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SUBJECT: LAB 4(DAA) REPORT

(DAA) LAB-4

*<u>**AIM**</u> :- To study and explore back-tracking algorithm for solving problems.

*<u>**THEORY AND EXPERIMENT**</u> :-

In backtracking algorithm we place queens one by one in different columns, starting from the leftmost column. When we place a queen in a column, we check for clashes with already placed queens. In the current column, if we find a row for which there is no clash, we mark this row and column as a part of the solution. If we do not find such a row due to clashes then we backtrack and return false.

**This is a python program implement a back-tracking algorithm to solve N-Queen problem. We compute all the possible solution for N-Queen and also compute the number of backtracks. We perform the experiment for N=2 to 9.

**We also solve a Sudoku problem using backtracking approach and the number of backtracks is also counted.

*<u>**OUTPUTS**</u> **:- PLEASE FIND THE ATTACHMENT(SS) INTO THE FOLDER ITSELF SEPARATELY.**

*<u>**OBSERVATIONS**</u> :-

All the possible solutions of the experiment for N=2 to 9 are computed. The Sudoku problem is solved using backtracking method and the number of backtracks is 579.

The set of given candidate numbers = [5,10,12,13,15,18] and the target is 30. The combinations where the candidate numbers sum to target i.e. 30 :

[[5,5,5,5,5,5],[5,5,5,5,10],[5,5,5,15],[5,5,10,10],[5,10,15],[5,12,13],[10,10,10],[12,18],[15,15]].

*<u>**CONCLUSION**</u> **:-** Here, all the required data is calculated and hence the backtracking

algorithm to solve problems is explored and studied.