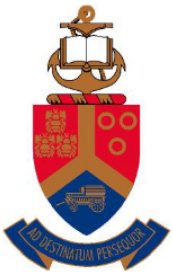

UNIVERSITEIT VAN PRETORIA
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COS 314: Artificial Intelligence
Assignment 3: Search Space Representation
Due Date: 4 July 2021

1 Assignment Outline

The Travelling Salesman Problem is a well studied problem in artificial intelligence. This assignment focuses on the Asymmetric Travelling Salesman Problem (ATSP). Given a set of cities and distances between pairs of cities the ATSP involves finding a route of minimum length that visits all the cities once and ends and begins at the same city. In this version of the problem the distance from city i to j is not the same as the distance from city j to i. This assignment involves implementing the A* algorithm to solve the ATSP. Please use the asymmetric travelling salesman benchmark set at `http://elib.zib.de/pub/mp-testdata/tsp/tsplib/tsplib.html` to test your algorithm. The best known results, in terms of the minimum route length, is also provided for each problem instance.

You are required to write a program to solve the problem. The program and a readme file indicating how to use the program must be submitted via ClickUP. The readme file should also describe the heuristic that was used with the A* algorithm. The program must be written in Python and be able to run without linking to libraries that have implemented the A* algorithm for you.

Total: 20