# Homework 2: Route Finding Report Template

Please keep the title of each section and delete examples. Note that please keep the questions listed in Part III.

## Part I. Implementation (6%):

- **Please screenshot your code snippets of Part 1 ~ Part 4, and explain your implementation. For example,**

```
151        # Begin your code (Part 2)
152        """
153            Explained your code here.
154        """
155        # Your implementation.
156        # Your implementation.
157        # Your implementation.
158
159        # End your code (Part 2)
```

## Part II. Results & Analysis (12%):

- **Please screenshot the results. For instance,**

Test1: from National Yang Ming Chiao Tung University (ID: 2270143902)
to Big City Shopping Mall (ID: 1079387396)
BFS:

```
The number of nodes in the path found by BFS: 88
Total distance of path found by BFS: 4978.8820000000005 m
The number of visited nodes in BFS: 4273
```



DFS (stack):

```
The number of nodes in the path found by DFS: 998
Total distance of path found by DFS: 41094.65799999992 m
The number of visited nodes in DFS: 8030
```

## Part III. Question Answering (12%):

1. Please describe a problem you encountered and how you solved it.

2. Besides speed limit and distance, could you please come up with another attribute that is essential for route finding in the real world? Please explain the rationale.

3. As mentioned in the introduction, a navigation system involves mapping, localization, and route finding. Please suggest possible solutions for **mapping** and **localization** components?

4. The estimated time of arrival (ETA) is one of the features of Uber Eats. To provide accurate estimates for users, Uber Eats needs to dynamically update based on other attributes. Please define a **dynamic heuristic** function for ETA. Please explain the rationale of your design.