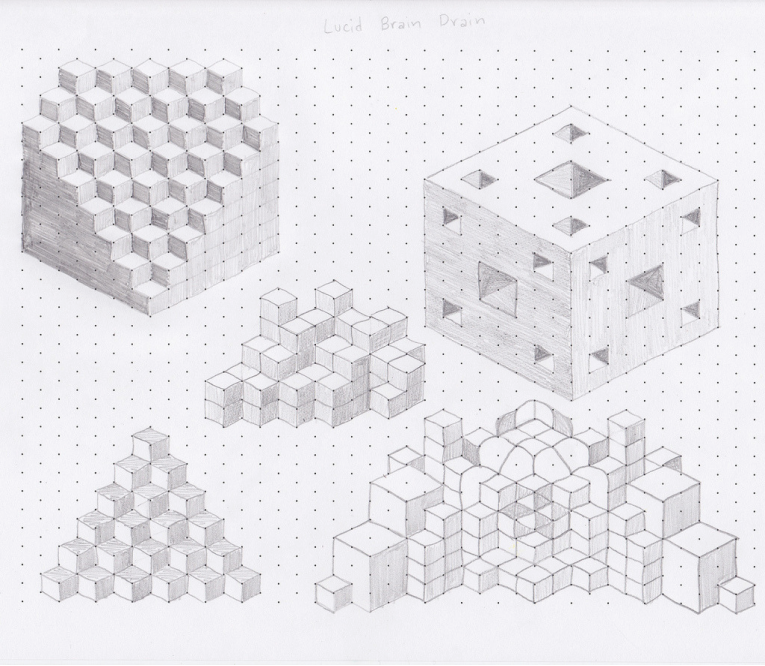
computer graphix

final project

MapMaker

we started out with a basic idea of wanting to combine what we collectively learned in this course into one thing. although it seemed like not much it all added up into this simple but awesome project. the starting idea was bigger than the one we have right now. we thought of making a small game where the player needs to move a ball over isometric shapes and reach a goal to complete the level. although we we met many other hurdles there was one hurdle in particular that led to making this project



and it's creating the levels that players play on we wanted a simple, easy and fast process to create those levels and it doesn't have to require code every time and maybe the player can create the level himself.

introducing mapmaker. it's basically all the description above.

