# SCHEDULING…



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## Overview

Schedule the following tasks set using rate-monotonic to calculate the Urm and time-demand analysis .

## Tasks

T1 {P: 5, E: 2.5, D: 5}.

 T2 {P: 15, E: 4.5, D:15).

 T3 (P: 20, E: 3.5, D: 20).

## Goals

● Calculate the Urm.

 ● Calculate the time-demand analysis.

 ● Model the task set using Simso.

## URM Calculation

● U = (2.5/5) + (4.5/15) + (3.5/20) = 0.975

● Urm = 3 * (2^(1/3) -1) = 0.779

● U > Urm

System Not Schedulable and needs more tests.

# Time demand Calculation

Task1

w(5) = 2.5 + 0 = 2.5

w(5) < 5 , T1 is schedulable

Task2

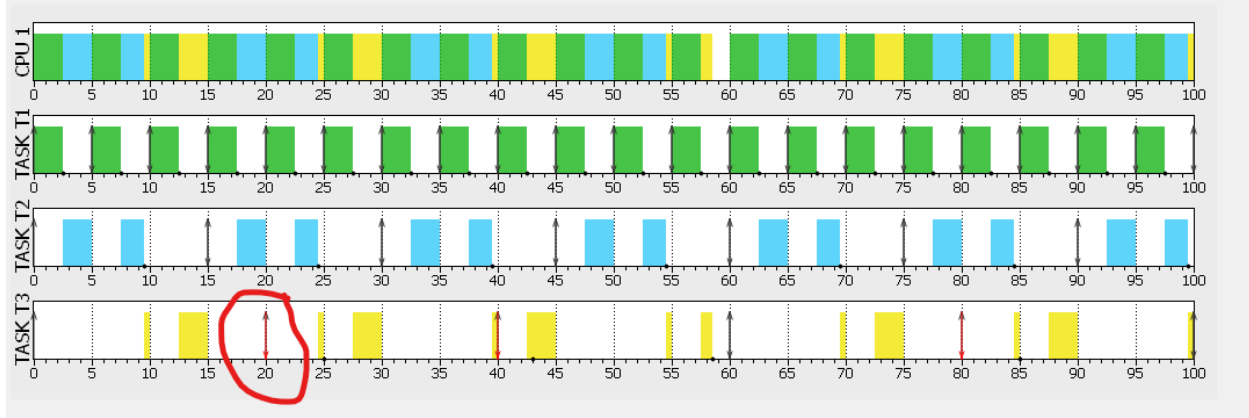w(15) = 4.5 + ⌈15/5⌉ ∗ 2.5 = 12

w(15) < 15 , T2 is schedulable

Task3

w(20) = 3.5 + ⌈20/15⌉ ∗ 4.5 + ⌈20/5⌉ ∗ 2.5 = 22.5

w(20) > 20 , T3 is not schedulable

# Result

After the URM calculation and Time demand calculation, we detected that the system is not schedulable.

# Simso Output

|        | Total load | Payload | System load |
|--------|-----------|---------|-------------|
| CPU 1  | 0.9850    | 0.9850  | 0.0000      |
| Average | 0.9850   | 0.9850  | 0.0000      |

| id | Name | Task type | Abort on miss | Act. Date (ms) | Period (ms) | List of Act. dates (ms) | Deadline (ms) | WCET (ms) | Followed by | priority |
|----|------|-----------|---------------|----------------|-------------|-------------------------|---------------|-----------|-------------|----------|
| 1 | TASK T1 | Periodic ▼ | ☐ No | 0.0 | 5.0 | - | 5.0 | 2.5 | ▼ | 0 |
| 2 | TASK T2 | Periodic ▼ | ☐ No | 0.0 | 15.0 | - | 15.0 | 4.5 | ▼ | 0 |
| 3 | TASK T3 | Periodic ▼ | ☐ No | 0.0 | 20.0 | - | 20.0 | 3.5 | ▼ | 0 |