Computer Graphics Final Project Report

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Code:

```
#include<windows.h>
#include <GL/glut.h>
#include <math.h>
float xPoss = 0.0f;//background color
float yPoss = 0.0f;

float x1Poss =0.0f;//sun movement
float y1Poss =0.0f;

float x2Poss =0.0f;
float y2Poss =0.0f; //cloud1 movement

float x3Poss =0.0f;
```

```
float y3Poss =0.0f; //cloud2 movement



float xPos = 0.0f;//boat movement
float yPos = 0.0f;

float x1Pos = 0.0f;//ship movement
float y1Pos = 0.0f;

float x2Pos = 0.0f;//JET movement
float y2Pos = 0.0f;

float x3Pos = 0.0f;//car movement
float y3Pos = 0.0f;

float x4Pos = 0.0f;//bus movement
float y4Pos = 0.0f;



void display() {
    glLoadIdentity();
    glTranslatef(x1Poss, y1Poss, 0.0f);
    float theta;
   glClear(GL_COLOR_BUFFER_BIT);

   glColor3f(1.0,.0,.0);
    glBegin(GL_POLYGON); //sun
    for(int i=0;i<360;i++)
```

```
{
  theta=i*3.1416/180;
  glVertex2f(0.90+0.06*cos(theta),0.70+0.06*sin(theta));
}
glEnd();

//cloud1
glLoadIdentity();
glTranslatef(x2Poss, y2Poss, 0.0f);
glColor3f(1.0,1.0,1.0);
glBegin(GL_POLYGON);
for(int i=0;i<360;i++)
{
  theta=i*3.1416/180;
  glVertex2f(0.03+0.02*cos(theta),0.75+0.02*sin(theta));
}
glEnd();
glColor3f(1.0,1.0,1.0);
glBegin(GL_POLYGON);
for(int i=0;i<360;i++)
{
  theta=i*3.1416/180;
  glVertex2f(0.06+0.03*cos(theta),0.75+0.03*sin(theta));
}
glEnd();
glColor3f(1.0,1.0,1.0);
glBegin(GL_POLYGON);
for(int i=0;i<360;i++)
{
```

```
    theta=i*3.1416/180;
    glVertex2f(0.09+0.02*cos(theta),0.75+0.02*sin(theta));
   }
   glEnd();
   if(x2Poss>=0){
x2Poss += 0.002f;
if(x2Poss >= 1){
x2Poss = 0.0f;
}
}

   //cloud2
   glLoadIdentity();
   glTranslatef(x3Poss, y3Poss, 0.0f);
   glColor3f(1.0,1.0,1.0);
   glBegin(GL_POLYGON);
   for(int i=0;i<360;i++)
   {
    theta=i*3.1416/180;
    glVertex2f(0.65+0.02*cos(theta),0.75+0.02*sin(theta));
   }
   glEnd();
   glColor3f(1.0,1.0,1.0);
   glBegin(GL_POLYGON);
   for(int i=0;i<360;i++)
   {
    theta=i*3.1416/180;
    glVertex2f(0.68+0.03*cos(theta),0.75+0.03*sin(theta));
   }
```

```
   glEnd();
   glColor3f(1.0,1.0,1.0);
   glBegin(GL_POLYGON);
   for(int i=0;i<360;i++)
   {
     theta=i*3.1416/180;
     glVertex2f(0.71+0.02*cos(theta),0.75+0.02*sin(theta));
   }
   glEnd();

if(x3Poss<=0){
x3Poss -= 0.001f;
if(x3Poss <= -1){
x3Poss = 0.0f;
}
}

   //water
   glLoadIdentity();
   glTranslatef(xPoss, yPoss, 0.0f);
   glBegin(GL_QUADS);
   glColor3f(0.0f, 0.0f, 1.0f);
   glVertex2f(0.0f,0.0f);
   glVertex2f(1.0f,0.0f);
   glVertex2f(1.0f,0.20f);
   glVertex2f(0.0f,0.20f);
   glEnd();

   //boat
```

