Final Project Requirements: A Port of IRVINE32 for 64bit NASM

~ Zakris Pierson and Nirjal Shakya

**Project\_requirements:**

**Problem definition**:- To enable the use of irvine32 library from MASM to NASM.

**Requirements**:- Port some key functions from irvine32 library to 64-bit NASM on macOS.

As NASM doesn’t have an alternative to the irvine32 library, there are some functionalities that we cannot directly access when needed. Thus, we plan on drafting a version of the library with functions that can be accessed easily and used as an alternative for NASM. Among the list of functions, we’ve decided on porting GoToXY, strLen, writeString, clearScreen, and setTextColor for NASM. These elements in the library will have similar properties to their counterparts in the irvine32 library and should work in a similar manner – if not the same.

We are using 64-bit NASM for almost the entirety of the code, except for the external ‘C’ function printf when required. As macOS doesn’t allow absolute addressing, we’re using [ rel ] - relative addressing in different sections of the code to store data inside registers/memory. As we need to translate 32-bit code into 64-bit, understand the subtle differences/functionalities between NASM and MASM, and learn the system calls of NASM on macOS, we’re anticipating several challenges. However, we're finding more resources (stackoverflow.com, nasm.us, and others) and using the lldb debugger to debug and understand the issues we have. It is important to understand general conventions of 64-bit, NASM, and the system calls for macOS to do this project.