



# **American International University-Bangladesh (AIUB)**

Department of Computer Science  
Faculty of Science & Technology (FST)

Course title: **Computer Graphics**

## **Project Report**

Section: **J**, Group No: **C**

Course Instructor: **Dipta Justin Gomes**

Project Title: **Sea Beach View from Hotel**

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## **INTRODUCTION:**

In computer graphics, scenery or view refers to the combined application of transformation, projection, animation of elements in computer screen using OpenGL.

Here, a view or scene of a sea beach will be represented by graphical drawing algorithms. This is a mini project in computer graphics which is simple, good looking . We have mainly created some artifacts in this mini project like sky, sea, a sun, moon. There will be trees, hotel beside the beach and moving ship on the sea. Some birds will be seen flying in the sky in the day mode of the view. In the night view , there will be calm nature with moon and stars. This is an overview of our project. This project is made with C++ language including glut with OpenGL

graphic library.

## **OBJECTIVE OF THE PROJECT:**

The main objective of this project is to show the scenario of sea beach from hotel using our knowledge on OpenGL. We have used input devices like key-board to interact with the program. In computer graphics, we learn about color, graphics characteristics like animation, transformation, projection etc. We learned to draw objects in glut display, movement of whole objects, changing color of any object, translation of an object, scaling and rotation of an object. We got all the knowledge from this course to make a real-life scenario. So, have drawn a scenery where all of our learning from the computer graphics course is implemented.

## **SYSTEM IMPLEMENTATION METHOD:**

This program is implemented using various OpenGL functions which are shown below.

### Various functions used in this program:

- glutInit() : interaction between the windowing system and OPENGL is initiated.
- glutInitDisplayMode() : used when double buffering is required and depth information is required.
- glutCreateWindow() : this opens the OPENGL window and displays the title at top of the window.
- glutInitWindowSize() : specifies the size of the window.
- glutInitWindowPosition() : specifies the position of the window in screen co-ordinates .
- glutKeyboardFunc() : handles normal ascii symbols.
- glutDisplayFunc() : this handles redrawing of the window.
- glutMainLoop() : this starts the main loop, it never returns.
- glFlush() : used to flush the pipeline.

- `glBegin()` : delimit the vertices of a primitive or a group of like primitives.
- `glPushMatrix()` : push and pop the current matrix stack.
- `glVertex2f()` : specify a vertex.
- `glColor3ub()` : set the current color.
- `glutPostRedisplay()` : used to trigger an automatic redrawal of the object.
- `glMatrixMode()` : used to set up the required mode of the matrix.
- `glLoadIdentity()` : used to load or initialize to the identity matrix.
- `glTranslatef()` : used to translate or move the rotation centre from one point to another in three dimensions.

### Interaction with program

#### This program includes interaction through keyboard:

- s-> This button is for stopping the ship
- z-> It will increase the speed (ship)
- a-> It will decrease the speed (ship)
- n-> For night view
- d-> for day view

#### This program includes interaction through mouse:

- left button-> It will increase the speed (ship)
- right button->It will decrease the speed(ship)

## **Conclusion:**

Here this is a mini-project with a sea beach scenario. In the future we will be able to add more features, objects and movements to this scene. For the time being we tried to implement all the basics and agendas that we learned in the computer graphics course. We tried to implement some real-time effect in this scenery. We learned a lot from the course which we tried to show in this project and this small project is our great motivation to get into the deep of graphics contents.

## SOURCE CODE:

```
#include<iostream>

#include <cstdio>

#include<GL/gl.h>

#include <GL/glut.h>

#include<math.h>

#include<Windows.h>
```

```
GLfloat position = 0.0f;

GLfloat position2 =0.0f;

GLfloat position3 =0.0f;

GLfloat speed = 0.02f;

GLfloat speed2 =0.01f;

GLfloat speed3 =0.005f;
```

```
GLfloat i= 0.0f;
```

```
void update(int value) {
```

```
    if(position > 1.0)

        position = -1.2f;
```

```
    position += speed;
```

```
        glutPostRedisplay();  
        glutTimerFunc(100, update, 0);  
  
    }  
  
    void update2(int value) {  
  
        if(position2 < -1.0)  
            position2 = 0.7f;  
  
        position2 -= speed2;  
        glutPostRedisplay();  
        glutTimerFunc(100, update2, 0);  
  
    }  
  
    void init() {  
        glClearColor(0.0f, 0.0f, 0.0f, 1.0f);  
    }  
  
    void handleMouse(int button, int state, int x, int y) {  
        if (button == GLUT_LEFT_BUTTON)  
        {
```

```

        if (state == GLUT_DOWN)
        {
            speed += 0.009f;
            printf("clicked at (%d, %d)\n", x, y);
        }

    }

    else if(button ==GLUT_RIGHT_BUTTON)
{
    if(state == GLUT_DOWN)
    {
        speed -=0.009f;
        printf("clicked at (%d, %d)\n", x, y);
    }
}

    glutPostRedisplay();
}

```

```

void sky() {
    glClearColor(0.0f, 0.0f, 0.0f, 1.0f);
    glBegin(GL_QUADS);
    glColor3ub(174, 225, 230); //sky
    glVertex2f(-1.0f, 0.3f);
        glVertex2f(1.0f, 0.3f);
        glVertex2f(1.0f, 1.0f);
        glVertex2f(-1.0f, 1.0f);
    glEnd();
}

```

```

void nightSky()
{
    glBegin(GL_QUADS);
    glColor3ub(7, 11, 52); //nightsky

        glVertex2f(-1.0f, 0.3f);
        glVertex2f(1.0f, 0.3f);
        glVertex2f(1.0f, 1.0f);
        glVertex2f(-1.0f, 1.0f);
    glEnd();
}

void sand(){

    glBegin(GL_QUADS);
    glColor3ub(230, 197, 131); //sand
    glVertex2f(-1.0f, -0.3f);
        glVertex2f(1.0f, -0.3f);
        glVertex2f(1.0f, 0.3f);
        glVertex2f(-1.0f, 0.3f);
    glEnd();
}

void nightSand()
{
    glBegin(GL_QUADS);
    glColor3ub(139,69,19); //nightsand
    glVertex2f(-1.0f, -0.3f);
    glVertex2f(1.0f, -0.3f);

```

```

    glVertex2f(1.0f, 0.3f);
    glVertex2f(-1.0f, 0.3f);
    glEnd();
}

void ocean(){
    glBegin(GL_QUADS);
    glColor3ub(55, 159, 212); //ocean
    glVertex2f(-1.0f, -1.0f);
        glVertex2f(1.0f, -1.0f);
        glVertex2f(1.0f,-0.26f);
        glVertex2f(-1.0f, -0.26f);
    glEnd();
}

void nightOcan()
{
    glBegin(GL_QUADS);
    glColor3ub(6,66,115); //nightocean
    glVertex2f(-1.0f, -1.0f);
    glVertex2f(1.0f, -1.0f);
    glVertex2f(1.0f,-0.26f);
    glVertex2f(-1.0f, -0.26f);
    glEnd();
}

void building(){

    glBegin(GL_QUADS);
    glColor3ub(50, 97, 135); //building1

```



```

glVertex2f(-0.3f, 0.3f);

    glVertex2f(-0.3f, 0.8f);

    glVertex2f(-0.65f, 0.8f);

    glVertex2f(-0.65f, 0.3f);

    glEnd();


    glBegin(GL_QUADS);
glColor3ub(186, 159, 149); //building1(upper1)
glVertex2f(-0.33f, 0.8f);

    glVertex2f(-0.33f, 0.83f);

    glVertex2f(-0.62f, 0.83f);

    glVertex2f(-0.62f, 0.8f);

    glEnd();


    glBegin(GL_QUADS);
glColor3ub(244, 245, 233); //building1(upper2)
glVertex2f(-0.35f, 0.83f);

    glVertex2f(-0.35f, 0.85f);

    glVertex2f(-0.6f, 0.85f);

    glVertex2f(-0.6f, 0.83f);

    glEnd();


    glBegin(GL_QUADS);
glColor3ub(186,159,149); //building1(upper3)
glVertex2f(-0.37f, 0.85f);

    glVertex2f(-0.37f, 0.88f);

    glVertex2f(-0.58f, 0.88f);

    glVertex2f(-0.58f, 0.85f);

    glEnd();

