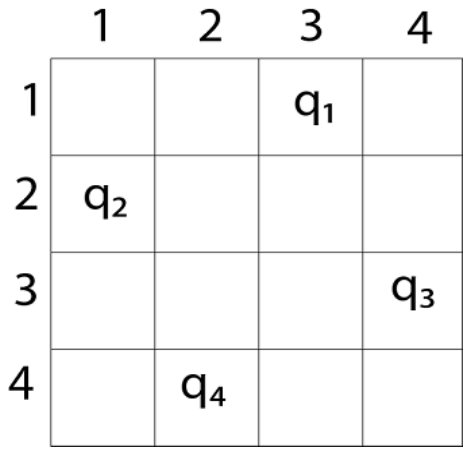
Assignment 1

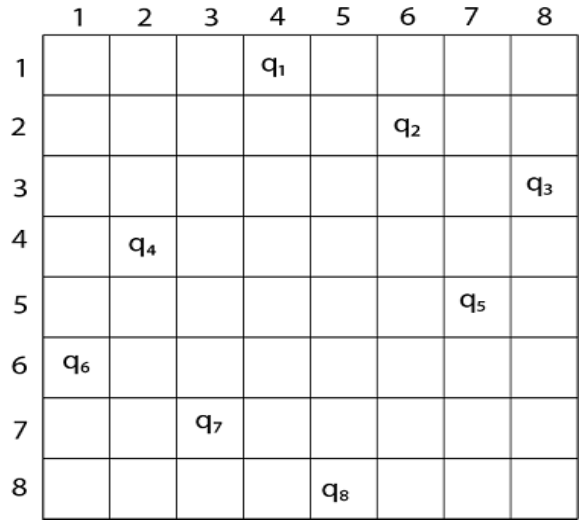
Submission Instructions
Deadline: 25th April 2021 11:59 PM

- Submit Python Notebook named in following format **i18_XXXX_A1.ipynb**
- Not Late Submissions are allowed.
- In case of Plagiarism you will be marked Zero.

`N-Queen(s) Problem

N - Queens problem is to place n - queens on an n x n chessboard in such a manner that no queens attack each other by being in the same row, column or diagonal. Following are one of the possible solutions for 4-queens and 8 queens respectively.





Prior Knowledge

1- We can observe that, in any solution, no two queens can occupy the same Column, and consequently no column can be empty, and vice versa for rows

2- It can be seen that **for n =1, the problem has a trivial solution, and no solution exists for n =2 and n =3**. So first we will consider the 4 queens problem and then generate it to n - queens problem.

Tasks to Perform

1- Write a function generate (N) which takes N (Number of queens)and generate N*N board having N queens randomly placed on the board.

2- Write a function to search for the solution using **Hill climbing (**You can chose any variation of Hill climbing i.e. Stochastic, Steepest ascent, First Choice etc.)

3- Write a function to search for the possible solution using **Simulated Annealing**

4- Output both the solutions.

Note: You can build your code on the Lab Task of Week#7

~ Best of Luck ~