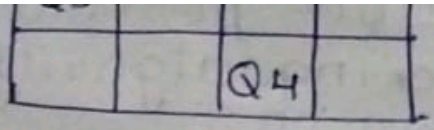
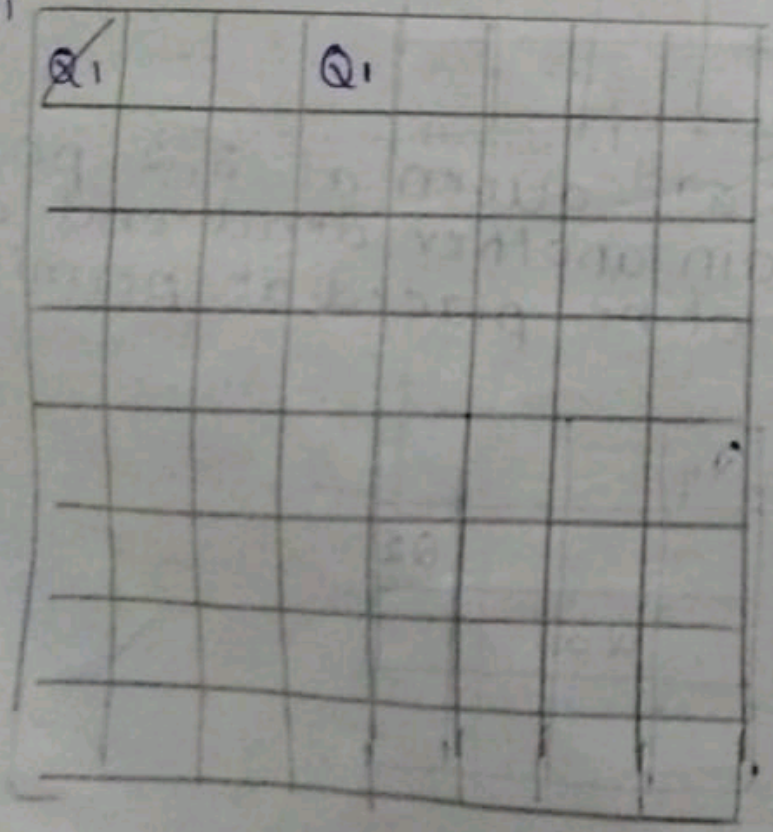
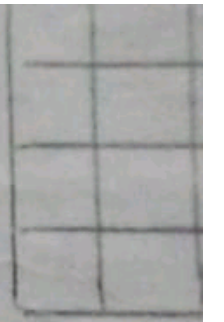


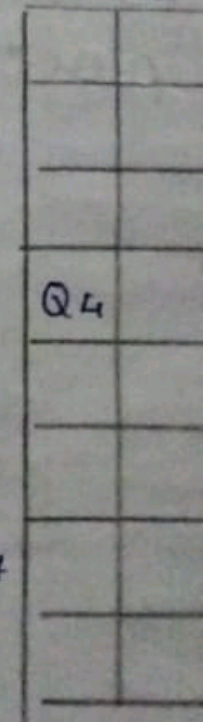
8Queens problem:

step1: Now we start with empty chess board place queen 1 on the first possible location i.e at 1, 4

