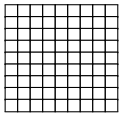
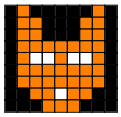
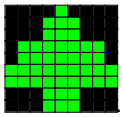
CS460 Fall 2019
Name: JACOB YOON ZENG YEW
Student ID: 01596523
Due Date: 09/16/2019

Assignment 2: XTK Cube / Pixel Art

We will create pixel art - and then use XTK to render it in 3D, fully interactive and web-based.

Here is an empty grid of 9x9 pixels: 

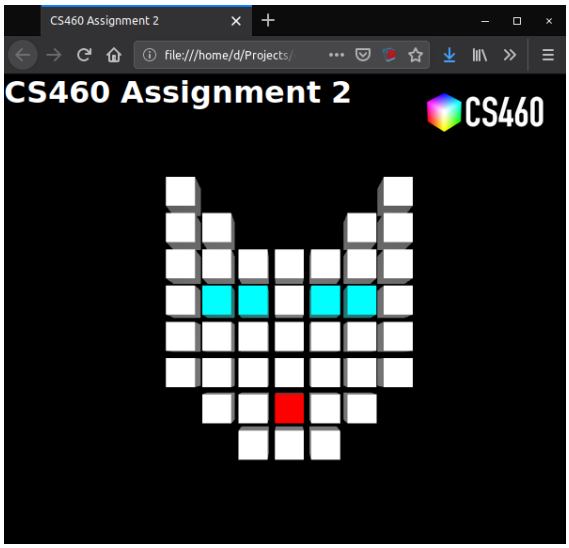
If we set pixels to different colors, we can create pixel art.

Here is a fox.  And here is a pine tree. 

To create 3D pixel art, we can use colored `X.cube` objects instead of pixels.

Please choose one, either the fox or the pine tree, and then create a 3D version using XTK (`http://goXTK.com`). Start with the **index.html** from `https://cs460.org/shortcuts/03/` and save it in directory **02/** in your github fork.

This starter code creates one cube with XTK. For this assignment, you will need to modify the code to create many cubes: one cube for each pixel. Remember, you can set, for example, the color green for a cube `c` using `c.color=[0,1,0]`. Please replace the screenshot below with your version. Also, please commit this PDF and your final code to your Github fork and submit a pull request.



Bonus (33 points):

Question 1 (10 points): If we would not care about the gap between cubes/pixels, how could we reduce the number of X.cube objects in the scene?

Answer: We could utilize the length[X,Y,Z] and change the lengths of the cube; resizing and minimizing the number of X.cube objects in the scene.

One method, I would imagine, is to draw only the cubes needed for the space and adding the colored cubes on top; protruding enough to indicate the color.

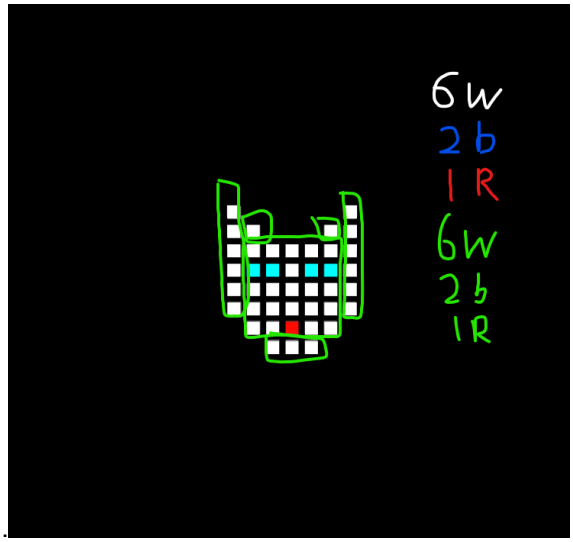


Figure 1.

In figure 1, I drew boxes around what I believe to be the lowest amount of non-colliding cubes possible; with the 3 of the colored boxes that could be slightly layered on top.

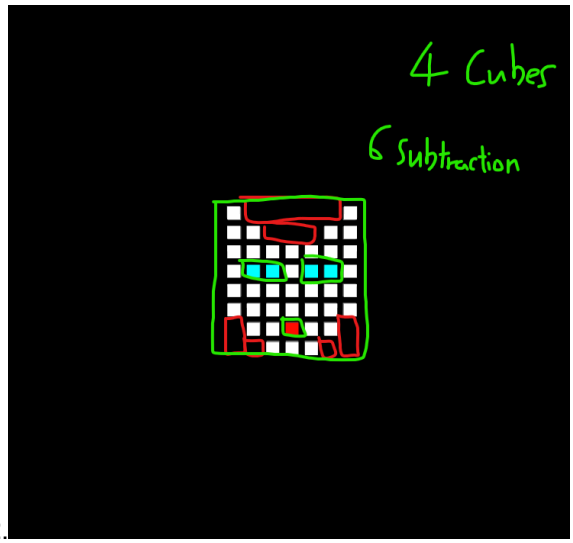


Figure 2.

The alternative method would be to use subtraction. In figure 2, there would only necessarily be 4 cube, 1 for the white face, 2 for the blue and 1 for the red; whilst having 6 subtractive cubes.

These are a couple methods I thought of to try and minimize the amount of cube objects in the scene.

Question 2 (23 points): Animate the pixel art! We can use the following JavaScript snippet to execute code every second:

```
setInterval(function() {
  // your code
}, 1000);
```

Please write code to animate closing/opening of the fox's eyes or, if you chose the pine tree, make some pixels/cubes light up like a Christmas tree. In both cases, you will need to keep track of certain cubes and then change their color using the snippet above. You can submit this as part of your `02/index.html` file.

Figured it out! It is much more inelegant than I would like for it to be. But I suppose the simpler it is the better. `https://genlikan.github.io/cs460student/02/`