CS350 Intro Computer Systems Homework 2

Homework 2 Representing and Manipulating Numbers

1. Convert the following hexa decimals to binary, unsigned integers, and integers, following the format of the practice problem 2.17 of textbook. This is not a programming assignment although I recomend you to do it in C.

Hexa decimal	Binary	B2U8(x)	B2T8(x)
0x0A			
0x06			
0x14			
0x6B			
0x8A			
0x86			
0x94			
0xEB			

2. Write a C program to compute and output exactly as shown in Figure 2.14 of textbook. Use the variables and values defined in /usr/include/limits.h. Do not hardcode them, meaning do not write these numbers directly in the program. Derive from the variables and values defined in the header file.

3. For mapping between signed and unsinged using bits, refer to pages 23 and 24 of the lecture note labeled 2nd and 3rd. Write the mapping for w=5. Follow the format in the lecture note. This is not a programming assignment although I recomend you to do it in C.

4. Write a C program to demonstrate casting surprises of page 28 of lecture note labeled 2nd and 3rd.

5. For signed and unsigned addition, fill in the following table in the style of Pratice problem 2.29 of textbook for w=5:

Type	x	y	x+y	x+(t5)y	Case
integer					
binary	01101	00101			
integer					
binary	00011	00100			
integer					
binary	11000	00111			
integer					
binary	10111	11001			
integer					
binary	10101	10010			

6. Do problem 2.73: write a C function saturating_add.