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Assignment Questions = 14th and 21st

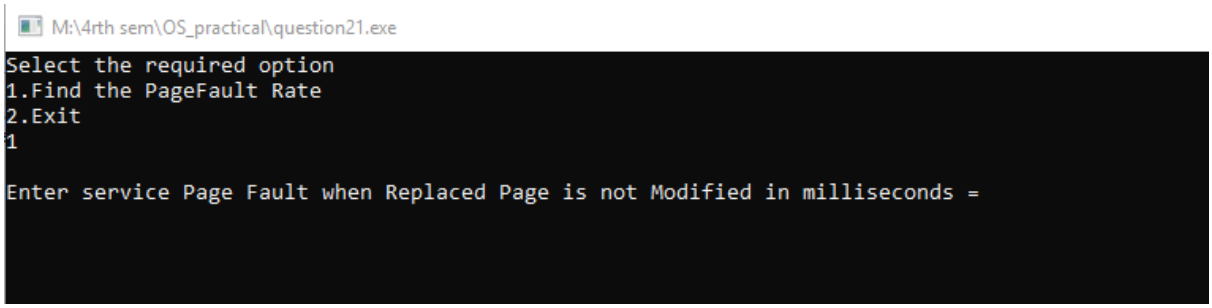
Project Link (Github): https://github.com/Shivendra690/Operating_system_assignment

Question – 21

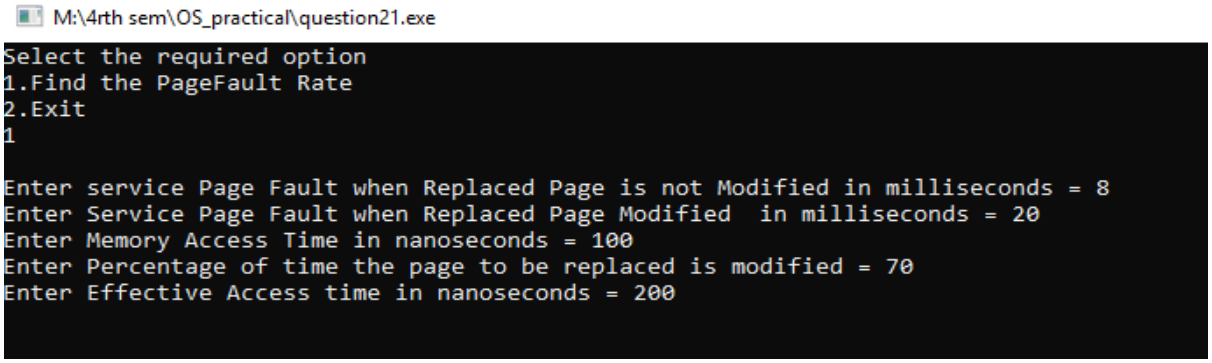
Consider a scenario of demand paged memory. Page table is held in registers. It takes 8 milliseconds to service a page fault if an empty page is available or the replaced page is not modified and 20 milliseconds if the replaced page is modified. Memory access time is 100 nanoseconds. Assume that the page to be replaced is modified 70 percent of the time. Generate a solution to find maximum acceptable page-fault rate for access time that is not more than 200 nanoseconds.

Step 1: Taking Inputs from user-

- A) Select the required option.
  1.Find the PageFault Rate
  2.Exit
  When User enters option 1:
  Output(screenshot)



