6.b Shortest Job First (Non Pre-emptive version)

For the **Shortest Job First scheduling** algorithm, you shall get the number of processes/jobs in the system and their CPU burst times. This is a non-preemptive scheduling where a process getting the CPU will finish its works and the leave the CPU after it exhausts its required CPU time. The scheduling is performed on the basis of the shortest CPU time of the processes irrespective of their other parameters. Each process will be executed according to its arrival time. The waiting time and turnaround time of each of the processes can be calculated as well as the average system turnaround and waiting time.

Example

Process	Arrival Time	CPU Time
P1	4	5
P2	0	7
P3	2	9

Gantt chart:

|--------P2---------|--------P1---------|--------P3---------|

0 7 12 21

	Waiting Time	Turnaround Time
P1	7- 4= 3	3+5=8
P2	0	0+7=7
P3	12-2=10	10+9=19

Average Waiting Time: (3+0+10)/3 = 4.33

Average Turnaround Time: (8+7+19) / 3 = 11.33

Algorithm Hint

Input the processes along with their cputime and arrivaltime

Select a process *i* having the lowest arrival time.
Keep a timer variable that is incremented as follows
Timer = timer + cputime [i]
For all the processes having their arrival time <= Timer
Select a process *i* having the lowest arrival time.

Sample input:

Enter the number of process: 3

Enter the CPU times

5 7 9

Enter the arrival times

4 0 2

Sample Output:

Process 1 : Waiting Time : 3 Turnaround Time : 8

Process 2 : Waiting Time : 0 Turnaround Time : 7

Process 3 : Waiting Time : 10 Turnaround Time : 19

Average Waiting time : 4.66

Average Turnaround time : 11.66