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, \texttt{A} and \texttt{B}. Assume that \texttt{A} is stored in location \texttt{x6000} and \texttt{B} is in \texttt{x6001}. The integer division should produce two results: a \textit{quotient} (stored in \texttt{R0}) and a \textit{remainder} (stored in \texttt{R1}). For example,

Suppose \texttt{A = 22} and \texttt{B = 7}. Then, after division \texttt{R0} will contain 3 and \texttt{R1} will contain 1.

When completed, run the program for \texttt{A = 22, B = 7} and \texttt{A = 21} and \texttt{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 \texttt{x3000}.
The string to be searched will be stored starting in location \texttt{x4000}.

When completed, run the program for input character = \texttt{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 \textit{correctly}. 