Data Structures & Algorithms: 8 Queens

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# 8 Queens Solution Write Up:

After a lot of reading up on back-tracking, greedy method, divide & conquer and dynamic programming I decided to use back-tracking as my algorithm to solve the 8 queens’ problem. I then started by creating a method that would output a simple solution that would only output a solution to the problem with no user input by placing a queen on the top left-hand corner of the board and outputting a board where 1 was a queen and 0 was no queen to understand the basics of backtracking. Furthermore, after some more research I decided using a GUI was a bit above my skill level in the time frame given so I went for a simple looking chess board via a print statement using a 2D array.

Secondly, once I had the basics and a chess board looking output, I started working on getting my code to function with a user input for placing the queen; I started this process by creating a print statement that would tell the user if the input was not a possible position on the board to eliminate any errors I would encounter from this right off the bat. Next, I started reading up and figuring any common errors others encountered, one of which, most commonly was case sensitivity so I made sure to include toUpperCase() in my method to make my life simpler. Furthermore, once it came to inputting valid co-ordinates I started working on my isSafe() method depending on the output till I got the correct result.

Thirdly, due to the use of a 2D array I needed to use some nested for loops to check all the values, converting the column value to char, after some more research I figured out that I had to add a value of 65 in order to achieve the correct ASCII for upper case. Furthermore, these then are translated to co-ordinates on the board. In addition, I used the chatAt() method to convert the second character to string.

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