A tourist wishes to visit all monuments in a city. S/he has a map with all the walking times between any two monument locations. Design an evolutionary algorithm to determine a tour allowing the tourist to visit all the monuments once and only once in the shortest time, starting the tour from any monument and concluding the tour at the same monument.

1. (0.5 marks) Representation: design a representation which allows the space of possible tours to be explored.

2. (0.5 marks) Objective function: choose an objective function to measure the quality of each possible tour.

3. (0.5 marks) Crossover: describe an appropriate crossover operator for your representation of a tour, and justify your choice.

4. (0.5 marks) Mutation: describe an appropriate mutation operator for your representation of a tour, and justify your choice.