Assignment - Project

(30% of Total Module Marks)

Submission Deadline: 24 November 2023 (23:59)

Form a group of ***3-4 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 (>300 words)*** which will record the details of the process of your works.

Each topic could be used by at max. 3 groups, on a first-come first-served basis.

Topics

1. E-commerce Sentiment Analysis
2. Traffic Signs Detection and Recognition
3. News Classification and Summerization
4. Sales Prediction
5. Route Finding and Map Coloring (**TWO** groups only)
6. Any other ML/DL applications

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 both 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*

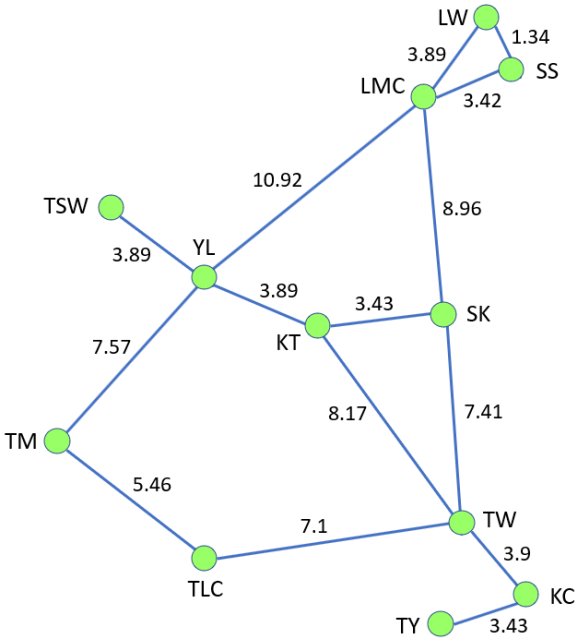

Figure 1

3. Compare the results of the two algorithms.

B. Map Coloring

1. Design and implement the Map Coloring Problem as a CSP on the 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.

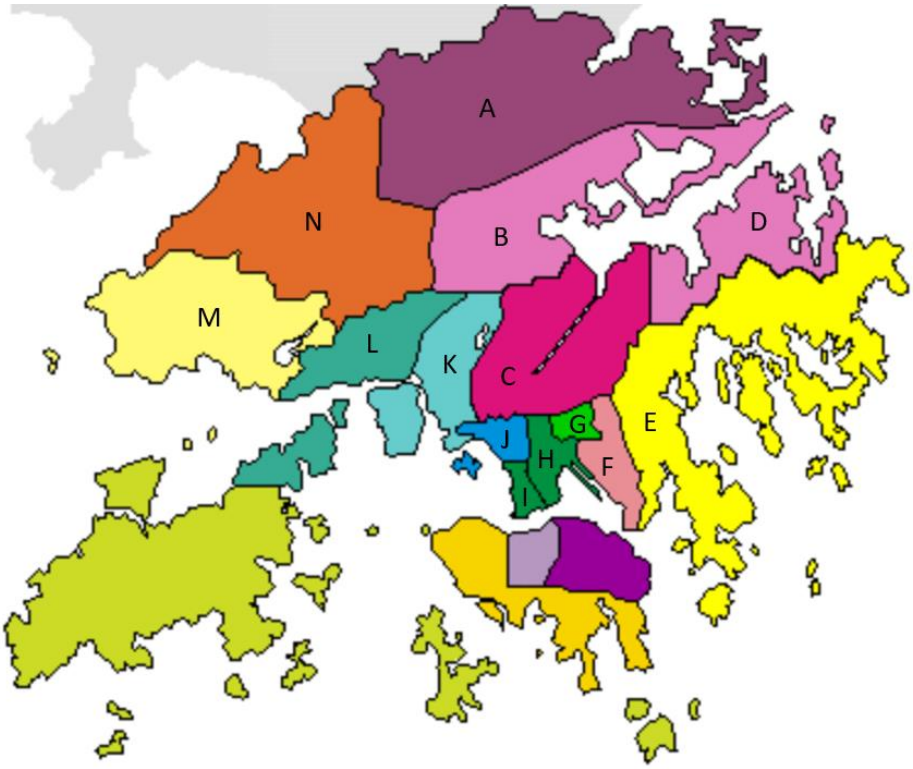

Figure 2

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

Some Comments (by Module Leader):
Dataset could be found under the below links:

1. Kaggle: https://www.kaggle.com/datasets
2. Data.Gov.hk: https://data.gov.hk/en/

Since you may possibly use online resources such as datasets and articles, please do proper referencing and citation on any articles or data sources you used on your report. Citation should be taught and you may consult with your language teacher. If you haven't done this, chances are that you may lose some marks.