

Assignment 1: Evolutionary Algorithm in action

CS 451: Computational Intelligence

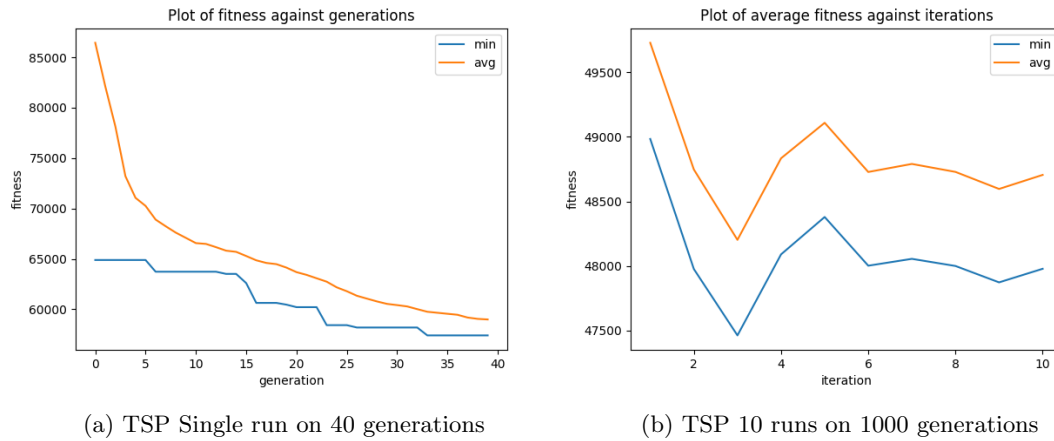
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Habib University — Spring 2023

1. Travelling Sales Person

The following are plots for respective selection schemes. The first one is for the parent selection and the second one is for the survival selection.

Fitness Proportional Scheme and Truncation



(a) TSP Single run on 40 generations

(b) TSP 10 runs on 1000 generations

Figure 1: Note: Fitness is the distance

As we can our second run was the best one out of the 10.