```
glLoadIdentity();
glTranslatef(xPos, yPos, 0.0f);

glBegin(GL_QUADS);
glColor3f(0.0f, 0.0f, 0.0f);
glVertex2f(0.30,0.08f);
glVertex2f(0.45f,0.08f);
glVertex2f(0.42f,0.06f);
glVertex2f(0.33f,0.06f);
glEnd();

glBegin(GL_POLYGON);
glColor3f(1.0f, 1.0f, 0.0f);
glVertex2f(0.35,0.08f);
glVertex2f(0.37f,0.08f);
glVertex2f(0.37f,0.09f);
glVertex2f(0.36f,0.11f);
glVertex2f(0.35f,0.10f);
glEnd();

glBegin(GL_POLYGON);
glColor3f(1.0f, 0.5f, 0.0f);
glVertex2f(0.36,0.11f);
glVertex2f(0.41f,0.11f);
glVertex2f(0.42f,0.10f);
glVertex2f(0.42f,0.08f);
glVertex2f(0.37f,0.08f);
glVertex2f(0.37f,0.10f);
glEnd();
```

```
    glBegin(GL_QUADS);
   glColor3f(0.1f, 0.1f, 0.0f);
   glVertex2f(0.38,0.13f);
   glVertex2f(0.39f,0.13f);
   glVertex2f(0.39f,0.11f);
   glVertex2f(0.38f,0.11f);
   glEnd();

    glBegin(GL_QUADS);
   glColor3f(0.0f, 1.0f, 0.0f);
   glVertex2f(0.36,0.13f);
   glVertex2f(0.42f,0.13f);
   glVertex2f(0.40f,0.18f);
   glVertex2f(0.35f,0.18f);
   glEnd();


if(x1Pos<=0){
x1Pos -= 0.001f;
if(x1Pos <= -1){
x1Pos = 0.0f;
}
}
   //Ship
   glLoadIdentity();
   glTranslatef(x1Pos, y1Pos, 0.0f);
   glBegin(GL_QUADS);
   glColor3f(1.0f, 1.0f, 1.0f);
```

```
glVertex2f(0.60,0.10f);
glVertex2f(0.95f,0.10f);
glVertex2f(1.0f,0.05f);
glVertex2f(0.70f,0.05f);
glEnd();

glBegin(GL_POLYGON);
glColor3f(1.0f, 1.0f, 1.0f);
glVertex2f(0.70,0.10f);
glVertex2f(0.70f,0.15f);
glVertex2f(0.76f,0.19f);
glVertex2f(0.90f,0.19f);
glVertex2f(0.90f,0.10f);
glEnd();

glBegin(GL_QUADS);
glColor3f(0.0f, 0.0f, 0.0f);
glVertex2f(0.72,0.14f);
glVertex2f(0.80f,0.14f);
glVertex2f(0.80f,0.10f);
glVertex2f(0.72f,0.10f);
glEnd();

glBegin(GL_QUADS);
glColor3f(0.0f, 0.0f, 0.0f);
glVertex2f(0.81,0.17f);
glVertex2f(0.85f,0.17f);
glVertex2f(0.85f,0.10f);
glVertex2f(0.81f,0.10f);
```

```
glEnd();

glBegin(GL_QUADS);
glColor3f(0.0f, 0.0f, 0.0f);
glVertex2f(0.72,0.15f);
glVertex2f(0.77f,0.18f);
glVertex2f(0.80f,0.18f);
glVertex2f(0.80f,0.15f);
glEnd();

glBegin(GL_QUADS);
glColor3f(0.0f, 0.0f, 0.0f);
glVertex2f(0.86,0.18f);
glVertex2f(0.89f,0.18f);
glVertex2f(0.89f,0.13f);
glVertex2f(0.86f,0.13f);
glEnd();

glBegin(GL_QUADS);
glColor3f(0.0f, 0.0f, 0.0f);
glVertex2f(0.92,0.19f);
glVertex2f(0.93f,0.19f);
glVertex2f(0.93f,0.10f);
glVertex2f(0.92f,0.10f);
glEnd();

glBegin(GL_TRIANGLES);
glColor3f(1.0f, 0.0f, 0.0f);
glVertex2f(0.93,0.19f);
```

```
glVertex2f(0.97f,0.15f);
glVertex2f(0.93f,0.15f);
glEnd();

//land
glLoadIdentity();
glTranslatef(xPoss, yPoss, 0.0f);
glBegin(GL_QUADS);
glColor3f(0.0f, 1.0f, 0.0f);
glVertex2f(0.0,0.50f);
glVertex2f(1.0f,0.50f);
glVertex2f(1.0f,0.30f);
glVertex2f(0.0f,0.30f);
