

Assignment – Mini-Project

(30% of Total Module Marks)

Submission Deadline: 16 November 2021, Tuesday (23:59)

Form a group of *maximum 3 members*. Each group should select one of the following topics and implement a solution with Python code with the relevant dataset(s). Your major tasks are listed under *Mark Distribution*. Your deliverable will consist of the *dataset(s)*, *Python code*, and *a report (700~800 words)* which will record the details of the process of your works.

Prescribed Topics

1. Public Transportation Classification
2. Hong Kong Traffic Sign Recognition
3. Local News Classification
4. Article Summarization
5. Online Article Aggregation
6. Customer Segmentation of Online Grocery
7. Inventory Demand Forecasting
8. Sales Prediction
9. Route Finding and Map Coloring (See [Note](#) on next page)

Mark Distribution

- | | |
|--------------------------------|-----|
| 1. Problem Analysis | 10% |
| 2. Data Preparation & Analysis | 20% |
| 3. Solution Design | 10% |
| 4. Solution Implementation | 40% |
| 5. Reflection & Reporting | 20% |

Note (For Topic – Route Finding and Map Coloring)

Students select this topic should complete the following two components:

A. Route Finding

1. Select a search algorithm from each of the *uninformed search* and *informed search*;
2. Design and implement the two algorithms in Python on finding an optimal path from TSW to TY (the numbers at the edges of **Figure 1** are distances (in km); and

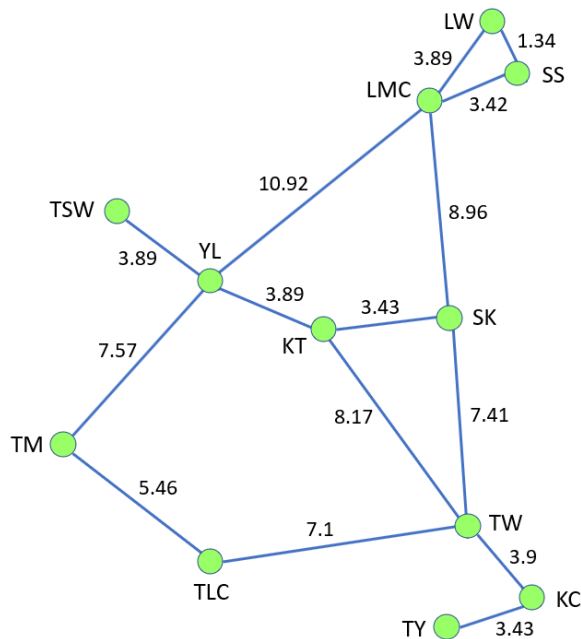
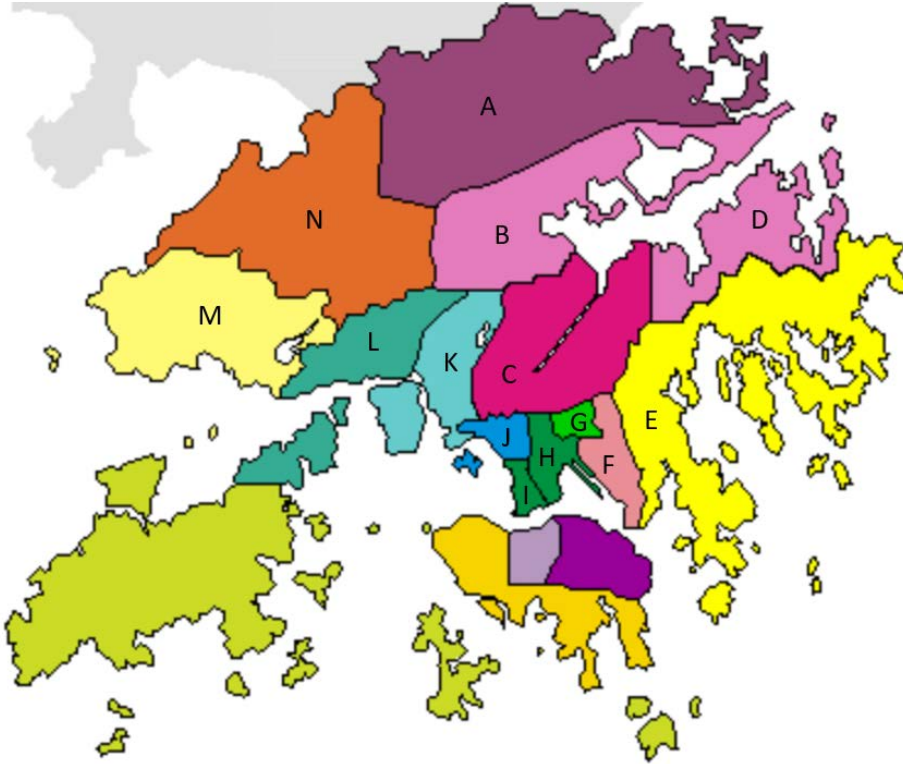


Figure 1

3. Compare the results of the two algorithms.

B. Map Coloring

1. Design and implement the Map Coloring Problem as a CSP on map of **Figure 2**;
2. Assign colors to areas A to N only (You may neglect the original colors);
3. Use Python and the package *python-constraint*; and
4. Use as less colors as possible.

*Figure 2*

***** THE END *****