```

```
glBegin(GL_QUADS);  
glColor3ub(50, 97, 135); //building1(upper4)  
glVertex2f(-0.38f, 0.85f);  
    glVertex2f(-0.42f, 0.91f);  
    glVertex2f(-0.52f, 0.91f);  
    glVertex2f(-0.56f, 0.85f);  
glEnd();
```

```
    glBegin(GL_QUADS);  
glColor3ub(244,245,233); //building1(upper5)  
glVertex2f(-0.44f, 0.91f);  
    glVertex2f(-0.44f, 0.93f);  
    glVertex2f(-0.5f, 0.93f);  
    glVertex2f(-0.5f, 0.91f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(50, 97, 135); //building1(upper6)  
glVertex2f(-0.46f, 0.93f);  
    glVertex2f(-0.46f, 0.96f);  
    glVertex2f(-0.48f, 0.96f);  
    glVertex2f(-0.48f, 0.93f);  
glEnd();
```

```
glBegin(GL_QUADS);
```

```
glColor3ub(244,245,233); //border1
glVertex2f(-0.36f, 0.3f);
    glVertex2f(-0.36f, 0.8f);
    glVertex2f(-0.375f, 0.8f);
    glVertex2f(-0.375f, 0.3f);
    glEnd();
```

```
glBegin(GL_QUADS);
glColor3ub(244,245,233); //border2
glVertex2f(-0.47f, 0.3f);
    glVertex2f(-0.47f, 0.8f);
    glVertex2f(-0.485f, 0.8f);
    glVertex2f(-0.485f, 0.3f);
    glEnd();
```

```
glBegin(GL_QUADS);
glColor3ub(244,245,233); //border3
glVertex2f(-0.58f, 0.3f);
    glVertex2f(-0.58f, 0.8f);
    glVertex2f(-0.595f, 0.8f);
    glVertex2f(-0.595f, 0.3f);
    glEnd();
```

```
glBegin(GL_QUADS);
glColor3ub(27,199,255); //window1
glVertex2f(-0.54f, 0.75f);
    glVertex2f(-0.54f, 0.78f);
    glVertex2f(-0.57f, 0.78f);
    glVertex2f(-0.57f, 0.75f);
```

```
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(27,199,255); //window  
glVertex2f(-0.5f, 0.75f);  
    glVertex2f(-0.5f, 0.78f);  
    glVertex2f(-0.53f, 0.78f);  
    glVertex2f(-0.53f, 0.75f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(27,199,255); //window  
glVertex2f(-0.5f, 0.7f);  
    glVertex2f(-0.5f, 0.73f);  
    glVertex2f(-0.53f, 0.73f);  
    glVertex2f(-0.53f, 0.7f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(27,199,255); //window  
glVertex2f(-0.5f, 0.65f);  
    glVertex2f(-0.5f, 0.68f);  
    glVertex2f(-0.53f, 0.68f);  
    glVertex2f(-0.53f, 0.65f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(27,199,255); //window
```

```
glVertex2f(-0.5f, 0.6f);  
    glVertex2f(-0.5f, 0.63f);  
    glVertex2f(-0.53f, 0.63f);  
    glVertex2f(-0.53f, 0.6f);  
    glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(27,199,255); //window  
glVertex2f(-0.5f, 0.55f);  
    glVertex2f(-0.5f, 0.58f);  
    glVertex2f(-0.53f, 0.58f);  
    glVertex2f(-0.53f, 0.55f);  
    glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(27,199,255); //window  
glVertex2f(-0.5f, 0.5f);  
    glVertex2f(-0.5f, 0.53f);  
    glVertex2f(-0.53f, 0.53f);  
    glVertex2f(-0.53f, 0.5f);  
    glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(27,199,255); //window  
glVertex2f(-0.5f, 0.45f);  
    glVertex2f(-0.5f, 0.48f);  
    glVertex2f(-0.53f, 0.48f);  
    glVertex2f(-0.53f, 0.45f);  
    glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(27,199,255); //window  
glVertex2f(-0.5f, 0.4f);  
    glVertex2f(-0.5f, 0.43f);  
    glVertex2f(-0.53f, 0.43f);  
    glVertex2f(-0.53f, 0.4f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(27,199,255); //window  
glVertex2f(-0.5f, 0.35f);  
    glVertex2f(-0.5f, 0.38f);  
    glVertex2f(-0.53f, 0.38f);  
    glVertex2f(-0.53f, 0.35f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(27,199,255); //window  
glVertex2f(-0.5f, 0.31f);  
    glVertex2f(-0.5f, 0.34f);  
    glVertex2f(-0.53f, 0.34f);  
    glVertex2f(-0.53f, 0.31f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(27,199,255); //window  
glVertex2f(-0.54f, 0.7f);  
    glVertex2f(-0.54f, 0.73f);
```

```
glVertex2f(-0.57f, 0.73f);  
glVertex2f(-0.57f, 0.7f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(27,199,255); //window  
glVertex2f(-0.54f, 0.65f);  
    glVertex2f(-0.54f, 0.68f);  
    glVertex2f(-0.57f, 0.68f);  
    glVertex2f(-0.57f, 0.65f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(27,199,255); //window  
glVertex2f(-0.54f, 0.6f);  
    glVertex2f(-0.54f, 0.63f);  
    glVertex2f(-0.57f, 0.63f);  
    glVertex2f(-0.57f, 0.6f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(27,199,255); //window  
glVertex2f(-0.54f, 0.55f);  
    glVertex2f(-0.54f, 0.58f);  
    glVertex2f(-0.57f, 0.58f);  
    glVertex2f(-0.57f, 0.55f);  
glEnd();
```

```
glBegin(GL_QUADS);
```

```
glColor3ub(27,199,255); //window
glVertex2f(-0.54f, 0.5f);
    glVertex2f(-0.54f, 0.53f);
    glVertex2f(-0.57f, 0.53f);
    glVertex2f(-0.57f, 0.5f);
    glEnd();
```

```
glBegin(GL_QUADS);
glColor3ub(27,199,255); //window
glVertex2f(-0.54f, 0.45f);
    glVertex2f(-0.54f, 0.48f);
    glVertex2f(-0.57f, 0.48f);
    glVertex2f(-0.57f, 0.45f);
    glEnd();
```

```
glBegin(GL_QUADS);
glColor3ub(27,199,255); //window
glVertex2f(-0.54f, 0.4f);
    glVertex2f(-0.54f, 0.43f);
    glVertex2f(-0.57f, 0.43f);
    glVertex2f(-0.57f, 0.4f);
    glEnd();
```

```
glBegin(GL_QUADS);
glColor3ub(27,199,255); //window
glVertex2f(-0.54f, 0.35f);
    glVertex2f(-0.54f, 0.38f);
    glVertex2f(-0.57f, 0.38f);
    glVertex2f(-0.57f, 0.35f);
```



```
glEnd();
```

```
glBegin(GL_QUADS);
```

```
glColor3ub(27,199,255); //window
```

```
glVertex2f(-0.54f, 0.31f);
```

```
    glVertex2f(-0.54f, 0.34f);
```

```
    glVertex2f(-0.57f, 0.34f);
```

```
    glVertex2f(-0.57f, 0.31f);
```

```
glEnd();
```

```
glBegin(GL_QUADS);
```

```
glColor3ub(27,199,255); //window2
```

```
glVertex2f(-0.43f, 0.75f);
```

```
    glVertex2f(-0.43f, 0.78f);
```

```
    glVertex2f(-0.46f, 0.78f);
```

```
    glVertex2f(-0.46f, 0.75f);
```

```
glEnd();
```

```
glBegin(GL_QUADS);
```

```
glColor3ub(27,199,255); //window2
```

```
glVertex2f(-0.43f, 0.7f);
```

```
    glVertex2f(-0.43f, 0.73f);
```

```
    glVertex2f(-0.46f, 0.73f);
```

```
    glVertex2f(-0.46f, 0.7f);
```

```
glEnd();
```

```
    glBegin(GL_QUADS);
```

```
glColor3ub(27,199,255); //window2
```

```
glVertex2f(-0.43f, 0.65f);
```

```
glVertex2f(-0.43f, 0.68f);  
glVertex2f(-0.46f, 0.68f);  
glVertex2f(-0.46f, 0.65f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(27,199,255); //window2  
glVertex2f(-0.43f, 0.6f);  
glVertex2f(-0.43f, 0.63f);  
glVertex2f(-0.46f, 0.63f);  
glVertex2f(-0.46f, 0.6f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(27,199,255); //window2  
glVertex2f(-0.43f, 0.55f);  
glVertex2f(-0.43f, 0.58f);  
glVertex2f(-0.46f, 0.58f);  
glVertex2f(-0.46f, 0.55f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(27,199,255); //window2  
glVertex2f(-0.43f, 0.5f);  
glVertex2f(-0.43f, 0.53f);  
glVertex2f(-0.46f, 0.53f);  
glVertex2f(-0.46f, 0.5f);  
glEnd();
```

```
        glBegin(GL_QUADS);
glColor3ub(27,199,255); //window2
glVertex2f(-0.43f, 0.45f);
        glVertex2f(-0.43f, 0.48f);
        glVertex2f(-0.46f, 0.48f);
        glVertex2f(-0.46f, 0.45f);
        glEnd();
```

```
        glBegin(GL_QUADS);
glColor3ub(27,199,255); //window2
glVertex2f(-0.43f, 0.4f);
        glVertex2f(-0.43f, 0.43f);
        glVertex2f(-0.46f, 0.43f);
        glVertex2f(-0.46f, 0.4f);
        glEnd();
```

```
glBegin(GL_QUADS);
glColor3ub(27,199,255); //window2
glVertex2f(-0.43f, 0.35f);
        glVertex2f(-0.43f, 0.38f);
        glVertex2f(-0.46f, 0.38f);
        glVertex2f(-0.46f, 0.35f);
        glEnd();
```

```
glBegin(GL_QUADS);
glColor3ub(27,199,255); //window2
glVertex2f(-0.43f, 0.31f);
        glVertex2f(-0.43f, 0.34f);
        glVertex2f(-0.46f, 0.34f);
```

```
glVertex2f(-0.46f, 0.31f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(27,199,255); //window2  
glVertex2f(-0.39f, 0.75f);  
    glVertex2f(-0.39f, 0.78f);  
    glVertex2f(-0.42f, 0.78f);  
    glVertex2f(-0.42f, 0.75f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(27,199,255); //window2  
glVertex2f(-0.39f, 0.7f);  
    glVertex2f(-0.39f, 0.73f);  
    glVertex2f(-0.42f, 0.73f);  
    glVertex2f(-0.42f, 0.7f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(27,199,255); //window2  
glVertex2f(-0.39f, 0.65f);  
    glVertex2f(-0.39f, 0.68f);  
    glVertex2f(-0.42f, 0.68f);  
    glVertex2f(-0.42f, 0.65f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(27,199,255); //window2
```

```
glVertex2f(-0.39f, 0.6f);  
    glVertex2f(-0.39f, 0.63f);  
    glVertex2f(-0.42f, 0.63f);  
    glVertex2f(-0.42f, 0.6f);  
    glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(27,199,255); //window2  
glVertex2f(-0.39f, 0.55f);  
    glVertex2f(-0.39f, 0.58f);  
    glVertex2f(-0.42f, 0.58f);  
    glVertex2f(-0.42f, 0.55f);  
    glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(27,199,255); //window2  
glVertex2f(-0.39f, 0.5f);  
    glVertex2f(-0.39f, 0.53f);  
    glVertex2f(-0.42f, 0.53f);  
    glVertex2f(-0.42f, 0.5f);
```

```
glBegin(GL_QUADS);  
glColor3ub(27,199,255); //window2  
glVertex2f(-0.39f, 0.45f);  
    glVertex2f(-0.39f, 0.48f);  
    glVertex2f(-0.42f, 0.48f);  
    glVertex2f(-0.42f, 0.45f);  
    glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(27,199,255); //window2  
glVertex2f(-0.39f, 0.4f);  
    glVertex2f(-0.39f, 0.43f);  
    glVertex2f(-0.42f, 0.43f);  
    glVertex2f(-0.42f, 0.4f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(27,199,255); //window2  
glVertex2f(-0.39f, 0.35f);  
    glVertex2f(-0.39f, 0.38f);  
    glVertex2f(-0.42f, 0.38f);  
    glVertex2f(-0.42f, 0.35f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(27,199,255); //window2  
glVertex2f(-0.39f, 0.31f);  
    glVertex2f(-0.39f, 0.34f);  
    glVertex2f(-0.42f, 0.34f);  
    glVertex2f(-0.42f, 0.31f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(244,245,233); //building-gap  
glVertex2f(-0.65f, 0.3f);  
    glVertex2f(-0.65f, 0.8f);  
    glVertex2f(-0.67f, 0.8f);
```

```
glVertex2f(-0.67f, 0.3f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(50, 97, 135); //building2L  
glVertex2f(-0.67f, 0.3f);  
    glVertex2f(-0.67f, 0.75f);  
    glVertex2f(-0.85f, 0.75f);  
    glVertex2f(-0.85f, 0.3f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(244,245,233); //building2L-border1  
glVertex2f(-0.7f, 0.3f);  
    glVertex2f(-0.7f, 0.75f);  
    glVertex2f(-0.715f, 0.75f);  
    glVertex2f(-0.715f, 0.3f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(244,245,233); //building2L-border2  
glVertex2f(-0.80f, 0.3f);  
    glVertex2f(-0.80f, 0.75f);  
    glVertex2f(-0.815f, 0.75f);  
    glVertex2f(-0.815f, 0.3f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(27,199,255); //building2L-window1  
glVertex2f(-0.725f, 0.69f);
```

```
glVertex2f(-0.725f, 0.73f);  
glVertex2f(-0.755f, 0.73f);  
glVertex2f(-0.755f, 0.69f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(27,199,255); //building2R-window1  
glVertex2f(-0.725f, 0.63f);  
glVertex2f(-0.725f, 0.67f);  
glVertex2f(-0.755f, 0.67f);  
glVertex2f(-0.755f, 0.63f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(27,199,255); //building2R-window1  
glVertex2f(-0.725f, 0.57f);  
glVertex2f(-0.725f, 0.61f);  
glVertex2f(-0.755f, 0.61f);  
glVertex2f(-0.755f, 0.57f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(27,199,255); //building2R-window1  
glVertex2f(-0.725f, 0.51f);  
glVertex2f(-0.725f, 0.55f);  
glVertex2f(-0.755f, 0.55f);  
glVertex2f(-0.755f, 0.51f);  
glEnd();
```



```
glBegin(GL_QUADS);  
glColor3ub(27,199,255); //building2L-window1  
glVertex2f(-0.725f, 0.45f);  
    glVertex2f(-0.725f, 0.49f);  
    glVertex2f(-0.755f, 0.49f);  
    glVertex2f(-0.755f, 0.45f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(27,199,255); //building2L-window1  
glVertex2f(-0.725f, 0.39f);  
    glVertex2f(-0.725f, 0.43f);  
    glVertex2f(-0.755f, 0.43f);  
    glVertex2f(-0.755f, 0.39f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(27,199,255); //building2L-window1  
glVertex2f(-0.725f, 0.33f);  
    glVertex2f(-0.725f, 0.37f);  
    glVertex2f(-0.755f, 0.37f);  
    glVertex2f(-0.755f, 0.33f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(27,199,255); //building2L-window2  
glVertex2f(-0.765f, 0.69f);  
    glVertex2f(-0.765f, 0.73f);  
    glVertex2f(-0.795f, 0.73f);
```

```
glVertex2f(-0.795f, 0.69f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(27,199,255); //building2L-window2  
glVertex2f(-0.765f, 0.63f);  
    glVertex2f(-0.765f, 0.67f);  
    glVertex2f(-0.795f, 0.67f);  
    glVertex2f(-0.795f, 0.63f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(27,199,255); //building2-window2  
glVertex2f(-0.765f, 0.57f);  
    glVertex2f(-0.765f, 0.61f);  
    glVertex2f(-0.795f, 0.61f);  
    glVertex2f(-0.795f, 0.57f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(27,199,255); //building2l-window2  
glVertex2f(-0.765f, 0.51f);  
    glVertex2f(-0.765f, 0.55f);  
    glVertex2f(-0.795f, 0.55f);  
    glVertex2f(-0.795f, 0.51f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(27,199,255); //building2L-window2
```

```
glVertex2f(-0.765f, 0.45f);  
    glVertex2f(-0.765f, 0.49f);  
    glVertex2f(-0.795f, 0.49f);  
    glVertex2f(-0.795f, 0.45f);  
    glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(27,199,255); //building2RL-window2  
glVertex2f(-0.765f, 0.39f);  
    glVertex2f(-0.765f, 0.43f);  
    glVertex2f(-0.795f, 0.43f);  
    glVertex2f(-0.795f, 0.39f);  
    glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(27,199,255); //building2-window2  
glVertex2f(-0.765f, 0.33f);  
    glVertex2f(-0.765f, 0.37f);  
    glVertex2f(-0.795f, 0.37f);  
    glVertex2f(-0.795f, 0.33f);  
    glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(186,159,149); //building2L-upper1  
glVertex2f(-0.67f, 0.75f);  
    glVertex2f(-0.67f, 0.78f);  
    glVertex2f(-0.85f, 0.78f);  
    glVertex2f(-0.85f, 0.75f);  
    glEnd();
```

```
glBegin(GL_QUADS);
glColor3ub(244,245,233); //building2L-upper2
glVertex2f(-0.69f, 0.78f);
    glVertex2f(-0.69f, 0.81f);
    glVertex2f(-0.83f, 0.81f);
    glVertex2f(-0.83f, 0.78f);
glEnd();
```

```
glBegin(GL_QUADS);
glColor3ub(50,97,135); //building2-upper3
glVertex2f(-0.71f, 0.81f);
    glVertex2f(-0.74f, 0.84f);
    glVertex2f(-0.77f, 0.84f);
    glVertex2f(-0.8f, 0.81f);
glEnd();
```

```
glBegin(GL_QUADS);
glColor3ub(244,245,233); //building-gap-2
glVertex2f(-0.3f, 0.3f);
    glVertex2f(-0.3f, 0.8f);
glVertex2f(-0.28f, 0.8f);
    glVertex2f(-0.28f, 0.3f);
glEnd();
```

```
glBegin(GL_QUADS);
glColor3ub(50, 97, 135); //building3R
glVertex2f(-0.28f, 0.3f);
    glVertex2f(-0.28f, 0.75f);
```

```
glVertex2f(-0.1f, 0.75f);  
glVertex2f(-0.1f, 0.3f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(244,245,233); //building3R-border1  
glVertex2f(-0.24f, 0.3f);  
glVertex2f(-0.24f, 0.75f);  
glVertex2f(-0.255f, 0.75f);  
glVertex2f(-0.255f, 0.3f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(244,245,233); //building3R-border2  
glVertex2f(-0.13f, 0.3f);  
glVertex2f(-0.13f, 0.75f);  
glVertex2f(-0.145f, 0.75f);  
glVertex2f(-0.145f, 0.3f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(27,199,255); //building3R-window1  
glVertex2f(-0.155f, 0.69f);  
glVertex2f(-0.155f, 0.73f);  
glVertex2f(-0.185f, 0.73f);  
glVertex2f(-0.185f, 0.69f);  
glEnd();
```

```
glBegin(GL_QUADS);
```

```
glColor3ub(27,199,255); //building3R-window1
glVertex2f(-0.155f, 0.63f);
    glVertex2f(-0.155f, 0.67f);
    glVertex2f(-0.185f, 0.67f);
    glVertex2f(-0.185f, 0.63f);
    glEnd();
```

```
glBegin(GL_QUADS);
glColor3ub(27,199,255); //building3R-window1
glVertex2f(-0.155f, 0.57f);
    glVertex2f(-0.155f, 0.61f);
    glVertex2f(-0.185f, 0.61f);
    glVertex2f(-0.185f, 0.57f);
    glEnd();
```

```
glBegin(GL_QUADS);
glColor3ub(27,199,255); //building3R-window1
glVertex2f(-0.155f, 0.51f);
    glVertex2f(-0.155f, 0.55f);
    glVertex2f(-0.185f, 0.55f);
    glVertex2f(-0.185f, 0.51f);
    glEnd();
```

```
glBegin(GL_QUADS);
glColor3ub(27,199,255); //building3R-window1
glVertex2f(-0.155f, 0.45f);
    glVertex2f(-0.155f, 0.49f);
    glVertex2f(-0.185f, 0.49f);
    glVertex2f(-0.185f, 0.45f);
```

```
glEnd();
```

```
glBegin(GL_QUADS);
```

```
glColor3ub(27,199,255); //building3R-window1
```

```
glVertex2f(-0.155f, 0.39f);
```

```
    glVertex2f(-0.155f, 0.43f);
```

```
    glVertex2f(-0.185f, 0.43f);
```

```
    glVertex2f(-0.185f, 0.39f);
```

```
glEnd();
```

```
glBegin(GL_QUADS);
```

```
glColor3ub(27,199,255); //building3R-window1
```

```
glVertex2f(-0.155f, 0.33f);
```

```
    glVertex2f(-0.155f, 0.37f);
```

```
    glVertex2f(-0.185f, 0.37f);
```

```
    glVertex2f(-0.185f, 0.33f);
```

```
glEnd();
```

```
glBegin(GL_QUADS);
```

```
glColor3ub(27,199,255); //building3R-window2
```

```
glVertex2f(-0.195f, 0.69f);
```

```
    glVertex2f(-0.195f, 0.73f);
```

```
    glVertex2f(-0.225f, 0.73f);
```

```
    glVertex2f(-0.225f, 0.69f);
```

```
glEnd();
```

```
glBegin(GL_QUADS);
```

```
glColor3ub(27,199,255); //building3R-window2
```

```
glVertex2f(-0.195f, 0.63f);
```

```
glVertex2f(-0.195f, 0.67f);  
glVertex2f(-0.225f, 0.67f);  
glVertex2f(-0.225f, 0.63f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(27,199,255); //building3R-window2  
glVertex2f(-0.195f, 0.57f);  
glVertex2f(-0.195f, 0.61f);  
glVertex2f(-0.225f, 0.61f);  
glVertex2f(-0.225f, 0.57f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(27,199,255); //building3R-window2  
glVertex2f(-0.195f, 0.51f);  
glVertex2f(-0.195f, 0.55f);  
glVertex2f(-0.225f, 0.55f);  
glVertex2f(-0.225f, 0.51f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(27,199,255); //building3R-window2  
glVertex2f(-0.195f, 0.45f);  
glVertex2f(-0.195f, 0.49f);  
glVertex2f(-0.225f, 0.49f);  
glVertex2f(-0.225f, 0.45f);  
glEnd();
```



```
glBegin(GL_QUADS);  
glColor3ub(27,199,255); //building3R-window2  
glVertex2f(-0.195f, 0.39f);  
    glVertex2f(-0.195f, 0.43f);  
    glVertex2f(-0.225f, 0.43f);  
    glVertex2f(-0.225f, 0.39f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(27,199,255); //building3R-window2  
glVertex2f(-0.195f, 0.33f);  
    glVertex2f(-0.195f, 0.37f);  
    glVertex2f(-0.225f, 0.37f);  
    glVertex2f(-0.225f, 0.33f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(186,159,149); //building3R-upper1  
glVertex2f(-0.28f, 0.75f);  
    glVertex2f(-0.28f, 0.78f);  
    glVertex2f(-0.1f, 0.78f);  
    glVertex2f(-0.1, 0.75f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(244,245,233); //building3R-upper2  
glVertex2f(-0.26f, 0.78f);  
    glVertex2f(-0.26f, 0.81f);  
    glVertex2f(-0.12f, 0.81f);
```

```

        glVertex2f(-0.12f, 0.78f);

        glEnd();

glBegin(GL_QUADS);
glColor3ub(50,97,135); //building3R-upper3
glVertex2f(-0.25f, 0.81f);
    glVertex2f(-0.22f, 0.84f);
    glVertex2f(-0.18f, 0.84f);
    glVertex2f(-0.15, 0.81f);
    glEnd();
}

