Department of Mathematics and Computer Science
University of Southern Denmark, Odense

October 1, 2013
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DM811 - Heuristics for Combinatorial Optimization

Assignment 3, Autumn 2013

Submission deadline: Thursday, October 10, 2013 at 10:00.

The task of the assignment is to improve the programs that you handed in in Assignment 2. In particular, you should focus on (in order of importance):

1. efficient local search, that is, fast incremental updates, neighborhood pruning, data structures, very large scale neighborhoods;
2. population based metaheuristics

As in the first assignments you can submit as many times as you wish. In order to pass the assignment, your program must return valid results to all test instances and hence appear in the page of the analysis of results. You can focus only on one of the two points. If you focus on point 1) then you must also show in the report document that it outperforms your submission from Assignment 2. Population based metaheuristics do not necessarily improve in short runs of the programs and hence the last requirement is dropped.
In the directory `doc/` of your submission you should include a pdf document of maximum one page describing

1. the improvements you have made in fast incremental updates, neighborhood pruning, and data structures. Indicate whether these improvements entail an improved complexity of the operations;
2. the population based metaheuristic chosen.

Do not describe what you have done in Assignment 2. You can refer to the document for that assignment.
Put your name on the document.
The programs will be tested again on uniform random graphs of 1000 vertices and of different edge densities. The programs will be given 60 seconds of computation time.
All submission details remain unchanged with respect to the previous assignments. Please refer to those pages for details.