

COMP4240 - c3068332 (Lauren Carter) && c3163181 (Tristan Newmann)

Python Script

About

The python script run.py will run SCP.exe for all instances of the test cases found in ./test_data. The SCP.exe program provides executive level data which python will pipe to a .xlsx report

Version

Developed using: Python 2.7.12 :: Anaconda 4.2.0 (64-bit) Available at:
<https://www.continuum.io/downloads>

Install

Extra python libraries required for run.py

xlswriter You can check if it is already in your environment using command: pip list if not already installed - it can be installed with command: pip install openpyxl

Note: if you review the file using pycharm, it is possible any xlswriter functions are highlighted in red, however the program should actually work fine ((from console))

Command console

when using windows, the best console to use with this program is: cmdr Available at:
<http://cmdr.net/> note: the program will run fine in CMD, but you'll miss out on the prettiness and any text output from python is padded with formatting codes

Running

Input params

1. int: Represents the operation or heuristic to perform
 1. Random Constructive
 2. Greedy Constructive
 3. Local search best fit
 4. Local search first fit
 5. Simulated Annealing
 6. Jumping Particle Swarm
 7. Run ALL currently available heuristics (will take some time)
2. int Number of runs

Run command

```
python run.py
```

Unavailable Features

Printing the raw output of a solution to file does not run when using the python script. The python script can only produce an executive level report. If granular raw output of the solutions is desired, this feature is available when running SCP.exe from the visual studio environment. To turn this feature on, please see notes below in the section SCP.exe

SCP.exe

About

This program will load one instance of the set covering problem. The instance should be provided as a text file, match the the format supplied with the assignment brief This program can generate solutions using one of 6 heuristics Random construction Greedy construction Local search best accept Local search first accept Simulated annealing Jumping particle Swarm More information about these heuristics can be found in the report provided

Version

Developed using: Visual Studio 2015 - using provided c++ libraries

Running

Input params

1. string: Filename representing the input file to deal with
2. int: Represents the operation (section of part 2 of the assignment) to perform 1. Random Constructive 2. Greedy Constructive 3. Local search 1 (tba) 4. Local search 2 (tba) 5. Single Point meta-heuristic 6. Population based meta-heuristic
3. int Number of runs
4. int Will be used to indicate debug mode. 1 == TRUE 0 == FALSE

Run command

SCP.exe <path\file_name>

Raw output

This program can generate some raw output for the best solution it was about to generate. To generate raw output, simply run the program in debug mode. Raw output of solution details will be found in the folder \output\raw_dump\