Project 2: Hill Climbing and Simulated Annealing to Solve Travel Salesman Problem

Jianlin Cheng

University of Missouri, Columbia

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Project Groups

Group 1: Jie Hou, Minguan Song, Tuan Trieu, Meng Zhang
Group 2: Abhishek Shah, Mike Phinney, Chao Fang, Matt England

Group 3: Xinjian Yao, Yuxiang Zhang, Rui Xie, Muxi Chen, Xinwei Du

Group 4: Kevin Melkowski, Mary Sheahen, Kristofferson Culmer, Hao Sun

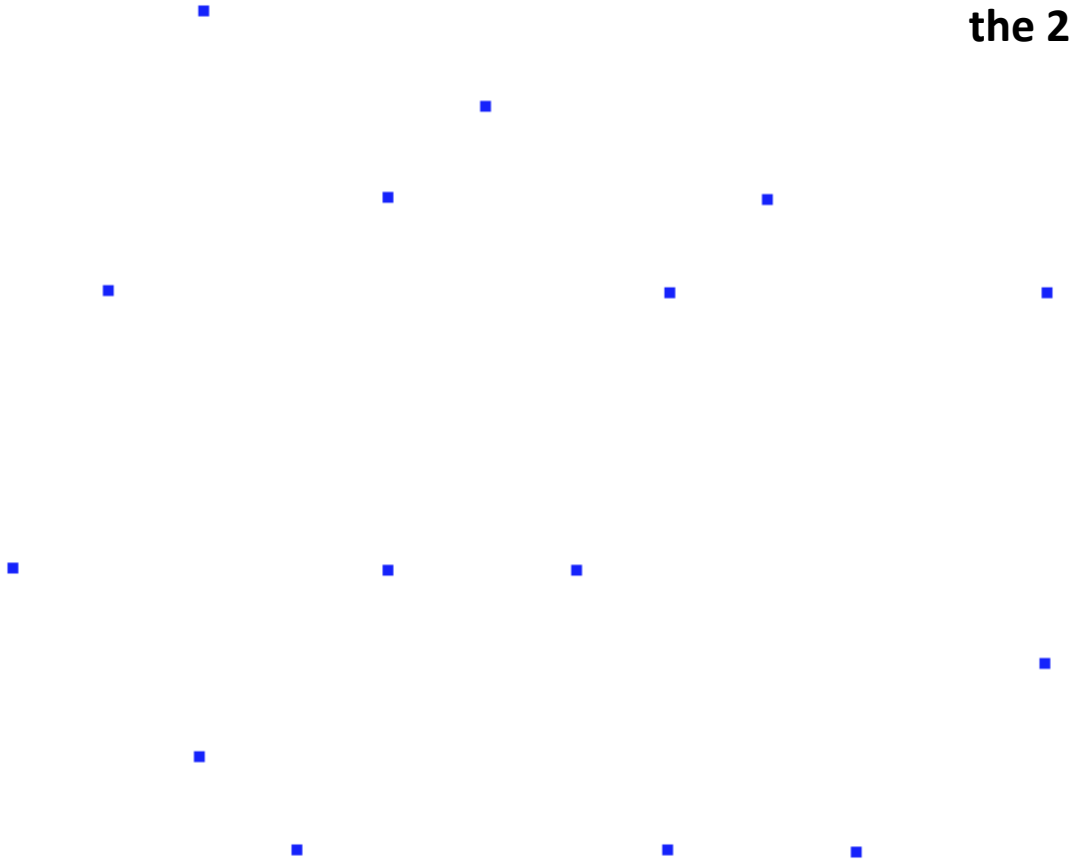
Travel Salesman Problem

Travel Salesperson Problem

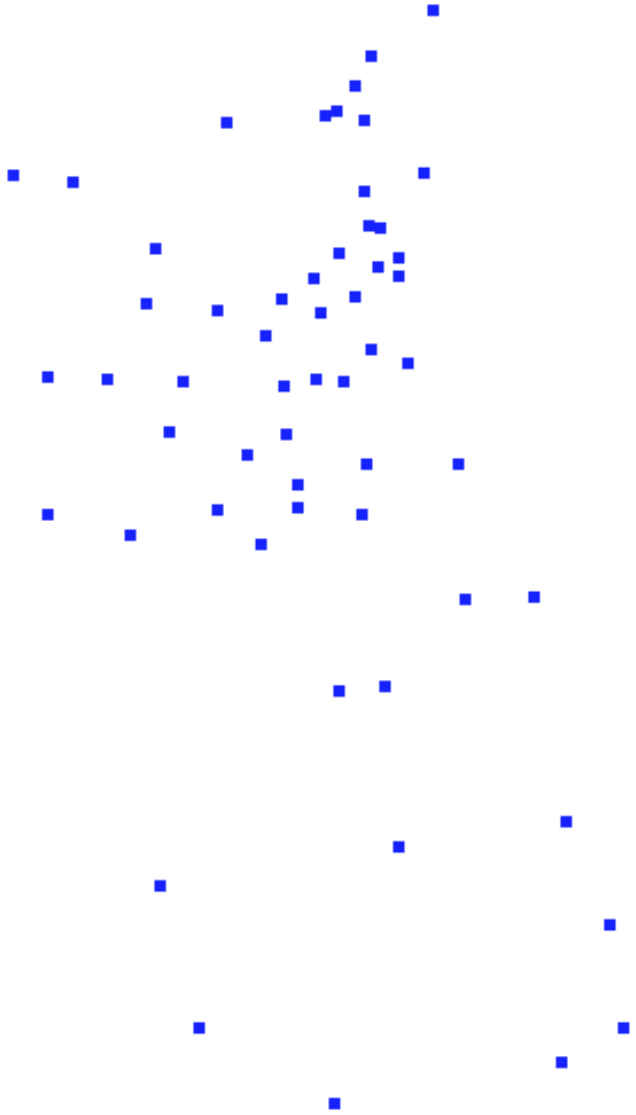
- City-City distance data: http://people.sc.fsu.edu/~jburkardt/datasets/cities/cities.html
- Develop a hill-climbing algorithm and a simulated annealing algorithm for the problem