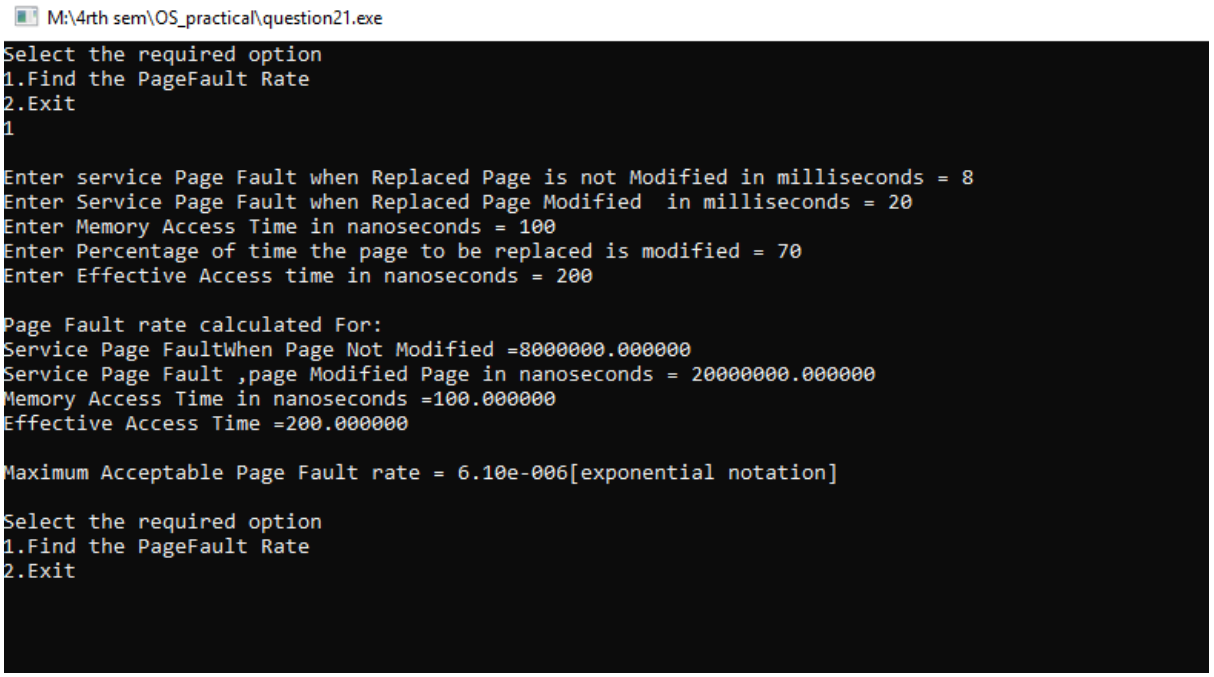
From here user can enter all the given values to get required results:



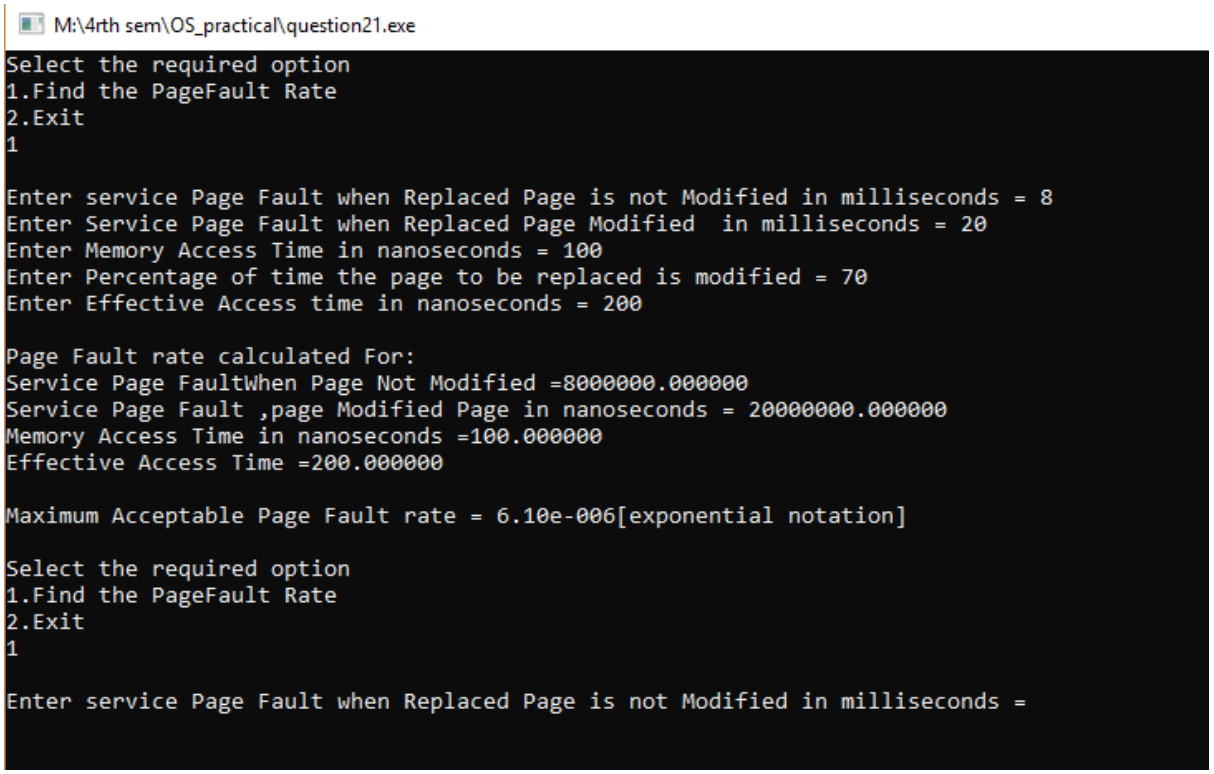
Entered Service page fault when page is not modified = 8(ms)
Entered Service page fault when page is modified = 20(ms)
Memory access time = 100(ms)
Percentage of time the page to be replaced is modified = 70(ms)
Effective Access time = 200(ms)