Fitness Proportional Scheme and Binary Tournament Selection Scheme

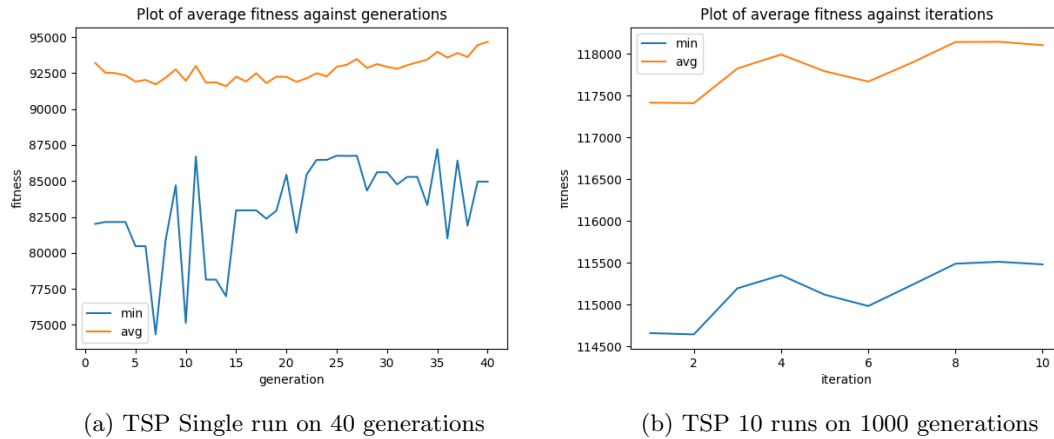


Figure 2: Note: Fitness is the distance

Fitness Proportional Scheme and Random Selection Scheme

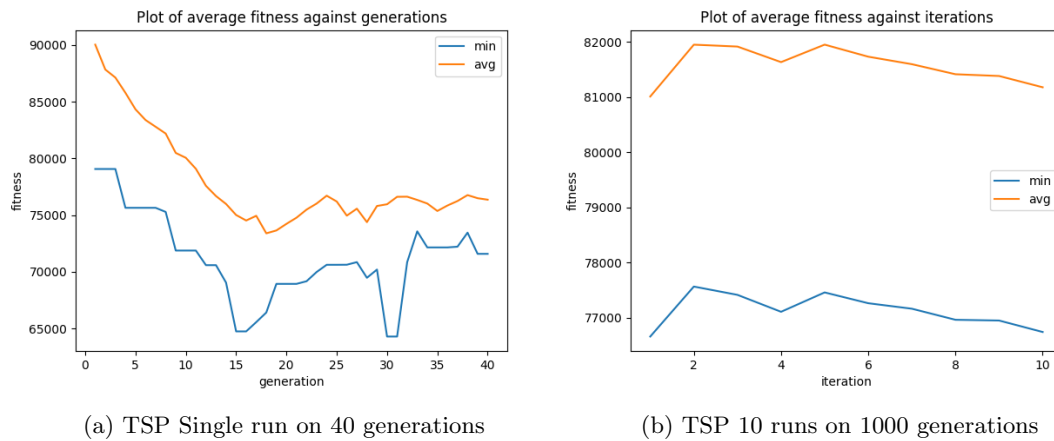


Figure 3: Note: Fitness is the distance

Fitness Proportional Scheme and Rank Based Selection Scheme

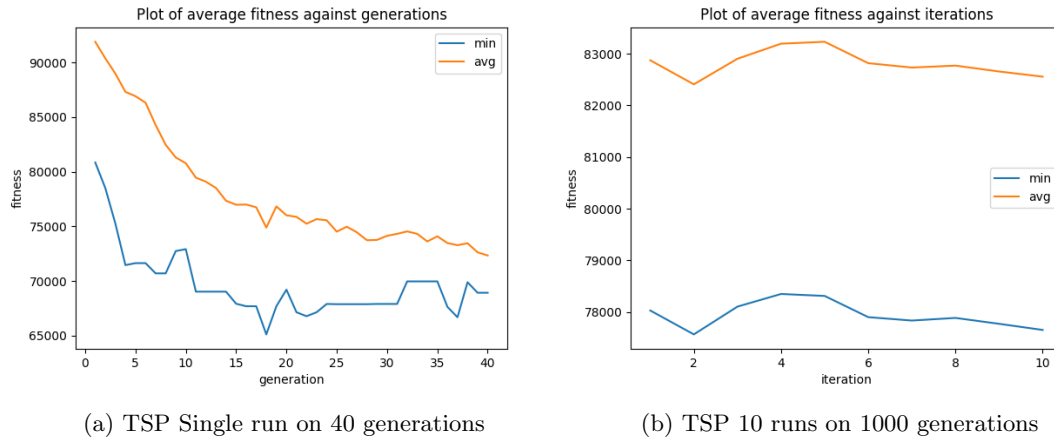


Figure 4: Note: Fitness is the distance

