



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

COS 790: Hyper-Heuristics and Combinatorial Optimization
Assignment 3: Generation Constructive Hyper-Heuristics
Due Date: 3 November 2020, 23:30

This assignment involves implementation of a generation constructive hyper-heuristics to create heuristics for the symmetric and asymmetric traveling salesman problem. Use the problem instances for the symmetric and asymmetric from TSPLIB to assess the performance of the hyper-heuristic <http://elib.zib.de/pub/mp-testdata/tsp/tsplib/tsplib.html>.

Assignments must be submitted via clickUP. The source code, compiled code and report must be submitted.

The report must include:

- Description of the representation used and terminal or function set (or equivalent depending on the approach used).
- Description of initial population generation.
- Description of the fitness function and fitness evaluation.
- Description of the selection method.
- Description of genetic operators (or equivalent depending on the approach used).
- A description of the experimental setup, i.e. parameter values used for the hyper-heuristic, problem instances used, technical specifications of the machine used to develop the program and run simulations.
- The results (averages and best values over the runs performed) and a discussion of the results. A minimum of 10 runs should be performed.

- A comparison of the performance of the constructive heuristics produced by generation constructive hyper-heuristics to existing manually derived heuristics for the TSP.

Total: 45