N-Queens

Try to solve the N-Queens problem.

We'll cover the following

Statement

Given a chessboard of size $n \times n$, determine how many ways n queens can be placed on the board, such that no two queens attack each other.

A queen can move horizontally, vertically, and diagonally on a chessboard. One queen can be attacked by another queen if both share the same row, column, or diagonal.

Constraints:

- $1 \leq n \leq 9$

Examples

Sample example 1

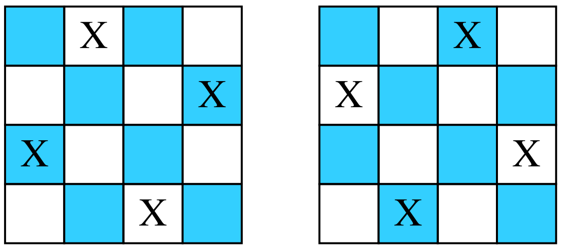
Input

```
n = 4
```

Output

2

The **X** on the board represents a square where a queen is placed. If we look carefully, the two valid configurations are mirror images of each other.



1 of 2

Understand the problem

Let’s take a moment to make sure you’ve correctly understood the problem. The quiz below helps you check if you’re solving the correct problem:

N-Queens

1 What is the correct solution to the 1-Queens problem?

A) 0

B) 1

C) 2

D) 4

Submit Answer

Question 1 of 5
0 attempted

Reset Quiz

Figure it out!

We have a game for you to play. Rearrange the logical building blocks to develop a clearer understanding of how to solve this problem.

Drag and drop the cards to rearrange them in the correct sequence.

Start by placing a queen in the first column of the first row of the chess board.

Since no other queen may be placed in a row that already has a queen, search for a safe position for the next queen in the next row.

Iterate over the rows to find a safe placement for the queens. Store the column number where a queen is placed in a list.

If a safe position is not found, backtrack to the previous valid placement. Search for another solution.

If a complete solution is found, add it to the results array, and backtrack to find other valid solutions in the same way.

Reset Show Solution Submit

Implement your solution in `main.java` in the following coding playground. We have provided a useful code template in the other file that you may build on to solve this problem.

Java

main.java

Backtracking.java

```
import java.util.*;
public class Main{
    public static int solveNQueens(int n) {

        // Write your code here

        return -1;
    }
}
```

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Test Cases Results

Case 1 Case 2 Case 3

Input #1

```
3
```

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Backtracking: Introduc...

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Solution: N-Queens

✓ Mark as Completed