Rank Based Selection and Truncation

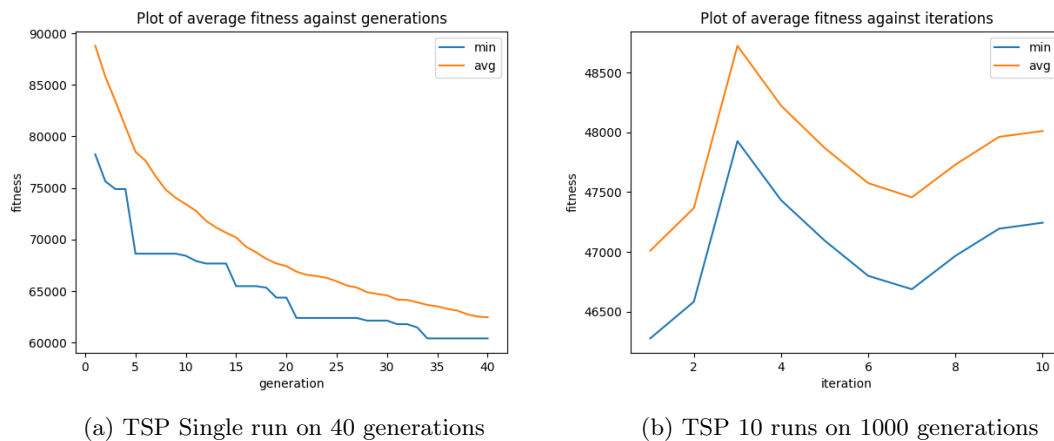


Figure 5: Note: Fitness is the distance

2. Knapsack Problem

Binary Tournament and Truncation

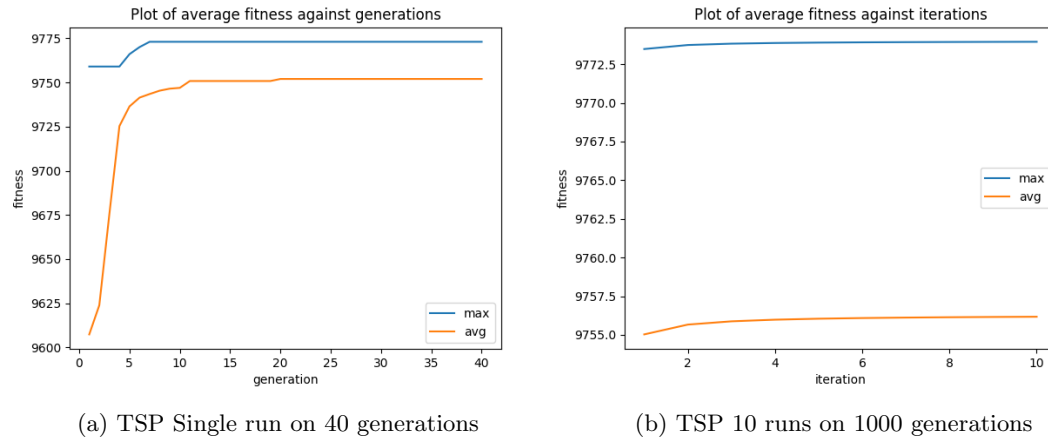


Figure 6: Note: Fitness is the distance

Binary Tournament and Rank Based Selection Scheme

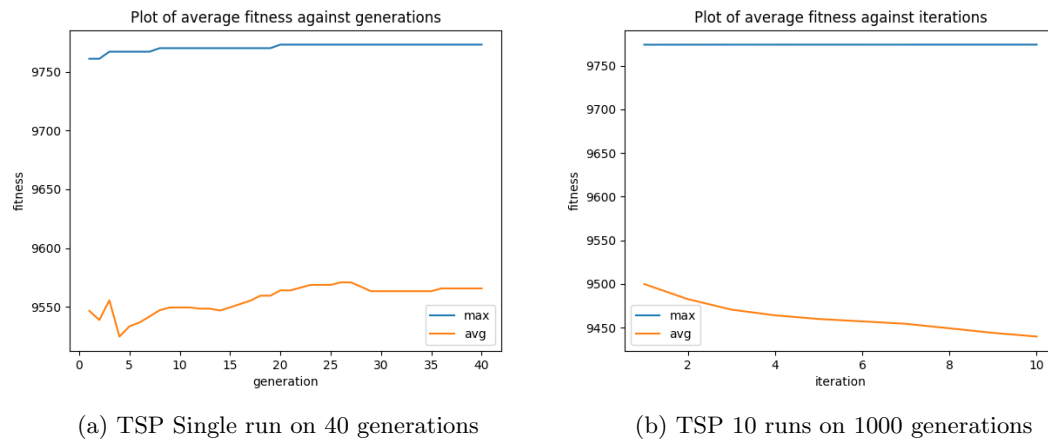


Figure 7: Note: Fitness is the distance

3. Graph Coloring Problem