Mohit Mori (mam987)
CS211 Computer Architecture
Assignment 3: Assembly Language Programming

Program: Formula

Description:

My formula program takes an integer as an argument and the expands (1 + x)^n and prints it. This achieved using an nCr function and factorial function which has been written in assembly. The program first converts the string argument to an integers using the function ‘atoi’. Then, using a for loop and the nCr function, the program determines the leading coefficient and the power of each term in the expansion. If the input integer is >= 13 the factorial function overflows, and such is reflected by the error message printed in that situation.

Challenges:

The program was very straightforward and easy to implement, the only real challenges I faced was getting used to reading, understanding, and implementing assembly code. However, after a couple hours of messing around, I was able to write nCr and Factorial with minimal difficulties.

Time Complexity:

Big O: O(n), where n is the integer argument for the program. This is because the for loop which determines the leading coefficient will loop n as (1 + x) ^ n will have n terms excluding the initial ‘1’.

Space Complexity:

Big O: O(1) because regardless of the input, the same amount of memory is required for the program.