



Homework No. 2

Memetic Algorithm

Prelude

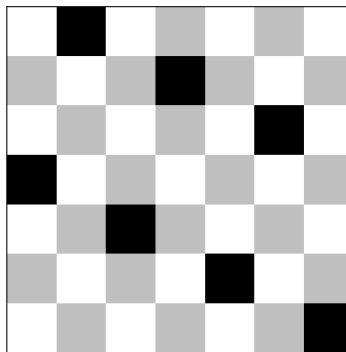
N Queens puzzle is the problem of placing n chess queens on an $n \times n$ chessboard so that no two queens threaten each other; thus, a solution requires that no two queens share the same row, column, or diagonal.

What to do?

Implement the Memetic Algorithm with Python to find a valid placement of n queens in an $n \times n$ chessboard (grid) for a given n .

Prepare a summary of what your code does. How did you define the “neighborhood” of an answer and did the definition affect the speed or the performance of your code? Considering that a placement of the queens in the table can only be either valid or invalid, how did you define the *cost* or the *fitness* of an answers? Include some of the answers your code could find for different values of n . Please note that your code must be able to find an answer for $n = 100$.

Upload a zip file containing your source code along with the summary.



Extras

Your homework will receive extra points for each of the following parts:

Extra 1. solving the puzzle for $n = 300$.

Extra 2. solving the puzzle for $n = 1000$.

Extra 3. solving the puzzle for $n = 2000$.

Extra π . solving the puzzle for the largest n among the students.

Extra δ . visualizing some of your answers; like the figure above.