Readme – VRPsolver

The VRP solver function solves the Classic VRP problem minimising travelled distance by the vehicle. The algorithm must satisfy vehicle capacity constraints, assuming a homogeneous fleet of vehicles. The solution returned contains the related fitness (or cost of travel), and an ordered list of each node visited by each vehicle (separated into different row arrays).

As inputs, the algorithm takes 5 or 6 arguments in the following order:

DEPOT - row vector with X and Y coordinates.

CUSTOMERS - 2D array with 1st column as X and 2nd as Y coordinates.

DEMANDS - 1D array with total customer demands.

VEHICLES - total number of vehicles taking part in the problem.

VEHICLECAPACITY - total units of cargo that a single vehicle can carry

(Optional) LINK - 2D square matrix with travel costs - last entry is depot.

Use the ‘help VRPsolver’ command in Matlab for more information.

Failure to provide the inputs in the presented format will result in wrong solutions.

The solver is contained entirely in the file “VRPsolver.m”. An example implementation of the problem is provided in the “exampleProblem.m” file. To run the VRPsolver or the help command, the “VRPsolver.m” file must be included in the Matlab path. This can be accomplished in one of two ways:

1. Adding the VRPsolver.m file to the folder in which you are running the main file.
2. Adding the path manually using the command “addpath(folder directory containing the solver file)” in the matlab console/script, where the folder directory is of the form: “\\H:\username\MATLAB\...”. More information here: <https://uk.mathworks.com/help/matlab/ref/addpath.html>.

As a final note, when the algorithm is running, do not close any figures – it will result in an error and all the information gathered to that point will be lost.