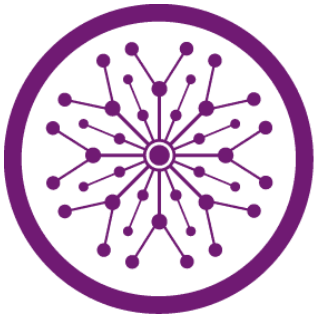

SUPERIOR UNIVERSITY

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Lab Task: 4

Task4: N-Queens Problem

1. Introduction The N-Queens problem is a classic combinatorial problem in artificial intelligence and computer science. The objective is to place N queens on an N×N chessboard so that no two queens threaten each other. This means that no two queens can share the same row, column, or diagonal. The solution is typically found using backtracking.

2. Rules

. Rules of the N-Queens Problem

1. Each row and column can have only one queen.
2. No two queens can share the same diagonal.
3. The board size is N×N.
4. The algorithm uses backtracking to explore placements.
5. A solution is valid if all N queens are placed without conflicts.

Example output:

```
PS C:\Users\DELL\Documents\Superior University\Semester 4th\Programming for Artificial Intelligence Lab\Assignments\
Lab Task 4>  & 'c:\Program Files\Python313\python3.13t.exe' 'c:\Users\DELL\.vscode\extensions\ms-python.debugpy-2025
.4.0-win32-x64\bundled\libs\debugpy\launcher' '59384' '--' 'C:\Users\DELL\Documents\Superior University\Semester 4th
\Programming for Artificial Intelligence Lab\Assignments\Lab Task 4\n-queens_problem.py'
 Enter the size of the board .:  8
 Q     .     .     .     .     .     .     .
 .     .     .     .     .     .     Q     .
 .     .     .     .     Q     .     .     .
 .     .     .     .     .     .     .     Q
 .     Q     .     .     .     .     .     .
 .     .     .     Q     .     .     .     .
 .     .     .     .     .     Q     .     .
 .     .     Q     .     .     .     .     .


PS C:\Users\DELL\Documents\Superior University\Semester 4th\Programming for Artificial Intelligence Lab\Assignments\
Lab Task 4>
```