How to use IT

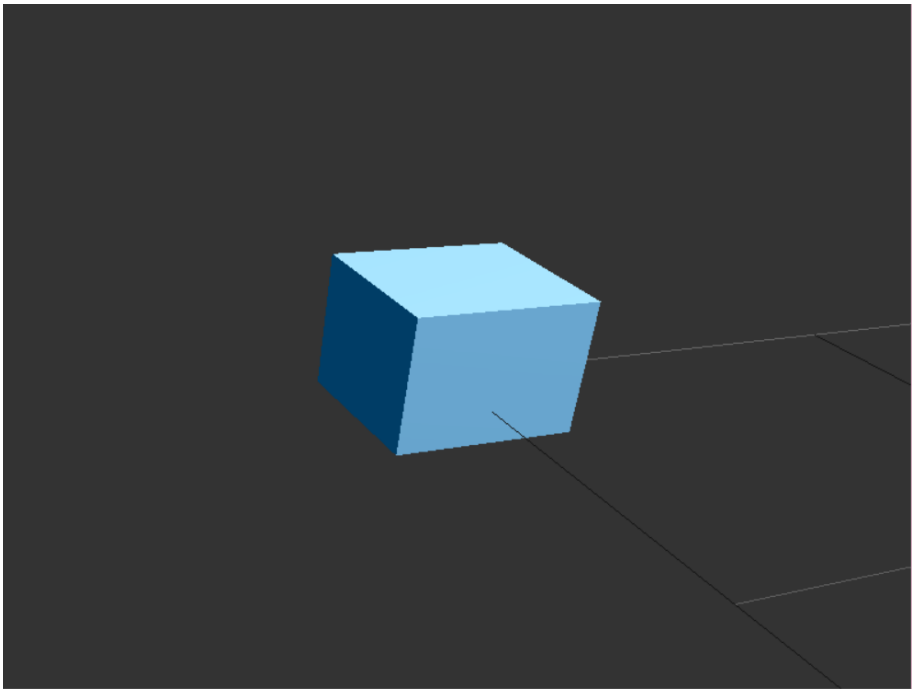
W , S foreword and back

A , D right and left

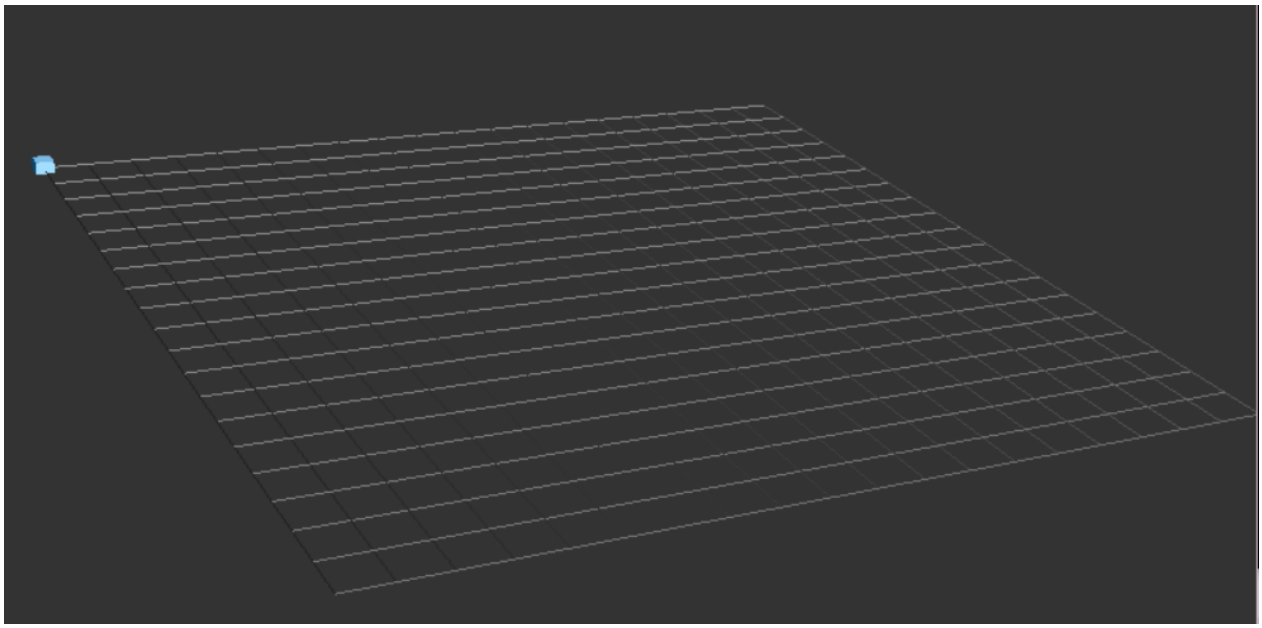
Q , Z up and down spacebar register a vertex

void thecube()
we start by making a cube that is gonna be the cursor of the user interface. this cube can be translated by user input . and we rotated it to look more like a cube

void drawGrid()
this is a function that we found necessary to help the user distinguish where is the cube's current position.



we translated the cube and the grid to look better for the viewr



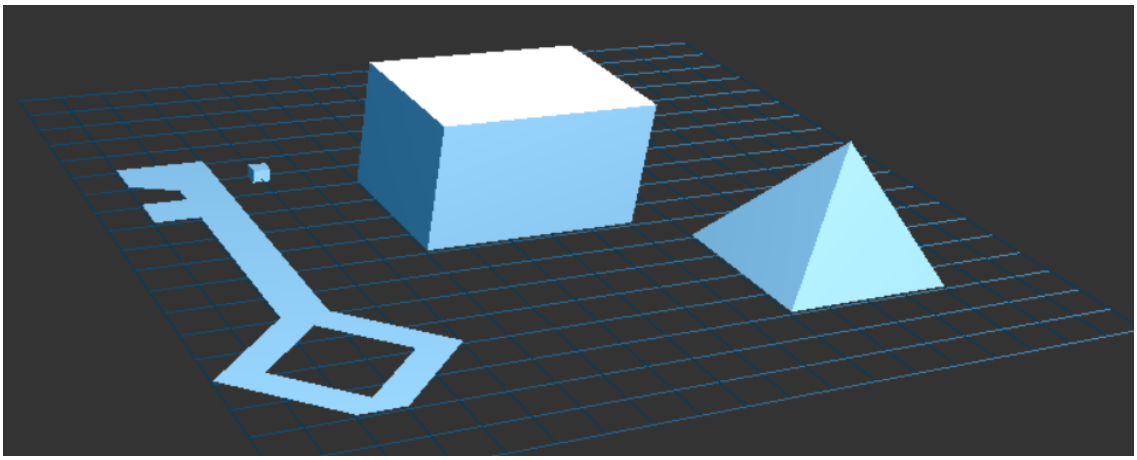
void keyboard(unsigned char key, int x, int y).
a function to move the cube in X,Y,Z directions
and to add vertices to the quad by using spacebar

