**CODE:-**

**import java.util.\*;**

**public class** SJF

**{**

**public static void main (String args[])**

**{**

**Scanner sc=new Scanner(System.in);**

**System.out.println("\*\*\* Shortest Job First Scheduling (Preemptive) \*\*\*");**

**System.out.print("Enter no of process:");**

**int n= sc.nextInt();**

**String process[] = new String[n]; // it takes pid of process**

**int arrivaltime[] = new int[n]; // at means arrival time**

**int burstTime[] = new int[n]; // bt means burst time**

**int completionTime[] = new int[n]; // ct means complete time**

**int TAT[] = new int[n];// ta means turn around time**

**int waitingTime[] = new int[n]; // wt means waiting time**

**int flag[] = new int[n]; // f means it is flag it checks process is completed or not**

**int remburstTime[]= new int[n]; // it is also stores brust time**

**int st=0, tot=0;**

**float avgwt=0, avgta=0;**

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

**{**

**process[i]="P"+(i+1);**

**System.out.print("Enter Arrival Time for processor " + (i+1) + ":");**

**arrivaltime[i]= sc.nextInt();**

**System.out.print("Enter Burst Time for processor " + (i+1) + ": ");**

**burstTime[i]= sc.nextInt();**

**remburstTime[i]= burstTime[i];**

**flag[i]= 0;}**

**while(true){**

**int min=99,c=n;**

**if (tot==n){**

**break;}**

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

**{**

**if ((arrivaltime[i]<=st) && (flag[i]==0) && (burstTime[i]<min))**

**{**

**min=burstTime[i];**

**c=i;} }**

**if (c==n){**

**st++;**

**}**

**else{**

**burstTime[c]--;**

**st++;**

**if (burstTime[c]==0)**

**{**

**completionTime[c]= st;**

**flag[c]=1;**

**tot++;} }}**

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

**{**

**TAT[i] = completionTime[i] - arrivaltime[i];**

**waitingTime[i] = TAT[i] - remburstTime[i];**

**avgwt+= waitingTime[i];**

**avgta+= TAT[i];**

**}**

**System.out.println("\*\*\* Shortest Job First Scheduling (Preemptive) \*\*\*");**

**System.out.println("Processor\tArrival time\tBrust time\tCompletion Time\t\tTurn around time\tWaiting time");**

**System.out.println("----------------------------------------------------------------------------------------------------------");**

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

**{ System.out.println(process[i]+"\t\t"+arrivaltime[i]+"ms\t\t"+remburstTime[i]+"ms\t\t"+completionTime[i]+"ms\t\t\t"+TAT[i]+"ms\t\t\t"+waitingTime[i]+"ms");**

**}**

**System.out.println("\nAverage turn around time is "+ (float)(avgta/n));**

**System.out.println("Average waiting time is "+ (float)(avgwt/n));**

**sc.close();}}**

**OUTPUT: -**

\*\*\* Shortest Job First Scheduling (Preemptive) \*\*\*

Enter no of process:5

Enter Arrival Time for processor 1:2

Enter Burst Time for processor 1: 6

Enter Arrival Time for processor 2:5

Enter Burst Time for processor 2: 2

Enter Arrival Time for processor 3:1

Enter Burst Time for processor 3: 8

Enter Arrival Time for processor 4:0

Enter Burst Time for processor 4: 3

Enter Arrival Time for processor 5:4

Enter Burst Time for processor 5: 4

\*\*\* Shortest Job First Scheduling (Preemptive) \*\*\*

Processor Arrival time Brust time Completion Time Turn around time Waiting time

P4 0ms 3ms 3ms 3ms 0ms

P3 1ms 8ms 23ms 22ms 14ms

P1 2ms 6ms 15ms 13ms 7ms

P5 4ms 4ms 10ms 6ms 2ms

P2 5ms 2ms 7ms 2ms 0ms

Average turn around time is 9.2

Average waiting time is 4.6