

CMSC 240 Principles of Computer Organization

Lab#2 Programming in LC-3 Assembly

This Lab should be completed latest by Friday, April 23, 2021.

In this lab you will write and run the two LC-3 Assembly Language programs discussed in class.

Program 1

Write a complete LC-3 program to perform integer division on two numbers, **A** and **B**. Assume that **A** is stored in location **x6000** and **B** is in **x6001**. The integer division should produce two results: a *quotient* (stored in **R0**) and a *remainder* (stored in **R1**). For example,

Suppose **A** = 22 and **B** = 7. Then, after division **R0** will contain 3 and **R1** will contain 1.

When completed, run the program for **A** = 22, **B** = 7 and **A** = 21 and **B** = 7.

Program 2

Write a complete LC-3 assembly language program to the following:

Given a string (e.g. "BRYN MAWR") and an input character (e.g. 'R')

Output: # of occurrences of input character in string (e.g. 2)

Assume # occurrences will be less than 10 (why?)

The program will be stored starting from location **x3000**.

The string to be searched will be stored starting in location **x4000**.

When completed, run the program for input character = **R**, **M**, and **Z**. Make sure you are getting the correct output. Try other strings and inputs.

What to hand-in

When done, submit a printout of both your programs via e-mail. No need for outputs.

Notes:

Please make sure you put your name, date, and name of program file in the first line of comments. Comment every line **correctly**.