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Web Programming and Python (AI104)

Assignment – 10

- 1. Consider the 8 queen's problem, it is a 8*8 chess board where you need to place queens according to the following constraints.
 - a. Each row should have exactly only one queen.
 - b. Each column should have exactly only one queen.
 - c. No queens are attacking each other.
- 2. Write a program to place the queens randomly in the chess board so that all the conditions are satisfied. Find the solutions to the problem.
- 3. A magic square is an N×N grid of numbers in which the entries in each row, column and main diagonal sum to the same number (equal to N(N^2+1)/2). Create a magic square for N=4, 5, 6, 7, 8
- 4. Take N (N >= 10) random 2-dimensional points represented in cartesian coordinate space. Store them in a numpy array. Convert them to polar coordinates.
- 5. Write a program to make the length of each element 15 of a given Numpy array and the string centred, left-justified, right-justified with paddings of _ (underscore).
- 6. The bisection method is a technique for finding solutions (roots) to equations with a single unknown variable. Given a polynomial function f, try to find an initial interval off by random probe. Store all the updates in an Numpy array. Plot the root finding process using the matplotlib/pyplot library.

