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**Roll** **no**: 03

**Assignment no: 03**

1. Shortest Job First (Preemptive)

**CODE**:

#include<stdio.h>

int main()

{

int arrival\_time[10], burst\_time[10], temp[10];

int i, smallest, count = 0, time, limit;

double wait\_time = 0, turnaround\_time = 0, end;

float average\_waiting\_time, average\_turnaround\_time;

printf("\n Enter the Total Number of Processes:");

scanf("%d", &limit);

printf("\n Enter Details of %d Processes", limit);

for(i = 0; i < limit; i++)

{

printf("\n Enter Arrival Time:");

scanf("%d", &arrival\_time[i]);

printf("\n Enter Burst Time:");

scanf("%d", &burst\_time[i]);

temp[i] = burst\_time[i];

}

burst\_time[9] = 9999;

printf("\n Process ID\t\twait\_time\t\t turnaround\_time");

for(time = 0; count != limit; time++)

{

smallest = 9;

for(i = 0; i < limit; i++)

{

if(arrival\_time[i] <= time && burst\_time[i] < burst\_time[smallest] && burst\_time[i] > 0)

{

smallest = i;

}

}

burst\_time[smallest]--;

if(burst\_time[smallest] == 0)

{

count++;

end = time + 1;

wait\_time = wait\_time + end - arrival\_time[smallest] - temp[smallest];

turnaround\_time = turnaround\_time + end - arrival\_time[smallest];

printf("\n %d \t\t%f\t\t %f", smallest,wait\_time, turnaround\_time);

}

}

average\_waiting\_time = wait\_time / limit;

average\_turnaround\_time = turnaround\_time / limit;

printf("\n Average Waiting Time:%lf", average\_waiting\_time);

printf("\n Average Turnaround Time:%lf", average\_turnaround\_time);

return 0;

}

**OUTPUT**:

Enter the Total Number of Processes:3

Enter Details of 3 Processes

Enter Arrival Time:3

Enter Burst Time:4

Enter Arrival Time:1

Enter Burst Time:6

Enter Arrival Time:2

Enter Burst Time:7

Process ID wait\_time turnaround\_time

0 0.000000 4.000000

1 4.000000 14.000000

2 13.000000 30.000000

Average Waiting Time:4.333333

Average Turnaround Time:10.000000

1. Round Robin

**CODE**:

#include<stdio.h>

#include<stdlib.h>

int main()

{

// initlialize the variable name

int i, NOP, sum=0,count=0, y, quant, wt=0, tat=0, at[10], bt[10], temp[10];

float avg\_wt, avg\_tat;

printf(" Total number of process in the system: ");

scanf("%d", &NOP);

y = NOP; // Assign the number of process to variable y

// Use for loop to enter the details of the process like Arrival time and the Burst Time

for(i=0; i<NOP; i++)

{

printf("\n Enter the Arrival and Burst time of the Process[%d]\n", i+1);

printf(" Arrival time is: \t"); // Accept arrival time

scanf("%d", &at[i]);

printf(" \nBurst time is: \t"); // Accept the Burst time

scanf("%d", &bt[i]);

temp[i] = bt[i]; // store the burst time in temp array

}

// Accept the Time qunat

printf("Enter the Time Quantum for the process: \t");

scanf("%d", &quant);

// Display the process No, burst time, Turn Around Time and the waiting time

printf("\n Process No \t\t Burst Time \t\t TAT \t\t Waiting Time ");

for(sum=0, i = 0; y!=0; )

{

if(temp[i] <= quant && temp[i] > 0) // define the conditions

{

sum = sum + temp[i];

temp[i] = 0;

count=1;

}

else if(temp[i] > 0)

{

temp[i] = temp[i] - quant;

sum = sum + quant;

}

if(temp[i]==0 && count==1)

{

y--; //decrement the process no.

printf("\nProcess No[%d] \t\t %d\t\t\t\t %d\t\t\t %d", i+1, bt[i], sum-at[i], sum-at[i]-bt[i]);

wt = wt+sum-at[i]-bt[i];

tat = tat+sum-at[i];

count =0;

}

if(i==NOP-1)

{

i=0;

}

else if(at[i+1]<=sum)

{

i++;

}

else

{

i=0;

}

}

// represents the average waiting time and Turn Around time

avg\_wt = wt \* 1.0/NOP;

avg\_tat = tat \* 1.0/NOP;

printf("\n Average Turn Around Time: \t%f", avg\_wt);

printf("\n Average Waiting Time: \t%f", avg\_tat);

return 0;

}

**OUTPUT**:

Total number of process in the system: 3

Enter the Arrival and Burst time of the Process[1]

Arrival time is: 3

Burst time is: 4

Enter the Arrival and Burst time of the Process[2]

Arrival time is: 2

Burst time is: 6

Enter the Arrival and Burst time of the Process[3]

Arrival time is: 1

Burst time is: 8

Enter the Time Quantum for the process: 20

Process No Burst Time TAT Waiting Time

Process No[1] 4 1 -3

Process No[2] 6 8 2

Process No[3] 8 17 9

Average Turn Around Time: 2.666667

Average Waiting Time: 8.666667