Kyle Chen

Summary of Lab:

The main thing would be the implementation of a stack, which is a fundamental way of data storage. We also extend upon our parsing of input by learning how to split input into tokens. We learn how RPN works, the use of error identifiers, how to report RAM/ROM usage for the board code, and gain more experience in debugging. I believe this is also the first time we run code mostly written by us on the board.

Approach to the Lab:

I started off by trying to implement each of the functions as described in the provided header files and debugging them as needed. Then once the functions seemed like they worked properly, I wrote test cases to test them more rigorously.

There were a lot of little details that I kept on forgetting, which made me jump around the code fixing tiny things to conform to the lab manual. In hindsight I should have read the manual more thoroughly in the beginning.

An infuriating issue I encountered was the STM32 specifically not reading the specific input 4.75 correctly; It would read it as .75. I eventually figured out that it was because I used a character constant in strtok() instead of " ".

Lab results:

Probably could have improved my workflow, in total the lab took me about 8 hours I believe. I liked the content and it was a good exercise for what we learned, so it was a worthwhile lab. I don't have any specific suggestions for altering it to make it better.

Hardest part is when the STM32 wouldn't read 4.75 correctly. Writing the code and fixing it was straightforward, but sometimes the bugs are annoying to source.

The point distribution and the lab manual are fine. Examples/discussions during the class were sufficient enough to understand this lab.

I think the manual should be more verbose about the functions' behavior. For example, I'm still not sure which error messages correspond to which errors, especially with RPN_ERROR_TOO_FEW_ITEMS_REMAIN and RPN_ERROR_STACK_UNDERFLOW, which may be conflated with each other. I think it would be helpful to provide an explanation of what these errors are supposed to mean.

Debugging Questions:

I was able to find the source of some of the oddities that I encountered with functions misbehaving.

For the main Lab05:

Release: 3004b RAM, 32356b ROM

Debug: 3004b RAM, 33740b ROM