

演算法作業說明

Algorithm Assignment Instructions

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Homework 1

Solving TSP with Exhaustive Search

HW1 - Exhaustive Search (1/1)

- Consider all possible permutations
- Assume there are 4 points 1, 2, 3 and 4:

Possible solutions include:

1234

1324

1423

1342

3124

3214, etc.

Homework 2

Solving TSP with greedy strategy

- At each step, select the point that is closest to the current point.
- Suppose there are four points: 1, 2, 3, and 4, with point 1 as the starting point. The distances are given as follows:
 - $\text{Distance}(1, 2) = 12$
 - $\text{Distance}(1, 3) = 15$
 - $\text{Distance}(1, 4) = 10$
- Since point 4 is the nearest to point 1, it is chosen as the next point. The procedure is repeated iteratively until all points have been visited, and finally, the path returns to the starting point.

作業繳交規則

Assignment Submission Guidelines

- Assignment Submission Format:
- All submissions must be compressed into a single file named: studentID_hwX.zip(e.g., b123040000_hw1.zip)
- The zip file must include the following (do **not** include any **.exe** files):
 - Source code (C or C++)
 - Output file (fig.png)
 - Output file (ans.txt)
- Submission Method: NSYSU new online university platform
- Online Submission Deadline: 10/31 23:59
- Demo Location: EC5009-1 (please bring your own computer)
- Demo Dates:
 - 10/20, 10/21, 10/27, 10/28, 2:00 PM - 5:00 PM
 - 10/24, 10/31, 9:00 AM - 12:00 PM

Grading Criteria

Is the program able to execute correctly?	30% (If it cannot execute, the entire assignment will receive 0 points)
Is the answer correct?	20% (If the answer is wrong, you can get a maximum of 50 points.)
Is the structure and logic of the program correct?	20%
Is the output complete?	10%
Clear explanation of the program flow? (Verbal explanation or Comments)	10% (If plagiarism is found and you cannot explain the program flow, the entire assignment receives 0 points.)
Is the submission format correct? (File name and file format)	5%
Can input file name be dynamically read? (Input file name is not hard-coded)	5%

※ Partial credit is given for all items

- 3 sets of test data (each with a different number of cities)
 - point.txt: City coordinates
 - ans.txt: Optimal solution (Provided only for the first two sets of test data)

Read File Example

1 13 33


2 57 81

3 79 45

4 32 24

5 24 78

City ID	[1, 2, 3, 4, 5]
X Coordinate	[13, 57, 79, 32, 24]
Y Coordinate	[33, 81, 45, 24, 78]

 point.txt - 記事本
檔案(F) 編輯(E) 格式(O) 檢視(V) 說明
1 13 33
2 57 81
3 79 45
4 32 24
5 24 78

point.txt

- Each set of test data should have an independent output file.
 - e.g., ans_dt01.txt, ans_dt02.txt, ans_dt03.txt
- Draw the found route map (e.g., fig.png)
- Output Specifications
 - The first line should be the shortest length found for that test data set.
 - Subsequent lines should sequentially output the City Numbers according to the found optimal solution.

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ans.txt - 記事本
檔案(F) 編輯(E) 格式(O) 檢視(V) 說明
distance: 194.153
1
4
3
2
5
```

ans.txt

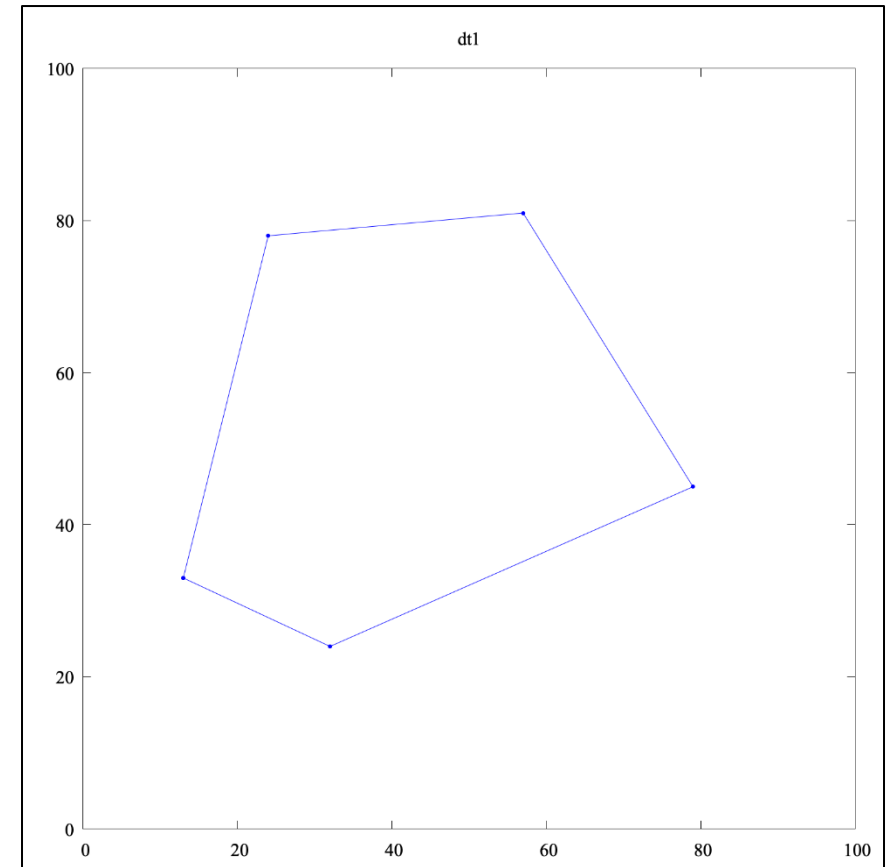


fig.png



Thank You ;-)