LAB Assignment 6

Operating Systems (UCS-303)

Design and implement a program in **C** that simulates various **CPU scheduling algorithms**, computes performance metrics, and shows execution order.

The system should display a menu of scheduling algorithms:

1. First Come First Serve (FCFS)
2. Shortest Job First
3. Priority Scheduling (Non-Preemptive)
4. Round Robin (RR)

Requirements:

- After selecting an algorithm, the system should:
    1. Display the Gantt Chart showing execution sequence.
    2. Display the Waiting Time (WT) and Turnaround Time (TAT) for each process.
    3. Display the Average Waiting Time and Average Turnaround Time.
- For Round Robin, ask the user to input a Time Quantum.

Sample Input:

```
Enter number of processes: 4

Process   Arrival Time   Burst Time   Priority
P1        0              8            2
P2        1              4            1
P3        2              9            3
P4        3              5            2
```

Sample Output

```
Gantt Chart: | P1 | P2 | P4 | P3 |

Process   AT   BT   Priority   WT   TAT
P1        0    8    2          0    8
P2        1    4    1          7    11
P3        2    9    3          10   19
P4        3    5    2          8    13

Average Waiting Time = 6.25
Average Turnaround Time = 12.75
```