

Homework 2: Due Monday. Sep. 15

Instructor: Tyler Simon

For the following questions, **show all of your work**. It is not sufficient to just provide the answers.

Exercise 1: Convert each of the following numbers to 8-bit signed magnitude, 8-bit one's compliment and 8-bit two's complement. Report your answers in binary.

- a.) -119_{10}
- b.) -53_{10}
- c.) -98_{10}
- d.) 126_{10}

Exercise 2: Convert the following 16-bit two's complement numbers from hexadecimal to decimal:

- a.) $A42C_{16}$
- b.) $62A4_{16}$
- c.) $571D_{16}$
- d.) $F FE3_{16}$

Exercise 3: Find the decimal equivalents for the following 8-bit two's complement numbers.

- a.) 0101 0101
- b.) 1100 0011
- c.) 0010 0100
- d.) 1010 1001

Exercise 4: Perform two's complement addition on the following pairs of numbers. In each case, indicate whether or not an overflow has occurred.

- a.) 1001 1111 + 1111 1110
- b.) 0111 1010 + 0110 0110
- c.) 1000 0010 + 1000 0010
- d.) 1010 1001 + 0110 1100

Project 0: Download the *hello.asm* assembly language program from the class webpage to your GL account. Using a text editor, replace the output string in the program with your favorite quote from a movie or TV show. Use the Unix script command to record yourself assembling and running the program. (Do not include any editing!) Then, submit both the source code and the sample run:

```
submit cs313 proj0 hello.asm typescript
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