struct Quads
is a structure where we store or all the coordinates of the vertices, state is to know which vertex are the user in now,

```
struct Quads
{
    int x1, y1, z1, x2, y2, z2, x3, y3, z3, x4, y4, z4;
    //float r, g, b;
    int state;
    int total;
}; Quads Q[100];
```

void addQuad()
is a function to make and store the quad and by pressing spacebar the user register the vertex for that quad and increment the state to make the other verices

void drawQuads()
is a loop function that loops on the number of quads stored in the total variable and take's the input and draws the quad



void display()
it contains the drawGrid() and drawQuad() functions as well as the rotation and translation of the whole cube and grid to have a better view.

void myinit()
it has all the lighting information that the program uses like ambient, diffusion and secular lighting

void init()
the function that initialize the perspective view

void getnormal(int x1, int y1, int z1, int x2, int y2, int z2, int x3, int y3, int z3)
is a function to get the unit vector of every quad so that the light can interact with it.

POSSIBLE and UPCOMING FEATURES

1-save and load
as per doctor recommendation adding a 3 dimensional matrix to save the vertices could help us in solving the save and load issue

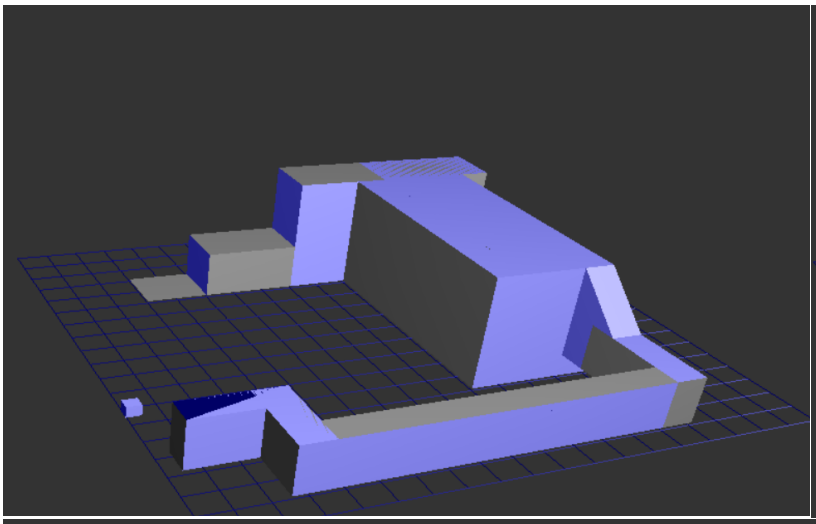
2-void sphere()/circle()
adding and drawing a sphere inside the program

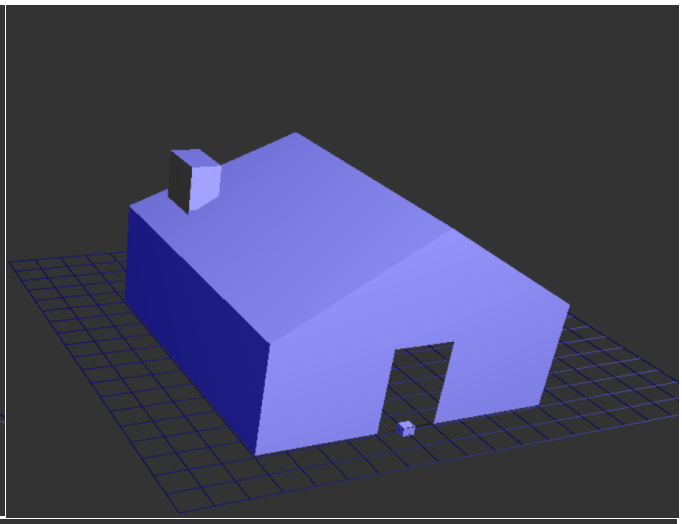
3-RGB coloring of the quads
although we have RGB code already but it's not playing well with the lighting. might fix that later

