Operating System Lab
CS342

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Q1 Write a Program to Implement Bankers algorithm.

(a) Given allocated, max and available resources (should be taken as input from user) for n number of process The code should print if there is any safe sequence available.

(b) For the above problem, print all the different safe sequences possible.

Compilation:
g++ -q1.cpp -o q1

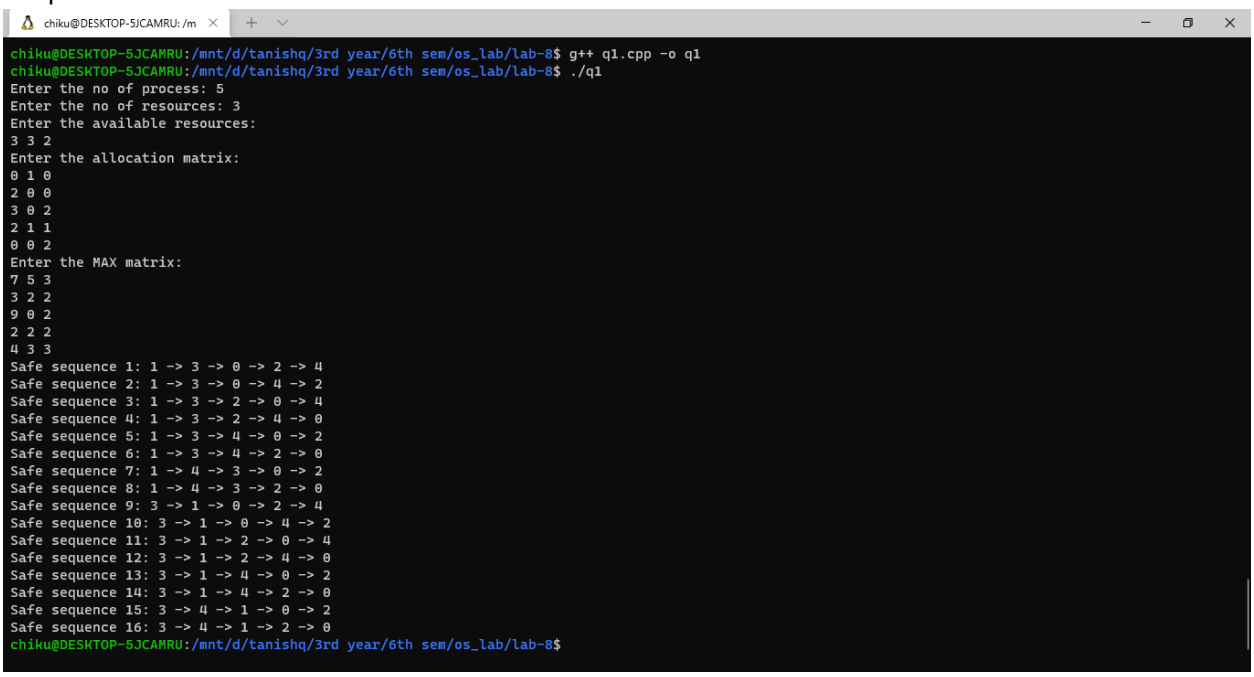
Syntax:
./q1
Number of processes
Number of resources
Available resources array
Allocated resources matrix
Max resources matrix

Sample Input and Output:

Input:

5	--- Number of processes
3	--- Number of resources
3 3 2	--- Available resources array
0 1 0 2 0 0 3 0 2 2 1 1 0 0 2	--- Allocated resources matrix
7 5 3 3 2 2 9 0 2 2 2 2 4 3 3	--- Max resources matrix

Output:



Safe sequence 1: 1 -> 3 -> 0 -> 2 -> 4
Safe sequence 2: 1 -> 3 -> 0 -> 4 -> 2
Safe sequence 3: 1 -> 3 -> 2 -> 0 -> 4
Safe sequence 4: 1 -> 3 -> 2 -> 4 -> 0
Safe sequence 5: 1 -> 3 -> 4 -> 0 -> 2
Safe sequence 6: 1 -> 3 -> 4 -> 2 -> 0
Safe sequence 7: 1 -> 4 -> 3 -> 0 -> 2
Safe sequence 8: 1 -> 4 -> 3 -> 2 -> 0
Safe sequence 9: 3 -> 1 -> 0 -> 2 -> 4
Safe sequence 10: 3 -> 1 -> 0 -> 4 -> 2
Safe sequence 11: 3 -> 1 -> 2 -> 0 -> 4
Safe sequence 12: 3 -> 1 -> 2 -> 4 -> 0
Safe sequence 13: 3 -> 1 -> 4 -> 0 -> 2
Safe sequence 14: 3 -> 1 -> 4 -> 2 -> 0
Safe sequence 15: 3 -> 4 -> 1 -> 0 -> 2
Safe sequence 16: 3 -> 4 -> 1 -> 2 -> 0

Input:

