# Sprints

# Week 5

# Graduation

# Project

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# Implementing EDF
# Scheduler using
# FreeRTOS

**Delivered By:** Omar Adel Khedr

- **Task Set**

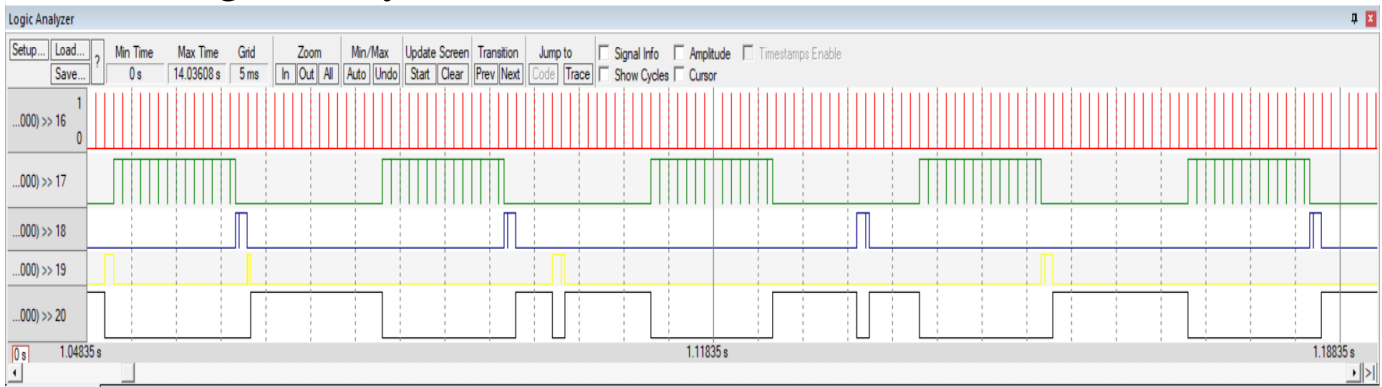| Task Number | Periodicity | Execution | Priority | Deadline |
|---|---|---|---|---|
| 1 | 30 ms | 13.43 ms | 1 | 30 ms |
| 2 | 40 ms | 1.35 ms | 2 | 40 ms |
| 3 | 50 ms | 1.35 ms | 3 | 50 ms |

- **Analytics**

$$U = \sum_{x=i}^{n} \frac{Ei}{Pi} = \left(\frac{13.43}{30}\right) + \left(\frac{1.35}{40}\right) + \left(\frac{1.35}{50}\right) = 0.5008 = 50.08\,\%$$

