Set A

1. Write the program to simulate FCFS CPU-scheduling. The arrival time and first CPU burst for different n number of processes should be input to the algorithm. Assume that the fixed I0 waiting time (2 units). The next CPU-burst should be generated randomly. The output should give Gantt chart, turnaround time and waiting time for each process. Also find the average waiting time and turnaround time.

#include<stdio.h>

#include<string.h>

struct job

{

char name[20];

int at,bt,ct,tat,wt,st,tbt;

}job[10];

int n,i,j;

float avg\_tat=0;

float avg\_wt=0;

take\_input()

{

printf("Enter the no of jobs : ");

scanf("%d",&n);

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

{

printf("Enter the arrival time of the job",i);

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

printf("Enter the bust time of the job",i);

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

printf("Enter the name of the job",i);

scanf("%s",&job[i].name);

job[i].tbt=job[i].bt;

printf("\n\n");

}

}

// to sort the processes by arriaval time

sort()

{

struct job temp;

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

{

for(j=i+1;j<n;j++)

{

if(job[i].at>job[j].at)

{

temp=job[i];

job[i]=job[j];

job[j]=temp;

}

}

}

}

// to calculate the tat n wt

void process()

{

int time=job[0].at;

for(j=0;j<n;j++)

{

job[j].st=time;

printf("| %d %s ",job[j].st,job[j].name);

time=time+job[j].tbt;

job[j].ct = time;

job[j].tat=time-job[j].at;

job[j].wt=job[j].tat-job[j].tbt;

printf("%d |",time);

}

}

//to print the output table

void print\_output()

{

printf("\n\n");

printf("\n---------------------------------------");

printf("\n PName AT BT TAT WT ");

printf("\n---------------------------------------");

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

{

printf("\n%s %d %d %d %d",job[i].name,job[i].at,job[i].bt,job[i].tat,job[i].wt);

avg\_tat=avg\_tat+(float)(job[i].tat);

avg\_wt=(float)avg\_wt+(float)(job[i].wt);

}

printf("\n-----------------------------------------");

printf("\nThe avg of the Turn Around Time is

%f",avg\_tat/n);

printf("\nThe avg of the Waiting Time is %f",avg\_wt/n);

}

main()

{

int i;

take\_input();

sort();

process();

print\_output();

printf("\n\n");

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

{

job[i].tbt=job[i].bt=rand()%10+1;

job[i].at=job[i].ct+2;

}

process();

print\_output();

}

/\* \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*OUTPUT\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

[root@localhost ass\_2]# gcc fcfs.c

[root@localhost ass\_2]# ./a.out

Enter the no of jobs : 3

Enter the arrival time of the job 0

Enter the bust time of the job 5

Enter the name of the job p3

Enter the arrival time of the job1

Enter the bust time of the job3

Enter the name of the jobp1

Enter the arrival time of the job 2

Enter the bust time of the job 2

Enter the name of the job p2

| 0 p3 5 || 5 p1 8 || 8 p2 10 |

---------------------------------------

PName AT BT TAT WT

---------------------------------------

p3 0 5 5 0

p1 1 3 7 4

p2 2 2 8 6

-----------------------------------------

The avg of the Turn Around Time is 6.666667

The avg of the Waiting Time is 3.333333

| 7 p3 11 || 11 p1 18 || 18 p2 26 |

---------------------------------------

PName AT BT TAT WT

---------------------------------------

p3 7 4 4 0

p1 10 7 8 1

p2 12 8 14 6

-----------------------------------------

The avg of the Turn Around Time is 15.333333

The avg of the Waiting Time is 5.666667

[root@localhost ass\_2]#

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