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

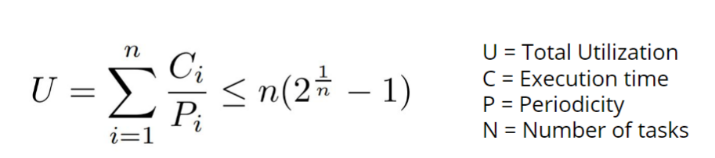
T1 {P: 5, E: 2.5, D: 5},

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 **CPU Utilization > Urm => the system is not Schedulable.**

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 = 7

W(2) = (2/5)2.5 + 4.5 = 7

W(3) = (3/5)2.5 + 4.5 = 7

W(4) = (4/5)2.5 + 4.5 = 7

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

W(6) = (6/5)2.5 +4.5 = 9.5

W(7) = (7/5)2.5 + 4.5 = 9.5

W(8) = (8/5)2.5 + 4.5 = 9.5

W(9) = (9/5)2.5 + 4.5 = 9.5

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

W(11) = (11/5)2.5 + 4.5 = 12

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

W(13) = (13/5)2.5 + 4.5 = 12

W(14) = (14/5)2.5 +4.5 = 12

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 (3) = 3.5 + (3/15) \* 4.5 + (3/5) \* 2.5 = 10.5

W (4) = 3.5 + (4/15) \* 4.5 + (4/5) \* 2.5 = 10.5

W (5) = 3.5 + (5/15) \* 4.5 + (5/5) \* 2.5 = 10.5

W (6) = 3.5 + (6/15) \* 4.5 + (6/5) \* 2.5 = 13

W (7) = 3.5 + (7/15) \* 4.5 + (7/5) \* 2.5 = 13

W (8) = 3.5 + (8/15) \* 4.5 + (8/5) \* 2.5 = 13

W (9) = 3.5 + (9/15) \* 4.5 + (9/5) \* 2.5 = 13

W (10) = 3.5 + (10/15) \* 4.5 + (10/5) \* 2.5 = 13

W (11) = 3.5 + (11/15) \* 4.5 + (11/5) \* 2.5 = 15.5

W (12) = 3.5 + (12/15) \* 4.5 + (12/5) \* 2.5 = 15.5

W (13) = 3.5 + (13/15) \* 4.5 + (13/5) \* 2.5 = 15.5

W (14) = 3.5 + (14/15) \* 4.5 + (14/5) \* 2.5 = 15.5

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 = 22.5

W (17) = 3.5 + (17/15) \* 4.5 + 17/5) \* 2.5 = 22.5

W (18) = 3.5 + (18/15) \* 4.5 + 18/5) \* 2.5 = 22.5

W (19) = 3.5 + (19/15) \* 4.5 + 19/5) \* 2.5 = 22.5

W (20) = 3.5 + (20/15) \* 4.5 + 20/5) \* 2.5 = 22.5

W(20) = 22.5 > Deadline = 20 this task is not schedulable

# Graphical user interface Description automatically generated with medium confidence**Simulating in Simso :**

Graphical user interface, application

Description automatically generated

Chart, bar chart

Description automatically generated