**Lab Practice-7**

Submission Guidelines-

* Rename the file to your id only. If your id is 18-XXXXX-1, then the file name must be 18-XXXXX-1.docx.

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| **Question-**  Create a simple day and night scenario that will automatically change from day to night |
| **Graph** |
| **Code-**  **#include<cstdio>**  **#include <windows.h>**  **#include <GL/glut.h>**  **#include <math.h>**  **bool day = true;**  **float \_move=0.0f;**  **float a=0.01f;**  **void farvillage()**  **{**  **//sky**  **if (day)**  **glColor3ub(90, 225, 254);**  **else**  **glColor3ub(101, 110, 135);**  **glBegin(GL\_POLYGON);**  **//glColor3ub(90, 225, 254);**  **glVertex2f(-10,1);**  **glVertex2f(-10,5);**  **glVertex2f(10,5);**  **glVertex2f(10,1);**  **glEnd();**  **//farvillage**  **glBegin(GL\_POLYGON);**  **for(int i=0;i<200;i++)**  **{**  **glColor3ub(20, 131, 50);**  **float pi=3.1416;**  **float A=(i\*2\*pi)/200;**  **float r=2-1;**  **float x = r \* cos(A);**  **float y = r \* sin(A);**  **glVertex2f(x-9,y+1);**  **}**  **glEnd();**  **glBegin(GL\_POLYGON);**  **for(int i=0;i<200;i++)**  **{**  **glColor3ub(20, 131, 50);**  **float pi=3.1416;**  **float A=(i\*2\*pi)/200;**  **float r=2.4-1.4;**  **float x = r \* cos(A);**  **float y = r \* sin(A);**  **glVertex2f(x-8.1,y+1.4);**  **}**  **glEnd();**  **glBegin(GL\_POLYGON);**  **for(int i=0;i<200;i++)**  **{**  **glColor3ub(20, 131, 50);**  **float pi=3.1416;**  **float A=(i\*2\*pi)/200;**  **float r=2-1;**  **float x = r \* cos(A);**  **float y = r \* sin(A);**  **glVertex2f(x-6.7,y+1);**  **}**  **glEnd();**  **glBegin(GL\_POLYGON);**  **for(int i=0;i<200;i++)**  **{**  **glColor3ub(20, 131, 50);**  **float pi=3.1416;**  **float A=(i\*2\*pi)/200;**  **float r=2.7-1.7;**  **float x = r \* cos(A);**  **float y = r \* sin(A);**  **glVertex2f(x-5,y+1.7);**  **}**  **glEnd();**  **glBegin(GL\_POLYGON);**  **for(int i=0;i<200;i++)**  **{**  **glColor3ub(20, 131, 50);**  **float pi=3.1416;**  **float A=(i\*2\*pi)/200;**  **float r=3.8-2.2;**  **float x = r \* cos(A);**  **float y = r \* sin(A);**  **glVertex2f(x-3,y+2.2);**  **}**  **glEnd();**  **glBegin(GL\_POLYGON);**  **for(int i=0;i<200;i++)**  **{**  **glColor3ub(20, 131, 50);**  **float pi=3.1416;**  **float A=(i\*2\*pi)/200;**  **float r=3.9-3;**  **float x = r \* cos(A);**  **float y = r \* sin(A);**  **glVertex2f(x-1,y+3);**  **}**  **glEnd();**  **glBegin(GL\_POLYGON);**  **for(int i=0;i<200;i++)**  **{**  **glColor3ub(20, 131, 50);**  **float pi=3.1416;**  **float A=(i\*2\*pi)/200;**  **float r=3-2;**  **float x = r \* cos(A);**  **float y = r \* sin(A);**  **glVertex2f(x+1,y+2);**  **}**  **glEnd();**  **glBegin(GL\_POLYGON);**  **for(int i=0;i<200;i++)**  **{**  **glColor3ub(20, 131, 50);**  **float pi=3.1416;**  **float A=(i\*2\*pi)/200;**  **float r=3.4-2;**  **float x = r \* cos(A);**  **float y = r \* sin(A);**  **glVertex2f(x+2.6,y+2);**  **}**  **glEnd();**  **//sun**  **glMatrixMode(GL\_MODELVIEW);**  **glPushMatrix();**  **glTranslatef(0.0f, \_move, 0.0f);**  **glBegin(GL\_POLYGON);**  **for(int i=0;i<200;i++)**  **{**  **if (day)**  **glColor3ub(240, 215, 33);**  **else**  **glColor3ub(251, 248, 238);**  **//glColor3ub(240, 215, 33);**  **float pi=3.1416;**  **float A=(i\*2\*pi)/200;**  **float r=3.7-1;**  **float x = r \* cos(A);**  **float y = r \* sin(A);**  **glVertex2f(x+6.5,y+2);**  **}**  **glEnd();**  **glPopMatrix();**  **glBegin(GL\_POLYGON);**  **for(int i=0;i<200;i++)**  **{**  **glColor3ub(20, 131, 50);**  **float