

CS 431 HWK4

Soham Karanjikar

Sohammk2

1. (used attache script for this, output is in answers)

a)utilization bound: $3/8+3/13+6/20+4/30 = 1.04$ overload.

Using exact test:

done task 2 is schedulable.

totalcold: 5

totalc: 5

done task 3 is schedulable.

totalcold: 13

totalc: 13

done task 4 is not schedulable.

totalcold: 28

totalc: 33

b) Utilization bound: $2/10+4/16+7/30+8/50 = .843 > U(4)$ so use exact.

Using exact test:

done task 2 is schedulable.

totalcold: 6

totalc: 6

done task 3 is schedulable.

totalcold: 15

totalc: 15

done task 4 is schedulable.

totalcold: 29

totalc: 29

c)Utilization Bound: $2.5/12+4/16+5.5/37+9/52 = .78 > U(4)$ so use exact

Using exact test:

done task 2 is schedulable.

totalcold: 6.5

totalc: 6.5

done task 3 is schedulable.

totalcold: 12.0
totalc: 12.0
done task 4 is schedulable.
totalcold: 30.0
totalc: 30.0

d) Utilization bound : $2/6 + 10/24 + 9/36 = 1 > U(3)$ so use exact

Using exact test:
done task 2 is schedulable.
totalcold: 16
totalc: 16
done task 3 is not schedulable.
totalcold: 27
totalc: 39

e) Changing task 2 to $C_2 = 5$ and $T_2 = 12$, the tasks become schedulable:

Using exact test:
done task 2 is schedulable.
totalcold: 9
totalc: 9
done task 3 is schedulable.
totalcold: 36
totalc: 36

2)

Using UB test for task 2: $11/50 + 15/60 < U(2)$ so schedulable.
Using UB test for task 3: $11/50 + 15/60 + 36/75 > U(3)$, so use exact:
Using exact test:
done task 2 is schedulable.
totalcold: 20
totalc: 20

done task 3 is not schedulable.

totalcold: 63

totalc: $76 > 75$

Task 4:

done task 4 is schedulable.

totalcold: 98

totalc: 98