

N-Queens

SOFE 2715U: Data Structures
Home Activity

Alden O'Cain (100558599)
Reyhan Kogukoglu (100779413)

Faculty of Engineering and Applied Science
Shahryar Rahnamayan, PhD, P.Eng

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View Solutions Online:

Alden's Website: <http://aldenocain.com/NQueens/>

Reyhan's Website: <http://reyhankogukoglu.com/NQueens/>

Project Repository: <https://github.com/reyhankogukoglu/NQueens/>

Background:

First posed in the 19th century, the n-queens puzzle is the problem of placing n queens on an $n \times n$ chessboard such that no two queens attack each other; thus, a solution requires that no two queens share the same row, column, or diagonal. For 8-Queens, there are 92 valid solutions.

Problem Statement:

Solve N-Queen problem using:

- 1) an iterative method, and
- 2) recursive method for $N=8$ and $N=9$.

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Iterative Pseudocode:

Solve N-Queen problem using:

- 1) an iterative method, and
- 2) recursive method for $N=8$ and $N=9$.

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Recursive Pseudocode:

Solve N-Queen problem using:

- 1) an iterative method, and
- 2) recursive method for $N=8$ and $N=9$.

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Iterative Implementation (TypeScript):

MAKE SURE CODE IS COMMENTED

- 1) an iterative method, and
- 2) recursive method for $N=8$ and $N=9$.

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Recursive Implementation (TypeScript):

MAKE SURE CODE IS COMMENTED

- 1) an iterative method, and
- 2) recursive method for $N=8$ and $N=9$.

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All Solutions:

8-Queens:

MAX OF 10 PHOTOS

LIST ALL OTHER SOLUTIONS

- 1) an iterative method, and
- 2) recursive method for N=8 and N=9.

9-Queens:

MAX OF 10 PHOTOS

LIST ALL OTHER SOLUTIONS

- 1) an iterative method, and
- 2) recursive method for N=8 and N=9.

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Runtime Comparisons:

| Method | 1st Sol (N=8) | All Sols (N=8) | 1st Sol (N=9) | All Sols (N=8) |
|-----------|---------------|----------------|---------------|----------------|
| Iteration | | | | |
| Recursion | | | | |

Runtimes Discussion

ADD DISCUSSION HERE

Conclusions:

ADD CONCLUSION HERE

Bibliography:

ADD CITATIONS HERE

- Numberphile video
 - <https://www.youtube.com/watch?v=jPcBU0Z2Hj8>
- Abdul bari video
 - https://www.youtube.com/watch?v=xFv_HI4B83A
- Wikipedia page
 - [Eight queens puzzle - Wikipedia](#)