```

```

void nightbuilding()
{
    glBegin(GL_QUADS);
glColor3ub(50, 97, 135); //building1
glVertex2f(-0.3f, 0.3f);
    glVertex2f(-0.3f, 0.8f);
    glVertex2f(-0.65f, 0.8f);
    glVertex2f(-0.65f, 0.3f);
    glEnd();

    glBegin(GL_QUADS);
glColor3ub(186, 159, 149); //building1(upper1)
glVertex2f(-0.33f, 0.8f);
    glVertex2f(-0.33f, 0.83f);
    glVertex2f(-0.62f, 0.83f);

```

```
glVertex2f(-0.62f, 0.8f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(244, 245, 233); //building1(upper2)  
glVertex2f(-0.35f, 0.83f);  
glVertex2f(-0.35f, 0.85f);  
glVertex2f(-0.6f, 0.85f);  
glVertex2f(-0.6f, 0.83f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(186,159,149); //building1(upper3)  
glVertex2f(-0.37f, 0.85f);  
glVertex2f(-0.37f, 0.88f);  
glVertex2f(-0.58f, 0.88f);  
glVertex2f(-0.58f, 0.85f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(50, 97, 135); //building1(upper4)  
glVertex2f(-0.38f, 0.85f);  
glVertex2f(-0.42f, 0.91f);  
glVertex2f(-0.52f, 0.91f);  
glVertex2f(-0.56f, 0.85f);  
glEnd();
```

```
glBegin(GL_QUADS);
```

```
glColor3ub(244,245,233); //building1(upper5)
```

```
glVertex2f(-0.44f, 0.91f);
```

```
    glVertex2f(-0.44f, 0.93f);
```

```
    glVertex2f(-0.5f, 0.93f);
```

```
    glVertex2f(-0.5f, 0.91f);
```

```
glEnd();
```

```
glBegin(GL_QUADS);
```

```
glColor3ub(50, 97, 135); //building1(upper6)
```

```
glVertex2f(-0.46f, 0.93f);
```

```
    glVertex2f(-0.46f, 0.96f);
```

```
    glVertex2f(-0.48f, 0.96f);
```

```
    glVertex2f(-0.48f, 0.93f);
```

```
glEnd();
```

```
glBegin(GL_QUADS);
```

```
glColor3ub(244,245,233); //border1
```

```
glVertex2f(-0.36f, 0.3f);
```

```
    glVertex2f(-0.36f, 0.8f);
```

```
    glVertex2f(-0.375f, 0.8f);
```

```
    glVertex2f(-0.375f, 0.3f);
```

```
glEnd();
```

```
glBegin(GL_QUADS);
```

```
glColor3ub(244,245,233); //border2
```

```
glVertex2f(-0.47f, 0.3f);
```

```
    glVertex2f(-0.47f, 0.8f);
```

```
glVertex2f(-0.485f, 0.8f);  
glVertex2f(-0.485f, 0.3f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(244,245,233); //border3  
glVertex2f(-0.58f, 0.3f);  
    glVertex2f(-0.58f, 0.8f);  
    glVertex2f(-0.595f, 0.8f);  
    glVertex2f(-0.595f, 0.3f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(255,255,0); //window1  
glVertex2f(-0.54f, 0.75f);  
    glVertex2f(-0.54f, 0.78f);  
    glVertex2f(-0.57f, 0.78f);  
    glVertex2f(-0.57f, 0.75f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(255,255,0); //window  
glVertex2f(-0.5f, 0.75f);  
    glVertex2f(-0.5f, 0.78f);  
    glVertex2f(-0.53f, 0.78f);  
    glVertex2f(-0.53f, 0.75f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(255,255,0); //window  
glVertex2f(-0.5f, 0.7f);  
    glVertex2f(-0.5f, 0.73f);  
    glVertex2f(-0.53f, 0.73f);  
    glVertex2f(-0.53f, 0.7f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(255,255,0); //window  
glVertex2f(-0.5f, 0.65f);  
    glVertex2f(-0.5f, 0.68f);  
    glVertex2f(-0.53f, 0.68f);  
    glVertex2f(-0.53f, 0.65f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(255,255,0); //window  
glVertex2f(-0.5f, 0.6f);  
    glVertex2f(-0.5f, 0.63f);  
    glVertex2f(-0.53f, 0.63f);  
    glVertex2f(-0.53f, 0.6f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(255,255,0); //window  
glVertex2f(-0.5f, 0.55f);  
    glVertex2f(-0.5f, 0.58f);  
    glVertex2f(-0.53f, 0.58f);
```

```
glVertex2f(-0.53f, 0.55f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(255,255,0); //window  
glVertex2f(-0.5f, 0.5f);  
    glVertex2f(-0.5f, 0.53f);  
    glVertex2f(-0.53f, 0.53f);  
    glVertex2f(-0.53f, 0.5f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(255,255,0); //window  
glVertex2f(-0.5f, 0.45f);  
    glVertex2f(-0.5f, 0.48f);  
    glVertex2f(-0.53f, 0.48f);  
    glVertex2f(-0.53f, 0.45f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(255,255,0); //window  
glVertex2f(-0.5f, 0.4f);  
    glVertex2f(-0.5f, 0.43f);  
    glVertex2f(-0.53f, 0.43f);  
    glVertex2f(-0.53f, 0.4f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(255,255,0); //window
```

```
glVertex2f(-0.5f, 0.35f);  
    glVertex2f(-0.5f, 0.38f);  
    glVertex2f(-0.53f, 0.38f);  
    glVertex2f(-0.53f, 0.35f);  
    glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(255,255,0); //window  
glVertex2f(-0.5f, 0.31f);  
    glVertex2f(-0.5f, 0.34f);  
    glVertex2f(-0.53f, 0.34f);  
    glVertex2f(-0.53f, 0.31f);  
    glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(255,255,0); //window  
glVertex2f(-0.54f, 0.7f);  
    glVertex2f(-0.54f, 0.73f);  
    glVertex2f(-0.57f, 0.73f);  
    glVertex2f(-0.57f, 0.7f);  
    glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(255,255,0); //window  
glVertex2f(-0.54f, 0.65f);  
    glVertex2f(-0.54f, 0.68f);  
    glVertex2f(-0.57f, 0.68f);  
    glVertex2f(-0.57f, 0.65f);  
    glEnd();
```



```
glBegin(GL_QUADS);  
glColor3ub(255,255,0); //window  
glVertex2f(-0.54f, 0.6f);  
    glVertex2f(-0.54f, 0.63f);  
    glVertex2f(-0.57f, 0.63f);  
    glVertex2f(-0.57f, 0.6f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(255,255,0); //window  
glVertex2f(-0.54f, 0.55f);  
    glVertex2f(-0.54f, 0.58f);  
    glVertex2f(-0.57f, 0.58f);  
    glVertex2f(-0.57f, 0.55f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(255,255,0); //window  
glVertex2f(-0.54f, 0.5f);  
    glVertex2f(-0.54f, 0.53f);  
    glVertex2f(-0.57f, 0.53f);  
    glVertex2f(-0.57f, 0.5f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(255,255,0); //window  
glVertex2f(-0.54f, 0.45f);  
    glVertex2f(-0.54f, 0.48f);
```

```
glVertex2f(-0.57f, 0.48f);  
glVertex2f(-0.57f, 0.45f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(255,255,0); //window  
glVertex2f(-0.54f, 0.4f);  
    glVertex2f(-0.54f, 0.43f);  
    glVertex2f(-0.57f, 0.43f);  
    glVertex2f(-0.57f, 0.4f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(255,255,0); //window  
glVertex2f(-0.54f, 0.35f);  
    glVertex2f(-0.54f, 0.38f);  
    glVertex2f(-0.57f, 0.38f);  
    glVertex2f(-0.57f, 0.35f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(255,255,0); //window  
glVertex2f(-0.54f, 0.31f);  
    glVertex2f(-0.54f, 0.34f);  
    glVertex2f(-0.57f, 0.34f);  
    glVertex2f(-0.57f, 0.31f);  
glEnd();
```

```
glBegin(GL_QUADS);
```

```
glColor3ub(255,255,0); //window2
glVertex2f(-0.43f, 0.75f);
    glVertex2f(-0.43f, 0.78f);
    glVertex2f(-0.46f, 0.78f);
    glVertex2f(-0.46f, 0.75f);
    glEnd();
```

```
glBegin(GL_QUADS);
glColor3ub(255,255,0); //window2
glVertex2f(-0.43f, 0.7f);
    glVertex2f(-0.43f, 0.73f);
    glVertex2f(-0.46f, 0.73f);
    glVertex2f(-0.46f, 0.7f);
    glEnd();
```

```
    glBegin(GL_QUADS);
glColor3ub(255,255,0); //window2
glVertex2f(-0.43f, 0.65f);
    glVertex2f(-0.43f, 0.68f);
    glVertex2f(-0.46f, 0.68f);
    glVertex2f(-0.46f, 0.65f);
    glEnd();
```

```
    glBegin(GL_QUADS);
glColor3ub(255,255,0); //window2
glVertex2f(-0.43f, 0.6f);
    glVertex2f(-0.43f, 0.63f);
    glVertex2f(-0.46f, 0.63f);
    glVertex2f(-0.46f, 0.6f);
```

```
glEnd();
```

```
glBegin(GL_QUADS);
```

```
glColor3ub(255,255,0); //window2
```

```
glVertex2f(-0.43f, 0.55f);
```

```
glVertex2f(-0.43f, 0.58f);
```

```
glVertex2f(-0.46f, 0.58f);
```

```
glVertex2f(-0.46f, 0.55f);
```

```
glEnd();
```

```
glBegin(GL_QUADS);
```

```
glColor3ub(255,255,0); //window2
```

```
glVertex2f(-0.43f, 0.5f);
```

```
glVertex2f(-0.43f, 0.53f);
```

```
glVertex2f(-0.46f, 0.53f);
```

```
glVertex2f(-0.46f, 0.5f);
```

```
glEnd();
```

```
glBegin(GL_QUADS);
```

```
glColor3ub(255,255,0); //window2
```

```
glVertex2f(-0.43f, 0.45f);
```

```
glVertex2f(-0.43f, 0.48f);
```

```
glVertex2f(-0.46f, 0.48f);
```

```
glVertex2f(-0.46f, 0.45f);
```

```
glEnd();
```

```
glBegin(GL_QUADS);
```

```
glColor3ub(255,255,0); //window2
```

```
glVertex2f(-0.43f, 0.4f);
```

```
glVertex2f(-0.43f, 0.43f);  
glVertex2f(-0.46f, 0.43f);  
glVertex2f(-0.46f, 0.4f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(255,255,0); //window2  
glVertex2f(-0.43f, 0.35f);  
glVertex2f(-0.43f, 0.38f);  
glVertex2f(-0.46f, 0.38f);  
glVertex2f(-0.46f, 0.35f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(255,255,0); //window2  
glVertex2f(-0.43f, 0.31f);  
glVertex2f(-0.43f, 0.34f);  
glVertex2f(-0.46f, 0.34f);  
glVertex2f(-0.46f, 0.31f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(255,255,0); //window2  
glVertex2f(-0.39f, 0.75f);  
glVertex2f(-0.39f, 0.78f);  
glVertex2f(-0.42f, 0.78f);  
glVertex2f(-0.42f, 0.75f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(255,255,0); //window2  
glVertex2f(-0.39f, 0.7f);  
    glVertex2f(-0.39f, 0.73f);  
    glVertex2f(-0.42f, 0.73f);  
    glVertex2f(-0.42f, 0.7f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(255,255,0); //window2  
glVertex2f(-0.39f, 0.65f);  
    glVertex2f(-0.39f, 0.68f);  
    glVertex2f(-0.42f, 0.68f);  
    glVertex2f(-0.42f, 0.65f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(255,255,0); //window2  
glVertex2f(-0.39f, 0.6f);  
    glVertex2f(-0.39f, 0.63f);  
    glVertex2f(-0.42f, 0.63f);  
    glVertex2f(-0.42f, 0.6f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(255,255,0); //window2  
glVertex2f(-0.39f, 0.55f);  
    glVertex2f(-0.39f, 0.58f);  
    glVertex2f(-0.42f, 0.58f);
```

```
glVertex2f(-0.42f, 0.55f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(255,255,0); //window2  
glVertex2f(-0.39f, 0.5f);  
    glVertex2f(-0.39f, 0.53f);  
    glVertex2f(-0.42f, 0.53f);  
    glVertex2f(-0.42f, 0.5f);
```

```
glBegin(GL_QUADS);  
glColor3ub(255,255,0); //window2  
glVertex2f(-0.39f, 0.45f);  
    glVertex2f(-0.39f, 0.48f);  
    glVertex2f(-0.42f, 0.48f);  
    glVertex2f(-0.42f, 0.45f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(255,255,0); //window2  
glVertex2f(-0.39f, 0.4f);  
    glVertex2f(-0.39f, 0.43f);  
    glVertex2f(-0.42f, 0.43f);  
    glVertex2f(-0.42f, 0.4f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(255,255,0); //window2  
glVertex2f(-0.39f, 0.35f);
```

```
    glVertex2f(-0.39f, 0.38f);  
    glVertex2f(-0.42f, 0.38f);  
    glVertex2f(-0.42f, 0.35f);  
    glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(255,255,0); //window2  
glVertex2f(-0.39f, 0.31f);  
    glVertex2f(-0.39f, 0.34f);  
