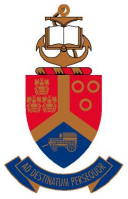

UNIVERSITEIT VAN PRETORIA
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YUNIBESITHI YA PRETORIA

COS 790: Hyper-Heuristics and Combinatorial Optimization
Assignment 2: Selection Pertiurbative Hyper-Heuristics
Due Date: 6 October 2020, 23:30

This assignment involves comparing the performance of a single-point selection perturbative hyper-heuristic and multipoint selection perturbative hyper-heuristic for solving the examination timetabling problem. Y
The hyper-heuristics must be evaluated on at least two early, two late and two hidden problem instances from the ITC 2007 examination timetabling benchmark set. The problem instances can be accessed from `https://drive.google.com/drive/folders/1hE_22IA9ZPJUmC0a0il9NgtJnijTVcco?usp=sharing`. The first four instances are early, the second four late and the last for hidden. Details of the ITC 2007 benchmark set can be found at `http://www.cs.qub.ac.uk/itc2007/examtrack/exam_track_index.htm`

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

The report must include:

- A description of the single-point search selection perturbative hyper-heuristic and the parameters for the approach.
- A description of the multipoint search selection perturbative hyper-heuristic and the parameters for the approach..
- A description of the experimental setup, i.e. parameter values used for the algorithms for each hyper-heuristic, problem instances used, technical specifications of the machine used to develop the program and run simulations.

- Perform a minimum of ten runs, each with a different random number generator seed, for each problem instance for each selection perturbative hyper-heuristic. List the best objective value, average objective value and standard deviation of the best objective value from the optimum over the ten runs for each problem instance, average runtime.
- A comparison of the performance of both the hyper-heuristics in solving the examination timetabling.

Total: 50