Final Project Write-Up

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# Introduction

In this project, I created a program that can run in different modes and use different parameters to create different operations. It allowed me to practice with string primitives heavily and try implementing some of the higher-level concepts we’ve learned in class in my procedures, such as parameters and advanced use of pointers.

# Modularization

I modularized this program by beginning everything in the compute procedure. I split the different modes into different labels in compute, and I let compute call them using labels. By doing this, I was effectively able to write these separate portions of the code completely independently of one another and test them independently. After I finished writing each mode, I separated them from the compute procedure and gave them their own, editing the parameters and comments as I did.

# Difficulties

Luckily this project didn’t present me with too many difficulties, and I think that I wouldn’t change most of it if I were to do this project again. The only thing I was unsure about was my key generation procedure. I did it using time complexity, however I feel that there may have been a way to get it down to or even .

I did not run out of general-purpose registers at all. I attribute this to my heavy use of string primitives. These instructions allowed me to run through the strings very quickly with very little code.

My main challenge during this project was just creating algorithms for both the decryption and key generation modes. It took a bit of thinking and a lot of playing around, but they both work, however like I said above, I’m sure there was a more efficient way to do the generation.

# Resources

During this class, there were a lot of times where having the discord available to me so I could directly chat with classmates and TA on a whim was incredibly useful for me. I had a lot of points where I couldn’t figure out an error and I was able to get help for it in the discord.

I also occasionally used online resources, however these are a lot harder to come by when working with such a low-level language like MASM, so I didn’t find this as helpful as the textbook or discord.

To summarize, I recommend to future students to be super liberal in their use of the discord server, it makes things a lot easier.

# Extra Credit

I did all three extra credits. I said hello to a certain TA in the first comment right below my .code directive, my program can perform addition of any 16-bit number, and I implemented a key generation mode as documented.