**Lab Taks-7**

|  |
| --- |
| **Question-**  Create a simple day and night scenario that will automatically change from day to night |
| **Code-**  **#include<cstdio>**  **#include <GL/gl.h>**  **#include <GL/glut.h>**  **#include <math.h>**  **GLfloat position = 0.0f;**  **GLfloat position1 = 0.0f;**  **GLfloat speed = 0.1f;**  **void dis();**  **void display();**  **void sun()**  **{**  **glBegin(GL\_POLYGON);// Draw a Red 1x1 Square centered at origin**  **for(int i=0;i<200;i++)**  **{**  **glColor3f(1.0,0,0);**  **float pi=3.1416;**  **float A=(i\*2\*pi)/200;**  **float r=0.85;**  **float x = r \* cos(A);**  **float y = r \* sin(A);**  **glVertex2f(x,y );**  **}**  **//glVertex2f(-0.8f,0.4f);**  **//glVertex2f(-0.7f,0.4f);**  **glEnd();**  **}**  **void bench()**  **{**  **glBegin(GL\_QUADS);**  **glColor3f(0.60f, 0.40f, 0.12f);//brown**  **glVertex2f(-0.25f, 0.15f);**  **glVertex2f(-0.25f, 0.0f);**  **glVertex2f(0.25f, 0.0f);**  **glVertex2f(0.25f, 0.15f);**  **glEnd();**  **glBegin(GL\_QUADS);**  **glColor3f(0.0f, 0.0f, 0.0f);//black**  **glVertex2f(-0.25f, 0.0f);**  **glVertex2f(-0.35f, -0.1f);**  **glVertex2f(0.35f, -0.1f);**  **glVertex2f(0.25f, 0.0f);**  **glEnd();**  **glBegin(GL\_QUADS);**  **glColor3f(0.60f, 0.40f, 0.12f);//brown**  **glVertex2f(-0.35f, -0.1f);**  **glVertex2f(-0.35f, -0.15f);**  **glVertex2f(0.35f, -0.15f);**  **glVertex2f(0.35f, -0.1f);**  **glEnd();**  **glBegin(GL\_QUADS);**  **glColor3f(0.0f, 0.0f, 0.0f);//black**  **glVertex2f(-0.35f, -0.15f);**  **glVertex2f(-0.35f, -0.25f);**  **glVertex2f(-0.33f, -0.25f);**  **glVertex2f(-0.33f, -0.15f);**  **glEnd();**  **glBegin(GL\_QUADS);**  **glColor3f(0.0f, 0.0f, 0.0f);//black**  **glVertex2f(0.35f, -0.15f);**  **glVertex2f(0.35f, -0.25f);**  **glVertex2f(0.33f, -0.25f);**  **glVertex2f(0.33f, -0.15f);**  **glEnd();**  **glBegin(GL\_QUADS);**  **glColor3f(0.0f, 0.0f, 0.0f);//black**  **glVertex2f(-0.25f, -0.15f);**  **glVertex2f(-0.25f, -0.2f);**  **glVertex2f(-0.23f, -0.2f);**  **glVertex2f(-0.23f, -0.15f);**  **glEnd();**  **glBegin(GL\_QUADS);**  **glColor3f(0.0f, 0.0f, 0.0f);//black**  **glVertex2f(0.25f, -0.15f);**  **glVertex2f(0.25f, -0.2f);**  **glVertex2f(0.23f, -0.2f);**  **glVertex2f(0.23f, -0.15f);**  **glEnd();**  **}**  **void lamp\_post()**  **{**  **glBegin(GL\_QUADS);**  **glColor3f(1.0f, 0.5f, 0.0f);//Orange**  **glVertex2f(-0.01f, 0.4f);**  **glVertex2f(-0.01f, -0.3f);**  **glVertex2f(0.01f, -0.3f);**  **glVertex2f(0.01f, 0.4f);**  **glEnd();**  **glBegin(GL\_QUADS);**  **glColor3f(0.0f, 0.0f, 1.0f);//Blue**  **glVertex2f(-0.04f, -0.3f);**  **glVertex2f(-0.04f, -0.35f);**  **glVertex2f(0.04f, -0.35f);**  **glVertex2f(0.04f, -0.3f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(0.0f, 0.1f, 0.1f);//Dark blue**  **glVertex2f(-0.06f, -0.35f);**  **glVertex2f(-0.07f, -0.38f);**  **glVertex2f(0.07f, -0.38f);**  **glVertex2f(0.06f, -0.35f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(0.75f, 0.75f, 0.75f);**  **glVertex2f(-0.04f, 0.4f);**  **glVertex2f(0.0f, 0.38f);**  **glVertex2f(0.04f, 0.4f);**  **glVertex2f(0.05f, 0.5f);**  **glVertex2f(0.0f, 0.55f);**  **glVertex2f(-0.05f,0.5f);**  **glEnd();**  **glBegin(GL\_TRIANGLES);**  **glColor3f(1.0f, 1.0f, 0.0f);//yellow**  **glVertex2f(0.0f, 0.55f);**  **glVertex2f(0.05f, 0.5f);**  **glVertex2f(0.025f, 0.6f);**  **glEnd();**  **glBegin(GL\_TRIANGLES);**  **glColor3f(1.0f, 1.0f, 0.0f);//yellow**  **glVertex2f(0.0f, 0.55f);**  **glVertex2f(-0.05f,0.5f);**  **glVertex2f(-0.025f, 0.6f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 0.0f, 0.0f);//red**  **glVertex2f(0.025f, 0.6f);**  **glVertex2f(0.0f, 0.55f);**  **glVertex2f(-0.025f, 0.6f);**  **glVertex2f(0.0f, 0.65f);**  **glEnd();**  **}**  **void road\_side()**  **{**  **glBegin(GL\_POLYGON);**  **glColor3f(0.0f, 1.0f, 0.0f);//green**  **glVertex2f(-1.0f, -0.4f);**  **glVertex2f(-1.0f, -1.0f);**  **glVertex2f(-0.8f, -1.0f);**  **glVertex2f(-0.8f, -0.4f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(0.0f, 1.0f, 0.0f);//green**  **glVertex2f(-0.6f, -0.4f);**  **glVertex2f(-0.6f, -1.0f);**  **glVertex2f(1.0f, -1.0f);**  **glVertex2f(1.0f, -0.4f);**  **glEnd();**  **}**  **void road\_marks()**  **{**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);//white**  **glVertex2f(-0.97f, -0.28f);**  **glVertex2f(-0.97f, -0.32f);**  **glVertex2f(-0.93f, -0.32f);**  **glVertex2f(-0.93f, -0.28f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);//white**  **glVertex2f(-0.87f, -0.28f);**  **glVertex2f(-0.87f, -0.32f);**  **glVertex2f(-0.83f, -0.32f);**  **glVertex2f(-0.83f, -0.28f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);//white**  **glVertex2f(-0.77f, -0.28f);**  **glVertex2f(-0.77f, -0.32f);**  **glVertex2f(-0.73f, -0.32f);**  **glVertex2f(-0.73f, -0.28f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);//white**  **glVertex2f(-0.67f, -0.28f);**  **glVertex2f(-0.67f, -0.32f);**  **glVertex2f(-0.63f, -0.32f);**  **glVertex2f(-0.63f, -0.28f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);//white**  **glVertex2f(-0.57f, -0.28f);**  **glVertex2f(-0.57f, -0.32f);**  **glVertex2f(-0.53f, -0.32f);**  **glVertex2f(-0.53f, -0.28f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);//white**  **glVertex2f(-0.47f, -0.28f);**  **glVertex2f(-0.47f, -0.32f);**  **glVertex2f(-0.43f, -0.32f);**  **glVertex2f(-0.43f, -0.28f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);//white**  **glVertex2f(-0.37f, -0.28f);**  **glVertex2f(-0.37f, -0.32f);**  **glVertex2f(-0.33f, -0.32f);**  **glVertex2f(-0.33f, -0.28f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);//white**  **glVertex2f(-0.27f, -0.28f);**  **glVertex2f(-0.27f, -0.32f);**  **glVertex2f(-0.23f, -0.32f);**  **glVertex2f(-0.23f, -0.28f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);//white**  **glVertex2f(-0.17f, -0.28f);**  **glVertex2f(-0.17f, -0.32f);**  **glVertex2f(-0.13f, -0.32f);**  **glVertex2f(-0.13f, -0.28f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);//white**  **glVertex2f(-0.07f, -0.28f);**  **glVertex2f(-0.07f, -0.32f);**  **glVertex2f(-0.03f, -0.32f);**  **glVertex2f(-0.03f, -0.28f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);//white**  **glVertex2f(0.07f, -0.28f);**  **glVertex2f(0.07f, -0.32f);**  **glVertex2f(0.03f, -0.32f);**  **glVertex2f(0.03f, -0.28f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);//white**  **glVertex2f(0.17f, -0.28f);**  **glVertex2f(0.17f, -0.32f);**  **glVertex2f(0.13f, -0.32f);**  **glVertex2f(0.13f, -0.28f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);//white**  **glVertex2f(0.27f, -0.28f);**  **glVertex2f(0.27f, -0.32f);**  **glVertex2f(0.23f, -0.32f);**  **glVertex2f(0.23f, -0.28f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);//white**  **glVertex2f(0.37f, -0.28f);**  **glVertex2f(0.37f, -0.32f);**  **glVertex2f(0.33f, -0.32f);**  **glVertex2f(0.33f, -0.28f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);//white**  **glVertex2f(0.47f, -0.28f);**  **glVertex2f(0.47f, -0.32f);**  **glVertex2f(0.43f, -0.32f);**  **glVertex2f(0.43f, -0.28f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);//white**  **glVertex2f(0.57f, -0.28f);**  **glVertex2f(0.57f, -0.32f);**  **glVertex2f(0.53f, -0.32f);**  **glVertex2f(0.53f, -0.28f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);//white**  **glVertex2f(0.67f, -0.28f);**  **glVertex2f(0.67f, -0.32f);**  **glVertex2f(0.63f, -0.32f);**  **glVertex2f(0.63f, -0.28f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);//white**  **glVertex2f(0.77f, -0.28f);**  **glVertex2f(0.77f, -0.32f);**  **glVertex2f(0.73f, -0.32f);**  **glVertex2f(0.73f, -0.28f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);//white**  **glVertex2f(0.87f, -0.28f);**  **glVertex2f(0.87f, -0.32f);**  **glVertex2f(0.83f, -0.32f);**  **glVertex2f(0.83f, -0.28f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);//white**  **glVertex2f(0.97f, -0.28f);**  **glVertex2f(0.97f, -0.32f);**  **glVertex2f(0.93f, -0.32f);**  **glVertex2f(0.93f, -0.28f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);//white**  **glVertex2f(-0.72f, -0.43f);**  **glVertex2f(-0.72f, -0.47f);**  **glVertex2f(-0.68f, -0.47f);**  **glVertex2f(-0.68f, -0.43f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);//white**  **glVertex2f(-0.72f, -0.53f);**  **glVertex2f(-0.72f, -0.57f);**  **glVertex2f(-0.68f, -0.57f);**  **glVertex2f(-0.68f, -0.53f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);//white**  **glVertex2f(-0.72f, -0.63f);**  **glVertex2f(-0.72f, -0.67f);**  **glVertex2f(-0.68f, -0.67f);**  **glVertex2f(-0.68f, -0.63f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);//white**  **glVertex2f(-0.72f, -0.73f);**  **glVertex2f(-0.72f, -0.77f);**  **glVertex2f(-0.68f, -0.77f);**  **glVertex2f(-0.68f, -0.73f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);//white**  **glVertex2f(-0.72f, -0.83f);**  **glVertex2f(-0.72f, -0.87f);**  **glVertex2f(-0.68f, -0.87f);**  **glVertex2f(-0.68f, -0.83f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);//white**  **glVertex2f(-0.72f, -0.93f);**  **glVertex2f(-0.72f, -0.97f);**  **glVertex2f(-0.68f, -0.97f);**  **glVertex2f(-0.68f, -0.93f);**  **glEnd();**  **}**  **void sky()**  **{**  **glBegin(GL\_POLYGON);**  **glColor3f(0.0f, 1.0f, 1.0f);//light blue**  **glVertex2f(-1.0f, -0.2f);**  **glVertex2f(1.0f, -0.2f);**  **glVertex2f(1.0f, 1.0f);**  **glVertex2f(-1.0f, 1.0f);**  **glEnd();**  **}**  **void tree()**  **{**  **glBegin(GL\_TRIANGLES);**  **glColor3f(0.0f, 1.0f, 0.0f);//green**  **glVertex2f(0.8f, 0.3f);**  **glVertex2f(0.65f, 0.1f);**  **glVertex2f(0.95f, 0.1f);**  **glEnd();**  **glBegin(GL\_TRIANGLES);**  **glColor3f(0.0f, 1.0f, 0.0f);//green**  **glVertex2f(0.8f, 0.4f);**  **glVertex2f(0.7f, 