    glVertex2f(-0.42f, 0.34f);  
    glVertex2f(-0.42f, 0.31f);  
    glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(244,245,233); //b-gap  
glVertex2f(-0.65f, 0.3f);  
    glVertex2f(-0.65f, 0.8f);  
    glVertex2f(-0.67f, 0.8f);  
    glVertex2f(-0.67f, 0.3f);  
    glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(50, 97, 135); //building2L  
glVertex2f(-0.67f, 0.3f);  
    glVertex2f(-0.67f, 0.75f);  
    glVertex2f(-0.85f, 0.75f);  
    glVertex2f(-0.85f, 0.3f);  
    glEnd();
```



```
glBegin(GL_QUADS);  
glColor3ub(244,245,233); //building2L-border1  
glVertex2f(-0.7f, 0.3f);  
    glVertex2f(-0.7f, 0.75f);  
    glVertex2f(-0.715f, 0.75f);  
    glVertex2f(-0.715f, 0.3f);  
    glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(244,245,233); //building2L-border2  
glVertex2f(-0.80f, 0.3f);  
    glVertex2f(-0.80f, 0.75f);  
    glVertex2f(-0.815f, 0.75f);  
    glVertex2f(-0.815f, 0.3f);  
    glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(255,255,0); //building2L-window1  
glVertex2f(-0.725f, 0.69f);  
    glVertex2f(-0.725f, 0.73f);  
    glVertex2f(-0.755f, 0.73f);  
    glVertex2f(-0.755f, 0.69f);  
    glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(255,255,0); //building2R-window1  
glVertex2f(-0.725f, 0.63f);  
    glVertex2f(-0.725f, 0.67f);  
    glVertex2f(-0.755f, 0.67f);  
    glVertex2f(-0.755f, 0.63f);
```

```
glEnd();
```

```
glBegin(GL_QUADS);
```

```
glColor3ub(255,255,0); //building2R-window1
```

```
glVertex2f(-0.725f, 0.57f);
```

```
    glVertex2f(-0.725f, 0.61f);
```

```
    glVertex2f(-0.755f, 0.61f);
```

```
    glVertex2f(-0.755f, 0.57f);
```

```
glEnd();
```

```
glBegin(GL_QUADS);
```

```
glColor3ub(255,255,0); //building2R-window1
```

```
glVertex2f(-0.725f, 0.51f);
```

```
    glVertex2f(-0.725f, 0.55f);
```

```
    glVertex2f(-0.755f, 0.55f);
```

```
    glVertex2f(-0.755f, 0.51f);
```

```
glEnd();
```

```
glBegin(GL_QUADS);
```

```
glColor3ub(255,255,0); //building2L-window1
```

```
glVertex2f(-0.725f, 0.45f);
```

```
    glVertex2f(-0.725f, 0.49f);
```

```
    glVertex2f(-0.755f, 0.49f);
```

```
    glVertex2f(-0.755f, 0.45f);
```

```
glEnd();
```

```
glBegin(GL_QUADS);
```

```
glColor3ub(255,255,0); //building2L-window1
```

```
glVertex2f(-0.725f, 0.39f);
```

```
glVertex2f(-0.725f, 0.43f);  
glVertex2f(-0.755f, 0.43f);  
glVertex2f(-0.755f, 0.39f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(255,255,0); //building2L-window1  
glVertex2f(-0.725f, 0.33f);  
glVertex2f(-0.725f, 0.37f);  
glVertex2f(-0.755f, 0.37f);  
glVertex2f(-0.755f, 0.33f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(255,255,0); //building2L-window2  
glVertex2f(-0.765f, 0.69f);  
glVertex2f(-0.765f, 0.73f);  
glVertex2f(-0.795f, 0.73f);  
glVertex2f(-0.795f, 0.69f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(255,255,0); //building2L-window2  
glVertex2f(-0.765f, 0.63f);  
glVertex2f(-0.765f, 0.67f);  
glVertex2f(-0.795f, 0.67f);  
glVertex2f(-0.795f, 0.63f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(255,255,0); //building2-window2  
glVertex2f(-0.765f, 0.57f);  
    glVertex2f(-0.765f, 0.61f);  
    glVertex2f(-0.795f, 0.61f);  
    glVertex2f(-0.795f, 0.57f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(255,255,0); //building2l-window2  
glVertex2f(-0.765f, 0.51f);  
    glVertex2f(-0.765f, 0.55f);  
    glVertex2f(-0.795f, 0.55f);  
    glVertex2f(-0.795f, 0.51f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(255,255,0); //building2L-window2  
glVertex2f(-0.765f, 0.45f);  
    glVertex2f(-0.765f, 0.49f);  
    glVertex2f(-0.795f, 0.49f);  
    glVertex2f(-0.795f, 0.45f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(255,255,0); //building2RL-window2  
glVertex2f(-0.765f, 0.39f);  
    glVertex2f(-0.765f, 0.43f);  
    glVertex2f(-0.795f, 0.43f);
```

```
glVertex2f(-0.795f, 0.39f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(255,255,0); //building2-window2  
glVertex2f(-0.765f, 0.33f);  
    glVertex2f(-0.765f, 0.37f);  
    glVertex2f(-0.795f, 0.37f);  
    glVertex2f(-0.795f, 0.33f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(186,159,149); //building2L-upper1  
glVertex2f(-0.67f, 0.75f);  
    glVertex2f(-0.67f, 0.78f);  
    glVertex2f(-0.85f, 0.78f);  
    glVertex2f(-0.85f, 0.75f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(244,245,233); //building2L-upper2  
glVertex2f(-0.69f, 0.78f);  
    glVertex2f(-0.69f, 0.81f);  
    glVertex2f(-0.83f, 0.81f);  
    glVertex2f(-0.83f, 0.78f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(50,97,135); //building2-upper3
```

```
glVertex2f(-0.71f, 0.81f);  
    glVertex2f(-0.74f, 0.84f);  
    glVertex2f(-0.77f, 0.84f);  
    glVertex2f(-0.8f, 0.81f);  
    glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(244,245,233); //b-gap-2  
glVertex2f(-0.3f, 0.3f);  
    glVertex2f(-0.3f, 0.8f);  
glVertex2f(-0.28f, 0.8f);  
    glVertex2f(-0.28f, 0.3f);  
    glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(50, 97, 135); //building3R  
glVertex2f(-0.28f, 0.3f);  
    glVertex2f(-0.28f, 0.75f);  
    glVertex2f(-0.1f, 0.75f);  
    glVertex2f(-0.1f, 0.3f);  
    glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(244,245,233); //building3R-border1  
glVertex2f(-0.24f, 0.3f);  
    glVertex2f(-0.24f, 0.75f);  
    glVertex2f(-0.255f, 0.75f);  
    glVertex2f(-0.255f, 0.3f);  
    glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(244,245,233); //building3R-border2  
glVertex2f(-0.13f, 0.3f);  
    glVertex2f(-0.13f, 0.75f);  
    glVertex2f(-0.145f, 0.75f);  
    glVertex2f(-0.145f, 0.3f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(255,255,0); //building3R-window1  
glVertex2f(-0.155f, 0.69f);  
    glVertex2f(-0.155f, 0.73f);  
    glVertex2f(-0.185f, 0.73f);  
    glVertex2f(-0.185f, 0.69f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(255,255,0); //building3R-window1  
glVertex2f(-0.155f, 0.63f);  
    glVertex2f(-0.155f, 0.67f);  
    glVertex2f(-0.185f, 0.67f);  
    glVertex2f(-0.185f, 0.63f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(255,255,0); //building3R-window1  
glVertex2f(-0.155f, 0.57f);  
    glVertex2f(-0.155f, 0.61f);
```

```
glVertex2f(-0.185f, 0.61f);  
glVertex2f(-0.185f, 0.57f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(255,255,0); //building3R-window1  
glVertex2f(-0.155f, 0.51f);  
    glVertex2f(-0.155f, 0.55f);  
    glVertex2f(-0.185f, 0.55f);  
    glVertex2f(-0.185f, 0.51f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(255,255,0); //building3R-window1  
glVertex2f(-0.155f, 0.45f);  
    glVertex2f(-0.155f, 0.49f);  
    glVertex2f(-0.185f, 0.49f);  
    glVertex2f(-0.185f, 0.45f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(255,255,0); //building3R-window1  
glVertex2f(-0.155f, 0.39f);  
    glVertex2f(-0.155f, 0.43f);  
    glVertex2f(-0.185f, 0.43f);  
    glVertex2f(-0.185f, 0.39f);  
glEnd();
```

```
glBegin(GL_QUADS);
```



```
glColor3ub(255,255,0); //building3R-window1
glVertex2f(-0.155f, 0.33f);
    glVertex2f(-0.155f, 0.37f);
    glVertex2f(-0.185f, 0.37f);
    glVertex2f(-0.185f, 0.33f);
    glEnd();
```

```
glBegin(GL_QUADS);
glColor3ub(255,255,0); //building3R-window2
glVertex2f(-0.195f, 0.69f);
    glVertex2f(-0.195f, 0.73f);
    glVertex2f(-0.225f, 0.73f);
    glVertex2f(-0.225f, 0.69f);
    glEnd();
```

```
glBegin(GL_QUADS);
glColor3ub(255,255,0); //building3R-window2
glVertex2f(-0.195f, 0.63f);
    glVertex2f(-0.195f, 0.67f);
    glVertex2f(-0.225f, 0.67f);
    glVertex2f(-0.225f, 0.63f);
    glEnd();
```

```
glBegin(GL_QUADS);
glColor3ub(255,255,0); //building3R-window2
glVertex2f(-0.195f, 0.57f);
    glVertex2f(-0.195f, 0.61f);
    glVertex2f(-0.225f, 0.61f);
    glVertex2f(-0.225f, 0.57f);
```

```
glEnd();
```

```
glBegin(GL_QUADS);
```

```
glColor3ub(255,255,0); //building3R-window2
```

```
glVertex2f(-0.195f, 0.51f);
```

```
    glVertex2f(-0.195f, 0.55f);
```

```
    glVertex2f(-0.225f, 0.55f);
```

```
    glVertex2f(-0.225f, 0.51f);
```

```
glEnd();
```

```
glBegin(GL_QUADS);
```

```
glColor3ub(255,255,0); //building3R-window2
```

```
glVertex2f(-0.195f, 0.45f);
```

```
    glVertex2f(-0.195f, 0.49f);
```

```
    glVertex2f(-0.225f, 0.49f);
```

```
    glVertex2f(-0.225f, 0.45f);
```

```
glEnd();
```

```
glBegin(GL_QUADS);
```

```
glColor3ub(255,255,0); //building3R-window2
```

```
glVertex2f(-0.195f, 0.39f);
```

```
    glVertex2f(-0.195f, 0.43f);
```

```
    glVertex2f(-0.225f, 0.43f);
```

```
    glVertex2f(-0.225f, 0.39f);
```

```
glEnd();
```

```
glBegin(GL_QUADS);
```

```
glColor3ub(255,255,0); //building3R-window2
```

```
glVertex2f(-0.195f, 0.33f);
```

```
    glVertex2f(-0.195f, 0.37f);  
    glVertex2f(-0.225f, 0.37f);  
    glVertex2f(-0.225f, 0.33f);  
    glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(186,159,149); //building3R-upper1  
glVertex2f(-0.28f, 0.75f);  
    glVertex2f(-0.28f, 0.78f);  
    glVertex2f(-0.1f, 0.78f);  
    glVertex2f(-0.1, 0.75f);  
    glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(244,245,233); //building3R-upper2  
glVertex2f(-0.26f, 0.78f);  
    glVertex2f(-0.26f, 0.81f);  
    glVertex2f(-0.12f, 0.81f);  
    glVertex2f(-0.12f, 0.78f);  
    glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(50,97,135); //building3R-upper3  
glVertex2f(-0.25f, 0.81f);  
    glVertex2f(-0.22f, 0.84f);  
    glVertex2f(-0.18f, 0.84f);  
    glVertex2f(-0.15, 0.81f);  
    glEnd();
```

```
}
```

```

void tree(){

    glBegin(GL_QUADS);//tree1-leftG
    glColor3ub(143,47,9);
    glVertex2f(-0.89f,0.3f);
        glVertex2f(-0.89f,0.44f);
        glVertex2f(-0.91f, 0.44f);
    glVertex2f(-0.91f, 0.3f);
    glEnd();

    glBegin(GL_QUADS);//tree1-left
    glColor3ub(9,103,53);
    glVertex2f(-0.85f,0.44f);
        glVertex2f(-0.88f,0.5f);
        glVertex2f(-0.91f, 0.5f);
        glVertex2f(-0.94f, 0.44f);
    glEnd();//

    glBegin(GL_TRIANGLES);//tree
    glColor3ub(113,206,24);
    glVertex2f(-0.85f,0.48f);
        glVertex2f(-0.8975f,0.62f);
        glVertex2f(-0.945f, 0.48f);
    glEnd();

    glBegin(GL_QUADS);//tree2-leftG
    glColor3ub(143,47,9);
    glVertex2f(-0.99f,0.3f);
        glVertex2f(-0.99f,0.43f);

