Practical Genetic Algorithms - Exercises

Download and unpack the example Travelling Salesman Problem code from: http://pcbunn.cacr.caltech.edu/TravellingSalesmanGA.zip

If necessary, install Python on your machine

Run the TravellingSalesmanGA.py example

In the lecture, the TSP is specified as a tour of the cities (each city is visited once and only once), whereas the TSP is often specified as a circuit (each city visited once and only once, and the last city is the starting city).

Modify the code so that the cities are generated equi-spaced around the perimeter of a circle.

Modify the Fitness function to reward a circuit, rather than a tour.

Run your new code several times and evaluate its performance and success. How many good solutions do you observe?

Modify the Fitness function to penalise circuits that do not begin at city "A". How many good solutions do you expect and observe?

Bonus: Revise the example code so that the cities are placed randomly on the surface of a sphere, and the Fitness function uses an appropriate inter-city distance calculation.