0.2f);**  **glVertex2f(0.9f, 0.2f);**  **glEnd();**  **glBegin(GL\_TRIANGLES);**  **glColor3f(0.0f, 1.0f, 0.0f);//green**  **glVertex2f(0.8f, 0.5f);**  **glVertex2f(0.75f, 0.3f);**  **glVertex2f(0.85f, 0.3f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(0.60f, 0.40f, 0.12f);//brown**  **glVertex2f(0.77f, 0.1f);**  **glVertex2f(0.77f, -0.2f);**  **glVertex2f(0.83f, -0.2f);**  **glVertex2f(0.83f, 0.1f);**  **glEnd();**  **}**  **void traffic\_light()**  **{**  **glBegin(GL\_POLYGON);**  **glColor3f(0.25f, 0.25f, 0.25f);//dark gray**  **glVertex2f(-0.69f, 0.1f);**  **glVertex2f(-0.69f, -0.2f);**  **glVertex2f(-0.71f, -0.2f);**  **glVertex2f(-0.71f, 0.1f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(0.25f, 0.25f, 0.25f);//dark gray**  **glVertex2f(-0.66f, 0.1f);**  **glVertex2f(-0.66f, 0.3f);**  **glVertex2f(-0.74f, 0.3f);**  **glVertex2f(-0.74f, 0.1f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 0.0f, 0.0f);//red**  **glVertex2f(-0.68f, 0.13f);**  **glVertex2f(-0.68f, 0.16f);**  **glVertex2f(-0.72f, 0.16f);**  **glVertex2f(-0.72f, 0.13f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 0.0f);//yellow**  **glVertex2f(-0.68f, 0.19f);**  **glVertex2f(-0.68f, 0.22f);**  **glVertex2f(-0.72f, 0.22f);**  **glVertex2f(-0.72f, 0.19f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(0.0f, 1.0f, 0.0f);//green**  **glVertex2f(-0.68f, 0.25f);**  **glVertex2f(-0.68f, 0.28f);**  **glVertex2f(-0.72f, 0.28f);**  **glVertex2f(-0.72f, 0.25f);**  **glEnd();**  **}**  **void house()**  **{**  **//house**  **//level 1**  **glBegin(GL\_POLYGON);**  **glColor3f(0.0f, 0.0f, 1.0f);//blue**  **glVertex2f(-0.4f, 0.0f);**  **glVertex2f(-0.4f, -0.2f);**  **glVertex2f(0.4f, -0.2f);**  **glVertex2f(0.4f, 0.0f);**  **glEnd();**  **//level 2**  **glBegin(GL\_POLYGON);**  **glColor3f(0.0f, 0.0f, 1.0f);//blue**  **glVertex2f(-0.4f, 0.2f);**  **glVertex2f(-0.4f, 0.0f);**  **glVertex2f(0.4f, 0.0f);**  **glVertex2f(0.4f, 0.2f);**  **glEnd();**  **//level 3**  **glBegin(GL\_POLYGON);**  **glColor3f(0.0f, 0.0f, 1.0f);//blue**  **glVertex2f(-0.4f, 0.4f);**  **glVertex2f(-0.4f, 0.2f);**  **glVertex2f(0.4f, 0.2f);**  **glVertex2f(0.4f, 0.4f);**  **glEnd();**  **//level 4**  **glBegin(GL\_POLYGON);**  **glColor3f(0.0f, 0.0f, 1.0f);//blue**  **glVertex2f(-0.4f, 0.6f);**  **glVertex2f(-0.4f, 0.4f);**  **glVertex2f(0.4f, 0.4f);**  **glVertex2f(0.4f, 0.6f);**  **glEnd();**  **//level 5**  **glBegin(GL\_POLYGON);**  **glColor3f(0.0f, 0.0f, 1.0f);//blue**  **glVertex2f(-0.4f, 0.8f);**  **glVertex2f(-0.4f, 0.6f);**  **glVertex2f(0.4f, 0.6f);**  **glVertex2f(0.4f, 0.8f);**  **glEnd();**  **//entrance of level 1**  **glBegin(GL\_POLYGON);**  **glColor3f(0.98f, 0.625f, 0.12f);//pumpkin orange**  **glVertex2f(-0.05f, -0.2f);**  **glVertex2f(-0.05f, -0.05f);**  **glVertex2f(0.05f, -0.05f);**  **glVertex2f(0.05f, -0.2f);**  **glEnd();**  **//window 1 of level 1**  **glBegin(GL\_POLYGON);**  **glColor3f(0.98f, 0.625f, 0.12f);//pumpkin orange**  **glVertex2f(-0.3f, -0.05f);**  **glVertex2f(-0.3f, -0.15f);**  **glVertex2f(-0.2f, -0.15f);**  **glVertex2f(-0.2f, -0.05f);**  **glEnd();**  **//window 2 of level 1**  **glBegin(GL\_POLYGON);**  **glColor3f(0.98f, 0.625f, 0.12f);//pumpkin orange**  **glVertex2f(0.3f, -0.05f);**  **glVertex2f(0.3f, -0.15f);**  **glVertex2f(0.2f, -0.15f);**  **glVertex2f(0.2f, -0.05f);**  **glEnd();**  **//window 1 of level 2**  **glBegin(GL\_POLYGON);**  **glColor3f(0.98f, 0.625f, 0.12f);//pumpkin orange**  **glVertex2f(-0.3f, 0.05f);**  **glVertex2f(-0.3f, 0.15f);**  **glVertex2f(-0.2f, 0.15f);**  **glVertex2f(-0.2f, 0.05f);**  **glEnd();**  **//window 2 of level 2**  **glBegin(GL\_POLYGON);**  **glColor3f(0.98f, 0.625f, 0.12f);//pumpkin orange**  **glVertex2f(0.3f, 0.05f);**  **glVertex2f(0.3f, 0.15f);**  **glVertex2f(0.2f, 0.15f);**  **glVertex2f(0.2f, 0.05f);**  **glEnd();**  **//window 1 of level 3**  **glBegin(GL\_POLYGON);**  **glColor3f(0.98f, 0.625f, 0.12f);//pumpkin orange**  **glVertex2f(-0.3f, 0.35f);**  **glVertex2f(-0.3f, 0.25f);**  **glVertex2f(-0.2f, 0.25f);**  **glVertex2f(-0.2f, 0.35f);**  **glEnd();**  **//window 2 of level 3**  **glBegin(GL\_POLYGON);**  **glColor3f(0.98f, 0.625f, 0.12f);//pumpkin orange**  **glVertex2f(0.3f, 0.35f);**  **glVertex2f(0.3f, 0.25f);**  **glVertex2f(0.2f, 0.25f);**  **glVertex2f(0.2f, 0.35f);**  **glEnd();**  **//window 1 of level 4**  **glBegin(GL\_POLYGON);**  **glColor3f(0.98f, 0.625f, 0.12f);//pumpkin orange**  **glVertex2f(-0.3f, 0.55f);**  **glVertex2f(-0.3f, 0.45f);**  **glVertex2f(-0.2f, 0.45f);**  **glVertex2f(-0.2f, 0.55f);**  **glEnd();**  **//window 2 of level 4**  **glBegin(GL\_POLYGON);**  **glColor3f(0.98f, 0.625f, 0.12f);//pumpkin orange**  **glVertex2f(0.3f, 0.55f);**  **glVertex2f(0.3f, 0.45f);**  **glVertex2f(0.2f, 0.45f);**  **glVertex2f(0.2f, 0.55f);**  **glEnd();**  **//window 1 of level 5**  **glBegin(GL\_POLYGON);**  **glColor3f(0.98f, 0.625f, 0.12f);//pumpkin orange**  **glVertex2f(-0.3f, 0.75f);**  **glVertex2f(-0.3f, 0.65f);**  **glVertex2f(-0.2f, 0.65f);**  **glVertex2f(-0.2f, 0.75f);**  **glEnd();**  **//window 2 of level 5**  **glBegin(GL\_POLYGON);**  **glColor3f(0.98f, 0.625f, 0.12f);//pumpkin orange**  **glVertex2f(0.3f, 0.75f);**  **glVertex2f(0.3f, 0.65f);**  **glVertex2f(0.2f, 0.65f);**  **glVertex2f(0.2f, 0.75f);**  **glEnd();**  **}**  **void road()**  **{**  **glBegin(GL\_POLYGON);**  **glColor3f(0.0f, 0.0f, 0.0f);//black**  **glVertex2f(-1.0f, -0.4f);**  **glVertex2f(-1.0f, -0.2f);**  **glVertex2f(1.0f, -0.2f);**  **glVertex2f(1.0f, -0.4f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(0.0f, 0.0f, 0.0f);//black**  **glVertex2f(-0.8f, -0.4f);**  **glVertex2f(-0.8f, -1.0f);**  **glVertex2f(-0.6f, -1.0f);**  **glVertex2f(-0.6f, -0.4f);**  **glEnd();**  **}**  **void scenario()**  **{**  **glLoadIdentity(); //Reset the drawing perspective**  **glMatrixMode(GL\_MODELVIEW);**  **glPushMatrix();**  **glTranslatef(-0.05f,0.0f,0.0f);**  **tree();**  **glLoadIdentity(); //Reset the drawing perspective**  **glMatrixMode(GL\_MODELVIEW);**  **glPushMatrix();**  **glTranslatef(-0.85f,0.0f,0.0f);**  **tree();**  **glLoadIdentity(); //Reset the drawing perspective**  **glMatrixMode(GL\_MODELVIEW);**  **glPushMatrix();**  **glTranslatef(-0.05f,0.0f,0.0f);**  **traffic\_light();**  **glLoadIdentity(); //Reset the drawing perspective**  **glMatrixMode(GL\_MODELVIEW);**  **glPushMatrix();**  **glTranslatef(0.35f,0.0f,0.0f);**  **glScalef(0.5f,1.0f,0.0f);**  **house();**  **glLoadIdentity(); //Reset the drawing perspective**  **glMatrixMode(GL\_MODELVIEW);**  **glPushMatrix();**  **glTranslatef(-0.45f,0.0f,0.0f);**  **glScalef(0.5f,1.0f,0.0f);**  **house();**  **glLoadIdentity(); //Reset the drawing perspective**  **glMatrixMode(GL\_MODELVIEW);**  **glPushMatrix();**  **glTranslatef(0.0f,0.0f,0.0f);**  **road();**  **glLoadIdentity(); //Reset the drawing perspective**  **glMatrixMode(GL\_MODELVIEW);**  **glPushMatrix();**  **glTranslatef(0.0f,0.0f,0.0f);**  **road\_side();**  **glLoadIdentity(); //Reset the drawing perspective**  **glMatrixMode(GL\_MODELVIEW);**  **glPushMatrix();**  **glTranslatef(0.0f,0.0f,0.0f);**  **road\_marks();**  **glLoadIdentity(); //Reset the drawing perspective**  **glMatrixMode(GL\_MODELVIEW);**  **glPushMatrix();**  **glTranslatef(0.2f,-0.65f,-0.6f);**  **glScalef(0.5f,0.5f,0.0f);**  **bench();**  **glLoadIdentity(); //Reset the drawing perspective**  **glMatrixMode(GL\_MODELVIEW);**  **glPushMatrix();**  **glTranslatef(0.6f,-0.65f,-0.6f);**  **glScalef(0.5f,0.5f,0.0f);**  **bench();**  **glLoadIdentity(); //Reset the drawing perspective**  **glMatrixMode(GL\_MODELVIEW);**  **glPushMatrix();**  **glTranslatef(-0.07f,-0.6f,0.0f);**  **glScalef(0.5f,0.6f,0.0f);**  **lamp\_post();**  **glLoadIdentity(); //Reset the drawing perspective**  **glMatrixMode(GL\_MODELVIEW);**  **glPushMatrix();**  **glTranslatef(0.85f,-0.6f,0.0f);**  **glScalef(0.5f,0.6f,0.0f);**  **lamp\_post();**  **glLoadIdentity(); //Reset the drawing perspective**  **glMatrixMode(GL\_MODELVIEW);**  **glPushMatrix();**  **glTranslatef(-0.8f,0.6f,0.0f);**  **glScalef(0.1f,0.1f,0.0f);**  **sun();**  **}**  **void update(int value) {**  **if(position <-1.5)**  **position = 0.0f;**  **position -= speed;**  **glutPostRedisplay();**  **glutTimerFunc(100,update,0);**  **}**  **void update1(int value) {**  **if(position1 >1.5)**  **position1 = -0.0f;**  **position1 += speed;**  **glutPostRedisplay();**  **glutTimerFunc(100,update1,0);**  **}**  **void disback(int val)**  **{**  **glutDisplayFunc(display);**  **}**  **void display3()**  **{**  **glClear(GL\_COLOR\_BUFFER\_BIT);**  **glClearColor(0.0f, 0.0f, 0.0f, 1.0f);**  **glLoadIdentity();**  **glPushMatrix();**  **scenario();**  **glPopMatrix();**  **glutTimerFunc(1500,disback,0);**  **glFlush();**  **}**  **void display2(int val) {**  **glutDisplayFunc(display3);**  **}**  **void display() {**  **glClear(GL\_COLOR\_BUFFER\_BIT);**  **glClearColor(1.0f, 1.0f, 1.0f, 1.0f);**  **glLoadIdentity();**  **glPushMatrix();**  **scenario();**  **glPopMatrix();**  **glutTimerFunc(1500,display2,0);**  **glFlush();**  **}**  **void dis()**  **{**  **glutDisplayFunc(display);**  **}**  **int main(int argc, char\*\* argv) {**  **glutInit(&argc, argv);**  **glutInitWindowSize(480, 300);**  **glutInitWindowPosition(50, 50);**  **glutCreateWindow("Auto Day Night");**  **glutDisplayFunc(dis);**  **glutTimerFunc(100, update, 0);**  **glutTimerFunc(100,update1,0);**  **glutMainLoop();**  **return 0;**  **}** |

|  |
| --- |
| **Output Screenshot (Full Screen)-**  **Day View:**    **Night View:** |

|  |
| --- |
| **Question-**  Create a simple day and night scenario using keyboard interaction. The key ‘D’ or ‘d’ will initiate the day mode and the key ‘N’ or ‘n’ will initiate the night mode. |
