IT253 Operating System Assignment

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First Come First Serve

```
Enter the number of processes: 5

Process 1
Enter burst time: 2
Enter arrival time: 0

Process 2
Enter burst time: 6
Enter arrival time: 1

Process 3
Enter burst time: 4
Enter arrival time: 2

Process 4
Enter burst time: 9
Enter arrival time: 3

Process 5
Enter burst time: 12
Enter arrival time: 4

Process | AT   | BT   | CT   | TAT  | WT   |
-------------------------------------------|
1       | 0    | 2    | 2    | 2    | 0    |
2       | 1    | 6    | 8    | 7    | 1    |
3       | 2    | 4    | 12   | 10   | 6    |
4       | 3    | 9    | 21   | 18   | 9    |
5       | 4    | 12   | 33   | 29   | 17   |

AVERAGE TURNAROUND TIME: 13.2
AVERAGE WAITING TIME: 6.6
```

Shortest Job First Non-Preemptive

```
Enter the number of processes: 5

Process 1
Enter burst time: 7
Enter arrival time: 1

Process 2
Enter burst time: 3
Enter arrival time: 3

Process 3
Enter burst time: 2
Enter arrival time: 6

Process 4
Enter burst time: 10
Enter arrival time: 7

Process 5
Enter burst time: 8
Enter arrival time: 9

Process |  AT   |  BT   |  CT   | TAT   | WT       |
-----------------------------------------------------|
1         | 1     | 7     | 8     | 7     | 0        |
2         | 3     | 3     | 13    | 10    | 7        |
3         | 6     | 2     | 10    | 4     | 2        |
4         | 7     | 10    | 31    | 24    | 14       |
5         | 9     | 8     | 21    | 12    | 4        |

AVERAGE TURNAROUND TIME: 11.4
AVERAGE WAITING TIME: 5.4
```

Shortest Job First Preemptive

```
Enter the number of processes: 6

Process 1
Enter burst time: 8
Enter arrival time: 0

Process 2
Enter burst time: 4
Enter arrival time: 1

Process 3
Enter burst time: 2
Enter arrival time: 2

Process 4
Enter burst time: 1
Enter arrival time: 3

Process 5
Enter burst time: 3
Enter arrival time: 4

Process 6
Enter burst time: 2
Enter arrival time: 5

Process |  AT   |  BT   |  CT   | TAT   | WT    |
-------------------------------------------------|
1        |  0    |  8    |  20   |  20   |  12   |
2        |  1    |  4    |  13   |  12   |  8    |
3        |  2    |  2    |  5    |  3    |  1    |
4        |  3    |  1    |  4    |  1    |  0    |
5        |  4    |  3    |  10   |  6    |  3    |
6        |  5    |  2    |  7    |  2    |  0    |

AVERAGE TURNAROUND TIME: 7.333333333333333
AVERAGE WAITING TIME: 4.0
```

Round Robin

```
Enter number of processes: 6

Enter quantum time: 4

Process 1
Enter burst time: 5
Enter arrival time: 0

Process 2
Enter burst time: 6
Enter arrival time: 1

Process 3
Enter burst time: 3
Enter arrival time: 2

Process 4
Enter burst time: 1
Enter arrival time: 3

Process 5
Enter burst time: 5
Enter arrival time: 4

Process 6
Enter burst time: 4
Enter arrival time: 6

Process |  AT  |  BT  |  TAT | WT      |
-----------------------------------------|
1       |  0   |  6   |  17  |  12     |
2       |  1   |  6   |  22  |  16     |
3       |  2   |  6   |  9   |  6      |
4       |  3   |  6   |  9   |  8      |
5       |  4   |  6   |  20  |  15     |
6       |  6   |  6   |  15  |  11     |

AVERAGE TURNAROUND TIME:  15.333333333333334
AVERAGE WAITING TIME:  11.333333333333334
```

Producer Consumer using Semaphores

```
Produced 5
Consumed 5
Produced 1
Produced 4
Produced 9
Consumed 1
Produced 8
Produced 5
Produced 2
Consumed 4
Produced 2
Queue is full, Producer will wait for queue to have space
Queue has space which was notified by the Consumer to the Producer
Produced 3
Consumed 9
Queue is full, Producer will wait for queue to have space
Queue has space which was notified by the Consumer to the Producer
Produced 5
Consumed 8
Queue is full, Producer will wait for queue to have space
Queue has space which was notified by the Consumer to the Producer
Produced 2
Consumed 5
Consumed 2
Produced 2
Consumed 2
Consumed 3
Produced 1
Consumed 5
Consumed 2
Produced 1
Produced 7
Consumed 2
```