[Lab-5: CPU Scheduling]

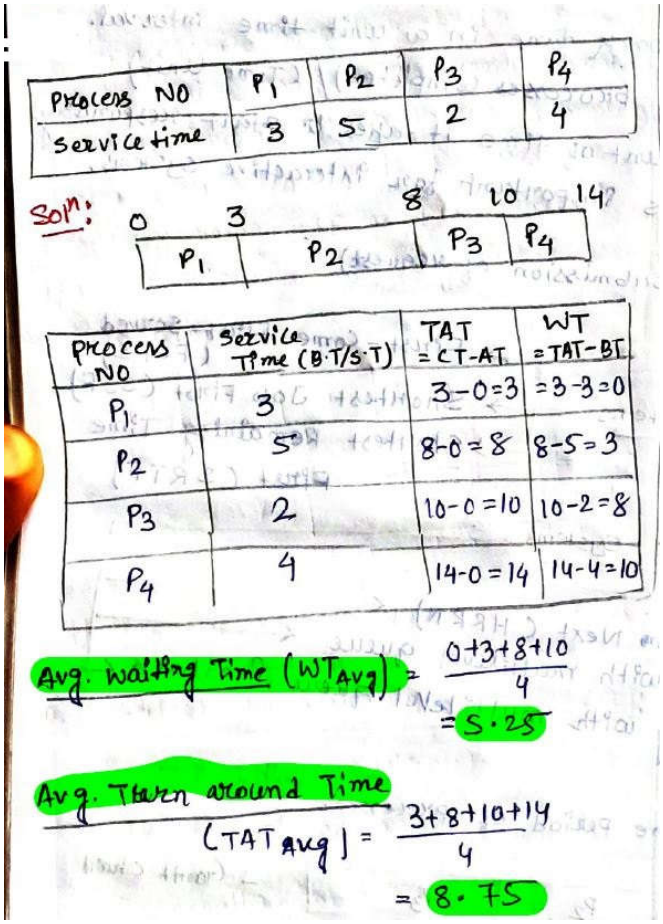
Assignments:

1. To write a c program to simulate First Come First Serve (FCFS) algorithm.

process	p1	p2	p3	p4
Service Time	3	5	2	4

- Find the average waiting time and average turn-around time? (Assume that all the process arrived at time 0)
- Algorithm:

Step 1: Start the process
Step 2: Accept the number of processes in the ready Queue
Step 3: For each process in the ready Q, assign the process name and the burst time
Step 4: Set the waiting of the first process as _0'and its burst time as its turnaround time
Step 5: for each process in the Ready Q calculate
a).Waiting time (n) = waiting time (n-1) + Burst time (n-1)
b).Turnaround time (n)= waiting time(n)+Burst time(n)
Step 6: Calculate
a) Average waiting time = Total waiting Time / Number of process
b) Average Turnaround time = Total Turnaround Time / Number of process
Step 7: Stop the process



2. Write a c program to simulate the SJF (Shortest Job First) algorithm.

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Consider the following table with four processes and their service times.

Process	Burst Time (Service Time)
P_1	5
P_2	2
P_3	4
P_4	6

Assume that all processes are arrived at the same time. First process starts execution at time 0. Compute the following with SJF scheduling.

(*i*) Waiting time of each process

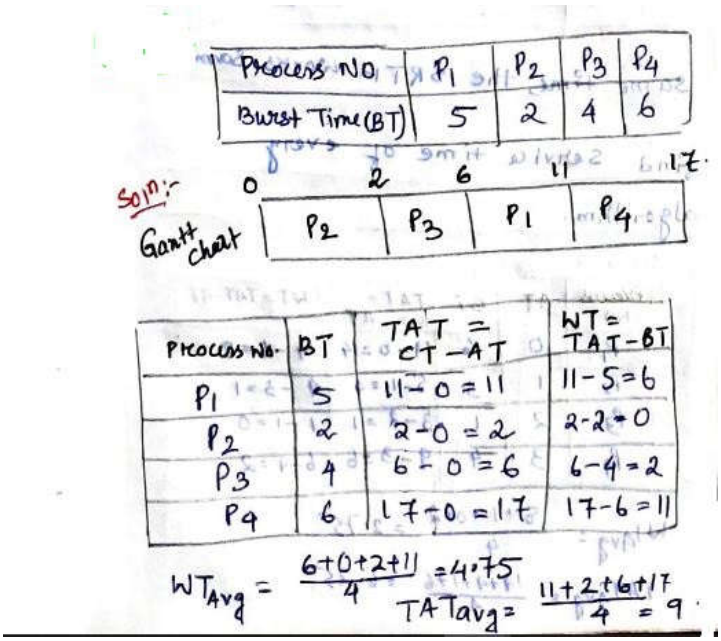
(*ii*) Turn around time of each process

(*iii*) Average waiting time of processes

(*iv*) Average turn around time of processes

Algorithm:

Step 1: Start the process
Step 2: Accept the number of processes in the ready Queue
Step 3: For each process in the ready Q, assign the process id and accept the CPU burst time
Step 4: Start the Ready Q according the shortest Burst time by sorting according to lowest to highest burst time.
Step 5: Set the waiting time of the first process as ‗0‘and its turnaround time as its burst time.
Step 6: Sort the processes names based on their Burt time
Step 7: For each process in the ready queue, calculate
  a) Waiting time(n)= waiting time (n-1) + Burst time (n-1)
  b) Turnaround time (n)= waiting time(n)+Burst time(n)
Step 8: Calculate
  c) Average waiting time = Total waiting Time / Number of process
  d) Average Turnaround time = Total Turnaround Time / Number of process
Step 9: Stop the process



3. Write a c program to simulate Shortest Remaining Time First (SRTF) algorithm.

Consider the following table

Process	Arrival Time	Service Time
P_1	0	6
P_2	1	3
P_3	2	1
P_4	3	4

Compute the following using the SRTF scheduling.
(*i*) Waiting time of each process
(*ii*) Turn around time of each process
(*iii*) Average waiting time of processes
(*iv*) Average turn around time of processes

Algorithm:

1- Traverse until all process gets completely executed.

a) Find process with minimum remaining time at every single time lap.

b) Reduce its time by 1.

c) Check if it's remaining time becomes 0

d) Increment the counter of process completion.

e) Completion time of current process = current_time +1;

f) Calculate waiting time for each completed process.

wt[i]= Completion time - arrival_time - burst_time

g) Increment time lap by one.

2- Find turnaround time (waiting_time + burst_time).