glEnd();

//road
glLoadIdentity();
glTranslatef(xPoss, yPoss, 0.0f);
glBegin(GL_QUADS);
glColor3f(0.75f, 0.75f, 0.75f );
glVertex2f(0.0f,0.20f);
glVertex2f(1.0f,0.20f);
glVertex2f(1.0f,0.37f);
glVertex2f(0.0f,0.37f);
glEnd();
```

```
//Building1
glBegin(GL_QUADS);
glColor3f(1.0f, 0.0f, 1.0f);
glVertex2f(0.0,0.60f);
glVertex2f(0.10f,0.60f);
glVertex2f(0.10f,0.38f);
glVertex2f(0.0f,0.38f);
glEnd();

glBegin(GL_QUADS);
glColor3f(1.0f, 1.0f, 0.0f);
glVertex2f(0.01,0.59f);
glVertex2f(0.03f,0.59f);
glVertex2f(0.03f,0.57f);
glVertex2f(0.01f,0.57f);
glEnd();

glBegin(GL_QUADS);
glColor3f(1.0f, 1.0f, 0.0f);
glVertex2f(0.04,0.59f);
glVertex2f(0.06f,0.59f);
glVertex2f(0.06f,0.57f);
glVertex2f(0.04f,0.57f);
glEnd();

glBegin(GL_QUADS);
glColor3f(1.0f, 1.0f, 0.0f);
```

```
glVertex2f(0.07,0.59f);
glVertex2f(0.09f,0.59f);
glVertex2f(0.09f,0.57f);
glVertex2f(0.07f,0.57f);
glEnd();

glBegin(GL_QUADS);
glColor3f(1.0f, 1.0f, 0.0f);
glVertex2f(0.01,0.56f);
glVertex2f(0.03f,0.56f);
glVertex2f(0.03f,0.54f);
glVertex2f(0.01f,0.54f);
glEnd();

glBegin(GL_QUADS);
glColor3f(1.0f, 1.0f, 0.0f);
glVertex2f(0.04,0.56f);
glVertex2f(0.06f,0.56f);
glVertex2f(0.06f,0.54f);
glVertex2f(0.04f,0.54f);
glEnd();

glBegin(GL_QUADS);
glColor3f(1.0f, 1.0f, 0.0f);
glVertex2f(0.07,0.56f);
glVertex2f(0.09f,0.56f);
glVertex2f(0.09f,0.54f);
glVertex2f(0.07f,0.54f);
glEnd();
```

```
glBegin(GL_QUADS);
glColor3f(1.0f, 1.0f, 0.0f);
glVertex2f(0.01,0.53f);
glVertex2f(0.03f,0.53f);
glVertex2f(0.03f,0.51f);
glVertex2f(0.01f,0.51f);
glEnd();

glBegin(GL_QUADS);
glColor3f(1.0f, 1.0f, 0.0f);
glVertex2f(0.04,0.53f);
glVertex2f(0.06f,0.53f);
glVertex2f(0.06f,0.51f);
glVertex2f(0.04f,0.51f);
glEnd();

glBegin(GL_QUADS);
glColor3f(1.0f, 1.0f, 0.0f);
glVertex2f(0.07,0.53f);
glVertex2f(0.09f,0.53f);
glVertex2f(0.09f,0.51f);
glVertex2f(0.07f,0.51f);
glEnd();

glBegin(GL_QUADS);
glColor3f(1.0f, 1.0f, 0.0f);
glVertex2f(0.01,0.50f);
glVertex2f(0.03f,0.50f);
```

```
glVertex2f(0.03f,0.48f);
glVertex2f(0.01f,0.48f);
glEnd();

glBegin(GL_QUADS);
glColor3f(1.0f, 1.0f, 0.0f);
glVertex2f(0.04,0.50f);
glVertex2f(0.06f,0.50f);
glVertex2f(0.06f,0.48f);
glVertex2f(0.04f,0.48f);
glEnd();

glBegin(GL_QUADS);
glColor3f(1.0f, 1.0f, 0.0f);
glVertex2f(0.07,0.50f);
glVertex2f(0.09f,0.50f);
glVertex2f(0.09f,0.48f);
glVertex2f(0.07f,0.48f);
glEnd();


glBegin(GL_QUADS);
glColor3f(1.0f, 1.0f, 0.0f);
glVertex2f(0.01,0.47f);
glVertex2f(0.03f,0.47f);
glVertex2f(0.03f,0.45f);
glVertex2f(0.01f,0.45f);
glEnd();
```

```
glBegin(GL_QUADS);
glColor3f(1.0f, 1.0f, 0.0f);
glVertex2f(0.04,0.47f);
glVertex2f(0.06f,0.47f);
