COMP 1828: TIPS FOR THE COURSEWORK

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1. Justification of the choice of the data structures and algorithms [10 marks]

The suitability of the data structures and algorithms per task may be discussed in terms of theory and concept. For instance, Task 1: a stack is chosen since the task requires reversing an order of a list of the station names and the first-in-last-out property of a stack fits it well. Push and pop algorithms of a stack implemented as an array are chosen, each of which has a time complexity of O(1), respectively. Note that the stack and the associated algorithms are merely provided as examples but they are not necessarily recommended for the task. Similarly so for other examples.

2. Critical evaluation of the performance of the data structures and algorithms used [10 marks]

The evaluation may be done mainly empirically. For instance, if a binary search tree (BTS) and its search algorithm are chosen for, say, Task 2, artificially generated data of various sizes may be used to empirically show the time efficiency (e.g. elapsed time in microseconds vs data size). Comparison between the empirical and theoretical performances may be discussed. For instance, whether the code used for the search algorithm yields O(log n) or similar performance as predicted by the theory (for the best case).