CPSC 260 Homework 6
40 points

Complete the tasks below and create a pdf file containing screenshots of your programs outputs running correctly over several test cases. You are provided with some starter code as well as a makefile to run them.

1. (20 points) Write an assembly program that “flips” two words in a string by “rotating” the letters. Your program should output the flipped words. Assume the given string consists of two words separated by a space, where each word has at least one character and can be different lengths. As an example, if the string is “foo bar\n”, your program should successively rotate the string until it ends up as “bar foo\n”. For this example, your program should first modify the string to be
   “ foobar\n” (with a space in front of foo). Then, the complete flipping of words requires three rotations:
   - 1st Rotation: “r fooba\n”
   - 2nd Rotation: “ar foob\n”
   - 3rd Rotation: “bar foo\n”

   Be sure to test your program over different strings.

   Include your program as the file “hw6_1.s”, as well as adding screenshots to your .pdf showing your program works correctly over multiple test strings.

2. (20 points) Write an assembly program that implements selection sort on a list of 10 numbers. The numbers should begin in descending order “9876543210” and be stored in a string. The results should be placed in the string in ascending order “0123456789” and be printed out.

   You must use the stack to store the numbers while sorting, then once the stack is sorted, update the string and print it.

   You must use pushq to fill the stack with numbers from the string, and you must use popq to remove items from the stack to update the string. The stack should be cleaned up after you’re done using it. All other interactions with the stack should not use push/pop but instead use addressing as we have done in class.

   To show your program works, print the string of numbers before and after the sort.

   Include your program as the file “hw6_2.s”, as well as adding screenshots to your .pdf showing your program works correctly.

A successful submission should include both assembly source code files, a makefile that runs them, and a .pdf file titled “<lastname><first initial>_hw6.pdf” that contains screenshots showing the outputs of your programs. For my case, it would be a file named “fischerb_hw6.pdf”. Use

appropriate comments throughout your program, describing what is happening, and fill out the top description comment.