glVertex2f(0.06f,0.45f);
glVertex2f(0.04f,0.45f);
glEnd();

glBegin(GL_QUADS);
glColor3f(1.0f, 1.0f, 0.0f);
glVertex2f(0.07,0.47f);
glVertex2f(0.09f,0.47f);
glVertex2f(0.09f,0.45f);
glVertex2f(0.07f,0.45f);
glEnd();



glBegin(GL_QUADS);
glColor3f(1.0f, 1.0f, 0.0f);
glVertex2f(0.01,0.44f);
glVertex2f(0.03f,0.44f);
glVertex2f(0.03f,0.42f);
glVertex2f(0.01f,0.42f);
glEnd();

glBegin(GL_QUADS);
glColor3f(1.0f, 1.0f, 0.0f);
glVertex2f(0.04,0.44f);
```

```
glVertex2f(0.06f,0.44f);
glVertex2f(0.06f,0.42f);
glVertex2f(0.04f,0.42f);
glEnd();

glBegin(GL_QUADS);
glColor3f(1.0f, 1.0f, 0.0f);
glVertex2f(0.07,0.44f);
glVertex2f(0.09f,0.44f);
glVertex2f(0.09f,0.42f);
glVertex2f(0.07f,0.42f);
glEnd();

//building2
glBegin(GL_QUADS);
glColor3f(1.0f, 0.0f, 0.0f);
glVertex2f(0.10,0.70f);
glVertex2f(0.20f,0.70f);
glVertex2f(0.20f,0.38f);
glVertex2f(0.10f,0.38f);
glEnd();

glBegin(GL_TRIANGLES);
glColor3f(1.0f, 0.0f, 0.0f);
glVertex2f(0.10,0.70f);
glVertex2f(0.15f,0.75f);
glVertex2f(0.20f,0.70f);
glEnd();
```

```
glBegin(GL_QUADS);
glColor3f(1.0f, 1.0f, 0.0f);
glVertex2f(0.11,0.69f);
glVertex2f(0.15f,0.69f);
glVertex2f(0.15f,0.65f);
glVertex2f(0.11f,0.65f);
glEnd();

glBegin(GL_QUADS);
glColor3f(1.0f, 1.0f, 0.0f);
glVertex2f(0.16,0.69f);
glVertex2f(0.19f,0.69f);
glVertex2f(0.19f,0.65f);
glVertex2f(0.16f,0.65f);
glEnd();

glBegin(GL_QUADS);
glColor3f(1.0f, 1.0f, 0.0f);
glVertex2f(0.11,0.64f);
glVertex2f(0.19f,0.64f);
glVertex2f(0.19f,0.61f);
glVertex2f(0.11f,0.61f);
glEnd();

glBegin(GL_QUADS);
glColor3f(1.0f, 1.0f, 0.0f);
glVertex2f(0.11,0.48f);
glVertex2f(0.19f,0.48f);
glVertex2f(0.19f,0.45f);
```

```
glVertex2f(0.11f,0.45f);
glEnd();

glBegin(GL_QUADS);
glColor3f(1.0f, 1.0f, 0.0f);
glVertex2f(0.11,0.44f);
glVertex2f(0.15f,0.44f);
glVertex2f(0.15f,0.41f);
glVertex2f(0.11f,0.41f);
glEnd();

glBegin(GL_QUADS);
glColor3f(1.0f, 1.0f, 0.0f);
glVertex2f(0.16,0.44f);
glVertex2f(0.19f,0.44f);
glVertex2f(0.19f,0.38f);
glVertex2f(0.16f,0.38f);
glEnd();

glBegin(GL_QUADS);
glColor3f(0.0f, 0.0f, 0.0f);
glVertex2f(0.11,0.60f);
glVertex2f(0.13f,0.60f);
glVertex2f(0.13f,0.54f);
glVertex2f(0.11f,0.54f);
glEnd();

glBegin(GL_QUADS);
glColor3f(0.0f, 0.0f, 0.0f);
```

```
glVertex2f(0.14,0.60f);
glVertex2f(0.16f,0.60f);
glVertex2f(0.16f,0.54f);
glVertex2f(0.14f,0.54f);
glEnd();

glBegin(GL_QUADS);
glColor3f(0.0f, 0.0f, 0.0f);
glVertex2f(0.17,0.60f);
glVertex2f(0.19f,0.60f);
glVertex2f(0.19f,0.54f);
glVertex2f(0.17f,0.54f);
glEnd();

glBegin(GL_QUADS);
glColor3f(0.0f, 0.0f, 0.0f);
glVertex2f(0.11,0.53f);
glVertex2f(0.13f,0.53f);
glVertex2f(0.13f,0.49f);
glVertex2f(0.11f,0.49f);
glEnd();

