

Computer Science 230
Introduction to Computer Architecture
Fall 2021

Assignment 0

Due: Friday, September 24, 11:55 pm by submission via Brightspace
(no late submissions accepted)

Objectives of this assignment

- Ensure you have completed the steps that make up Lab #1.
- Modify a version of assign0.asm using MARS.
- Execute code in MARS.
- Prepare a screenshot of your desktop.
- Use Brightspace to submit an assembly-code file and screenshot of your desktop.

Lab #1

I have already prepared a series of three videos explaining the steps needed to complete the first lab. The most important outcomes of this lab are that you will know how open the MARS application and will also have a consistent development environment for the rest of the course.

This assignment therefore assumes you have successfully completed all needed steps for lab #1.

Open and modifying assign0.asm

Throughout the semester we will be working with MIPS assembly language. Our main tool for working with this will be the MIPS Assembler and Runtime Simulator (MARS). You will have already installed this application on your computer as a result of Lab #0.

This assignment does not involve any assembly language programming. Instead, the idea is that you are to make changes to two specific lines in the provided assembly.

Lines 6 to 9 of assign0.asm describe two string constants, howdy_string and howdy_number. They are defined using an *assembler directive*; .ascii is similar to stating “the contents between quotation marks is to be treated as a sequence of ASCII characters, and the assembler will automatically terminate this sequence the ASCII code zero or \0”.

Your first task to modify line 7 to reflect your own name, and modify line 9 to indicate your own student number. You are then to assemble this code (see Lab #1, Video 3 for instructions on assembling code in MARS).

The first task is simple enough such that there should not be any syntax errors. However, if there are, then correct the errors and re-assemble.

Your second task is to run the code (see Lab #1, Video 3 for instructions on running code in MARS).

Your third task is to save the assembly file using a name based on your Netlink ID. For example, if the student working on the assignment has a Netlink ID of mortysmith, then mortysmith.asm would be the name of their final assembly file.

Your last task is to make a screenshot of your computer's desktop on which MARS has been running, amongst other programs. Please ensure you make a screenshot of your whole desktop (and you may want to tidy up your desktop a little bit before making that screenshot!). An example of a screenshot is shown in the file sample-screenshot.png distributed with this assignment. *If you do not yet know how to make screenshots on your laptop or desktop, then please do a bit of your own research on this.*

What you must submit

- Your assembly file (i.e., named using your Netlink ID and modified as directed above.)
- A screenshot of your desktop as directed in the last task above.
- Please use the Brightspace Assignment #0 link for these two items (in Course Tools → Assignments).

Evaluation

This is a pass/fail assignment. It is worth 2% of the course grade.