

CS460 Fall 2020

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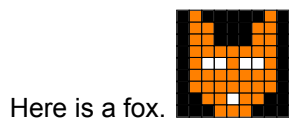
Due Date: 09/21/2020

## Assignment 2: XTK Cube / Pixel Art

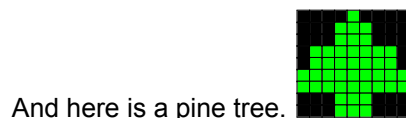
We will create pixel art - and then use XTK to render it in 3D, fully interactive and web-based.

Here is an empty grid of 9x9 pixels: 

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



Here is a fox.

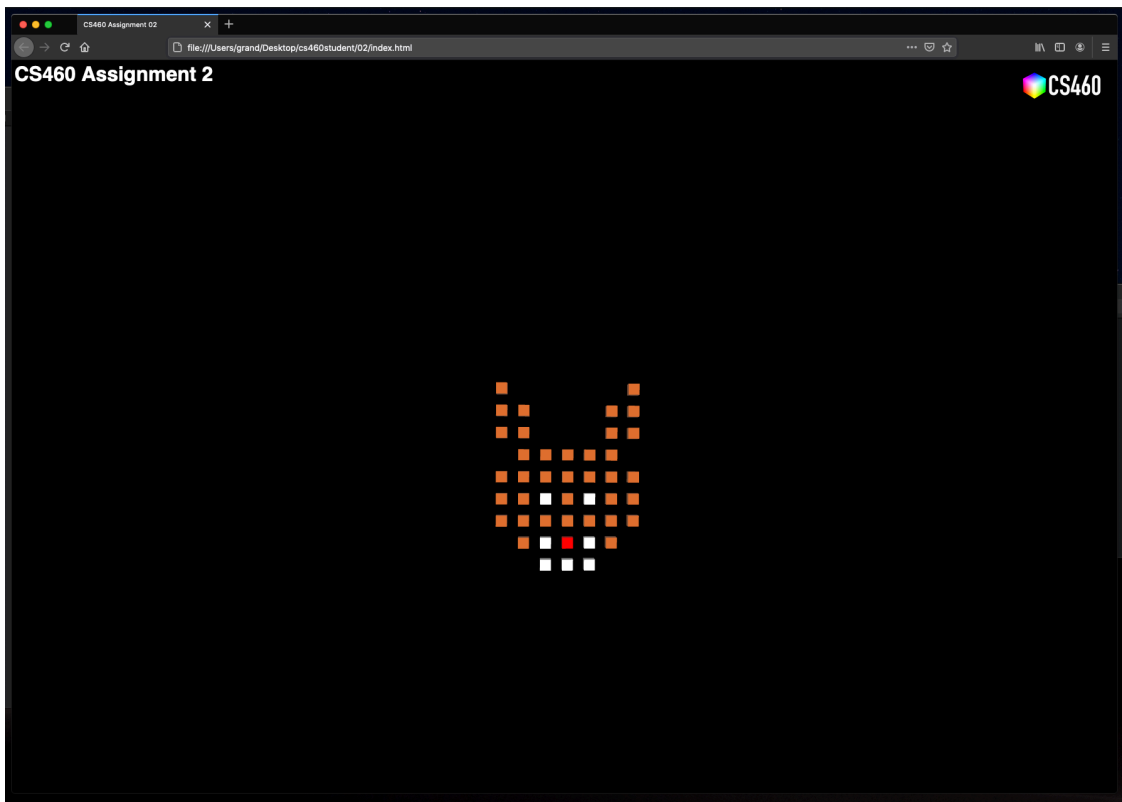


And here is a pine tree.

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/04/> 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?

» First, we have to create a big X.cube object. Then by creating a smaller X.cube object over the large X.cube object, we can achieve the desired work, in this case, the shape of the fox.

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

```
// fox eye close
setInterval(function() {
  for (x_cube = 0; x_cube < foxEyes.length; x_cube++) {
    foxEyes[x_cube].color = [1, 1, 1];
  }
}, 800);

// fox eye open
setInterval(function() {
  for (x_cube = 0; x_cube < foxEyes.length; x_cube++) {
    eyes[x_cube].color = [0.8, 0.4, 0.2];
  }
}, 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.

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This project is partially based on professor Daniel Haehn's class exercise, and the animated fox found from this link : <https://simulationpoint.github.io/Assignment2/>