glBegin(GL_QUADS);
glColor3f(0.0f, 0.0f, 0.0f);
glVertex2f(0.14,0.53f);
glVertex2f(0.16f,0.53f);
glVertex2f(0.16f,0.49f);
glVertex2f(0.14f,0.49f);
glEnd();
```

```
glBegin(GL_QUADS);
glColor3f(0.0f, 0.0f, 0.0f);
glVertex2f(0.17,0.53f);
glVertex2f(0.19f,0.53f);
glVertex2f(0.19f,0.49f);
glVertex2f(0.17f,0.49f);
glEnd();

glBegin(GL_QUADS);
glColor3f(0.0f, 0.0f, 1.0f);
glVertex2f(0.20,0.60f);
glVertex2f(0.39f,0.60f);
glVertex2f(0.39f,0.38f);
glVertex2f(0.20f,0.38f);
glEnd();

glBegin(GL_QUADS);
glColor3f(1.0f, 1.0f, 0.0f);
glVertex2f(0.21,0.58f);
glVertex2f(0.38f,0.58f);
glVertex2f(0.38f,0.54f);
glVertex2f(0.21f,0.54f);
glEnd();

glBegin(GL_QUADS);
glColor3f(1.0f, 1.0f, 0.0f);
glVertex2f(0.21,0.53f);
glVertex2f(0.38f,0.53f);
```

```
glVertex2f(0.38f,0.49f);
glVertex2f(0.21f,0.49f);
glEnd();

glBegin(GL_QUADS);
glColor3f(1.0f, 1.0f, 0.0f);
glVertex2f(0.21,0.48f);
glVertex2f(0.38f,0.48f);
glVertex2f(0.38f,0.44f);
glVertex2f(0.21f,0.44f);
glEnd();

glBegin(GL_QUADS);
glColor3f(1.0f, 1.0f, 0.0f);
glVertex2f(0.21,0.43f);
glVertex2f(0.24f,0.43f);
glVertex2f(0.24f,0.40f);
glVertex2f(0.21f,0.40f);
glEnd();

glBegin(GL_QUADS);
glColor3f(1.0f, 1.0f, 0.0f);
glVertex2f(0.35,0.43f);
glVertex2f(0.38f,0.43f);
glVertex2f(0.38f,0.40f);
glVertex2f(0.35f,0.40f);
glEnd();

glBegin(GL_QUADS);
```

```
glColor3f(0.0f, 0.5f, 1.0f);
glVertex2f(0.25,0.43f);
glVertex2f(0.34f,0.43f);
glVertex2f(0.34f,0.38f);
glVertex2f(0.25f,0.38f);
glEnd();

//hill
glBegin(GL_TRIANGLES);
glColor3f(0.0f, 0.5f, 0.5f);
glVertex2f(0.39,0.50f);
glVertex2f(0.45f,0.55f);
glVertex2f(0.50f,0.50f);
glEnd();

glBegin(GL_TRIANGLES);
glColor3f(0.0f, 0.5f, 0.5f);
glVertex2f(0.50,0.50f);
glVertex2f(0.55f,0.55f);
glVertex2f(0.60f,0.50f);
glEnd();

glBegin(GL_TRIANGLES);
glColor3f(0.0f, 0.5f, 0.5f);
glVertex2f(0.64,0.50f);
glVertex2f(0.70f,0.55f);
glVertex2f(0.75f,0.50f);
glEnd();
```

```
glBegin(GL_TRIANGLES);
glColor3f(0.0f, 0.5f, 0.5f);
glVertex2f(0.75,0.50f);
glVertex2f(0.80f,0.55f);
glVertex2f(0.85f,0.50f);
glEnd();

glBegin(GL_TRIANGLES);
glColor3f(0.0f, 0.5f, 0.5f);
glVertex2f(0.85,0.50f);
glVertex2f(0.90f,0.55f);
glVertex2f(0.95f,0.50f);
glEnd();

glBegin(GL_TRIANGLES);
glColor3f(0.0f, 0.5f, 0.5f);
glVertex2f(0.95,0.50f);
glVertex2f(1.0f,0.55f);
glVertex2f(1.0f,0.50f);
glEnd();

//windmill
glBegin(GL_QUADS);
glColor3f(1.0f, 0.0f, 0.0f);
glVertex2f(0.60,0.50f);
glVertex2f(0.64f,0.50f);
glVertex2f(0.63f,0.60f);
glVertex2f(0.61f,0.60f);
glEnd();
```

```
    glBegin(GL_QUADS);
    glColor3f(0.0f, 0.0f, 0.0f);
    glVertex2f(0.58,0.60f);
    glVertex2f(0.66f,0.60f);
    glVertex2f(0.66f,0.59f);
