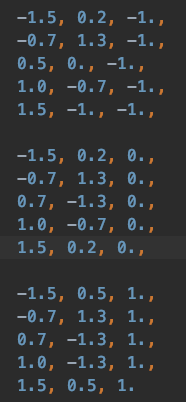
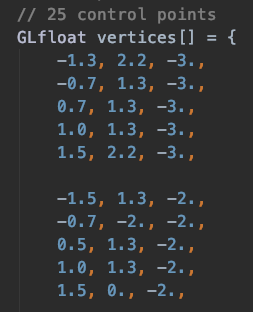
**Assignment 5 Bezier surface**

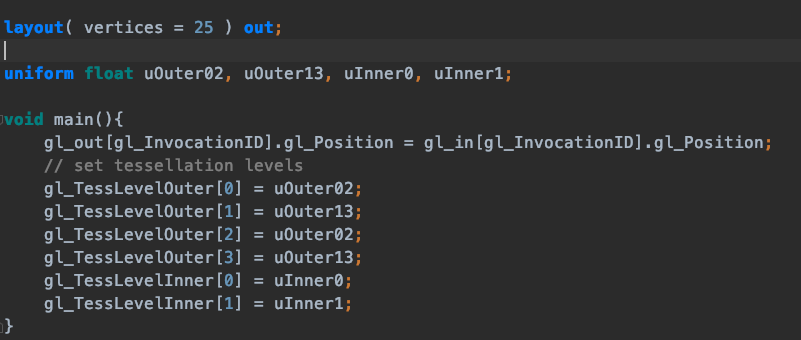
My code was referenced and built on top of our Bezier surface tutorial. The only difference from our homework was that instead of having 4 x 4 they asked for a 5 X5 from us. So, in order to achieve that I had to create 25 control points as shown below:

**1) Use 25 (5 x 5) control points**

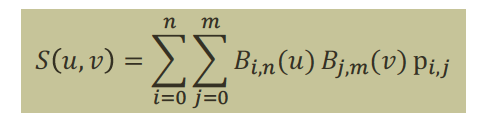


**2) Use TCS to set subdivision level**

I had to specify I had 25 vertices in the TCS file

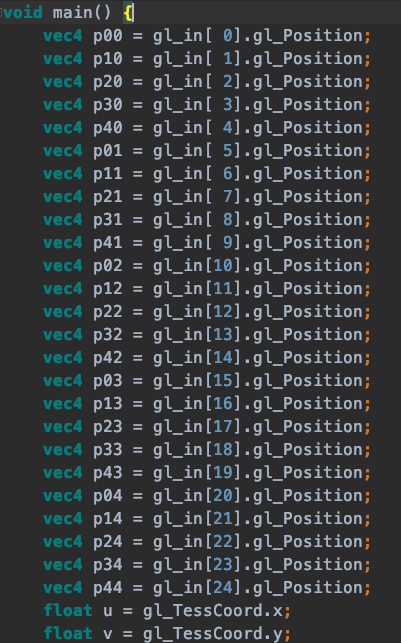


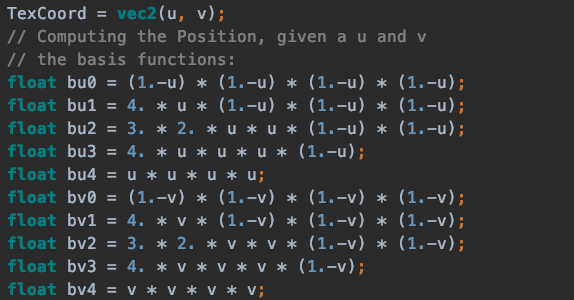
**3) Use TES to calculate new vertex coordinates and texture coordinates according to the mathematical equation of Bezier surface**



**(From the tutorial)**

For a 5x 5, I had to follow the formula and so I had to add p43, p04, p14, p24, p34, p44, bu4,bv4

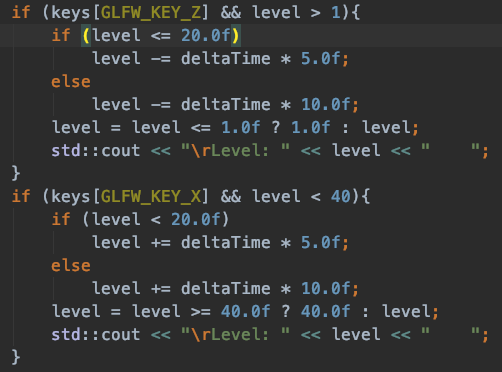


The final computation is as follows in the program:

gl\_Position = bu0 \* ( bv0\*p00 + bv1\*p01 + bv2\*p02 + bv3\*p03 + bv4\*p04 ) + bu1 \* ( bv0\*p10 + bv1\*p11 + bv2\*p12 + bv3\*p13 + bv4\*p14 ) + bu2 \* ( bv0\*p20 + bv1\*p21 + bv2\*p22 + bv3\*p23 + bv4\*p24 ) + bu3 \* ( bv0\*p30 + bv1\*p31 + bv2\*p32 + bv3\*p33 + bv4\*p34 ) + bu4 \* ( bv0\*p40 + bv1\*p41 + bv2\*p42 + bv3\*p43 + bv4\*p44 );

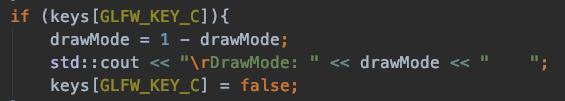
4) Change smoothness of the surface by keyboard

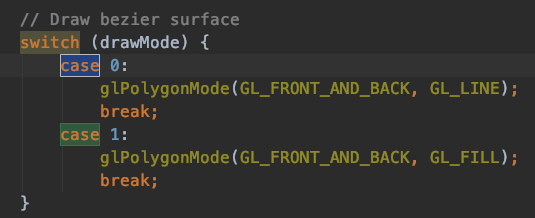
Use X AND Z key to change



5) Support wireframe mode display.

Use the key C to change modes.



This triggers the GL\_FILL and GL\_LINE when KEY C is pressed

6) Add texture to Bezier surface. Choose the texture by yourself.

The textures are drawn by the shader files.

Final result:

