Sardar Vallabhbhai National Institute of Technology
Surat-395007
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.