**7: SJF**

**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();

**int** process[] = **new** **int**[n];

**int** arrivaltime[] = **new** **int**[n];

**int** burstTime[] = **new** **int**[n];

**int** completionTime[] = **new** **int**[n];

**int** TAT[] = **new** **int**[n];

**int** waitingTime[] = **new** **int**[n];

**int** visit[] = **new** **int**[n];

**int** remburstTime[] = **new** **int**[n];

**int** temp, start = 0, total = 0;

**float** avgwt = 0, avgTAT = 0;

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

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

process[i] = (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];

visit[i] = 0;

}

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

**for** (**int** j = 0; j < n; j++) {

**if** (arrivaltime[i] < arrivaltime[j]) {

temp = process[j];

process[j] = process[i];

process[i] = temp;

temp = arrivaltime[j];

arrivaltime[j] = arrivaltime[i];

arrivaltime[i] = temp;

temp = remburstTime[j];

remburstTime[j] = remburstTime[i];

remburstTime[i] = temp;

temp = burstTime[j];

burstTime[j] = burstTime[i];

burstTime[i] = temp;

}

}

}

**while** (**true**) {

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

**if** (total == n) {

**break**;

}

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

**if** ((arrivaltime[i] <= start) && (visit[i] == 0) && (burstTime[i] < min)) {

min = burstTime[i];

c = i;

}

}

**if** (c == n)

start++;

**else** {

burstTime[c]--;

start++;

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

completionTime[c] = start;

visit[c] = 1;

total++;

}

}

}

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

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

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

avgwt += waitingTime[i];

avgTAT += 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("P" + 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");

}

avgTAT /= n;

avgwt /= n;

System.***out***.println("\nAverage turn around time is " + avgTAT);

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

sc.close();

}

}