| **Code-**  **#include<cstdio>**  **#include <GL/gl.h>**  **#include <GL/glut.h>**  **#include <math.h>**  **GLfloat position = 0.0f;**  **GLfloat position1 = 0.0f;**  **GLfloat speed = 0.1f;**  **void dis();**  **void display();**  **void sun()**  **{**  **glBegin(GL\_POLYGON);// Draw a Red 1x1 Square centered at origin**  **for(int i=0;i<200;i++)**  **{**  **glColor3f(1.0,0,0);**  **float pi=3.1416;**  **float A=(i\*2\*pi)/200;**  **float r=0.85;**  **float x = r \* cos(A);**  **float y = r \* sin(A);**  **glVertex2f(x,y );**  **}**  **//glVertex2f(-0.8f,0.4f);**  **//glVertex2f(-0.7f,0.4f);**  **glEnd();**  **}**  **void bench()**  **{**  **glBegin(GL\_QUADS);**  **glColor3f(0.60f, 0.40f, 0.12f);//brown**  **glVertex2f(-0.25f, 0.15f);**  **glVertex2f(-0.25f, 0.0f);**  **glVertex2f(0.25f, 0.0f);**  **glVertex2f(0.25f, 0.15f);**  **glEnd();**  **glBegin(GL\_QUADS);**  **glColor3f(0.0f, 0.0f, 0.0f);//black**  **glVertex2f(-0.25f, 0.0f);**  **glVertex2f(-0.35f, -0.1f);**  **glVertex2f(0.35f, -0.1f);**  **glVertex2f(0.25f, 0.0f);**  **glEnd();**  **glBegin(GL\_QUADS);**  **glColor3f(0.60f, 0.40f, 0.12f);//brown**  **glVertex2f(-0.35f, -0.1f);**  **glVertex2f(-0.35f, -0.15f);**  **glVertex2f(0.35f, -0.15f);**  **glVertex2f(0.35f, -0.1f);**  **glEnd();**  **glBegin(GL\_QUADS);**  **glColor3f(0.0f, 0.0f, 0.0f);//black**  **glVertex2f(-0.35f, -0.15f);**  **glVertex2f(-0.35f, -0.25f);**  **glVertex2f(-0.33f, -0.25f);**  **glVertex2f(-0.33f, -0.15f);**  **glEnd();**  **glBegin(GL\_QUADS);**  **glColor3f(0.0f, 0.0f, 0.0f);//black**  **glVertex2f(0.35f, -0.15f);**  **glVertex2f(0.35f, -0.25f);**  **glVertex2f(0.33f, -0.25f);**  **glVertex2f(0.33f, -0.15f);**  **glEnd();**  **glBegin(GL\_QUADS);**  **glColor3f(0.0f, 0.0f, 0.0f);//black**  **glVertex2f(-0.25f, -0.15f);**  **glVertex2f(-0.25f, -0.2f);**  **glVertex2f(-0.23f, -0.2f);**  **glVertex2f(-0.23f, -0.15f);**  **glEnd();**  **glBegin(GL\_QUADS);**  **glColor3f(0.0f, 0.0f, 0.0f);//black**  **glVertex2f(0.25f, -0.15f);**  **glVertex2f(0.25f, -0.2f);**  **glVertex2f(0.23f, -0.2f);**  **glVertex2f(0.23f, -0.15f);**  **glEnd();**  **}**  **void lamp\_post()**  **{**  **glBegin(GL\_QUADS);**  **glColor3f(1.0f, 0.5f, 0.0f);//Orange**  **glVertex2f(-0.01f, 0.4f);**  **glVertex2f(-0.01f, -0.3f);**  **glVertex2f(0.01f, -0.3f);**  **glVertex2f(0.01f, 0.4f);**  **glEnd();**  **glBegin(GL\_QUADS);**  **glColor3f(0.0f, 0.0f, 1.0f);//Blue**  **glVertex2f(-0.04f, -0.3f);**  **glVertex2f(-0.04f, -0.35f);**  **glVertex2f(0.04f, -0.35f);**  **glVertex2f(0.04f, -0.3f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(0.0f, 0.1f, 0.1f);//Dark blue**  **glVertex2f(-0.06f, -0.35f);**  **glVertex2f(-0.07f, -0.38f);**  **glVertex2f(0.07f, -0.38f);**  **glVertex2f(0.06f, -0.35f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(0.75f, 0.75f, 0.75f);**  **glVertex2f(-0.04f, 0.4f);**  **glVertex2f(0.0f, 0.38f);**  **glVertex2f(0.04f, 0.4f);**  **glVertex2f(0.05f, 0.5f);**  **glVertex2f(0.0f, 0.55f);**  **glVertex2f(-0.05f,0.5f);**  **glEnd();**  **glBegin(GL\_TRIANGLES);**  **glColor3f(1.0f, 1.0f, 0.0f);//yellow**  **glVertex2f(0.0f, 0.55f);**  **glVertex2f(0.05f, 0.5f);**  **glVertex2f(0.025f, 0.6f);**  **glEnd();**  **glBegin(GL\_TRIANGLES);**  **glColor3f(1.0f, 1.0f, 0.0f);//yellow**  **glVertex2f(0.0f, 0.55f);**  **glVertex2f(-0.05f,0.5f);**  **glVertex2f(-0.025f, 0.6f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 0.0f, 0.0f);//red**  **glVertex2f(0.025f, 0.6f);**  **glVertex2f(0.0f, 0.55f);**  **glVertex2f(-0.025f, 0.6f);**  **glVertex2f(0.0f, 0.65f);**  **glEnd();**  **}**  **void road\_side()**  **{**  **glBegin(GL\_POLYGON);**  **glColor3f(0.0f, 1.0f, 0.0f);//green**  **glVertex2f(-1.0f, -0.4f);**  **glVertex2f(-1.0f, -1.0f);**  **glVertex2f(-0.8f, -1.0f);**  **glVertex2f(-0.8f, -0.4f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(0.0f, 1.0f, 0.0f);//green**  **glVertex2f(-0.6f, -0.4f);**  **glVertex2f(-0.6f, -1.0f);**  **glVertex2f(1.0f, -1.0f);**  **glVertex2f(1.0f, -0.4f);**  **glEnd();**  **}**  **void road\_marks()**  **{**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);//white**  **glVertex2f(-0.97f, -0.28f);**  **glVertex2f(-0.97f, -0.32f);**  **glVertex2f(-0.93f, -0.32f);**  **glVertex2f(-0.93f, -0.28f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);//white**  **glVertex2f(-0.87f, -0.28f);**  **glVertex2f(-0.87f, -0.32f);**  **glVertex2f(-0.83f, -0.32f);**  **glVertex2f(-0.83f, -0.28f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);//white**  **glVertex2f(-0.77f, -0.28f);**  **glVertex2f(-0.77f, -0.32f);**  **glVertex2f(-0.73f, -0.32f);**  **glVertex2f(-0.73f, -0.28f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);//white**  **glVertex2f(-0.67f, -0.28f);**  **glVertex2f(-0.67f, -0.32f);**  **glVertex2f(-0.63f, -0.32f);**  **glVertex2f(-0.63f, -0.28f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);//white**  **glVertex2f(-0.57f, -0.28f);**  **glVertex2f(-0.57f, -0.32f);**  **glVertex2f(-0.53f, -0.32f);**  **glVertex2f(-0.53f, -0.28f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);//white**  **glVertex2f(-0.47f, -0.28f);**  **glVertex2f(-0.47f, -0.32f);**  **glVertex2f(-0.43f, -0.32f);**  **glVertex2f(-0.43f, -0.28f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);//white**  **glVertex2f(-0.37f, -0.28f);**  **glVertex2f(-0.37f, -0.32f);**  **glVertex2f(-0.33f, -0.32f);**  **glVertex2f(-0.33f, -0.28f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);//white**  **glVertex2f(-0.27f, -0.28f);**  **glVertex2f(-0.27f, -0.32f);**  **glVertex2f(-0.23f, -0.32f);**  **glVertex2f(-0.23f, -0.28f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);//white**  **glVertex2f(-0.17f, -0.28f);**  **glVertex2f(-0.17f, -0.32f);**  **glVertex2f(-0.13f, -0.32f);**  **glVertex2f(-0.13f, -0.28f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);//white**  **glVertex2f(-0.07f, -0.28f);**  **glVertex2f(-0.07f, -0.32f);**  **glVertex2f(-0.03f, -0.32f);**  **glVertex2f(-0.03f, -0.28f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);//white**  **glVertex2f(0.07f, -0.28f);**  **glVertex2f(0.07f, -0.32f);**  **glVertex2f(0.03f, -0.32f);**  **glVertex2f(0.03f, -0.28f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);//white**  **glVertex2f(0.17f, -0.28f);**  **glVertex2f(0.17f, -0.32f);**  **glVertex2f(0.13f, -0.32f);**  **glVertex2f(0.13f, -0.28f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);//white**  **glVertex2f(0.27f, -0.28f);**  **glVertex2f(0.27f, -0.32f);**  **glVertex2f(0.23f, -0.32f);**  **glVertex2f(0.23f, -0.28f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);//white**  **glVertex2f(0.37f, -0.28f);**  **glVertex2f(0.37f, -0.32f);**  **glVertex2f(0.33f, -0.32f);**  **glVertex2f(0.33f, -0.28f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);//white**  **glVertex2f(0.47f, -0.28f);**  **glVertex2f(0.47f, -0.32f);**  **glVertex2f(0.43f, -0.32f);**  **glVertex2f(0.43f, -0.28f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);//white**  **glVertex2f(0.57f, -0.28f);**  **glVertex2f(0.57f, -0.32f);**  **glVertex2f(0.53f, -0.32f);**  **glVertex2f(0.53f, -0.28f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);//white**  **glVertex2f(0.67f, -0.28f);**  **glVertex2f(0.67f, -0.32f);**  **glVertex2f(0.63f, -0.32f);**  **glVertex2f(0.63f, -0.28f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);//white**  **glVertex2f(0.77f, -0.28f);**  **glVertex2f(0.77f, -0.32f);**  **glVertex2f(0.73f, -0.32f);**  **glVertex2f(0.73f, -0.28f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);//white**  **glVertex2f(0.87f, -0.28f);**  **glVertex2f(0.87f, -0.32f);**  **glVertex2f(0.83f, -0.32f);**  **glVertex2f(0.83f, -0.28f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);//white**  **glVertex2f(0.97f, -0.28f);**  **glVertex2f(0.97f, -0.32f);**  **glVertex2f(0.93f, -0.32f);**  **glVertex2f(0.93f, -0.28f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);//white**  **glVertex2f(-0.72f, -0.43f);**  **glVertex2f(-0.72f, -0.47f);**  **glVertex2f(-0.68f, -0.47f);**  **glVertex2f(-0.68f, -0.43f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);//white**  **glVertex2f(-0.72f, -0.53f);**  **glVertex2f(-0.72f, -0.57f);**  **glVertex2f(-0.68f, -0.57f);**  **glVertex2f(-0.68f, -0.53f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);//white**  **glVertex2f(-0.72f, -0.63f);**  **glVertex2f(-0.72f, -0.67f);**  **glVertex2f(-0.68f, -0.67f);**  **glVertex2f(-0.68f, -0.63f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);//white**  **glVertex2f(-0.72f, -0.73f);**  **glVertex2f(-0.72f, -0.77f);**  **glVertex2f(-0.68f, -0.77f);**  **glVertex2f(-0.68f, -0.73f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);//white**  **glVertex2f(-0.72f, -0.83f);**  **glVertex2f(-0.72f, -0.87f);**  **glVertex2f(-0.68f, -0.87f);**  **glVertex2f(-0.68f, -0.83f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 1.0f);//white**  **glVertex2f(-0.72f, -0.93f);**  **glVertex2f(-0.72f, -0.97f);**  **glVertex2f(-0.68f, -0.97f);**  **glVertex2f(-0.68f, -0.93f);**  **glEnd();**  **}**  **void sky()**  **{**  **glBegin(GL\_POLYGON);**  **glColor3f(0.0f, 1.0f, 1.0f);//light blue**  **glVertex2f(-1.0f, -0.2f);**  **glVertex2f(1.0f, -0.2f);**  **glVertex2f(1.0f, 1.0f);**  **glVertex2f(-1.0f, 1.0f);**  **glEnd();**  **}**  **void tree()**  **{**  **glBegin(GL\_TRIANGLES);**  **glColor3f(0.0f, 1.0f, 0.0f);//green**  **glVertex2f(0.8f, 0.3f);**  **glVertex2f(0.65f, 0.1f);**  **glVertex2f(0.95f, 0.1f);**  **glEnd();**  **glBegin(GL\_TRIANGLES);**  **glColor3f(0.0f, 1.0f, 0.0f);//green**  **glVertex2f(0.8f, 0.4f);**  **glVertex2f(0.7f, 0.2f);**  **glVertex2f(0.9f, 0.2f);**  **glEnd();**  **glBegin(GL\_TRIANGLES);**  **glColor3f(0.0f, 1.0f, 0.0f);//green**  **glVertex2f(0.8f, 0.5f);**  **glVertex2f(0.75f, 0.3f);**  **glVertex2f(0.85f, 0.3f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(0.60f, 0.40f, 0.12f);//brown**  **glVertex2f(0.77f, 0.1f);**  **glVertex2f(0.77f, -0.2f);**  **glVertex2f(0.83f, -0.2f);**  **glVertex2f(0.83f, 0.1f);**  **glEnd();**  **}**  **void traffic\_light()**  **{**  **glBegin(GL\_POLYGON);**  **glColor3f(0.25f, 0.25f, 0.25f);//dark gray**  **glVertex2f(-0.69f, 0.1f);**  **glVertex2f(-0.69f, -0.2f);**  **glVertex2f(-0.71f, -0.2f);**  **glVertex2f(-0.71f, 0.1f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(0.25f, 0.25f, 0.25f);//dark gray**  **glVertex2f(-0.66f, 0.1f);**  **glVertex2f(-0.66f, 0.3f);**  **glVertex2f(-0.74f, 0.3f);**  **glVertex2f(-0.74f, 0.1f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 0.0f, 0.0f);//red**  **glVertex2f(-0.68f, 0.13f);**  **glVertex2f(-0.68f, 0.16f);**  **glVertex2f(-0.72f, 0.16f);**  **glVertex2f(-0.72f, 0.13f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(1.0f, 1.0f, 0.0f);//yellow**  **glVertex2f(-0.68f, 0.19f);**  **glVertex2f(-0.68f, 0.22f);**  **glVertex2f(-0.72f, 0.22f);**  **glVertex2f(-0.72f, 0.19f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(0.0f, 1.0f, 0.0f);//green**  **glVertex2f(-0.68f, 0.25f);**  **glVertex2f(-0.68f, 0.28f);**  **glVertex2f(-0.72f, 0.28f);**  **glVertex2f(-0.72f, 0.25f);**  **glEnd();**  **}**  **void house()**  **{**  **//house**  **//level 1**  **glBegin(GL\_POLYGON);**  **glColor3f(0.0f, 0.0f, 1.0f);//blue**  **glVertex2f(-0.4f, 0.0f);**  **glVertex2f(-0.4f, -0.2f);**  **glVertex2f(0.4f, -0.2f);**  **glVertex2f(0.4f, 0.0f);**  **glEnd();**  **//level 2**  **glBegin(GL\_POLYGON);**  **glColor3f(0.0f, 0.0f, 1.0f);//blue**  **glVertex2f(-0.4f, 0.2f);**  **glVertex2f(-0.4f, 0.0f);**  **glVertex2f(0.4f, 0.0f);**  **glVertex2f(0.4f, 0.2f);**  **glEnd();**  **//level 3**  **glBegin(GL\_POLYGON);**  **glColor3f(0.0f, 0.0f, 1.0f);//blue**  **glVertex2f(-0.4f, 0.4f);**  **glVertex2f(-0.4f, 0.2f);**  **glVertex2f(0.4f, 0.2f);**  **glVertex2f(0.4f, 0.4f);**  **glEnd();**  **//level 4**  **glBegin(GL\_POLYGON);**  **glColor3f(0.0f, 0.0f, 1.0f);//blue**  **glVertex2f(-0.4f, 0.6f);**  **glVertex2f(-0.4f, 0.4f);**  **glVertex2f(0.4f, 0.4f);**  **glVertex2f(0.4f, 0.6f);**  **glEnd();**  **//level 5**  **glBegin(GL\_POLYGON);**  **glColor3f(0.0f, 0.0f, 1.0f);//blue**  **glVertex2f(-0.4f, 0.8f);**  **glVertex2f(-0.4f, 0.6f);**  **glVertex2f(0.4f, 0.6f);**  **glVertex2f(0.4f, 0.8f);**  **glEnd();**  **//entrance of level 1**  **glBegin(GL\_POLYGON);**  **glColor3f(0.98f, 0.625f, 0.12f);//pumpkin orange**  **glVertex2f(-0.05f, -0.2f);**  **glVertex2f(-0.05f, -0.05f);**  **glVertex2f(0.05f, -0.05f);**  **glVertex2f(0.05f, -0.2f);**  **glEnd();**  **//window 1 of level 1**  **glBegin(GL\_POLYGON);**  **glColor3f(0.98f, 0.625f, 0.12f);//pumpkin orange**  **glVertex2f(-0.3f, -0.05f);**  **glVertex2f(-0.3f, -0.15f);**  **glVertex2f(-0.2f, -0.15f);**  **glVertex2f(-0.2f, -0.05f);**  **glEnd();**  **//window 2 of level 1**  **glBegin(GL\_POLYGON);**  **glColor3f(0.98f, 0.625f, 0.12f);//pumpkin orange**  **glVertex2f(0.3f, -0.05f);**  **glVertex2f(0.3f, -0.15f);**  **glVertex2f(0.2f, -0.15f);**  **glVertex2f(0.2f, -0.05f);**  **glEnd();**  **//window 1 of level 2**  **glBegin(GL\_POLYGON);**  **glColor3f(0.98f, 0.625f, 0.12f);//pumpkin orange**  **glVertex2f(-0.3f, 0.05f);**  **glVertex2f(-0.3f, 0.15f);**  **glVertex2f(-0.2f, 0.15f);**  **glVertex2f(-0.2f, 0.05f);**  **glEnd();**  **//window 2 of level 2**  **glBegin(GL\_POLYGON);**  **glColor3f(0.98f, 0.625f, 0.12f);//pumpkin orange**  **glVertex2f(0.3f, 0.05f);**  **glVertex2f(0.3f, 0.15f);**  **glVertex2f(0.2f, 0.15f);**  **glVertex2f(0.2f, 0.05f);**  **glEnd();**  **//window 1 of level 3**  **glBegin(GL\_POLYGON);**  **glColor3f(0.98f, 0.625f, 0.12f);//pumpkin orange**  **glVertex2f(-0.3f, 0.35f);**  **glVertex2f(-0.3f, 0.25f);**  **glVertex2f(-0.2f, 0.25f);**  **glVertex2f(-0.2f, 0.35f);**  **glEnd();**  **//window 2 of level 3**  **glBegin(GL\_POLYGON);**  **glColor3f(0.98f, 0.625f, 0.12f);//pumpkin orange**  **glVertex2f(0.3f, 0.35f);**  **glVertex2f(0.3f, 0.25f);**  **glVertex2f(0.2f, 0.25f);**  **glVertex2f(0.2f, 0.35f);**  **glEnd();**  **//window 1 of level 4**  **glBegin(GL\_POLYGON);**  **glColor3f(0.98f, 0.625f, 0.12f);//pumpkin orange**  **glVertex2f(-0.3f, 0.55f);**  **glVertex2f(-0.3f, 0.45f);**  **glVertex2f(-0.2f, 0.45f);**  **glVertex2f(-0.2f, 0.55f);**  **glEnd();**  **//window 2 of level 4**  **glBegin(GL\_POLYGON);**  **glColor3f(0.98f, 0.625f, 0.12f);//pumpkin orange**  **glVertex2f(0.3f, 0.55f);**  **glVertex2f(0.3f, 0.45f);**  **glVertex2f(0.2f, 0.45f);**  **glVertex2f(0.2f, 0.55f);**  **glEnd();**  **//window 1 of level 5**  **glBegin(GL\_POLYGON);**  **glColor3f(0.98f, 0.625f, 0.12f);//pumpkin orange**  **glVertex2f(-0.3f, 0.75f);**  **glVertex2f(-0.3f, 0.65f);**  **glVertex2f(-0.2f, 0.65f);**  **glVertex2f(-0.2f, 0.75f);**  **glEnd();**  **//window 2 of level 5**  **glBegin(GL\_POLYGON);**  **glColor3f(0.98f, 0.625f, 0.12f);//pumpkin orange**  **glVertex2f(0.3f, 0.75f);**  **glVertex2f(0.3f, 0.65f);**  **glVertex2f(0.2f, 0.65f);**  **glVertex2f(0.2f, 0.75f);**  **glEnd();**  **}**  **void road()**  **{**  **glBegin(GL\_POLYGON);**  **glColor3f(0.0f, 0.0f, 0.0f);//black**  **glVertex2f(-1.0f, -0.4f);**  **glVertex2f(-1.0f, -0.2f);**  **glVertex2f(1.0f, -0.2f);**  **glVertex2f(1.0f, -0.4f);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3f(0.0f, 0.0f, 0.0f);//black**  **glVertex2f(-0.8f, -0.4f);**  **glVertex2f(-0.8f, -1.0f);**  **glVertex2f(-0.6f, -1.0f);**  **glVertex2f(-0.6f, -0.4f);**  **glEnd();**  **}**  **void scenario()**  **{**  **glLoadIdentity(); //Reset the drawing perspective**  **glMatrixMode(GL\_MODELVIEW);**  **glPushMatrix();**  **glTranslatef(-0.05f,0.0f,0.0f);**  **tree();**  **glLoadIdentity(); //Reset the drawing perspective**  **glMatrixMode(GL\_MODELVIEW);**  **glPushMatrix();**  **glTranslatef(-0.85f,0.0f,0.0f);**  **tree();**  **glLoadIdentity(); //Reset the drawing perspective**  **glMatrixMode(GL\_MODELVIEW);**  **glPushMatrix();**  **glTranslatef(-0.05f,0.0f,0.0f);**  **traffic\_light();**  **glLoadIdentity(); //Reset the drawing perspective**  **glMatrixMode(GL\_MODELVIEW);**  **glPushMatrix();**  **glTranslatef(0.35f,0.0f,0.0f);**  **glScalef(0.5f,1.0f,0.0f);**  **house();**  **glLoadIdentity(); //Reset the drawing perspective**  **glMatrixMode(GL\_MODELVIEW);**  **glPushMatrix();**  **glTranslatef(-0.45f,0.0f,0.0f);**  **glScalef(0.5f,1.0f,0.0f);**  **house();**  **glLoadIdentity(); //Reset the drawing perspective**  **glMatrixMode(GL\_MODELVIEW);**  **glPushMatrix();**  **glTranslatef(0.0f,0.0f,0.0f);**  **road();**  **glLoadIdentity(); //Reset the drawing perspective**  **glMatrixMode(GL\_MODELVIEW);**  **glPushMatrix();**  **glTranslatef(0.0f,0.0f,0.0f);**  **road\_side();**  **glLoadIdentity(); //Reset the drawing perspective**  **glMatrixMode(GL\_MODELVIEW);**  **glPushMatrix();**  **glTranslatef(0.0f,0.0f,0.0f);**  **road\_marks();**  **glLoadIdentity(); //Reset the drawing perspective**  **glMatrixMode(GL\_MODELVIEW);**  **glPushMatrix();**  **glTranslatef(0.2f,-0.65f,-0.6f);**  **glScalef(0.5f,0.5f,0.0f);**  **bench();**  **glLoadIdentity(); //Reset the drawing perspective**  **glMatrixMode(GL\_MODELVIEW);**  **glPushMatrix();**  **glTranslatef(0.6f,-0.65f,-0.6f);**  **glScalef(0.5f,0.5f,0.0f);**  **bench();**  **glLoadIdentity(); //Reset the drawing perspective**  **glMatrixMode(GL\_MODELVIEW);**  **glPushMatrix();**  **glTranslatef(-0.07f,-0.6f,0.0f);**  **glScalef(0.5f,0.6f,0.0f);**  **lamp\_post();**  **glLoadIdentity(); //Reset the drawing perspective**  **glMatrixMode(GL\_MODELVIEW);**  **glPushMatrix();**  **glTranslatef(0.85f,-0.6f,0.0f);**  **glScalef(0.5f,0.6f,0.0f);**  **lamp\_post();**  **glLoadIdentity(); //Reset the drawing perspective**  **glMatrixMode(GL\_MODELVIEW);**  **glPushMatrix();**  **glTranslatef(-0.8f,0.6f,0.0f);**  **glScalef(0.1f,0.1f,0.0f);**  **sun();**  **}**  **void update(int value) {**  **if(position <-1.5)**  **position = 0.0f;**  **position -= speed;**  **glutPostRedisplay();**  **glutTimerFunc(100,update,0);**  **}**  **void update1(int value) {**  **if(position1 >1.5)**  **position1 = -0.0f;**  **position1 += speed;**  **glutPostRedisplay();**  **glutTimerFunc(100,update1,0);**  **}**  **void display3()**  **{**  **glClear(GL\_COLOR\_BUFFER\_BIT);**  **glClearColor(0.0f, 0.0f, 0.0f, 1.0f);**  **glLoadIdentity();**  **glPushMatrix();**  **scenario();**  **glPopMatrix();**  **glutTimerFunc(1500,0,0);**  **glFlush();**  **}**  **void display2(int val) {**  **glutDisplayFunc(display3);**  **}**  **void display() {**  **glClear(GL\_COLOR\_BUFFER\_BIT);**  **glClearColor(1.0f, 1.0f, 1.0f, 1.0f);**  **glLoadIdentity();**  **glPushMatrix();**  **scenario();**  **glPopMatrix();**  **glutTimerFunc(1500,0,0);**  **glFlush();**  **}**  **void dis()**  **{**  **glutDisplayFunc(display);**  **}**  **void handleKeypress(unsigned char key, int x, int y)**  **{**  **switch (key)**  **{**  **case 'd':**  **glutDisplayFunc(display);**  **break;**  **case 'n':**  **glutDisplayFunc(display3);**  **break;**  **glutPostRedisplay();**  **}**  **}**  **int main(int argc, char\*\* argv) {**  **glutInit(&argc, argv);**  **glutInitWindowSize(480, 300);**  **glutInitWindowPosition(50, 50);**  **glutCreateWindow("Day Night On Key Press");**  **glutDisplayFunc(dis);**  **glutTimerFunc(100, update, 0);**  **glutTimerFunc(100,update1,0);**  **glutKeyboardFunc(handleKeypress);**  **glutMainLoop();**  **return 0;**  **}** |
| **Output Screenshot (Full Screen)-**  **Day View on key press d:**    **Night View on key press n:** |