Problem Statements

Q1. In a company, there are one manager and N employees. A shared web page is made for the convenience of employees wherein the manager is allowed to post various notices, schedules etc. and employees are supposed to read this page. In order to efficiently handle this shared page between the manager and the N employees, the following conditions must be satisfied: 1. Any number of employees can see the notices posted on the web page. 2. While manager is posting/updating the notice, no employee can see the post 3. While any employee is seeing the post, the manager should not be allowed to update the post on the web page. Write the C Program for manager and employee processes using binary semaphores and shared variables to achieve the expected synchronization.

Answer -: In this problem ,there is one manager and N employee .Few points from this problem are as follows :

1. Only manager can update the web page.
2. All employees can only read.
3. Manager is updating the web page on a regular basis.
4. So , both employee and manager are using the same web page .
5. So basically 2 actions are majorly happening  - a) update the web page.  b) reading web page by any no. of employees . Hence , to achieve synchronization we must mutually exclude these 2 functions (described in this point 4) . Then only proper functioning of the given problem may be possible .

Psedo Code -:

Down(Semaphore S){

if(s.value==1){

s.value=0;

}

else{

place  this request in request queue of server;

}

}

Up(Semaphore S){

if(request list is empty ){

s.value=1;

}

else{

Select all employee request and share web page to read

}

}

Q2 . . Implement any one of SRTF (pre-emptive), SJF(non-pre-emptive) and Round Robin CPU scheduling(quantum=5) algorithms for the sample data given below. Assume all processes are CPU bound. Process Name Arrival Time CPU Burst I/O Burst P0 0 24 2 units after every 5 unit of CPU burst P1 3 17 3 units after every 6 unit of CPU burst P2 8 50 2 units after every 5 unit of CPU burst P3 15 10 3 units after every 6 unit of CPU burst All programs should print various performance measures (turnaround time, waiting time, response time for each process and system throughput) Assume that there is only one CPU and one I/O device in the system. The I/O device can be assumed to be sequential i.e. it serves only one process at a time.

Solution : I have implemented SJF scheduling algorithm .

The name of cpp file of q2 is : q2\_OsEval.cpp

The name of output file of cpp file of q2 is : Output\_q2.txt.

In Output file the output of cpp file is given. In which all required answers are provided.

I enjoyed these question bcz these ques will help in my logic building .so I tried my best to solve these 2 questions. And solved these 2 questions .