Lab 5 README

ECE 13

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F24

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Collaborators: For this lab, I did not end up working with anyone due to everyone generally having midterms to study for. I did briefly speak with Donny Tang about which files to #include in which places but that was about it. Ultimately this lab was only partially completed by me due to a lack of time. Unfortunately, I had a midterm on 10/31/2024 and the water pipes under my house burst last week so I lost 3 days to helping a family member repair the damage. Steve was kind enough to offer me an extension but ultimately, I failed to fully finish this lab.

Lab Summary: The goal of this lab was to implement a Reverse Polish Notation or RPN calculator in C. This included functions for creating and managing a stack such as Push(), Pop(), etc. From here we needed to implement some functions to parse through a RPN string such as “5 1 2 + 4 * + 3 -” and correctly perform the operation. For this particular example the answer evaluates to 14.

Overall Approach to Lab & Difficulties: For the RPN Lab, I first went about implementing the Stack in the stack.h. This proved to be fairly straightforward and I was able to complete this in a couple of hours by drawing some diagrams and just thinking it through. I then went on to try and implement the functions specified in rpn.h. For this my idea was to use a for loop and strtok() to parse a given rpn string. I was able to successfully parse the string but my ultimate result was coming out incorrect. I think there is most likely to be a flaw in the logic somewhere. I thought a switch statement might be a good way to implement the parsing & do the mathematical calculations but it seems it might not be as good of an approach as I originally thought. I then moved onto trying a while loop and using strtok() I think this would’ve been better since it would’ve helped eliminate some of the complexity from the RPN_Evaluate() function. I think that if I would’ve had just an extra day or so I would’ve successfully implemented the RPN logic and ProcessBackspace() functions. From here I would’ve just had to implement the UI in our main file which would’ve been the simplest part of the whole lab when compared with the rest of it. Again, due to the hectic past week I had it was simply not meant to be. The issue was certainly not my Stack since I was able to successfully implement and test those functions.

Feedback: I spent probably about 12 hrs in this lab. I didn’t find it horribly challenging but it unfortunately personal issues and a lack of time on my part prevented me from finishing it. If I was to do this lab again, I would start on the day it was released. I’m certain that If I would’ve had just an extra day or so this lab would’ve been fully completed. In terms of the debugger I made use of gdb which was very helpful when implementing the stack. I thought that this lab was very fun & worthwhile and I will certainly finish it in my free time despite not being able to get credit. I feel it is worth it simply for the experience. I was also not able to see how much RAM I used on the Nucleo but I’m sure it would’ve been not too strenuous. I will begin working on the next lab immediately.