

University of Massachusetts Boston

CS460 Fall 2022

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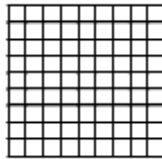
Student ID: 02050457

Due Date: 09/19/2022

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:

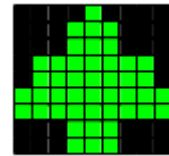


If we set pixels to different colors, we can create pixel art.



Here is a fox.

And here is a pine tree.



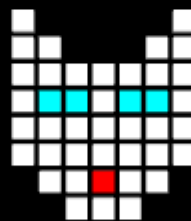
To create 3D pixel art, we can use colored X.cube objects instead of pixels.

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.

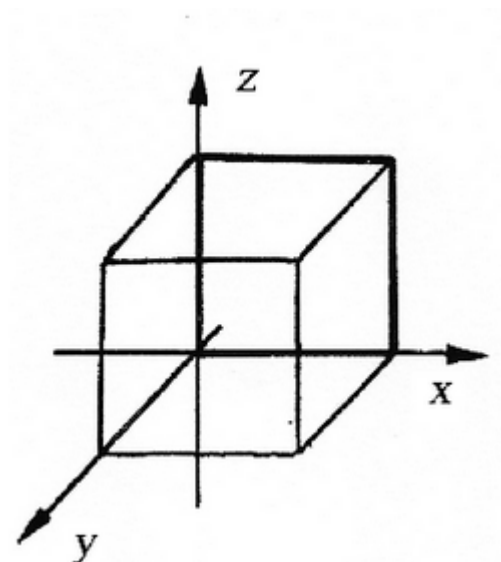
Image attached overleaf

CS460 Assignment 2



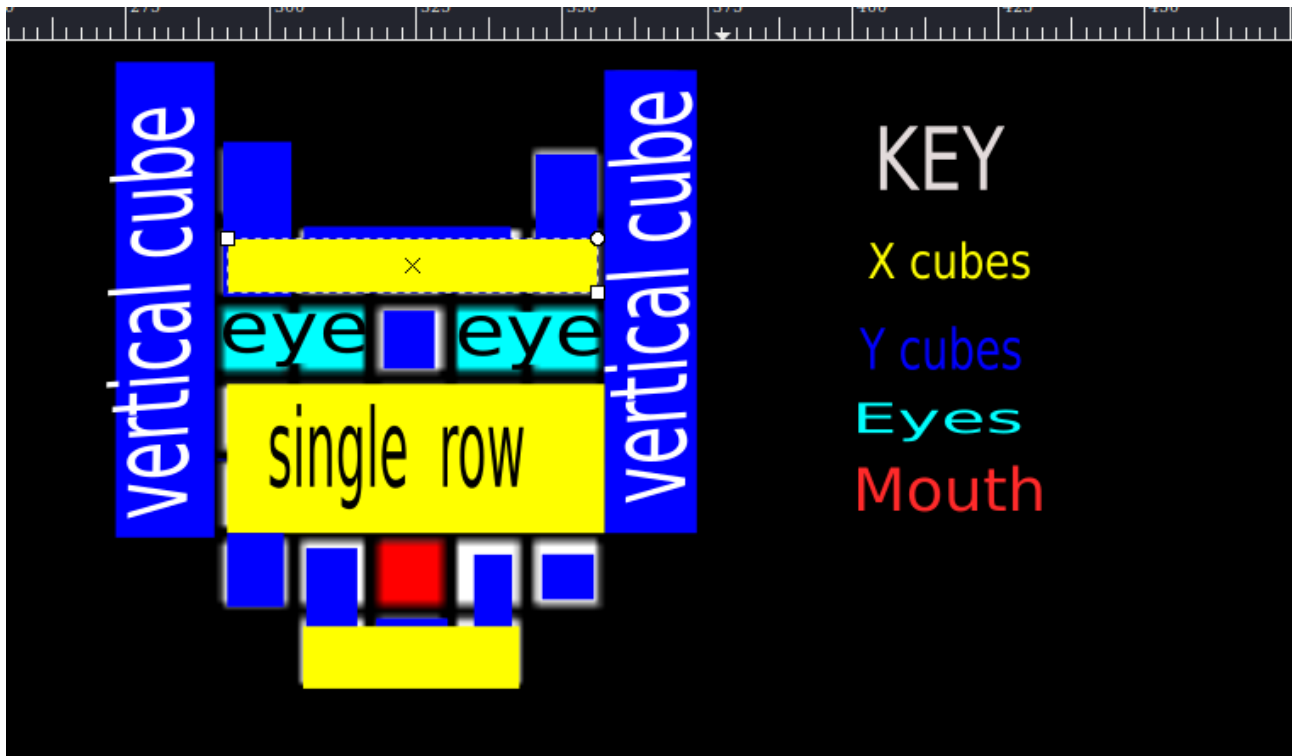
1 Bonus (33 points):

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?



Axis reference

The fox would have to be generated in the generated column by column with offset in Y direction at center, for columns with eyes. The two cubes with eyes could even be merged to just form 2 cubes rather than having 4 cyan cuboid eyes.



and mouth, I will use three different cubes with their different lengthY in vertical arrangement. Overall, it will use 15 cubes instead of 42 cubes and will look like shown above:

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);
```

*kindly have a look at the code in the github directory **02/index.html***

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.

Collab with Sruthi Chirumamilla