**Group :**

**Assignment No. : 4.1**

**Title : Write a program to implement FCFS**

**Roll No. : 2365**

**-------------------------------------------------------------------------------------------**

import java.util.\*;

class Process

{

Scanner sc=new Scanner(System.in);

int pid,at,bt,wt,tt,ft,rt,f;

public Process()

{

pid=at=bt=wt=tt=ft=rt=f=0;

}

public void accept() {

System.out.print("Enter Arrival Time::");

at=sc.nextInt();

System.out.print("Enter Burst Time::");

bt=sc.nextInt();

rt=bt;

}

}

class ProcessQ

{

int n;

Scanner sc=new Scanner(System.in);

Process p[]=new Process[20];

public void fcfs()

{

System.out.println("Enter no. of processes::");

n=sc.nextInt();

//Process initialization

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

{

p[i]=new Process();

}

//Accept arrival and burst time

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

{

p[i].pid=i;

p[i].accept();

}

Process temp=new Process();

//Sort Processes as per the arrival time

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

{

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

{

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

{

temp.pid=p[i].pid;

p[i].pid=p[j].pid;

p[j].pid=temp.pid;

temp.at=p[i].at;

p[i].at=p[j].at;

p[j].at=temp.at;

temp.bt=p[i].bt;

p[i].bt=p[j].bt;

p[j].bt=temp.bt;

}

}

}

//calculate final time

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

{

if(i==0)

{

p[i].ft=p[i].ft+p[i].bt;

}

else

{

p[i].ft=p[i-1].ft+p[i].bt;

}

}

//calculate turnaround and wait time

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

{

p[i].tt=p[i].ft-p[i].at;

p[i].wt=p[i].tt-p[i].bt;

}

//Display Execution Sequence

System.out.print("\nProcess Execution Sequence\n|");

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

{

System.out.print(" P"+p[i].pid+" |");

}

System.out.println();

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

{

System.out.print(" "+p[i].ft+"|");

}

//Display arrival,burst,finish time

System.out.println("\nProcess Arrival Burst Finish Turnaround Wait ");

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

{

System.out.print("\nP"+p[i].pid+"\t"+p[i].at+"\t"+p[i].bt+"\t"+p[i].ft+"\t"+p[i].tt+"\t"+p[i].wt);

}

double avtWT=0.0,avtTT=0.0;

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

{

avtWT=avtWT+p[i].wt;

avtTT=avtTT+p[i].tt;

}

System.out.println("\nAverage Waiting Time::"+(avtWT/n));

System.out.println("Average Turnaround Time::"+(avtTT/n));

}

}

public class FIFO

{

public static void main(String args[])

{

ProcessQ pq=new ProcessQ();

Scanner scan=new Scanner(System.in);

pq.fcfs();

}

}

/\*

Enter no. of processes::

5

Enter Arrival Time::2

Enter Burst Time::5

Enter Arrival Time::1

Enter Burst Time::3

Enter Arrival Time::0

Enter Burst Time::6

Enter Arrival Time::1

Enter Burst Time::6

Enter Arrival Time::5

Enter Burst Time::3

Process Execution Sequence

| P2 | P1 | P3 | P0 | P4 |

6| 9| 15| 20| 23|

Process Arrival Burst Finish Turnaround Wait

P2 0 6 6 6 0

P1 1 3 9 8 5

P3 1 6 15 14 8

P0 2 5 20 18 13

P4 5 3 23 18 15

Average Waiting Time::8.2

Average Turnaround Time::12.8

\*/