```

```
        glVertex2f(-1.0f, 0.43f);
glVertex2f(-1.0f, 0.3f);
glEnd();
```

```
glBegin(GL_QUADS);//tree2-left
glColor3ub(9,103,53);
glVertex2f(-0.93f,0.43f);
        glVertex2f(-0.96f,0.49f);
        glVertex2f(-0.99f, 0.49f);
glVertex2f(-1.02f, 0.43f);
glEnd();
```

```
glBegin(GL_TRIANGLES);//tree2
glColor3ub(113,206,24);
glVertex2f(-0.94f,0.47f);
        glVertex2f(-1.02f,0.65f);
        glVertex2f(-1.05f, 0.47f);
glEnd();
```

```
glBegin(GL_QUADS);
glColor3ub(143,47,9); //tree-2R-body
glVertex2f(-0.02f, 0.3f);
        glVertex2f(-0.02f, 0.455f);
        glVertex2f(-0.04f, 0.455f);
        glVertex2f(-0.04f, 0.3f);
glEnd();
```

```
glBegin(GL_QUADS);
```

```
glColor3ub(9,103,53); //tree-2R-1
```

```
glVertex2f(0.03f, 0.455f);
```

```
    glVertex2f(-0.01f, 0.55f);
```

```
    glVertex2f(-0.04f, 0.55f);
```

```
    glVertex2f(-0.08f, 0.455f);
```

```
glEnd();
```

```
glBegin(GL_TRIANGLES);
```

```
glColor3ub(113,206,24); //tree-2R-1
```

```
glVertex2f(0.025f, 0.51f);
```

```
    glVertex2f(-0.0255f, 0.65f);
```

```
    glVertex2f(-0.075f, 0.51f);
```

```
glEnd();
```

```
glBegin(GL_QUADS);
```

```
glColor3ub(143,47,9); //tree-3R-G
```

```
glVertex2f(0.1f, 0.3f);
```

```
    glVertex2f(0.1f, 0.455f);
```

```
    glVertex2f(0.13f, 0.455f);
```

```
    glVertex2f(0.13f, 0.3f);
```

```
glEnd();
```

```
glBegin(GL_QUADS);
```

```
glColor3ub(9,103,53); //tree-3R
```

```
glVertex2f(0.17f, 0.455f);
```

```
    glVertex2f(0.13f, 0.55f);
```

```
    glVertex2f(0.10f, 0.55f);
```

```
    glVertex2f(0.06f, 0.455f);
```

```
glEnd();
```

```
glBegin(GL_TRIANGLES);
glColor3ub(113,206,24); //tree-3R
glVertex2f(0.165f, 0.5f);
    glVertex2f(0.115f, 0.68f);
    glVertex2f(0.06f, 0.5f);
glEnd();
```

```
glBegin(GL_QUADS);
glColor3ub(143,47,9); //tree-4R-G
glVertex2f(0.3f, 0.3f);
    glVertex2f(0.3f, 0.455f);
    glVertex2f(0.33f, 0.455f);
    glVertex2f(0.33f, 0.3f);
glEnd();
```

```
glBegin(GL_QUADS);
glColor3ub(9,103,53); //tree-4R
glVertex2f(0.36f, 0.455f);
    glVertex2f(0.33f, 0.5f);
    glVertex2f(0.3f, 0.5f);
    glVertex2f(0.27f, 0.455f);
glEnd();
```

```
glBegin(GL_TRIANGLES);
glColor3ub(113,206,24); //tree-3R
glVertex2f(0.365f, 0.48f);
    glVertex2f(0.3125f, 0.63f);
    glVertex2f(0.26f, 0.48f);
```

```
glEnd();
```

```
glBegin(GL_QUADS);
```

```
glColor3ub(143,47,9); //tree-4R-G
```

```
glVertex2f(0.2f, 0.3f);
```

```
    glVertex2f(0.2f, 0.45f);
```

```
    glVertex2f(0.23f, 0.45f);
```

```
    glVertex2f(0.23f, 0.3f);
```

```
glEnd();
```

```
glBegin(GL_QUADS);
```

```
glColor3ub(9,103,53); //tree-4R
```

```
glVertex2f(0.27f, 0.45f);
```

```
    glVertex2f(0.24f, 0.5f);
```

```
    glVertex2f(0.21f, 0.5f);
```

```
    glVertex2f(0.18f, 0.45f);
```

```
glEnd();
```

```
glBegin(GL_TRIANGLES);
```

```
glColor3ub(113,206,24); //tree-4R
```

```
glVertex2f(0.275f, 0.48f);
```

```
    glVertex2f(0.2225f, 0.6f);
```

```
    glVertex2f(0.17f, 0.48f);
```

```
glEnd();
```

```
glBegin(GL_QUADS);
```

```
glColor3ub(143,47,9); //tree-5R-G
```

```
glVertex2f(0.45f, 0.3f);
```

