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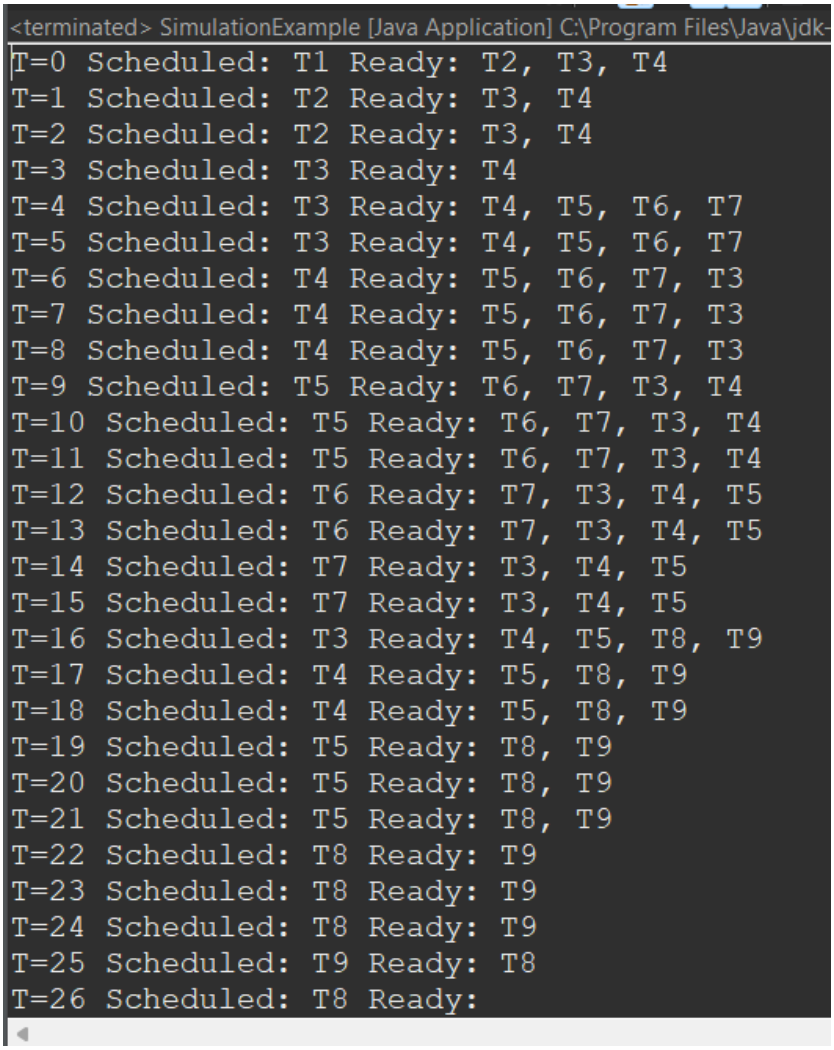
Task3

3.1: Round Robin Scheduling:

Output from the example simulation:



With this output we can calculate the waiting time for each task, which task waits the longest, which waits the shortest, and the average waiting time.

Waiting times:

- **T1**: 0
- **T2**: 1 (scheduled at T=1, appeared in the ready queue at T=0)
- **T3**: 3 + 10 = 13 (scheduled at T=3, appeared in the ready queue at T=0, then again scheduled at T=16 since it reappeared in the ready queue at T=6)
- **T4**: 6 + 8 = 14(scheduled at T=6, appeared in the ready queue at T=0, then again scheduled at T=17 since it reappeared in the ready queue at T=9)
- **T5**: 5 + 7 = 12(scheduled at T=9, appeared in the ready queue at T=4, then again scheduled at T=19 since it reappeared in the ready queue at T=12)
- **T6**: 8 (scheduled at T=12, appeared in the ready queue at T=4,)
- **T7**: 10 (scheduled at T=14, appeared in the ready queue at T=4)

- **T8:** 6 + 1 = 7 (scheduled at T=22, appeared in the ready queue at T=16, then again scheduled at T=26 since it reappeared in the ready queue at T=25)
- **T9:** 9 (scheduled at T=25, appeared in the ready queue at T= 16)

From this we see that Task 1 waits the shortest amount of time, 0 units. Task 4 waits the longest amount of time, 14 units. The average waiting time for the tasks are : (0 + 1 + 13 + 14 + 12 + 8 + 10 + 7 + 9) / 9 = 8,22 units.

3.2: First Come First Serve Scheduling:

In a FIFO scheduler the tasks are executed in the order they arrive.

Output from the simulation example using FCFS:

```
T=0 Scheduled: T1 Ready: T2, T3, T4
T=1 Scheduled: T2 Ready: T3, T4
T=2 Scheduled: T2 Ready: T3, T4
T=3 Scheduled: T3 Ready: T4
T=4 Scheduled: T3 Ready: T4, T5, T6, T7
T=5 Scheduled: T3 Ready: T4, T5, T6, T7
T=6 Scheduled: T3 Ready: T4, T5, T6, T7
T=7 Scheduled: T4 Ready: T5, T6, T7
T=8 Scheduled: T4 Ready: T5, T6, T7
T=9 Scheduled: T4 Ready: T5, T6, T7
T=10 Scheduled: T4 Ready: T5, T6, T7
T=11 Scheduled: T4 Ready: T5, T6, T7
T=12 Scheduled: T5 Ready: T6, T7
T=13 Scheduled: T5 Ready: T6, T7
T=14 Scheduled: T5 Ready: T6, T7
T=15 Scheduled: T5 Ready: T6, T7
T=16 Scheduled: T5 Ready: T6, T7, T8, T9
T=17 Scheduled: T5 Ready: T6, T7, T8, T9
T=18 Scheduled: T6 Ready: T7, T8, T9
T=19 Scheduled: T6 Ready: T7, T8, T9
T=20 Scheduled: T7 Ready: T8, T9
T=21 Scheduled: T7 Ready: T8, T9
T=22 Scheduled: T8 Ready: T9
T=23 Scheduled: T8 Ready: T9
T=24 Scheduled: T8 Ready: T9
T=25 Scheduled: T8 Ready: T9
T=26 Scheduled: T9 Ready:
```

Waiting times:

- **T1**: 0
- **T2**: 1 (scheduled at T=1, appeared in the ready queue at T=0)
- **T3**: 3 (scheduled at T=3, appeared in the ready queue at T=0)
- **T4**: 7 (scheduled at T=7, appeared in the ready queue at T=0)
- **T5**: 8 (scheduled at T=12, appeared in the ready queue at T=4)
- **T6**: 14 (scheduled at T=18, appeared in the ready queue at T=4,)

- **T7**: 16 (scheduled at T=20, appeared in the ready queue at T=4)
- **T8:** 6 (scheduled at T=22, appeared in the ready queue at T=16)
- **T9:** 10 (scheduled at T=26, appeared in the ready queue at T= 16)

From this we see that Task 1 waits the shortest amount of time, 0 units. Task 7 waits the longest amount of time, 16 units. The average waiting time for the tasks are : (0 + 1 + 3 + 7 + 8 + 14 + 16 + 6 + 10) / 9 = 7,22 units.