ASSIGNMENT- 1
Subject Code: CS341
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Q1) Consider a process executing on an operating system that uses demand paging. The average time for a memory access in the system is M units if the corresponding memory page is available in memory, and D units if the memory access causes a page fault. It has been experimental measured that the average time taken for a memory access in the process is X units. Then what will be page fault rate experienced by the process?

Q2) Given page reference string:

1,2,3,4,2,1,5,6,2,1,2,3,7,6,3,2,1,2,3,6

Compare the number of page faults for LRU, FIFO and Optimal page replacement algorithm

Q3) Suppose the time to service a page fault is on the average 10 milliseconds, while a memory access takes 1 microsecond. Then what will be the average memory access time in millisecond due to 99.99% hit ratio?

Q4) A system uses FIFO policy for page replacement. It has 4 page frames with no pages loaded to begin with. The system first accesses 100 distinct pages in some order and then accesses the same 100 pages but now in the reverse order. Show how many page faults will occur?

Q5) A demand paging system takes 100 time units to service a page fault and 300 time units to replace a dirty page. Memory access time is 1 time unit. The probability of a page fault is p. In case of a page fault, the probability of page being dirty is also p. It is observed that the average access time is 3 time units. Then what will be the value of p?