•Task: Schedule the following task set using rate-monotonic:

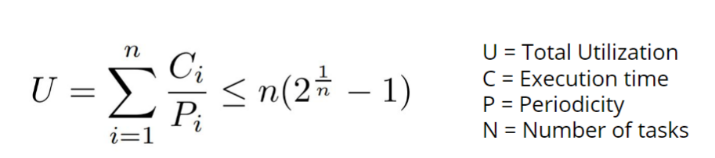
T1 {P: 5, E: 2.5, D: 5},

T2 {P: 15, E: 4.5, D: 15},

T3 {P: 20, E: 3.5, D: 20}

* Calculate the Urm.
* Calculate the time-demand analysis.
* Model the task set using Sims

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U = 2.5/5 + 4.5/15 + 3.5/20 = 0.975

Urm = 3 \* ( 2^(1/3) - 1 ) = 0.779

Text, letter

Description automatically generated

**Time demand for the highest priority task (Task1):**

W(1) = 2.5 + 0 = 2.5

W(2) = 2.5 + 0 = 2.5

W(3) = 2.5 + 0 = 2.5

W(4) = 2.5 + 0 = 2.5

W(5) = 2.5 + 0 = 2.5 W(5) = 2.5 < Deadline = 5 this task is schedulable

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**Time demand for Task2 :**

W(1) = (1/5)2.5 + 4.5 = 5

W(2) = (2/5)2.5 + 4.5 = 5.5

W(3) = (3/5)2.5 + 4.5 = 6

W(4) = (4/5)2.5 + 4.5 = 6.5

W(5) = (5/5)2.5 +4.5 = 7

W(6) = (6/5)2.5 +4.5 = 7.5

W(7) = (7/5)2.5 + 4.5 = 8

W(8) = (8/5)2.5 + 4.5 = 8.5

W(9) = (9/5)2.5 + 4.5 = 9

W(10) = (10/5)2.5 + 4.5 = 9.5

W(11) = (11/5)2.5 + 4.5 = 10

W(12) = (12/5)2.5 + 4.5 = 10.5

W(13) = (13/5)2.5 + 4.5 = 11

W(14) = (14/5)2.5 +4.5 = 11.5

W(15) = (15/5)2.5 + 4.5 = 12 W(15) = 12 < Deadline = 15 this task is schedulable

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**Time demand for Task3 :**

W(11) = 3.5 + (11/15) \* 4.5 + (11/5) \* 2.5 = 12.3

W(12) = 3.5 + (12/15) \* 4.5 + (12/5) \* 2.5 = 13.1

W(13) = 3.5 + (13/15) \* 4.5 + (13/5) \* 2.5 = 13.9

W(14) = 3.5 + (14/15) \* 4.5 + (14/5) \* 2.5 = 14.7

W(15) = 3.5 + (15/15) \* 4.5 + (15/5) \* 2.5 = 15.5

W(16) = 3.5 + (16/15) \* 4.5 + (16/5) \* 2.5 = 16.3

W(17) = 3.5 + (17/15) \* 4.5 + (17/5) \* 2.5 = 17.1

W(18) = 3.5 + (18/15) \* 4.5 + (18/5) \* 2.5 = 17.9

W(19) = 3.5 + (19/15) \* 4.5 + (19/5) \* 2.5 = 18.7

W(20) = 3.5 + (20/15) \* 4.5 + (20/5) \* 2.5 = 19.5

W(20) = 19.5 < Deadline = 20 this task is schedulable

# **Simulating in Simso :**

Graphical user interface, text, application, email

Description automatically generated

Graphical user interface, application

Description automatically generated

Chart, bar chart

Description automatically generated