AI-2002 Artificial Intelligence

Assignment # 2

Deadline: Sunday April 10, 2022 at 11:30 PM

In this assignment you have to Generate Random Simple Polygons using Genetic Algorithm and CSP. You are required to generate random simple polygons, which is a polygon having no intersecting edges, from a given set of points called S= $\{p_1, p_2, \ldots, p_n\}$, where and the points lie in a two dimensional plane. Your algorithm should make convex polygons.

The steps required to get to the solution are:

1. Design a chromosome for the problem [Must be binary Encoded]
2. Define Genetic operators for the problem. They can be different than standard Mutation and crossover.
3. Define a Fitness function.
4. Roulette Wheel selection.
5. RUN GA using above chromosome, genetic operator, fitness function and selection function.

Note: Your solution should work on any ***n***, where ***n*** is the number of points, they can be between 3-15