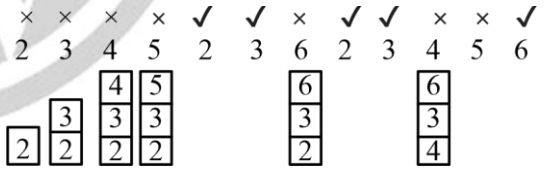
5. (a)

Virtual memory manager manages virtual addresses, physical memory and the paging files on disk.

6. (7)



7. (7)



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