Assignment 4 REPORT

Problem Definition:

- I needed to create my own stack and queue classes, by using raw data types. Also I needed to write algorithms like sorting, reversing etc.

Algorithms Used:

- For representing the internal data structure used to hold stack and queue, I have used nodes, so every item in the stack or queue has a pointer to other element.

- For sorting, I have written a method which implements bubble sorting.

- I have used a base class (MyData), which prevents code duplication, as a lot of the operation done with stack and queues are similar, just adding and removing methods are different (LIFO AND FIFO).

- Other methods are implemented easily, as it is easy to traverse through nodes in stack and queue.

Analysis of ‘sortElements’ command:

- As I have talked about it before, I am using bubble sorting, here is the algorithm definition:

- Until every element is sorted inside stack or queue, all connected nodes data values (adjacent nodes) are compared and if they are not in order, swapped.

- It has worst complexity n^2, average complexity n^2, best complexity as n. Since the data I am sorting in this assignment are not that huge, simple algorithm like bubble sorting is enough, as it is easier to implement.

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