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



```
    glVertex2f(0.43f, 0.45f);  
    glVertex2f(0.43f, 0.3f);  
    glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(9,103,53); //tree-5R  
glVertex2f(0.48f, 0.45f);  
    glVertex2f(0.45f, 0.5f);  
    glVertex2f(0.42f, 0.5f);  
    glVertex2f(0.39f, 0.45f);  
    glEnd();
```

```
glBegin(GL_TRIANGLES);  
glColor3ub(113,206,24); //tree-5R  
glVertex2f(0.49f, 0.48f);  
    glVertex2f(0.435f, 0.6f);  
    glVertex2f(0.38f, 0.48f);  
    glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(143,47,9); //tree-6R-G  
glVertex2f(0.38f, 0.3f);  
    glVertex2f(0.38f, 0.4f);  
    glVertex2f(0.4f, 0.4f);  
    glVertex2f(0.4f, 0.3f);  
    glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(9,103,53); //tree-6R
```

```
glVertex2f(0.44f, 0.4f);  
    glVertex2f(0.41f, 0.45f);  
    glVertex2f(0.38f, 0.45f);  
    glVertex2f(0.35f, 0.4f);  
    glEnd();
```

```
glBegin(GL_TRIANGLES);  
glColor3ub(113,206,24); //tree-6R  
glVertex2f(0.445f, 0.42f);  
    glVertex2f(0.395f, 0.52f);  
    glVertex2f(0.34f, 0.42f);  
    glEnd();
```

```
}
```

```
void sun(){
```

```
    glBegin(GL_TRIANGLE_FAN);//SUN  
    glColor3ub(255, 255, 0);  
    glVertex2f(0.3, 0.8);  
    for(i = 0.0f; i <= 360; i++)  
        glVertex2f(0.12*cos(M_PI * i / 180.0) + 0.3, 0.15*sin(M_PI * i / 180.0) + 0.8);
```

```
    glEnd();
```

```
}
```

```
void moon()
```

```
{
```

```
    glBegin(GL_TRIANGLE_FAN);//MOON  
    glColor3ub(255,255,255);  
    glVertex2f(0.3, 0.8);
```

```

for(i = 0.0f; i <= 360; i++)

glVertex2f(0.12*cos(M_PI * i / 180.0) + 0.3, 0.15*sin(M_PI * i / 180.0) + 0.8);


glEnd();
}

void star()
{
    glBegin(GL_POINTS);// Star
    glPointSize(0.05);

        glColor3ub(254, 252, 215);

        glVertex2f(0.6f,0.59f);

        glEnd();


    glBegin(GL_POINTS);// Star
    glPointSize(0.05);

        glColor3ub(254, 252, 215);

        glVertex2f(0.8f,0.70f);

        glEnd();


    glBegin(GL_POINTS);// Star
    glPointSize(0.05);

        glColor3ub(254, 252, 215);

        glVertex2f(0.10f,0.80f);

        glEnd();


    glBegin(GL_POINTS);// Star
    glPointSize(0.05);

        glColor3ub(254, 252, 215);

        glVertex2f(0.0f,0.80f);

```

```
glEnd();
```

```
glBegin(GL_POINTS);// Star
```

```
glPointSize(0.05);
```

```
glColor3ub(254, 252, 215);
```

```
glVertex2f(-0.1f,0.80f);
```

```
glEnd();
```

```
glBegin(GL_POINTS);// Star
```

```
glPointSize(0.05);
```

```
glColor3ub(254, 252, 215);
```

```
glVertex2f(0.4f,0.60f);
```

```
glEnd();
```

```
glBegin(GL_POINTS);// Star
```

```
glPointSize(0.05);
```

```
glColor3ub(254, 252, 215);
```

```
glVertex2f(0.2f,0.50f);
```

```
glEnd();
```

```
glBegin(GL_POINTS);// Star
```

```
glPointSize(0.05);
```

```
glColor3ub(254, 252, 215);
```

```
glVertex2f(-0.20f,0.95f);
```

```
glEnd();
```

```
glBegin(GL_POINTS);// Star
```

```
glPointSize(0.05);
```

```
glColor3ub(254, 252, 215);
```

```

        glVertex2f(0.8f,0.90f);

        glEnd();

glBegin(GL_POINTS); // Star
glPointSize(0.05);

    glColor3ub(254, 252, 215);

    glVertex2f(-0.95f,0.90f);

    glEnd();

}

void sandCastle(){

    glBegin(GL_QUADS); //Sand Castle
    glColor3ub(212, 165, 95);
    glVertex2f(-0.59f, 0.075f);
    glVertex2f(-0.59f, 0.175f);
    glVertex2f(-0.71f, 0.175f);
    glVertex2f(-0.71f, 0.075f);
    glVertex2f(-0.59f, 0.175f);
    glVertex2f(-0.59f, 0.2);
    glVertex2f(-0.63f, 0.2);
    glVertex2f(-0.63f, 0.175f);
    glVertex2f(-0.67f, 0.175f);
    glVertex2f(-0.67f, 0.2);
    glVertex2f(-0.71f,0.2);
    glVertex2f(-0.71f, 0.175f);

