

## **Assignment # 2**

***Due by December 17, 2024 (during class)***

Q.1. The genetic algorithm is intended to support the search for genetic diversity along with the survival of important skills (represented by genetic patterns) for a problem domain. Describe how different genetic operators can simultaneously support both these goals?

Q.2. Consider the traveling salesperson problem of Section 12.1.3. Discuss the problem of selecting an appropriate representation for this problem. Design other appropriate genetic operators and fitness measures for this problem (not discussed in the reference above).

Q.3. Solve the 0-1 knapsack problem using genetic algorithm. Discuss the representation, fitness, selection, replacement issues for this problem.

Q.4. Implement the solution proposed in Q.3. in a programming language of your choice. Allow the user to enter the parameters for the problem instance in a text file.

### **Important Note:**

Submit a hardcopy of your assignment by the deadline through CR.