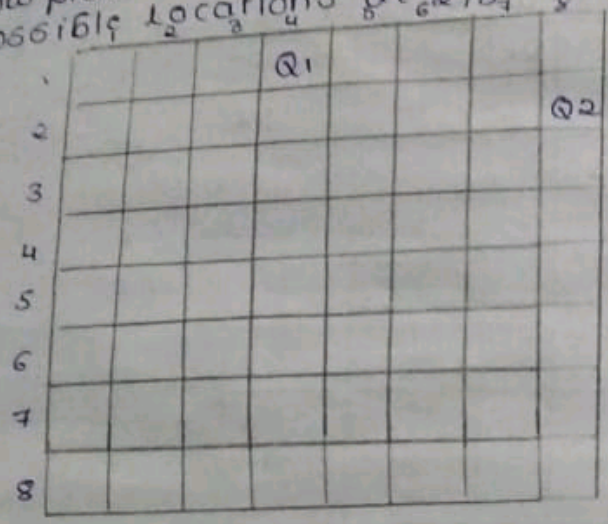




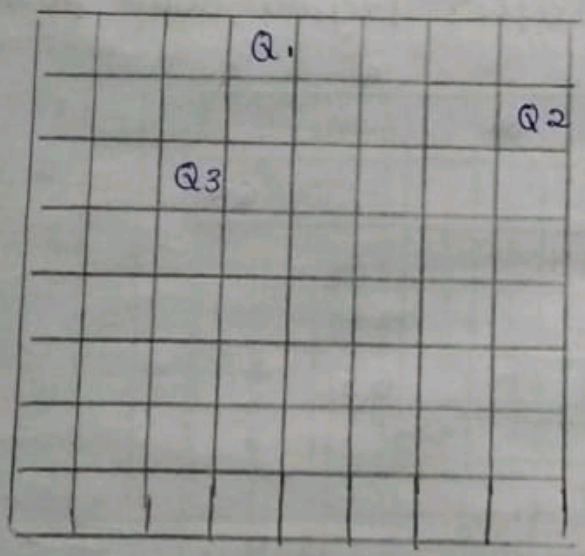
step4:
Now place
locations at 1, 2



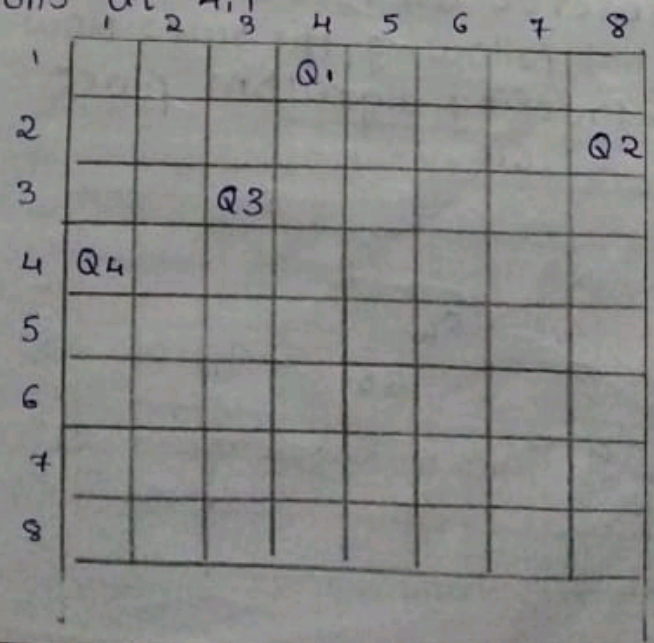
step2:
Now place Q2 after trying some possible locations at 2,8