# • Simso Simulation Results
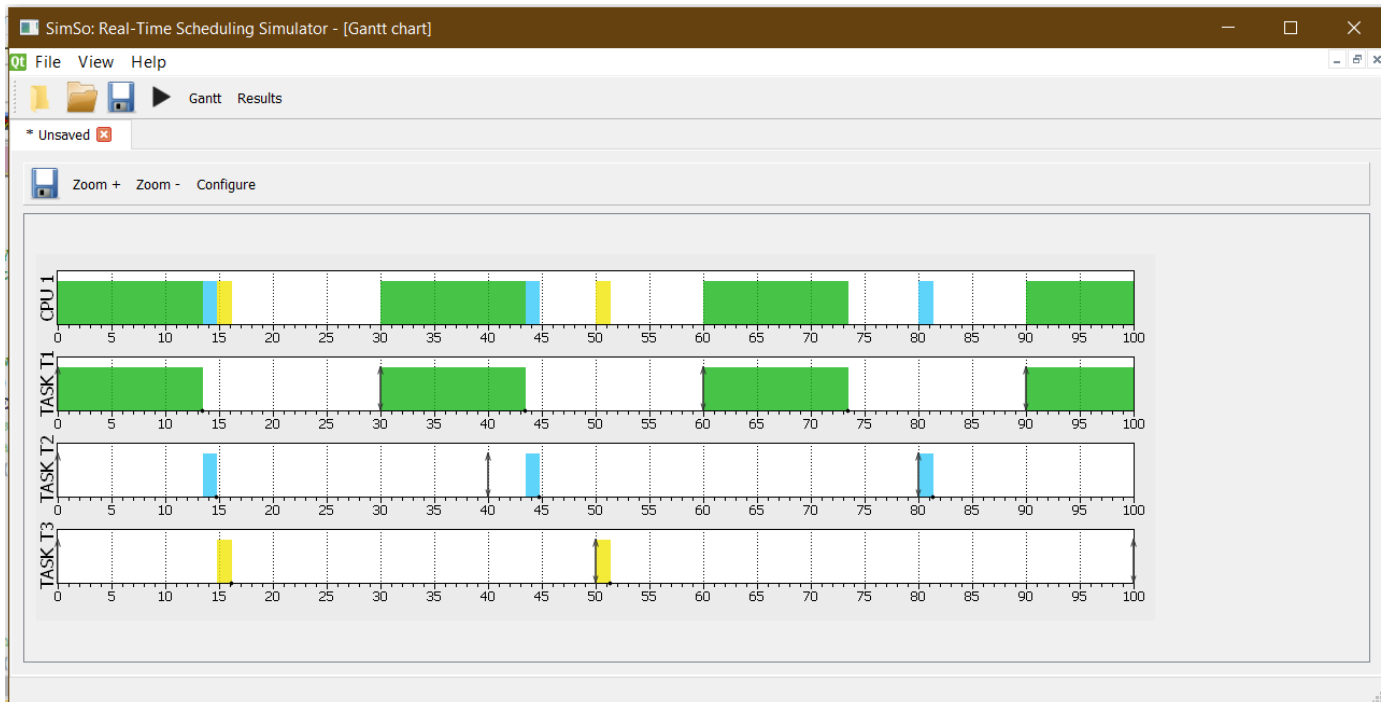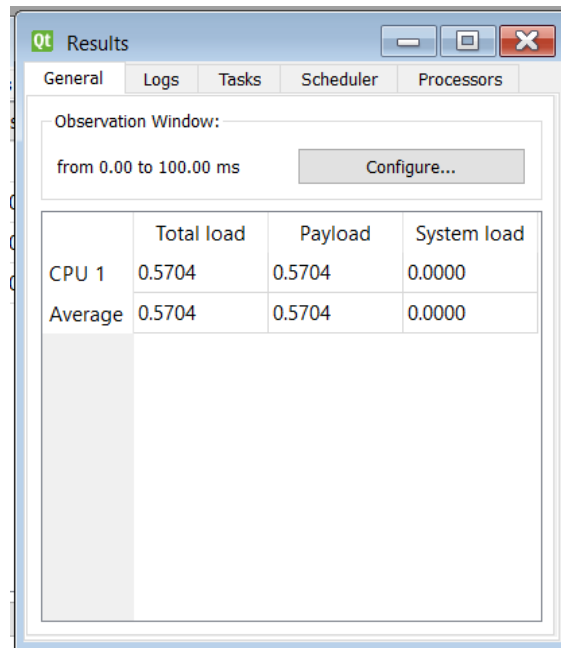
# • Runtime Analysis

### 1. Logic Analyzer



### 2. CPU Load



| Name | Value | Type |
|------|-------|------|
| task1_totalTime | 5410990 | int |
| task2_totalTime | 409567 | int |
| task3_totalTime | 327753 | int |
| systemTime | 12076108 | int |
| cpuLoad | 50 | int |
| <Enter expression> | | |

# • Comments

1. From the 3 analysis: No task misses its deadline.
2. EDF is an optimal scheduling algorithm on preemptive uniprocessors.
3. System is schedulable.
4. Both hand analysis and runtime analysis gave the same results (U=50%) < 100% → Guaranteed schedulability.
5. Runtime analysis is a little bit different from the offline simulator but with a small reasonable difference.