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Homework 1-1

CSC142 Sp 2019

**Binary and Hexadecimal numbering systems**

In binary or base-2 numbering, there are only 2 digits, 0 and 1. Each binary digit is called a “bit”. Using these properties of binary addition:

0 + 0 = 0

0 + 1 = 1

1 + 0 = 1

1 + 1 = 10

1. Add the numbers 0110 and 0111.

* 1101

1. What is the largest positive number in **decimal**, that can be represented using 8 bits?

* 2^8-1 = 255

1. What range of positive **decimal** numbers can one hexadecimal digit represent?

* 0-15

1. What is the value in the **decimal** (base-10) system, of the color green?

* 65280

1. What is the **decimal value** of the color blue?

* 255

1. What is the largest (**decimal**) number that can be represented in 6 hexadecimal digits? What does that tell you about the number of different colors a computer monitor can display?

* 2^24 – 1 = 16777215

Almost 17 million colors are represented with these digits.

1. Add the **hexadecimal** numbers 0A19 and 3A1B.

* 4434