Step 2: Press Enter after all input is taken from user

Output (Screenshot)



- User can calculate page fault rate again for new set of values after selecting option 1.
  Output (Screenshot)

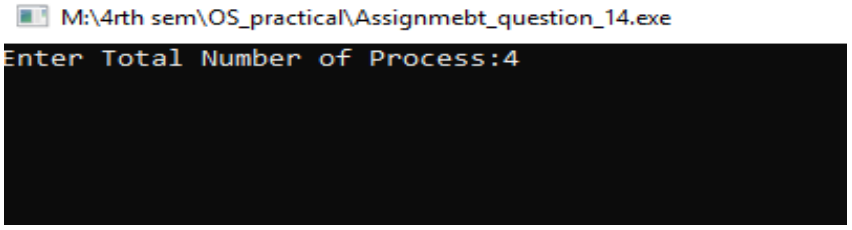


Question- 14

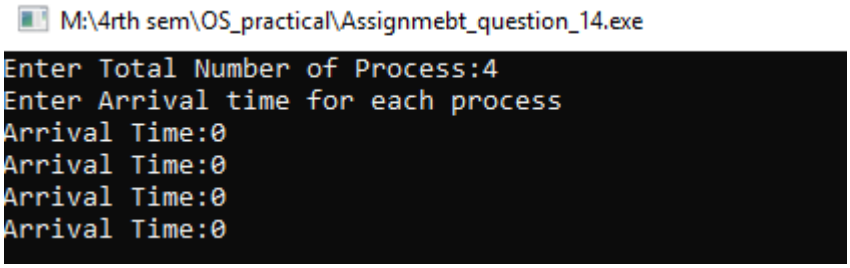
Write a program to implement priority scheduling algorithm with context switching time. Prompt to user to enter the number of processes and then enter their priority, burst time and arrival time also. Now whenever operating system preempts a process and shifts cpu's control to some another process of higher priority assume that it takes 2 seconds for context switching (dispatcher latency). Form a scenario, where we can give the processes are assigned with priority where the lower integer number is higher priority and then context switch .. as the process waits the priority of the process increase at rate of one per 2-time units of wait. Calculate waiting time and turnaround time for each process.

Step 1:
Take input from user

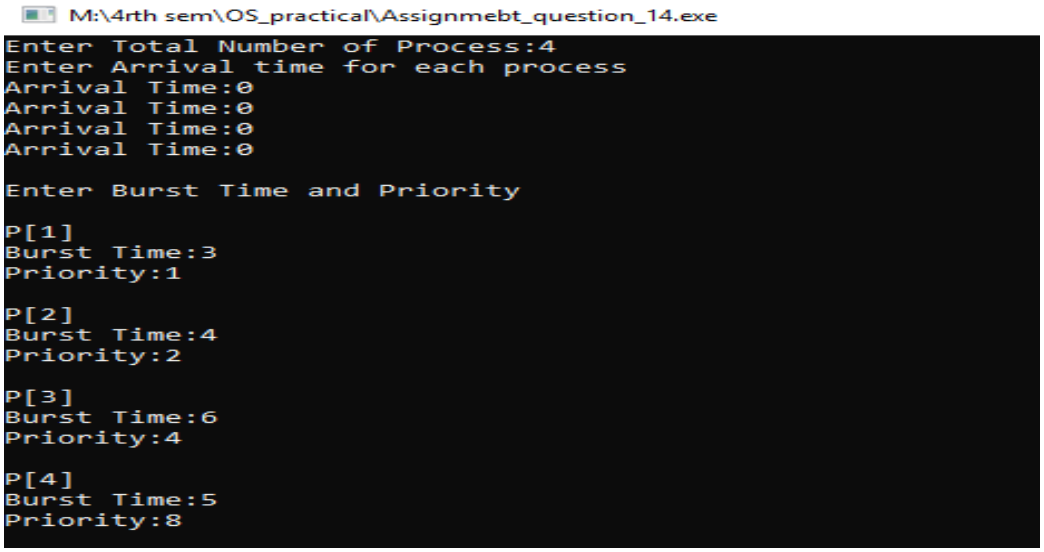
1: Enter total number of process.



2: Enter Arrival time for each process



3: Enter Burst time and priority for each process



Final Output (Screenshot)