

Readme

1 Repo structure

This report is structured as follow:

```
.
├── doc
│   ├── assets
│   ├── report.md
│   └── report.pdf
├── GeneticAlgorithm
│   ├── bin
│   ├── src
│   └── testcases
├── LocalSearch
│   ├── bin
│   ├── src
│   └── testcases
└── SimulatedAnnealing
    ├── bin
    ├── src
    └── testcases
```

14 directories, 2 files

Where:

- `doc/`
stores the report and assets.
- `LocalSearch/`
LocalSearch implementation, in standard organization(`src/` for source code, `bin/` for binary executable program, `testcases/` for tests).
- `SimulatedAnnealing/`
SimulatedAnnealing implementation, in standard organization(`src/` for source code, `bin/` for binary executable program, `testcases/` for tests).
- `GeneticAlgorithm/`
GeneticAlgorithm implementation, in standard organization(`src/` for source code, `bin/` for binary executable program, `testcases/` for tests).

2 Run

Note:

- Method: `LocalSearch`, `SimulatedAnnealing`, `GeneticAlgorithm`
- Executable: `local_search`, `simulated_annealing`, `genetic_algorithm`

1. Copy tsp problem file and solution file to testcases

```
$ cp ${PATH}/${TSP_NAME}.tsp ${PATH}/${TSP_NAME}.opt.tour ${Method}/testcases/
```

2. Enter the directory of algorithm you'd like to run.

```
$ cd ${Method}/bin/
```

or re-build

```
$ cd ${Method}/src/ && make clean && make && cd ../bin/
```

3. Run to solve TSP problem

```
$ ./${Executable} ${TSP_NAME}  
# e.g. ./local_search a280
```

And then, follow the instruction in command-line.

```
>> Current epoch: 600000 / 1000000 in 2.43163 s.  
>> press [Enter] to save results.  
>> Search is done in 15.6401s.  
>> Best solution found: 2862.93.
```

Remember to **press [Enter]** to save the result and history, in `testcases/`.

4. Visualization

Visualization is based on Python 3.7 and matplotlib, please ensure you've installed them on your device.

```
$ cd ../testcases/  
$ python Benchmark.py [ls/sa/ga] ${TSP_NAME}
```

Please choose from [ls/sa/ga] according to the method you've chosen.

Python script will automatically create a directory, please wait for a moment.

3 Visualization

Since the result gifs are too large to sent with Email, I build a web-demo here for your convenience, enjoy it and please be patient with those gifs which may loads from server for a while, thanks.

[Click here](#)