    glVertex2f(0.58f,0.59f);
    glEnd();

    //JET
    if(x2Pos<=0){
x2Pos -= 0.002f;
if(x2Pos <= -1){
x2Pos = 0.0f;
}
}
    glLoadIdentity();
    glTranslatef(x2Pos, y2Pos, 0.0f);
    glLoadIdentity();
    glTranslatef(x2Pos, y2Pos, 0.0f);
    glBegin(GL_POLYGON);
    glColor3f(1.0f, 1.0f, 1.0f);
    glVertex2f(0.43,0.89f);
    glVertex2f(0.45f,0.91f);
    glVertex2f(0.70f,0.91f);
    glVertex2f(0.63f,0.88f);
    glVertex2f(0.45f,0.88f);
    glEnd();
```

```
glBegin(GL_QUADS);
glColor3f(0.0f, 0.0f, 0.0f);
glVertex2f(0.44,0.90f);
glVertex2f(0.46f,0.90f);
glVertex2f(0.45f,0.89f);
glVertex2f(0.43f,0.89f);
glEnd();

glBegin(GL_QUADS);
glColor3f(0.0f, 0.0f, 0.0f);
glVertex2f(0.47,0.90f);
glVertex2f(0.65f,0.90f);
glVertex2f(0.63f,0.89f);
glVertex2f(0.46f,0.89f);
glEnd();

glBegin(GL_QUADS);
glColor3f(1.0f, 1.0f, 1.0f);
glVertex2f(0.55,0.91f);
glVertex2f(0.60f,0.95f);
glVertex2f(0.62f,0.95f);
glVertex2f(0.59f,0.91f);
glEnd();

glBegin(GL_QUADS);
glColor3f(1.0f, 1.0f, 1.0f);
glVertex2f(0.55,0.88f);
glVertex2f(0.60f,0.84f);
glVertex2f(0.63f,0.84f);
```

```
    glVertex2f(0.59f,0.88f);
    glEnd();

    glBegin(GL_QUADS);
    glColor3f(1.0f, 1.0f, 1.0f);
    glVertex2f(0.68,0.90f);
    glVertex2f(0.70f,0.88f);
    glVertex2f(0.71f,0.88f);
    glVertex2f(0.70f,0.91f);
    glEnd();

    glBegin(GL_QUADS);
    glColor3f(1.0f, 0.0f, 0.0f);
    glVertex2f(0.67,0.91f);
    glVertex2f(0.70f,0.91f);
    glVertex2f(0.70f,0.95f);
    glVertex2f(0.69f,0.95f);
    glEnd();


    //car

    if(x3Pos>=0){
x3Pos += 0.004f;
if(x3Pos >= 1){
x3Pos = 0.0f;
}
}
```

```
glLoadIdentity();
glTranslatef(x3Pos, y3Pos, 0.0f);
glLoadIdentity();
glTranslatef(x3Pos, y3Pos, 0.0f);
glBegin(GL_POLYGON);
glColor3f(1.0f, 0.0f, 0.0f);
glVertex2f(0.10,0.33f);
glVertex2f(0.11f,0.35f);
glVertex2f(0.18f,0.35f);
glVertex2f(0.20f,0.33f);
glVertex2f(0.24f,0.33f);
glVertex2f(0.24f,0.31f);
glVertex2f(0.10f,0.31f);
glEnd();

glBegin(GL_QUADS);
glColor3f(0.0f, 0.0f, 0.0f);
glVertex2f(0.11,0.33f);
glVertex2f(0.12f,0.34f);
glVertex2f(0.13f,0.34f);
glVertex2f(0.13f,0.33f);
glEnd();

glBegin(GL_QUADS);
glColor3f(0.0f, 0.0f, 0.0f);
glVertex2f(0.14,0.34f);
glVertex2f(0.16f,0.34f);
glVertex2f(0.16f,0.33f);
glVertex2f(0.14f,0.33f);
```

```
glEnd();

 glBegin(GL_QUADS);
glColor3f( 0.0f, 0.0f, 0.0f );
glVertex2f(0.17,0.34f);
glVertex2f(0.18f,0.34f);
glVertex2f(0.19f,0.33f);
glVertex2f(0.17f,0.33f);
glEnd();

glColor3f(0.0,0.0,0.0);
glBegin(GL_POLYGON);
for(int i=0;i<360;i++)
{
  theta=i*3.1416/180;
  glVertex2f(0.13+0.01*cos(theta),0.31+0.01*sin(theta));
}
glEnd();

glColor3f(0.0,0.0,0.0);
glBegin(GL_POLYGON);