```

```
glBegin(GL_QUADS);
glColor3ub(194, 148, 79);
glVertex2f(-0.535f, -0.025f);
glVertex2f(-0.535f, 0.075f);
glVertex2f(-0.765f, 0.075f);
glVertex2f(-0.765f, -0.025f);
glVertex2f(-0.535f,0.075f);
glVertex2f(-0.535f, 0.1f);
glVertex2f(-0.58f, 0.1f);
glVertex2f(-0.58f,0.075f);
glVertex2f(-0.6f, 0.075f);
glVertex2f(-0.6f, 0.1f);
glVertex2f(-0.7f, 0.1f);
glVertex2f(-0.7f, 0.075f);
glVertex2f(-0.72f, 0.075f);
glVertex2f(-0.72f, 0.1f);
glVertex2f(-0.765f, 0.1f);
glVertex2f(-0.765f, 0.075f);
```

```
glBegin(GL_QUADS);
glColor3ub(173, 128, 61);
glVertex2f(-0.5f, -0.1f);
glVertex2f(-0.5f, -0.025f);
glVertex2f(-0.8f, -0.025f);
glVertex2f(-0.8f, -0.1f);
glVertex2f(-0.5f, -0.025f);
glVertex2f(-0.5f, 0.0f);
glVertex2f(-0.525f,0.0f);
glVertex2f(-0.525f, -0.025f);
```

```
glVertex2f(-0.575f, -0.025f);
glVertex2f(-0.575f, 0.0f);
glVertex2f(-0.6f, 0.0f);
glVertex2f(-0.6f, -0.025f);
glVertex2f(-0.7f, -0.025f);
glVertex2f(-0.7f, 0.0f);
glVertex2f(-0.725f, 0.0f);
glVertex2f(-0.725f, -0.025f);
glVertex2f(-0.775f, -0.025f);
glVertex2f(-0.775f, 0.0f);
glVertex2f(-0.8f, 0.0f);
glVertex2f(-0.8f, -0.025f);
glEnd();
```

```
glBegin(GL_LINES);
glColor3f(-0.0f, 0.0f, 0.0f);
glVertex2f(-0.65f, 0.175f);
glVertex2f(-0.65f, 0.275f);
glEnd();
```

```
glBegin(GL_TRIANGLES);
glColor3f(1.0f, 0.0f, 0.0f);
glVertex2f(-0.65f, 0.255f);
glVertex2f(-0.65f, 0.275f);
glVertex2f(-0.675f, 0.285f);
glEnd();
}
```

```
void ship(){
```

```
glPushMatrix();  
glTranslatef(position,0.0f, 0.0f);
```

```
glBegin(GL_QUADS);  
glColor3ub(98,97,95);//shipbody  
    glVertex2f(0.3f, -0.9f);  
    glVertex2f(0.8f, -0.9f);  
    glVertex2f(1.0f, -0.6f);  
    glVertex2f(0.1f, -0.6f);  
glEnd();
```

```
glBegin(GL_QUADS);//1st row  
glColor3ub(37,19,15);  
glVertex2f(0.21f, -0.6f);  
    glVertex2f(0.9f, -0.6f);  
    glVertex2f(0.9f, -0.5f);  
    glVertex2f(0.21f, -0.5f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(45,45,45);//2nd row  
glVertex2f(0.25f, -0.5f);  
    glVertex2f(0.83f, -0.5f);  
    glVertex2f(0.83f, -0.4f);  
    glVertex2f(0.25f, -0.4f);  
glEnd();
```

```
glBegin(GL_QUADS);
```



```
glColor3ub(0.0,0.0,0.0);//1st pillar
    glVertex2f(0.31f, -0.22f);
    glVertex2f(0.39f, -0.22f);
    glVertex2f(0.39f, -0.40f);
    glVertex2f(0.31f, -0.40f);
glEnd();
```

```
glBegin(GL_QUADS); //2nd pillar
glColor3ub(0.0,0.0,0.0);
    glVertex2f(0.45f, -0.22f);
    glVertex2f(0.52f, -0.22f);
    glVertex2f(0.52f, -0.40f);
    glVertex2f(0.45f, -0.40f);
glEnd();
```

```
glBegin(GL_QUADS);//3rd pillar
glColor3ub(0.0,0.0,0.0);
    glVertex2f(0.56f, -0.22f);
    glVertex2f(0.62f, -0.22f);
    glVertex2f(0.62f, -0.40f);
    glVertex2f(0.56f, -0.40f);
glEnd();
```

```
glBegin(GL_QUADS);//4th pillar
glColor3ub(0.0,0.0,0.0);
    glVertex2f(0.66f, -0.22f);
    glVertex2f(0.73f, -0.22f);
    glVertex2f(0.73f, -0.40f);
    glVertex2f(0.66f, -0.40f);
```

```
glEnd();
```

```
glBegin(GL_QUADS);
```

```
glColor3ub(247,247,247); //1st pillar_white part
```

```
glVertex2f(0.31f, -0.22f);
```

```
glVertex2f(0.39f, -0.22f);
```

```
glVertex2f(0.39f, -0.17f);
```

```
glVertex2f(0.31f, -0.17f);
```

```
glEnd();
```

```
glBegin(GL_QUADS); //2nd pillar_white part
```

```
glColor3ub(247,247,247);
```

```
glVertex2f(0.45f, -0.22f);
```

```
glVertex2f(0.52f, -0.22f);
```

```
glVertex2f(0.52f, -0.17f);
```

```
glVertex2f(0.45f, -0.17f);
```

```
glEnd();
```

```
glBegin(GL_QUADS); //3rd pillar_white part
```

```
glColor3ub(247,247,247);
```

```
glVertex2f(0.56f, -0.22f);
```

```
glVertex2f(0.62f, -0.22f);
```

```
glVertex2f(0.62f, -0.17f);
```

```
glVertex2f(0.56f, -0.17f);
```

```
glEnd();
```

```
glBegin(GL_QUADS); //4th pillar_white part
```

```
glColor3ub(247,247,247);
```

```
glVertex2f(0.66f, -0.22f);
```

```
        glVertex2f(0.73f, -0.22f);
        glVertex2f(0.73f, -0.17f);
        glVertex2f(0.66f, -0.17f);
    glEnd();
```

```
glBegin(GL_QUADS);//pillar brown
glColor3ub(654,52,52);
glVertex2f(0.17f, -0.6f);
glVertex2f(0.20f, -0.6f);
glVertex2f(0.20f, -0.0f);
glVertex2f(0.17f, -0.0f);
glEnd();
```

```
glBegin(GL_QUADS);//pileer-violet
glColor3ub(145,145,145);
glVertex2f(0.19f, -0.0f);
glVertex2f(0.21f,-0.0f);
glVertex2f(0.21f, -0.6f);
glVertex2f(0.19f, -0.6f);
glEnd();
```

```
glBegin(GL_TRIANGLES);//Flag
glColor3ub(247,5,3);
glVertex2f(-0.01f, -0.4);
        glVertex2f(0.17f, -0.4f);
        glVertex2f(0.17f, -0.01f);
    glEnd();
```

```
        glBegin(GL_QUADS);//1st ship window
glColor3ub(247,247,247);
        glVertex2f(0.22f, -0.58f);
        glVertex2f(0.28f, -0.58f);
        glVertex2f(0.28f, -0.53f);
        glVertex2f(0.22f, -0.53f);
glEnd();
```

```
glBegin(GL_QUADS);//2nd row WINDOW
glColor3ub(247,247,247);
glVertex2f(0.40f, -0.58f);
        glVertex2f(0.34f, -0.58f);
        glVertex2f(0.34f, -0.53f);
        glVertex2f(0.40f, -0.53f);
glEnd();
```

```
glBegin(GL_QUADS);//3rd shipWINDOW
glColor3ub(247,247,247);
glVertex2f(0.51f, -0.58f);
        glVertex2f(0.45f, -0.58f);
        glVertex2f(0.45f, -0.53f);
        glVertex2f(0.51f, -0.53f);
glEnd();
```

```
glBegin(GL_QUADS);//4th ship window
```

```
glColor3ub(247,247,247);
```

```
glVertex2f(0.55f, -0.58f);
```

```
    glVertex2f(0.61f, -0.58f);
```

```
    glVertex2f(0.61f, -0.53f);
```

```
    glVertex2f(0.55f, -0.53f);
```

```
glEnd();
```

```
glBegin(GL_QUADS);//5th window
```

```
glColor3ub(247,247,247);
```

```
    glVertex2f(0.65f, -0.58f);
```

```
    glVertex2f(0.71f, -0.58f);
```

```
    glVertex2f(0.71f, -0.53f);
```

```
    glVertex2f(0.65f, -0.53f);
```

```
glEnd();
```

```
glBegin(GL_QUADS);//6th window
```

```
glColor3ub(247,247,247);
```

```
    glVertex2f(0.85f, -0.58f);
```

```
    glVertex2f(0.77f, -0.58f);
```

```
    glVertex2f(0.77f, -0.53f);
```

```
    glVertex2f(0.85f, -0.53f);
```

```
glEnd();
```

```
glPopMatrix();
```

```
}
```

```
void mountain(){
```

```
    glBegin(GL_TRIANGLES);
```

```
glColor3ub(10, 95, 53); //mountain1
```

```
glVertex2f(0.6f, 0.29f);  
    glVertex2f(1.0f, 0.29f);  
    glVertex2f(1.0f, 0.9f);  
    glEnd();
```

```
glBegin(GL_TRIANGLES);  
glColor3ub(7, 109, 45); //mountain2  
glVertex2f(0.9f, 0.29f);  
    glVertex2f(0.5f, 0.29f);  
    glVertex2f(0.7f, 0.8f);  
    glEnd();  
}
```

```
void waterline(){  
    glPushMatrix();  
    glTranslatef(position,0.0f, 0.0f);
```

```
glBegin(GL_LINES);  
glColor3ub(186, 186, 186); //waterline  
glVertex2f(0.9f, -0.29f);  
glVertex2f(0.8f, -0.29f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(186, 186, 186); //waterline  
glVertex2f(-0.6f, -0.84f);  
glVertex2f(-0.8f, -0.84f);  
glVertex2f(-0.8f,-0.85f);  
glVertex2f(-0.6f,-0.85f);  
glEnd();
```

```
glBegin(GL_LINES);  
glColor3ub(186, 186, 186); //waterline  
glVertex2f(-0.6f, -0.6f);  
glVertex2f(0.0f, -0.6f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(186, 186, 186); //waterline  
glVertex2f(-0.8f, -0.69f);  
glVertex2f(-0.1f, -0.69f);  
glVertex2f(-0.1f, -0.71f);  
glVertex2f(-0.8f, -0.71f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(186, 186, 186); //waterline  
glVertex2f(0.82f, -0.9f);  
glVertex2f(0.1f, -0.9f);  
glVertex2f(0.1f, -0.92f);  
glVertex2f(0.8f, -0.92f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(186, 186, 186); //waterline  
glVertex2f(-0.82f, -0.9f);  
glVertex2f(-0.12f, -0.9f);  
glVertex2f(-0.1f, -0.92f);
```

```
glVertex2f(-0.8f,-0.92f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(186, 186, 186); //waterline  
glVertex2f(-1.0f, -0.30f);  
glVertex2f(-0.1f, -0.30f);  
glVertex2f(-0.1f,-0.31f);  
glVertex2f(-1.0f,-0.31f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(186, 186, 186); //waterline  
glVertex2f(-0.2f, -0.39f);  
glVertex2f(-0.6f, -0.39f);  
glVertex2f(-0.6f,-0.40f);  
glVertex2f(-0.2f,-0.40f);  
glEnd();
```

```
glBegin(GL_QUADS);  
glColor3ub(186, 186, 186); //waterline  
glVertex2f(-0.9f, -0.49f);  
glVertex2f(-0.7f, -0.49f);  
glVertex2f(-0.7f,-0.48f);  
glVertex2f(-0.9f,-0.48f);  
glEnd();  
glPopMatrix();  
}
```

```
void bird()
```



```
{  
    glPushMatrix();  
    glTranslatef(position2,0.0f, 0.0f);  
    glBegin(GL_POLYGON);  
    glColor3ub(0,0,0);  
    glVertex2f(0.27f,0.64f);// 1st  
    glVertex2f(0.30f,0.63f);  
    glVertex2f(0.30f,0.63f);  
    glVertex2f(0.29f,0.62f);  
    glVertex2f(0.29f,0.62f);  
    glVertex2f(0.29f,0.62f);  
    glVertex2f(0.28f,0.61f);  
    glVertex2f(0.28f,0.60f);  
