Assembly Language Lab: The Guessing Game Part 2

CSC 242 Lab 2
Handed Out: see course calendar
Due Date: see course calendar

Instructions:
Modify the simple guessing game from the prior assembly language lab in the following manner:
1. to accept the value of the <u>target number</u> (between 0 and 9) from the keyboard and place at x3200. The program will continue to run as in the previous lab except that it will compare the guesses to the target in x3200.
2. Upon completion, either the number of guesses is 9 or the correct guess is made, the program will ask if the user would like to start again. If the user chooses to start again, the program will request a new target and then start the guess game. The prompt should read "Do you want to play again (y/n):". The user is expected to enter either y for yes or n for no. No checks will be required.
3. Remember to check for invalid input. That is if the entered value is not between x0030 and x0039 (ASCII for 0 to 9) then the input is invalid and counts as a chance.

Hints and suggestions
See previous lab for exact details of the guessing game. Remember, all input and output functions use ASCII characters.

Your program should be written in LC-3 Assembly language, and tested using the LC-3 Simulator. The completed program should work using input from the keyboard and output to the monitor. Don't forget the ASCII code x0A. It causes the cursor to go to the next line (Newline).

Sample Input/Output
Enter target number: 6
Guess a number: 5
Too small.
Guess again: 9
Too big.
Guess again: a
Invalid input.
Guess again: 6
Correct! You took 4 guesses.
Do you want to play again (y/n): y

Writing and testing your program

Your code should have a comment block at the beginning of the file containing your name, your email, student number, and a brief description of the program. Your description should serve as a general summary of your program's approach to the problem and will aid in grading. It is in your best interest to make all of your ideas clear through this summary and through commenting within your code.

IMPORTANT NOTE: The first line of your program must specify the memory address of where you want your program to be placed (using the .ORIG pseudo-op). We request you place your program at x3000.

When and how to submit: The programs will be submitted in class by turning a hard copy of the programs with your full name and date. The program will be evaluated during class. The instructor or TA will evaluate documentation and logic outside of class.

Grading: 50% for technical approach to be illustrated through the program description and comments in the code, 30% properly executing; 20% for formatting and programming style.