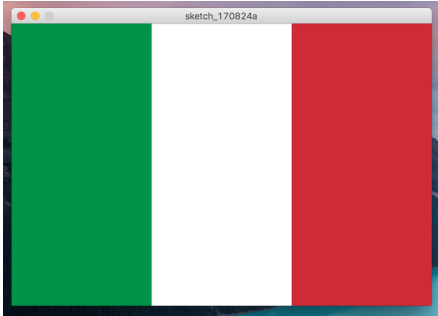## CSc 101 -- Section 3 -- Colors, Shapes, and Data Representation

Note: you must submit your code for at least problem 1 and 2 to the D2L dropbox by 5pm for credit on this section!
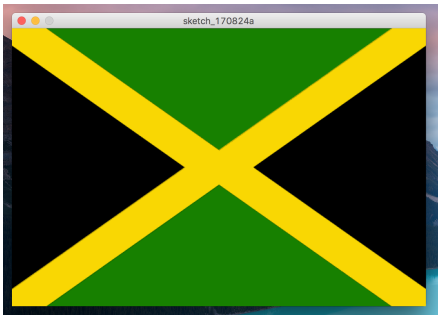
(1)   Create a processing sketch that displays the Italian flag, which should look like this:

Note that:
- The strokeWeight is set to 0
- The size of the window is 600 pixels wide and 400 pixels tall
- Each section of the flag is exactly 1/3rd of the window

(2)   Create a processing sketch that displays the Jamaican flag, which should look like this:

Again, note that:
- The strokeWeight is set to 0
- The size of the window is 600 pixels wide and 400 pixels tall
- The yellow X crosses the entire flag

(3) Create a processing sketch that displays the flag of Israel, which should look like this:
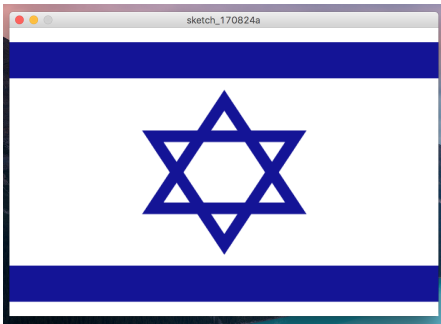
Again, note that:

- The size of the window is 600 pixels wide and 400 pixels tall

(4) Convert these numbers from decimal to binary, using the techniques shown in class:
 A. 141
  B. 73

(5) Convert these numbers from binary to decimal, using the techniques shown in class:
  C. 10101
  D. 1100110

(6) We also talked about how the .PPM image format works in class this week. We went over some examples of how to create a PPM image using a text editor. To do so on the Mac lab machines:
- Open up the program TextEdit
- Create a new file (File -> New) and name it example.bmp
- Put the text of the image into the file
- Make sure you are in "plain-text" mode ("Format" -> "Make Plain Text")
- Save it
- Open it up!

Create .ppm image that looks like the following:
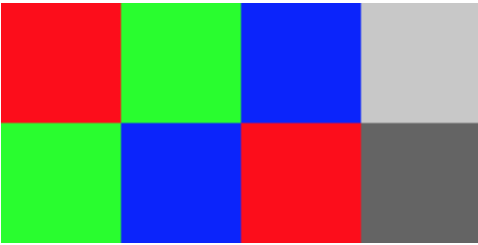
(7) As we have discussed in lecture, computers store everything (including text) as binary. In order to do so, each letter/character is assigned a number that "represents" it. In this problem, you will convert text to the numeric representation that a computer would store it as. Convert each of the below words/sentences to both its Decimal and Binary representations. You can use the ASCII conversion table from the lecture slides to assist you.

A. CAT

B. Hello World!

C. One 2 THREE 4 five 5 Sev3n