for(int i=0;i<360;i++)
{
  theta=i*3.1416/180;
  glVertex2f(0.21+0.01*cos(theta),0.31+0.01*sin(theta));
}
glEnd();
```

```
   //bus
   if(x4Pos<=0){
x4Pos -= 0.003f;
if(x4Pos <= -1){
x4Pos = 0.0f;
}
}
   glLoadIdentity();
   glTranslatef(x4Pos, y4Pos, 0.0f);
   glBegin(GL_POLYGON);
   glColor3f(1.0f, 1.0f, 0.0f);
   glVertex2f(0.70,0.25f);
   glVertex2f(0.72f,0.30f);
   glVertex2f(0.99f,0.30f);
   glVertex2f(0.99f,0.23f);
   glVertex2f(0.90f,0.22f);
   glVertex2f(0.70f,0.22f);
   glEnd();

   glBegin(GL_POLYGON);
   glColor3f(1.0f, 1.0f, 0.0f);
   glVertex2f(0.69,0.29f);
   glVertex2f(0.72f,0.29f);
   glVertex2f(0.71f,0.28f);
   glVertex2f(0.70f,0.28f);
   glVertex2f(0.70f,0.27f);
   glVertex2f(0.69f,0.26f);
   glEnd();
```

```
glBegin(GL_QUADS);
glColor3f(1.0f, 1.0f, 0.0f);
glVertex2f(0.82,0.30f);
glVertex2f(0.82f,0.31f);
glVertex2f(0.90f,0.31f);
glVertex2f(0.90f,0.30f);
glEnd();

glBegin(GL_QUADS);
glColor3f(0.0f, 0.0f, 0.0f);
glVertex2f(0.73,0.29f);
glVertex2f(0.74f,0.29f);
glVertex2f(0.74f,0.26f);
glVertex2f(0.71f,0.25f);
glEnd();

glBegin(GL_POLYGON);
glColor3f(0.0f, 0.0f, 0.0f);
glVertex2f(0.75,0.29f);
glVertex2f(0.98f,0.29f);
glVertex2f(0.97f,0.27f);
glVertex2f(0.76f,0.27f);
glVertex2f(0.75f,0.26f);
glEnd();


glBegin(GL_QUADS);
glColor3f(1.0f, 0.0f, 0.0f);
```

```
glVertex2f(0.76,0.26f);
glVertex2f(0.77f,0.26f);
glVertex2f(0.77f,0.24f);
glVertex2f(0.76f,0.24f);
glEnd();

glBegin(GL_QUADS);
glColor3f(1.0f, 0.0f, 0.0f);
glVertex2f(0.78,0.26f);
glVertex2f(0.80f,0.26f);
glVertex2f(0.80f,0.24f);
glVertex2f(0.78f,0.24f);
glEnd();

glBegin(GL_QUADS);
glColor3f(1.0f, 0.0f, 0.0f);
glVertex2f(0.81,0.26f);
glVertex2f(0.82f,0.26f);
glVertex2f(0.82f,0.24f);
glVertex2f(0.81f,0.24f);
glEnd();

glBegin(GL_QUADS);
glColor3f(1.0f, 0.0f, 0.0f);
glVertex2f(0.83,0.26f);
glVertex2f(0.97f,0.26f);
glVertex2f(0.96f,0.25f);
glVertex2f(0.83f,0.25f);
glEnd();
```

```
glColor3f(0.0,0.0,0.0);
glBegin(GL_POLYGON);
for(int i=0;i<360;i++)
{
  theta=i*3.1416/180;
  glVertex2f(0.75+0.014*cos(theta),0.22+0.014*sin(theta));
}
glEnd();

glColor3f(0.0,0.0,0.0);
glBegin(GL_POLYGON);
for(int i=0;i<360;i++)
{
  theta=i*3.1416/180;
  glVertex2f(0.89+0.014*cos(theta),0.22+0.014*sin(theta));
}
glEnd();



//hut
glLoadIdentity();
glTranslatef(xPoss, yPoss, 0.0f);
glBegin(GL_POLYGON);
glColor3f( 1.0f, 1.0f, 0.0f );
glVertex2f(0.80,0.39f);
glVertex2f(0.87f,0.38f);
glVertex2f(0.87f,0.44f);
```

```
glVertex2f(0.83f,0.48f);
glVertex2f(0.80f,0.45f);
glEnd();

glBegin(GL_QUADS);
glColor3f( 1.0f, 1.0f, 0.0f );
glVertex2f(0.87,0.44f);
glVertex2f(0.94f,0.44f);
glVertex2f(0.94f,0.38f);
