Genetic algorithm: Lab:27.03.2025

1. A delivery company is introducing autonomous drones to deliver packages. Each drone needs to minimize the time taken to complete the delivery by finding the most optimal path between multiple delivery points.

Delivery Points:

Start and End Point: (0,0)

Point A: (3,5)

Point B: (7,2)

Point C: (4,8)

Minimize the total distance travelled by visiting all points in any order and returning to the start point

$$f(\text{route}) = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} + \sqrt{(x_3 - x_2)^2 + (y_3 - y_2)^2} + \ldots + \sqrt{(x_1 - x_n)^2 + (y_1 - y_n)^2}$$

Minimize the total distance travelled by visiting all delivery points and returning to the starting location.

2. Compare the same with normal Gradient decent
3. Observe the values and make your observation