step3:
Now place Q3 after trying some possible locations at 3,3

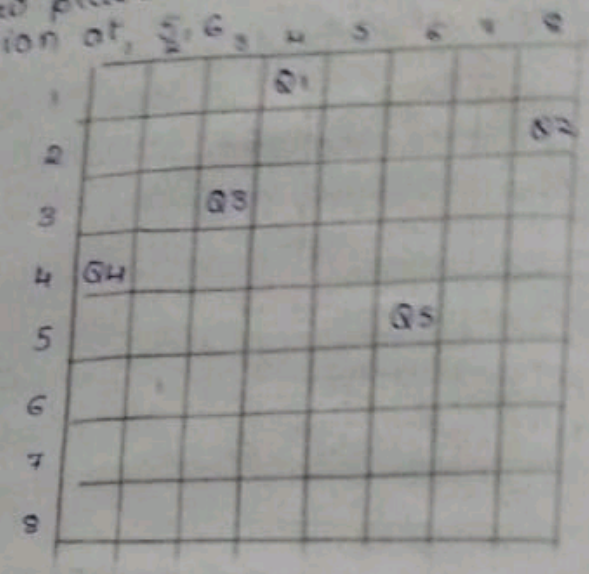


step4:
Now place Q4 after trying some possible locations at 4,1



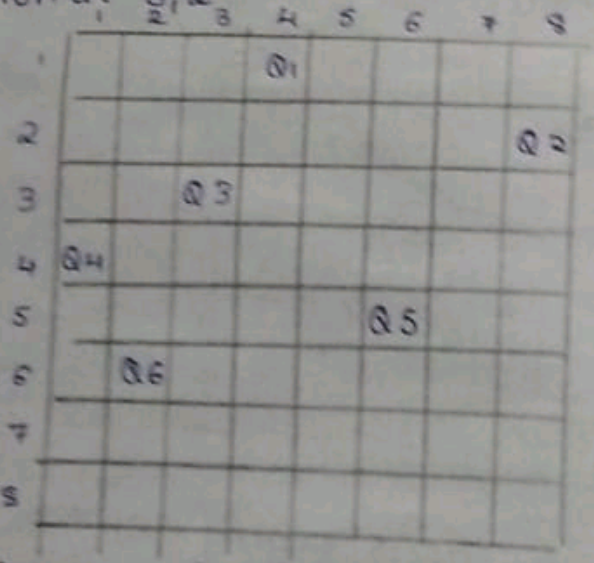
steps:

Now place Q5 after trying some possible location at, 5, 6

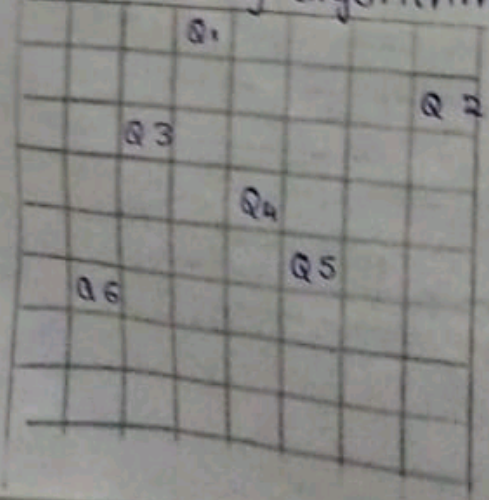


steps:

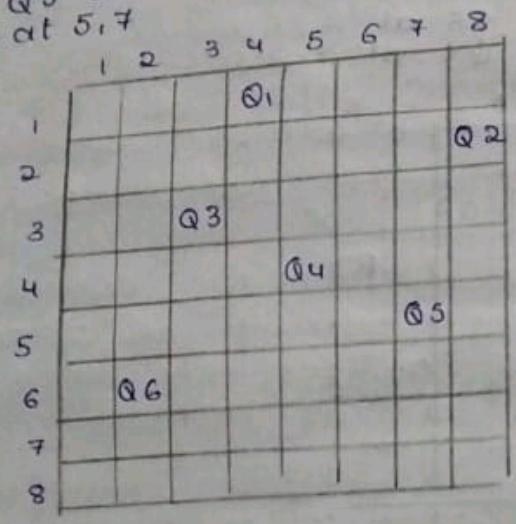
Now place Q6 after trying some possible location at 6, 2



