CMSI 182

Introduction to Computer Science

Fall 2007

Assignment 0913

As a reminder, note that the assignment number ("0913") indicates the due date; I will ask for submissions at the beginning of class on that day.

Not for Submission

Read Chapter 1 in the Brookshear book.

For Submission

1. Below is a table listing numbers "as we know them" in the first column, their binary representation (in 8 bits) in the second column, and their hexadecimal representation in the third column. Fill in the blanks.

"Normal" Number	*Binary Representation*	*Hexadecimal Representation*
22		
		6B
254		
128		
	0111 1000	
		AB
		2D
	0000 1010	
99		
		99

2. Let's play *The Adventure of the Dancing Bits* — encode or decode the following messages using ASCII. If the message is to be encoded, use hexadecimal. Watch out for upper vs. lower case, spaces between words, and punctuation — they matter!
   a. *encode:* TTYL
   b. *decode:* 48 65 6C 6C 6F 20 77 6F 72 6C 64 21
   c. *encode:* Meet at midnight
   d. *decode:* 4D 41 59 20 54 48 45 20 46 41 52 43 45 20 42 45 20 57 49 54 48 20 54 48 45 45
   e. *encode:* I have a SECRET...
3. Suppose an alien race wishes to learn about binary data storage from you. They understand English very well, and are excellent at following instructions. Write up the following "how-to" recipes as precisely as possible, so that they can perform these tasks correctly without having to really understand what they're doing.
   a. How to represent any number from zero to 15 as a four-bit binary number.
   b. How to convert any letter of the English alphabet into its equivalent ASCII hexadecimal code.