**Title:** write a program to simulate CPU scheduling algorithms SJF (pre-emptive)

**Source Code:**

import java.util.Scanner;

public class SJF {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.println("Enter number of processes:");

int n = sc.nextInt();

int[] pid = new int[n];

int[] arrivalTime = new int[n];

int[] burstTime = new int[n];

int[] compilationTime = new int[n];

int[] turnaround = new int[n];

int[] waiting = new int[n];

int[] tempBt = new int[n];

int[] completed = new int[n];

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

pid[i] = i+1;

System.out.println("Enter arrival time of process"+(i+1));

arrivalTime[i] = sc.nextInt();

System.out.println("Enter Burst time Process" +(i+1));

burstTime[i] = sc.nextInt();

tempBt[i] = burstTime[i];

completed[i] = 0;

}

boolean run = true;

int totalProcesses = 0;

int currentTime = 0;

float avgWaiting = 0;

float avgTurnaround = 0;

while(run) {

int minProcess = 99;

int index = 0;

if(totalProcesses == n) {

break;

}

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

if(arrivalTime[i] <= currentTime && completed[i]==0 && butstTime[i] < minProcess) {

minProcess = burstTime[i];

index = i;

}

}

if(index == n) {

currentTime++;

} else {

burstTime[index]--;

currentTime++;

if(burstTime[index] == 0){

completionTime[index] = currentTime;

completed[index] = 1;

totalProcesses++;

}

}

}

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

turnaround[i] = completionTime[i] - arrivalTime[i];

waiting[i] = turnaround[i] - tempBt[i];

avgWaiting += waiting[i];

avgTurnaround += turnaround[i];

}

System.out.println("PID\tAT\tWT\tTT\tCT");

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

System.out.println(pid[i]+ "\t" + arrivalTime[i] + "\t" + tempBt[i] + "\t" + turnaround[i] + "\t" + completionTime[i]);

}

System.out.println("Average waiting time:" +avgWaiting /n);

System.out.println("Average turn around time:" + avgTurnaround /n);

}

}

**Output:**

Enter number of processes:

3

Enter arrival time of process 1

1

Enter Burst time Process 1

6

Enter arrival time of process 2

1

Enter Burst time Process 2

4

Enter arrival time of process 3

2

Enter Burst time Process 3

7

PID AT WT TT CT

1 1 6 9 10

2 1 4 4 5

3 2 7 15 17

Average waiting time:3.6666667

Average turn around time:9.333333