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Report for the N-Queens Problem

Time Complexity Report for the N-Queens Problem Code

1. Recursive Function Calls:

- The depth of recursion is N , as there are N rows to fill.

2. Validity Checks:

- The `isValid` function checks:
 - Each column up to the current row for existing queens, taking $O(\text{row})$ time.
 - Both diagonals for threats from previously placed queens, each taking $O(\text{row})$ time.
- Hence, the time complexity of `isValid` is $O(N)$ in the worst case.

3. Total Time Complexity:

- The total time complexity can be expressed as:

$$T(N) = O(N) \text{ (for column checks)} * O(N) \text{ (for diagonal checks)} * O(N) \text{ (choices for columns)} = O(N^3)$$