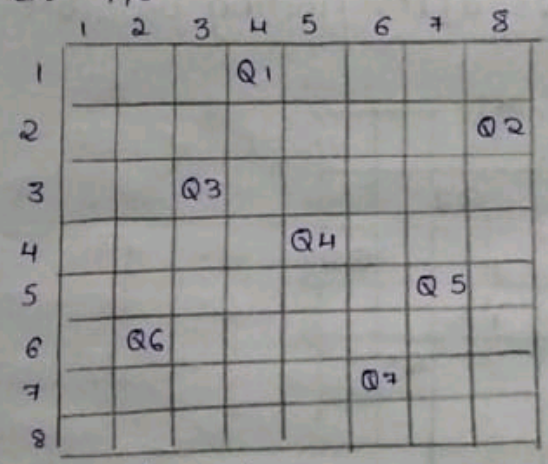
Here when we observe Q4 is not at correct position it is not following the rules Now by applying Backtracking algorithm place Q4 at 4,5



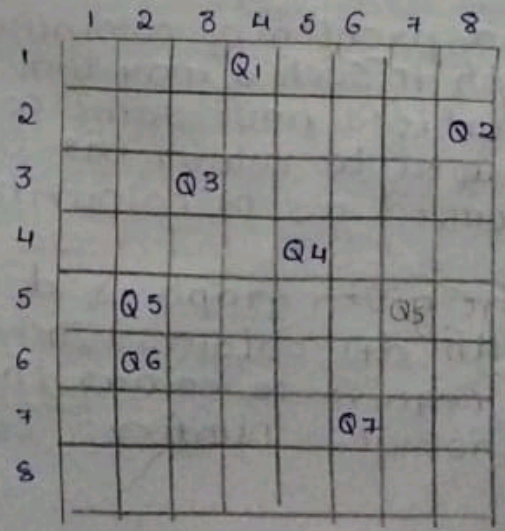
step7:
Now Q5 violates the rules. Now we place the Q5 at 5,7



step8:
Now place Q7 after trying some possible location at 7,6



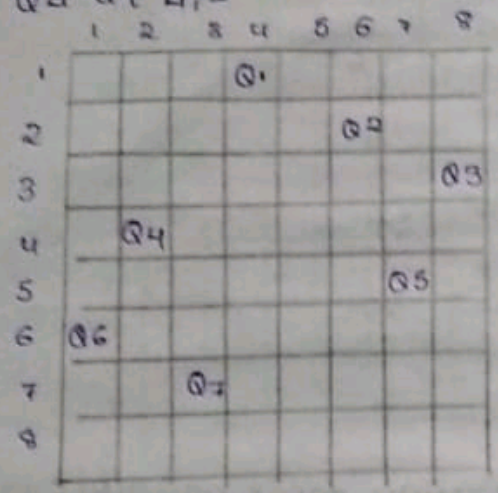
This is a dead end because Q8 cannot be placed in the next column as there is no acceptable position. Then apply backtracking algorithm place Q5 at 5,2



Step 9:

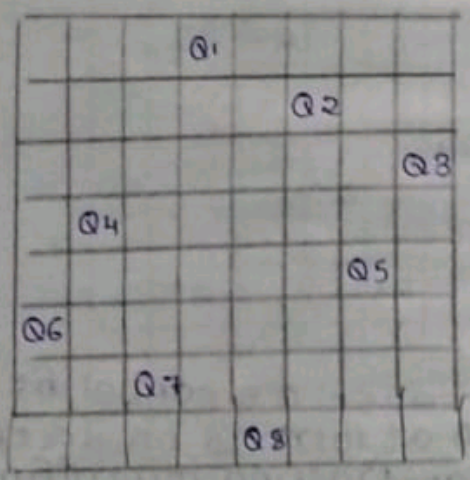
Now by using Backtracking algorithm place

Q2 at 2,6 Q0 at 5,7
Q3 at 8,5 Q6 at 6,1
Q4 at 4,2 Q7 at 7,3



Step 10:

Now place Q8 after finding possible location at 8,5



Graph colouring:

Graph colouring is a problem of colouring each vertex in a graph in such a way that no two adjacent vertices have same colour and 'm' colours are used to colour the vertices
∴ This problem is called as m colouring problem.

If the degree of the given graph is 'd' then we can colour it with d+1 colours. The least number of colours require to colour the graph is called chromatic number