    glVertex2f(0.27f,0.62f);  
    glVertex2f(0.26f,0.62f);  
    glVertex2f(0.26f,0.62f);  
    glVertex2f(0.26f,0.63f);  
    glVertex2f(0.27f,0.64f);  
    glEnd();  
  
    glBegin(GL_POLYGON);  
    glColor3ub(0,0,0);  
    glVertex2f(0.29f,0.44f);// 2nd  
    glVertex2f(0.32f,0.43f);  
    glVertex2f(0.33f,0.43f);  
    glVertex2f(0.32f,0.42f);  
    glVertex2f(0.313f,0.422f);  
    glVertex2f(0.315f,0.414f);  
    glVertex2f(0.31f,0.40f);
```

```
glVertex2f(0.308f,0.417f);  
glVertex2f(0.295f,0.414f);  
glVertex2f(0.29f,0.422f);  
glVertex2f(0.28f,0.43f);  
glVertex2f(0.28f,0.431f);  
glVertex2f(0.29f,0.43f);  
glEnd();
```

```
glBegin(GL_POLYGON);  
glColor3ub(0,0,0);  
glVertex2f(0.37f,0.517f);// 3rd  
glVertex2f(0.39f,0.505f);  
glVertex2f(0.405f,0.497f);  
glVertex2f(0.39f,0.4914f);  
glVertex2f(0.39f,0.494f);  
glVertex2f(0.39f,0.488f);  
glVertex2f(0.385f,0.488f);  
glVertex2f(0.38f,0.48f);  
glVertex2f(0.37f,0.494f);  
glVertex2f(0.36f,0.4914f);  
glVertex2f(0.366f,0.5f);  
glVertex2f(0.363f,0.511f);  
glVertex2f(0.37f,0.511f);
```

```
glEnd();  
glPopMatrix();
```

```
}  
  
void crab(){
```

```
glBegin(GL_POLYGON); //CRAB
glColor3ub(220,88,33);
glVertex2f(0.4f,0.1f);
glVertex2f(0.44f,0.1f);
glVertex2f(0.46f,0.15f);
glVertex2f(0.44f,0.18f);
glVertex2f(0.4f,0.18f);
glVertex2f(0.38f,0.15f);
glEnd();
```

```
glBegin(GL_LINES); //CRAB
glColor3ub(220,88,33);
glVertex2f(0.44f,0.18f);
glVertex2f(0.47f,0.2f);
glEnd();
```

```
glBegin(GL_LINES); //CRAB
glColor3ub(220,88,33);
glVertex2f(0.47f,0.2f);
glVertex2f(0.49f,0.16f);
glEnd();
```

```
glBegin(GL_LINES); //CRAB
```

```
glColor3ub(220,88,33);  
glVertex2f(0.46f,0.15f);  
glVertex2f(0.48f,0.17f);  
glEnd();
```

```
glBegin(GL_LINES);  //CRAB  
glColor3ub(220,88,33);  
glVertex2f(0.48f,0.17f);  
glVertex2f(0.5f,0.13f);  
glEnd();
```

```
glBegin(GL_LINES);  //CRAB  
glColor3ub(220,88,33);  
glVertex2f(0.45f,0.13f);  
glVertex2f(0.47f,0.15f);  
glEnd();  
glBegin(GL_LINES);  //CRAB  
glColor3ub(220,88,33);  
glVertex2f(0.47f,0.15f);  
glVertex2f(0.49f,0.11f);  
glEnd();
```

```
glBegin(GL_LINES);  //CRAB
```

```
glColor3ub(220,88,33);  
glVertex2f(0.44f,0.1f);  
glVertex2f(0.46f,0.12f);  
glEnd();  
glBegin(GL_LINES);  //CRAB  
glColor3ub(220,88,33);  
glVertex2f(0.46f,0.12f);  
glVertex2f(0.48f,0.08f);  
glEnd();
```

```
glBegin(GL_LINES);  //CRAB  
glColor3ub(220,88,33);  
glVertex2f(0.4f,0.18f);  
glVertex2f(0.38f,0.2f);  
glEnd();  
glBegin(GL_LINES);  //CRAB  
glColor3ub(220,88,33);  
glVertex2f(0.38f,0.2f);  
glVertex2f(0.36f,0.16f);  
glEnd();
```

```
glBegin(GL_LINES);  //CRAB  
glColor3ub(220,88,33);  
glVertex2f(0.38f,0.15f);  
glVertex2f(0.36f,0.17f);
```

```
glEnd();  
  
glBegin(GL_LINES);    //CRAB  
glColor3ub(220,88,33);  
glVertex2f(0.36f,0.17f);  
glVertex2f(0.34f,0.13f);  
glEnd();
```

```
glBegin(GL_LINES);    //CRAB  
glColor3ub(220,88,33);  
glVertex2f(0.4f,0.1f);  
glVertex2f(0.38f,0.12f);  
glEnd();  
  
glBegin(GL_LINES);    //CRAB  
glColor3ub(220,88,33);  
glVertex2f(0.38f,0.12f);  
glVertex2f(0.36f,0.08f);  
glEnd();
```

```
glBegin(GL_LINES);    //CRAB  
glColor3ub(220,88,33);  
glVertex2f(0.39f,0.13f);  
glVertex2f(0.37f,0.14f);  
glEnd();  
  
glBegin(GL_LINES);    //CRAB  
glColor3ub(220,88,33);
```

```
glVertex2f(0.37f,0.14f);  
glVertex2f(0.35f,0.1f);  
glEnd();
```

```
glBegin(GL_LINES);  //CRAB  
glColor3ub(220,88,33);  
glVertex2f(0.445f,0.17f);  
glVertex2f(0.475f,0.19f);  
glEnd();  
glBegin(GL_LINES);  //CRAB  
glColor3ub(220,88,33);  
glVertex2f(0.475f,0.19f);  
glVertex2f(0.485f,0.16f);  
glEnd();
```

```
glBegin(GL_LINES);  //CRAB  
glColor3ub(220,88,33);  
glVertex2f(0.39f,0.17f);  
glVertex2f(0.37f,0.19f);  
glEnd();  
glBegin(GL_LINES);  //CRAB  
glColor3ub(220,88,33);  
glVertex2f(0.37f,0.19f);  
glVertex2f(0.35f,0.16f);  
glEnd();
```

```
glPointSize(3.00);  
glBegin(GL_POINTS);  
glColor3ub(31,31,27);  
glVertex2f(0.41f,0.16f);  
glVertex2f(0.43f,0.16f);  
glEnd();
```

```
glBegin(GL_POLYGON); //CRAB  
glColor3ub(220,88,33);  
glVertex2f(0.2f,0.1f);  
glVertex2f(0.25f,0.1f);  
glVertex2f(0.27f,0.15f);  
glVertex2f(0.25f,0.2f);  
glVertex2f(0.2f,0.2f);  
glVertex2f(0.18f,0.15f);  
glEnd();
```

```
glBegin(GL_LINES); //CRAB  
glColor3ub(220,88,33);  
glVertex2f(0.25f,0.19f);  
glVertex2f(0.27f,0.20f);  
glEnd();
```

```
glBegin(GL_LINES); //CRAB
```



```
glColor3ub(220,88,33);  
glVertex2f(0.27f,0.20f);  
glVertex2f(0.29f,0.15f);  
glEnd();
```

```
glBegin(GL_LINES); //CRAB  
glColor3ub(220,88,33);  
glVertex2f(0.25f,0.20f);  
glVertex2f(0.27f,0.21f);  
glEnd();
```

```
glBegin(GL_LINES); //CRAB  
glColor3ub(220,88,33);  
glVertex2f(0.27f,0.21f);  
glVertex2f(0.29f,0.18f);  
glEnd();
```

```
glBegin(GL_LINES); //CRAB  
glColor3ub(220,88,33);  
glVertex2f(0.26f,0.14f);  
glVertex2f(0.28f,0.16f);  
glEnd();
```

```
glBegin(GL_LINES); //CRAB  
glColor3ub(220,88,33);  
glVertex2f(0.28f,0.16f);  
glVertex2f(0.30f,0.12f);  
glEnd();
```

```
glBegin(GL_LINES);  //CRAB
glColor3ub(220,88,33);
glVertex2f(0.26f,0.17f);
glVertex2f(0.28f,0.18f);
glEnd();
```

```
glBegin(GL_LINES);  //CRAB
glColor3ub(220,88,33);
glVertex2f(0.28f,0.18f);
glVertex2f(0.30f,0.16f);
glEnd();
```

```
glBegin(GL_LINES);  //CRAB
glColor3ub(220,88,33);
glVertex2f(0.25f,0.10f);
glVertex2f(0.27f,0.12f);
glEnd();
```

```
glBegin(GL_LINES);
glColor3ub(220,88,33);
glVertex2f(0.27f,0.12f); //CRAB
glVertex2f(0.29f,0.10f);
glEnd();
```

```
glBegin(GL_LINES);
glColor3ub(220,88,33);
glVertex2f(0.17f,0.16f); //CRAB
glVertex2f(0.19f,0.14f);
glEnd();
```

```
glBegin(GL_LINES);  
glColor3ub(220,88,33);//CRAB  
glVertex2f(0.17f,0.16f);  
glVertex2f(0.15f,0.12f);  
glEnd();
```

```
glBegin(GL_LINES);  
glColor3ub(220,88,33);//CRAB  
glVertex2f(0.17f,0.19f);  
glVertex2f(0.21f,0.11f);  
glEnd();
```

```
glBegin(GL_LINES);  
glColor3ub(220,88,33);//CRAB  
glVertex2f(0.17f,0.19f);  
glVertex2f(0.14f,0.13f);  
glEnd();
```

```
glBegin(GL_LINES);  
glColor3ub(220,88,33);//CRAB  
glVertex2f(0.20f,0.19f);  
glVertex2f(0.17f,0.22f);  
glEnd();
```

```
glBegin(GL_LINES);  
glColor3ub(220,88,33);//CRAB  
glVertex2f(0.17f,0.22f);
```

```
glVertex2f(0.15f,0.17f);  
glEnd();
```

```
glBegin(GL_LINES);  
glColor3ub(220,88,33);//CRAB  
glVertex2f(0.17f,0.13f);  
glVertex2f(0.20f,0.11f);  
glEnd();
```

```
glBegin(GL_LINES);  
glColor3ub(220,88,33);//CRAB  
glVertex2f(0.17f,0.13f);  
glVertex2f(0.15f,0.12f);  
glEnd();
```

```
glBegin(GL_LINES);  
glColor3ub(220,88,33);//CRAB  
glVertex2f(0.20f,0.10f);  
glVertex2f(0.17f,0.12f);  
glEnd();
```

```
glBegin(GL_LINES);  
glColor3ub(220,88,33);//CRAB  
glVertex2f(0.17f,0.12f);  
glVertex2f(0.15f,0.10f);  
glEnd();
```

```
glPointSize(3.00);  
glBegin(GL_POINTS);  
glColor3ub(31,31,27);  
glVertex2f(0.24f,0.16f);  
glVertex2f(0.21f,0.16f);  
glEnd();  
  
}
```

```
void day()  
{  
    glClear(GL_COLOR_BUFFER_BIT);  
    glLoadIdentity();  
    sand();  
    sky();  
    ocean();  
    ship();  
    sandCastle();  
    crab();  
    tree();  
    mountain();  
    building();  
    sun();  
    bird();  
    waterline();  
}
```

```

    glFlush();
}
void night()
{
    glClear(GL_COLOR_BUFFER_BIT);
    glLoadIdentity();

    nightOcan();
    nightSand();
    nightSky();
    star();
    mountain();
    moon();
    tree();
    sandCastle();
    ship();
    nightbuilding();
    waterline();
    glFlush(); // Render now
}
void handleKeypress(unsigned char key, int x, int y) {

    switch (key) {
        case 's':
            speed = 0.0f;
            break;
        case 'z':
            speed = 0.05f;
            break;
    }
}

```

```

    case 'a':
        speed = -0.05f;
        break;
    case 'n':
        glutDisplayFunc(night);
        glutPostRedisplay();
        break;
    case 'd':
        glutDisplayFunc(day);
        glutPostRedisplay();
        break;
}
}

int main(int argc, char** argv) {
    glutInit(&argc, argv);
    glutInitWindowSize(1200, 600);
    glutInitWindowPosition(100, 150);
    glutCreateWindow("SEA BEACH VIEW FROM HOTEL");
    glutDisplayFunc(day);
    init();

    glutKeyboardFunc(handleKeypress);
    glutMouseFunc(handleMouse);
    glutTimerFunc(100, update, 0);
    glutTimerFunc(100, update2, 0);
    glutTimerFunc(100, update3, 0);

    glutMainLoop();

    return 0;
}

```

## SCREENSHOT OF THE SYSTEM:

### DAY VIEW



### NIGHT VIEW