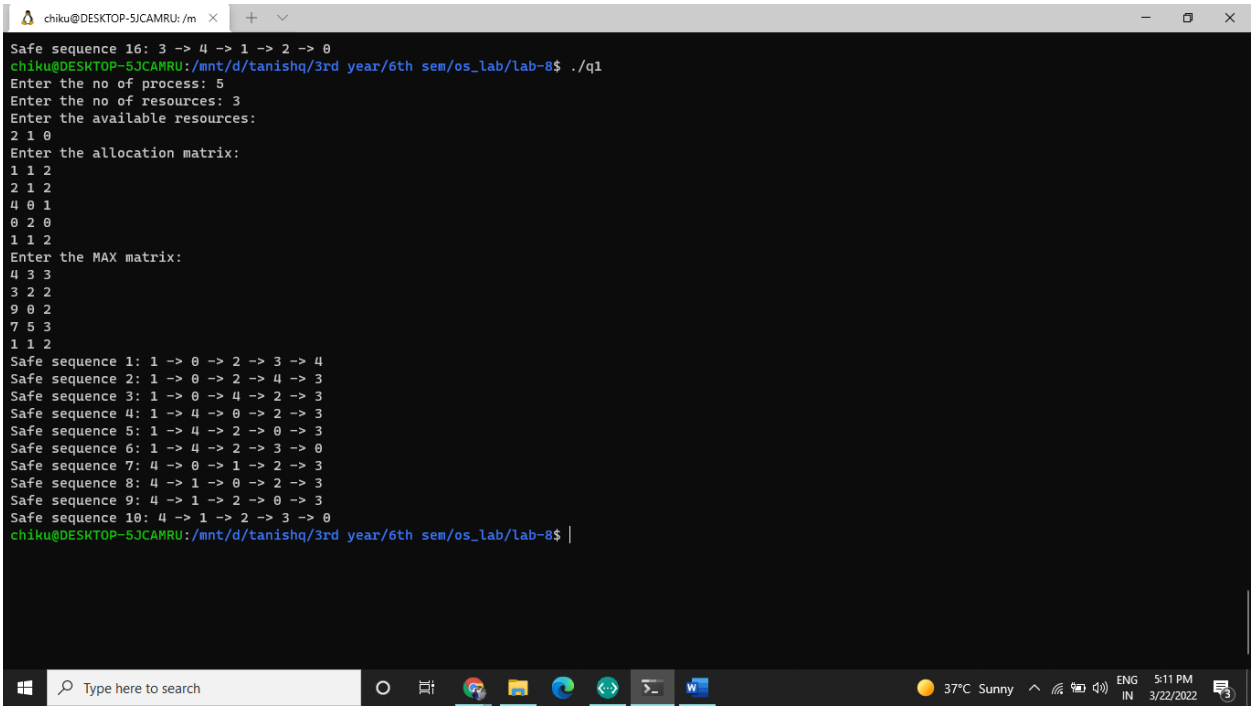
5 --- Number of processes

3 --- Number of resources

2 1 0 --- Available resources array

1 1 2 --- Allocated resources matrix
2 1 2
4 0 1
0 2 0
1 1 2

4 3 3 --- Max resources matrix
3 2 2
9 0 2
7 5 3
1 1 2



Input:

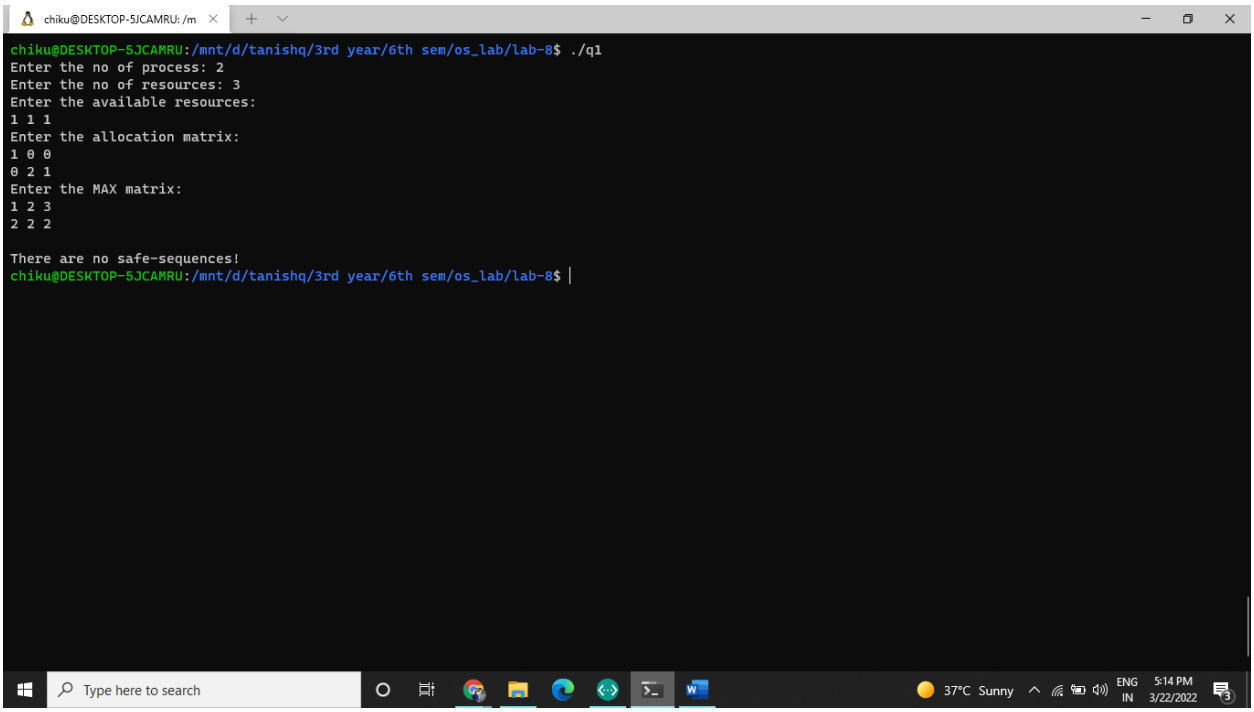
2 --- Number of processes

3 --- Number of resources

1 1 1 --- Available resources array

1 0 0 --- Allocated resources matrix
0 2 1

1 2 3 --- Max resources matrix
2 2 2



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