Assignment 4 Report

Problem:

For this assignment, we must recreate the given image using texture binding methods with openGL.

Algorithm and Methods:

In this assignment, we must use UV coordinates. UV coordinates mapped onto a typical xyz coordinate plane appear warped, because uv coordinates are used to project a 2D image on to a 3D surface. In order to map a texture on the 3D cube, we must use these coordinates.

Implementation:

The uv coordinates are already provided, so our job is to simply pass that data into the buffer. For this, I just reused the code for the vertex position, and replaced the variable VBO with UVBO.

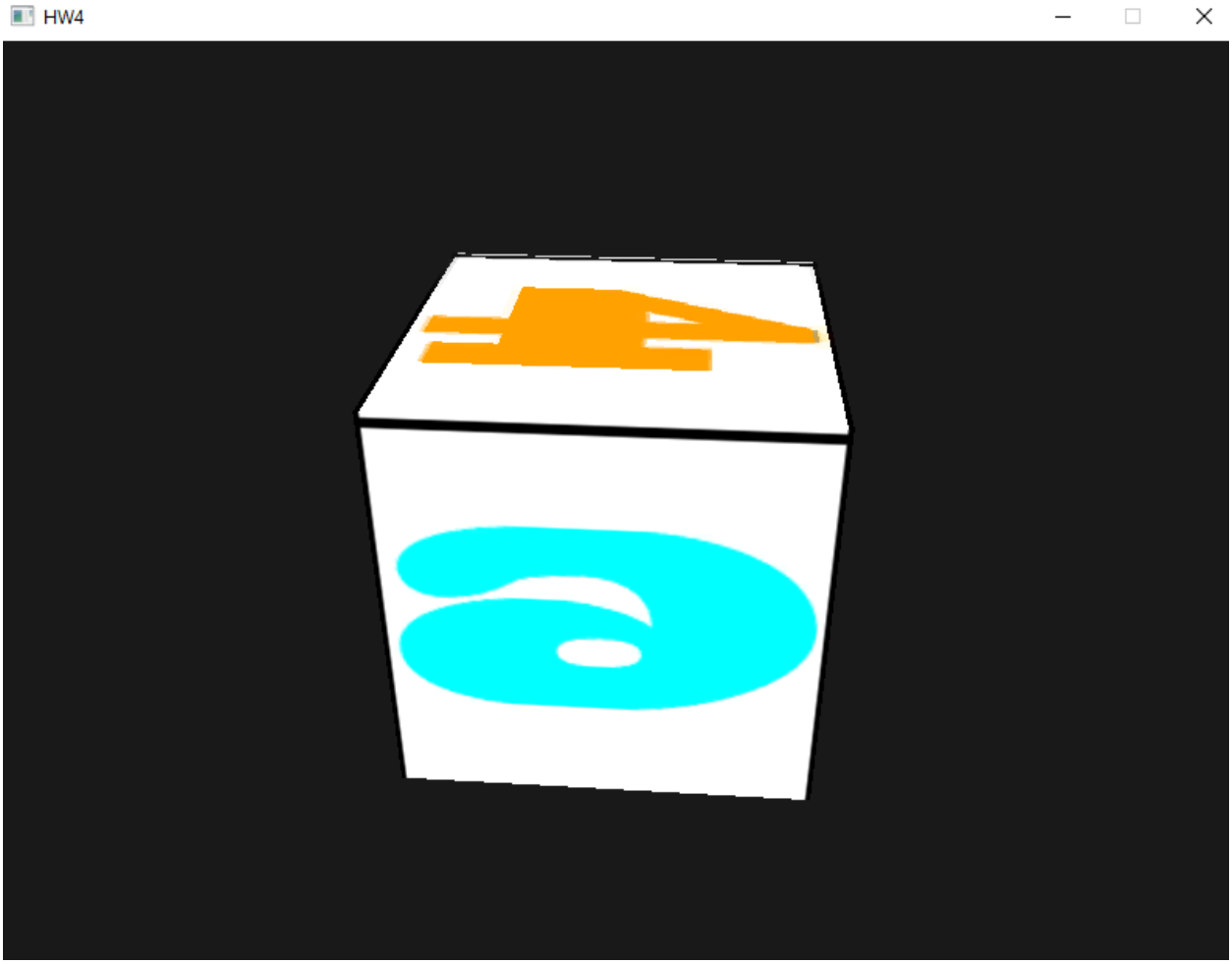
I then worked on the vs file. I used a similar gl_Position from the last assignment because it was using a similar cube.

For the .frag file, I assigned the color variable of the texture at the uv coordinates using the texture function which takes in the texture sample and the vec2 of uv cords. I was not sure if the whole cube had to be filled; I noticed that the dds file had all 6 faces. But the image provided only had two faces shown. I decided to match the image exactly. However, if the whole cube needed to be filed, I would have to get the inverse of the y-coordinates.

Finally, in main.cpp file we bind the texture onto the cube by making GL_TEXTURE0 the active texture, bind it and make our myTextureSampler the new GL_TEXTURE0. Then, we make the attribute buffer for vertices and the UVs.

Results:

My code produces the following rotating cube, which matches the cube given.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