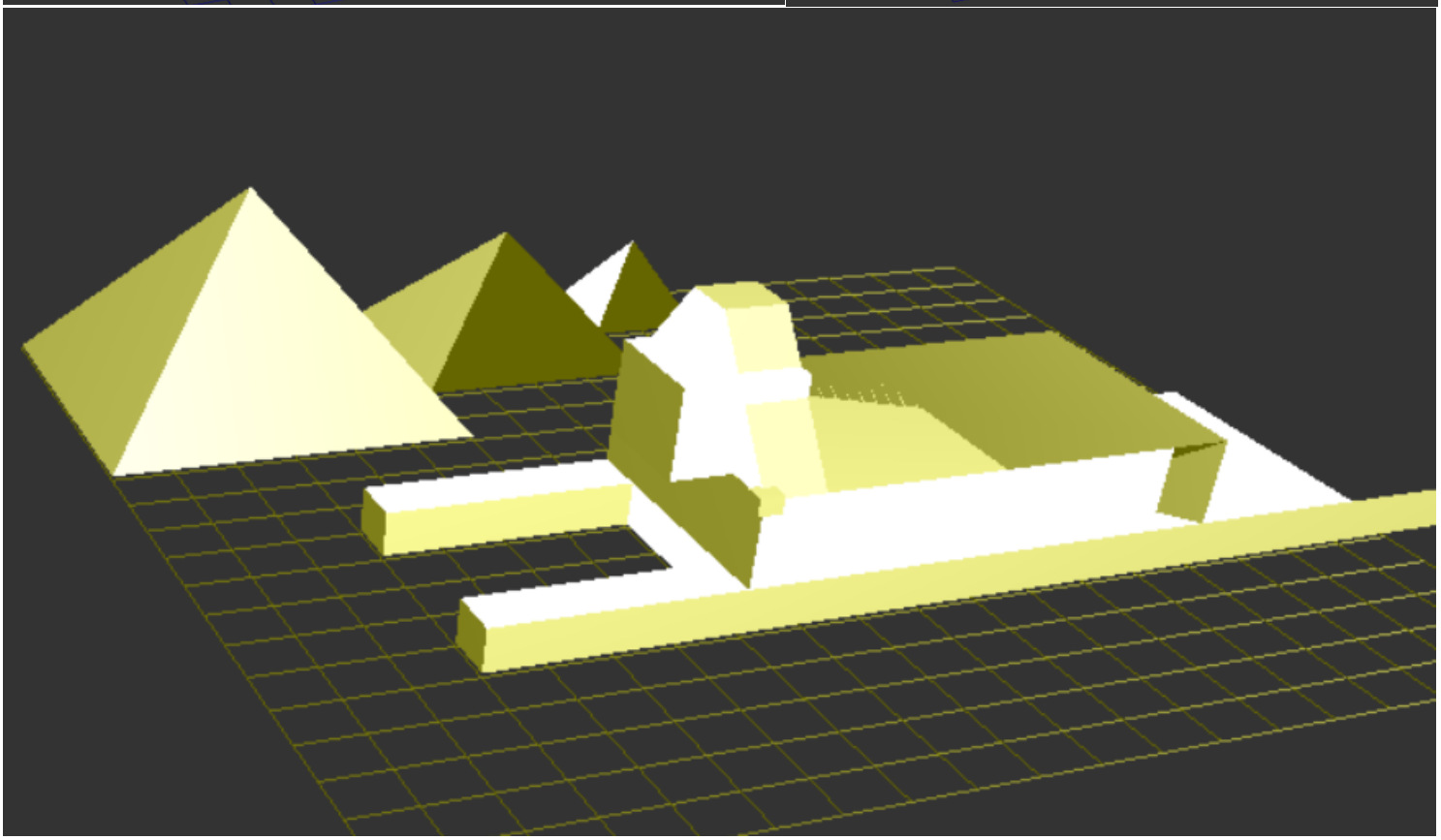
4- a unit vector for each vertex
instead of having a vector for each whole quad. it will give a nice gradient lighting to skewed quads.

5-maybe make the original game after all
although there is a ton of hurdles and kinematics to understand this was the original plan.

what you could do with mapmaker







BONUS

STAGES OF DEVELOPMENT OF LIGHT