glVertex2f(0.87f,0.38f);
glEnd();

glBegin(GL_QUADS);
glColor3f( 1.0f, 1.0f, 0.0f );
glVertex2f(0.87f,0.44f);
glVertex2f(0.94f,0.44f);
glVertex2f(0.94f,0.38f);
glVertex2f(0.87f,0.38f);
glEnd();

glBegin(GL_QUADS);
glColor3f( 1.0f, 0.5f, 0.0f );
glVertex2f(0.83f,0.48f);
glVertex2f(0.90f,0.48f);
glVertex2f(0.94f,0.44f);
glVertex2f(0.87f,0.44f);
glEnd();

glBegin(GL_QUADS);
```

```
glColor3f( 1.0f, 0.0f, 0.0f );
glVertex2f(0.82f,0.43f);
glVertex2f(0.84f,0.43f);
glVertex2f(0.84f,0.41f);
glVertex2f(0.82f,0.41f);
glEnd();

glBegin(GL_QUADS);
glColor3f( 1.0f, 0.0f, 0.0f );
glVertex2f(0.90f,0.42f);
glVertex2f(0.92f,0.42f);
glVertex2f(0.92f,0.38f);
glVertex2f(0.90f,0.38f);
glEnd();

 glBegin(GL_QUADS);
glColor3f( 1.0f, 0.0f, 0.0f );
glVertex2f(0.80f,0.38f);
glVertex2f(0.87f,0.37f);
glVertex2f(0.87f,0.38f);
glVertex2f(0.80f,0.39f);
glEnd();

glBegin(GL_QUADS);
glColor3f( 1.0f, 0.0f, 0.0f );
glVertex2f(0.87f,0.37f);
glVertex2f(0.95f,0.37f);
glVertex2f(0.94f,0.38f);
glVertex2f(0.87f,0.38f);
```

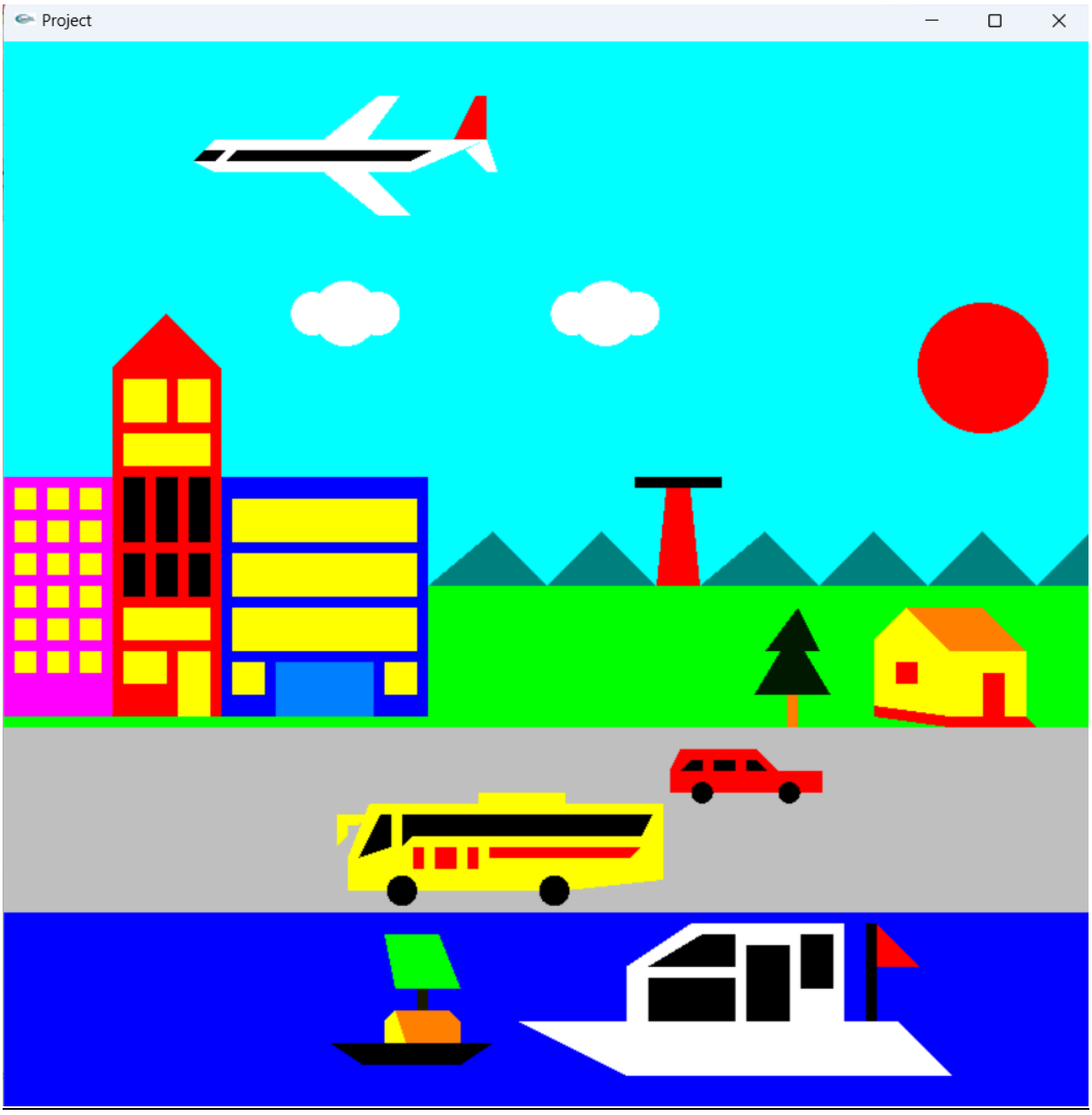
```
glEnd();

//tree
glBegin(GL_QUADS);
glColor3f( 1.0f, 0.5f, 0.0f );
glVertex2f(0.72f,0.37f);
glVertex2f(0.73f,0.37f);
glVertex2f(0.73f,0.40f);
glVertex2f(0.72f,0.40f);
glEnd();

glBegin(GL_QUADS);
glColor3f( 0.0f, 0.1f, 0.0f );
glVertex2f(0.69f,0.40f);
glVertex2f(0.76f,0.40f);
glVertex2f(0.73f,0.45f);
glVertex2f(0.72f,0.45f);
glEnd();

glBegin(GL_TRIANGLES);
glColor3f( 0.0f, 0.1f, 0.0f );
glVertex2f(0.70f,0.44f);
glVertex2f(0.75f,0.44f);
glVertex2f(0.73f,0.48f);
glEnd();
```

```
   glutSwapBuffers();
}


void keyboard(unsigned char key, int x, int y) {
 switch (key) {
 case 'd':
 xPos -= 0.01f;
 break;
 case 'f':
 xPos += 0.01f;
 break;
 case 'g':
 x1Pos -= 0.01f;
 break;
 case 'h':
 x1Pos += 0.01f;
 break;
 case 'j':
 x2Pos -= 0.02f;
 break;
 case 'l':
 x2Pos += 0.02f;
 break;
 case 'a':
 x3Pos -= 0.01f;
```

```
 break;
 case 's':
 x3Pos += 0.01f;
 break;
 case 'w':
 x4Pos -= 0.01f;
 break;
 case 'e':
 x4Pos += 0.01f;
 break;
 }
 glutPostRedisplay();
}
void update(int val){
glutPostRedisplay();
glutTimerFunc(25,update,0);
}


int main(int argc, char **argv) {
  glutInit(&argc, argv);
  glutInitDisplayMode(GLUT_DOUBLE | GLUT_RGB);
  glutInitWindowSize(800, 800);
  glutCreateWindow("Project");
  glClearColor(0.0f, 1.0f, 1.0f, 1.0f);  // White background
  glMatrixMode(GL_PROJECTION);
  glLoadIdentity();
  gluOrtho2D(0.0,1.0,0.0,1.0);
  glMatrixMode(GL_MODELVIEW);
```

```
  glutDisplayFunc(display);
  glutKeyboardFunc(keyboard);
  glutTimerFunc(25,update,0);
  update(0);
  glutMainLoop();
  return 0;
}
```

Screenshot:


Project