17-City Map

Multi-Dimension Scaling to layout the cites on the 2D map.



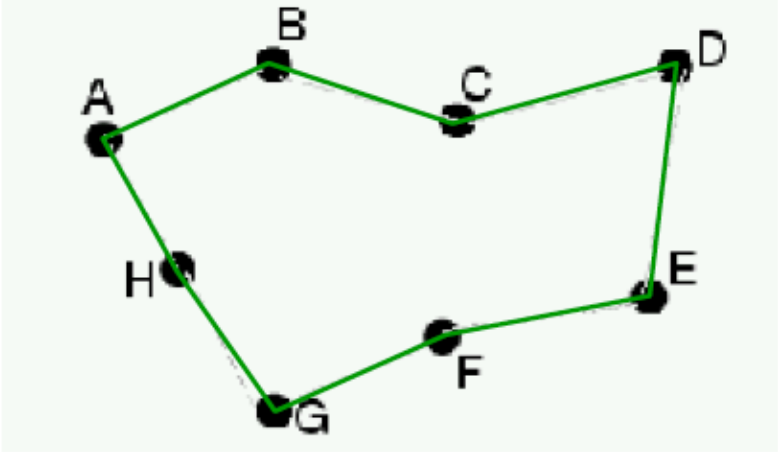
57-City Map



Discussions

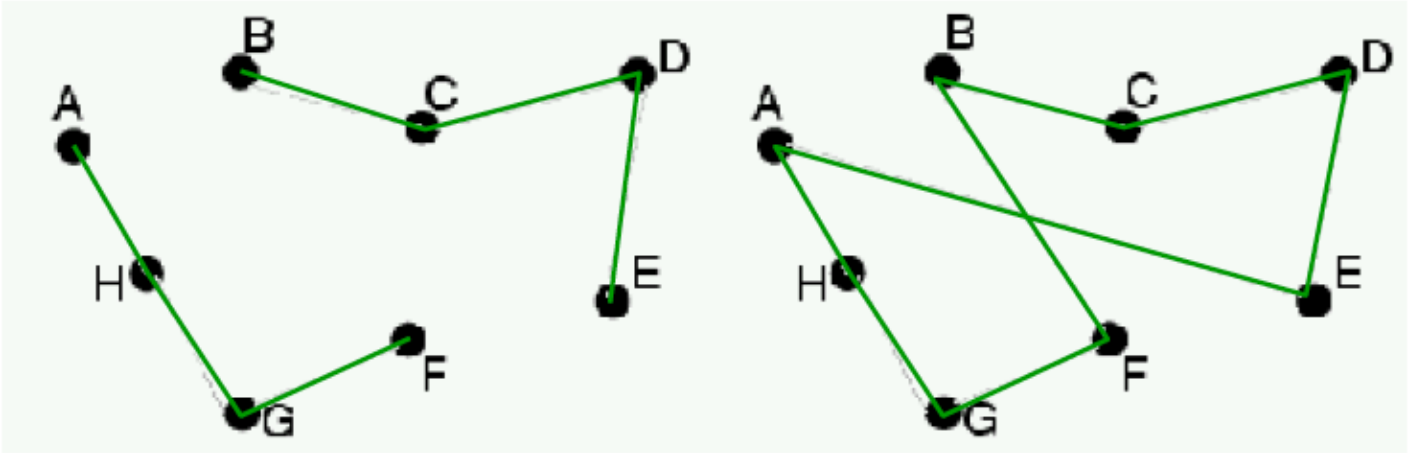
- Two algorithms (SA and Hill Climbing)
- How to improve robustness of algorithms
- How to design good move sets
- Assess the impact of temperature
- Assess the impact of move sets
- Challenges? (time complexity, size of the problem)
- Compare the two algorithms
- Evaluate the two algorithms
- Presentation of results
- Task assignment

Minimize: Eval(Config) = length of tour



MoveSet: 2-change … k-change

Example: 2-change



3-change Example