Lab 3 Report

Andrew McCrary – M13963885

Vitta Silberberg – M13910994

Richard Roberts – M13900235

**A description of the objectives/concepts explored in this assignment including why you think they are important to this course and a career in CS and/or Engineering.**

1. Creating a custom data type to store information is very useful. These custom definitions can inherit from or recreate existing data types with new or altered behavior.
2. Taking text input is a very important concept with many applications. We utilize that here for the input to reverse.
3. Creating custom error types can allow for more customized error handling. The custom exception types can enable entirely new behaviors when exceptions are thrown.
4. Templates are useful for creating more customizable classes. In this scenario it allows us to store any type of data supplied to the template for both the stack and queue. In the real world this could be used anywhere a custom data type designed for storage is written.

Graphical user interface, text

Description automatically generated

Graphical user interface, text

Description automatically generated

Table of what the stacks and queue look like. The position in the queue is determined by column number and the position in the corresponding stack is determined by row.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| s |  |  |  |  |  | t |  |
| i |  |  |  |  |  | s |  |
| h |  | s |  |  |  | e |  |
| T | [space] | i | [space] | a | [space] | t | . |

The values in the stack are then displayed from the top down, in sequential order following the queue.

**Instructions for testing:**

Modify the file in the code named “sampleInput.txt”. Ensure that there is only one line of input in the file. The current implementation only allows for 50 words/space/punctuation and only 50 letters in each “word”. If you would like to change this replace each instance of the number 50 with any number in main.cpp.