pi=3.1416;**  **float A=(i\*2\*pi)/200;**  **float r=3-1;**  **float x = r \* cos(A);**  **float y = r \* sin(A);**  **glVertex2f(x+4.9,y+1);**  **}**  **glEnd();**  **glBegin(GL\_POLYGON);**  **for(int i=0;i<200;i++)**  **{**  **glColor3ub(20, 131, 50);**  **float pi=3.1416;**  **float A=(i\*2\*pi)/200;**  **float r=3.1-1.6;**  **float x = r \* cos(A);**  **float y = r \* sin(A);**  **glVertex2f(x+8.9,y+1.6);**  **}**  **glEnd();**  **glBegin(GL\_POLYGON);**  **for(int i=0;i<200;i++)**  **{**  **glColor3ub(20, 131, 50);**  **float pi=3.1416;**  **float A=(i\*2\*pi)/200;**  **float r=2-1.1;**  **float x = r \* cos(A);**  **float y = r \* sin(A);**  **glVertex2f(x+6.9,y+1.1);**  **}**  **glEnd();**  **glBegin(GL\_POLYGON);**  **for(int i=0;i<200;i++)**  **{**  **glColor3ub(20, 131, 50);**  **float pi=3.1416;**  **float A=(i\*2\*pi)/200;**  **float r=3.1-1.7;**  **float x = r \* cos(A);**  **float y = r \* sin(A);**  **glVertex2f(x-0.5,y+2);**  **}**  **glEnd();**  **//fronthome**  **if (day)**  **glColor3ub(232, 191, 104);**  **else**  **glColor3ub(173, 150, 6 );**  **glBegin(GL\_POLYGON);**  **//glColor3ub(232, 191, 104);**  **glVertex2f(-10,-3);**  **glVertex2f(-10,1);**  **glVertex2f(10,1);**  **glVertex2f(10,-2);**  **glEnd();**  **//tree**  **glBegin(GL\_POLYGON);**  **glColor3ub(138, 87, 8 );**  **glVertex2f(-0.4,1);**  **glVertex2f(-0.4,2);**  **glVertex2f(0,2);**  **glVertex2f(0,0.5);**  **glEnd();**  **//home2**  **glBegin(GL\_POLYGON);**  **glColor3ub(191, 134, 67);**  **glVertex2f(1.2,0);**  **glVertex2f(1.2,1);**  **glVertex2f(3.2,1);**  **glVertex2f(3.2,0);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3ub(151, 130, 57);**  **glVertex2f(1,1);**  **glVertex2f(1.4,2);**  **glVertex2f(3,2);**  **glVertex2f(3.4,1);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3ub(128, 79, 19);**  **glVertex2f(1.8,0);**  **glVertex2f(1.8,0.8);**  **glVertex2f(2.6,0.8);**  **glVertex2f(2.6,0);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3ub(104, 59, 5);**  **glVertex2f(1.3,-0.2);**  **glVertex2f(1.3,0);**  **glVertex2f(3.2,0);**  **glVertex2f(3.2,-0.2);**  **glEnd();**  **//paddy**  **glBegin(GL\_POLYGON);**  **for(int i=0;i<200;i++)**  **{**  **if (day)**  **glColor3ub(232, 174, 19);**  **else**  **glColor3ub(212, 184, 9);**  **//glColor3ub(232, 174, 19);**  **float pi=3.1416;**  **float A=(i\*2\*pi)/200;**  **float r=1-0;**  **float x = r \* cos(A);**  **float y = r \* sin(A);**  **glVertex2f(x+0.4,y+0);**  **}**  **glEnd();**  **glBegin(GL\_POLYGON);**  **for(int i=0;i<200;i++)**  **{**  **if (day)**  **glColor3ub(232, 174, 19);**  **else**  **glColor3ub(212, 184, 9);**  **//glColor3ub(232, 174, 19);**  **float pi=3.1416;**  **float A=(i\*2\*pi)/200;**  **float r=1-0.4;**  **float x = r \* cos(A);**  **float y = r \* sin(A);**  **glVertex2f(x+0.9,y-0.4);**  **}**  **glEnd();**  **glBegin(GL\_POLYGON);**  **for(int i=0;i<200;i++)**  **{**  **glColor3ub(34, 118, 12);**  **float pi=3.1416;**  **float A=(i\*2\*pi)/200;**  **float r=4.2-3.3;**  **float x = r \* cos(A);**  **float y = r \* sin(A);**  **glVertex2f(x-0.3,y+3.3);**  **}**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3ub(138, 87, 8 );**  **glVertex2f(-0.2,-1);**  **glVertex2f(-0.2,-0.8);**  **glVertex2f(1.5,-0.8);**  **glVertex2f(1.5,-1);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3ub(138, 87, 8 );**  **glVertex2f(0.3,1);**  **glVertex2f(0.4,1.4);**  **glVertex2f(0.5,1);**  **glEnd();**  **//home1**  **glBegin(GL\_POLYGON);**  **glColor3ub(148, 131, 101);**  **glVertex2f(-5,0.9);**  **glVertex2f(-4,2);**  **glVertex2f(-3.7,1.7);**  **glVertex2f(-4.5,0.9);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3ub(218, 138, 15);**  **glVertex2f(-4.5,-0.2);**  **glVertex2f(-4.5,0.9);**  **glVertex2f(-3.7,1.7);**  **glVertex2f(-3,0.7);**  **glVertex2f(-3,-1);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3ub(228, 150, 30);**  **glVertex2f(-3,-1);**  **glVertex2f(-3,0.7);**  **glVertex2f(-0.2,0.7);**  **glVertex2f(-0.2,-1);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3ub(145, 130, 104 );**  **glVertex2f(-2.9,0.5);**  **glVertex2f(-4,2);**  **glVertex2f(-1,2);**  **glVertex2f(0,0.5);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3ub(236, 200, 17);**  **glVertex2f(-4,0.2);**  **glVertex2f(-4,0.7);**  **glVertex2f(-3.5,0.5);**  **glVertex2f(-3.5,0);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3ub(180, 130, 8);**  **glVertex2f(-2,-1);**  **glVertex2f(-2,0);**  **glVertex2f(-1.2,0);**  **glVertex2f(-1.2,-1);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3ub(188, 120, 16);**  **glVertex2f(-4.7,-0.3);**  **glVertex2f(-4.5,-0.2);**  **glVertex2f(-3,-1);**  **glVertex2f(-3,-1.2);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3ub(188, 120, 16);**  **glVertex2f(-3,-1.2);**  **glVertex2f(-3,-1);**  **glVertex2f(-0.2,-1);**  **glVertex2f(-0,-1.2);**  **glEnd();**  **//tree**  **glBegin(GL\_POLYGON);**  **glColor3ub(138, 87, 8 );**  **glVertex2f(-0.4,2);**  **glVertex2f(-0.7,2.5);**  **glVertex2f(-0.5,2.5);**  **glVertex2f(-0.2,2);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3ub(138, 87, 8 );**  **glVertex2f(-0.2,2);**  **glVertex2f(0.2,2.9);**  **glVertex2f(0.5,2.9);**  **glVertex2f(0,2);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **for(int i=0;i<200;i++)**  **{**  **glColor3ub(25, 146, 8);**  **float pi=3.1416;**  **float A=(i\*2\*pi)/200;**  **float r=4.3-3.5;**  **float x = r \* cos(A);**  **float y = r \* sin(A);**  **glVertex2f(x-2.3,y+3.5);**  **}**  **glEnd();**  **glBegin(GL\_POLYGON);**  **for(int i=0;i<200;i++)**  **{**  **glColor3ub(25, 146, 8);**  **float pi=3.1416;**  **float A=(i\*2\*pi)/200;**  **float r=5.3-4.3;**  **float x = r \* cos(A);**  **float y = r \* sin(A);**  **glVertex2f(x+0,y+4.3);**  **}**  **glEnd();**  **glBegin(GL\_POLYGON);**  **for(int i=0;i<200;i++)**  **{**  **glColor3ub(28, 156, 10);**  **float pi=3.1416;**  **float A=(i\*2\*pi)/200;**  **float r=5-4;**  **float x = r \* cos(A);**  **float y = r \* sin(A);**  **glVertex2f(x-1.4,y+4);**  **}**  **glEnd();**  **glBegin(GL\_POLYGON);**  **for(int i=0;i<200;i++)**  **{**  **glColor3ub(28, 156, 10);**  **float pi=3.1416;**  **float A=(i\*2\*pi)/200;**  **float r=5-4;**  **float x = r \* cos(A);**  **float y = r \* sin(A);**  **glVertex2f(x+1.5,y+4);**  **}**  **glEnd();**  **glBegin(GL\_POLYGON);**  **for(int i=0;i<200;i++)**  **{**  **glColor3ub(29, 143, 14);**  **float pi=3.1416;**  **float A=(i\*2\*pi)/200;**  **float r=4.5-3.5;**  **float x = r \* cos(A);**  **float y = r \* sin(A);**  **glVertex2f(x+1,y+3.5);**  **}**  **glEnd();**  **glBegin(GL\_POLYGON);**  **for(int i=0;i<200;i++)**  **{**  **glColor3ub(29, 143, 14);**  **float pi=3.1416;**  **float A=(i\*2\*pi)/200;**  **float r=3.8-3;**  **float x = r \* cos(A);**  **float y = r \* sin(A);**  **glVertex2f(x-1,y+3);**  **}**  **glEnd();**  **}**  **void river()**  **{**  **//river**  **if (day)**  **glColor3ub(4, 193, 235);**  **else**  **glColor3ub(5, 42, 140);**  **glBegin(GL\_POLYGON);**  **//glColor3ub(4, 193, 235);**  **glVertex2f(-10,-5);**  **glVertex2f(-10,-2.9);**  **glVertex2f(10,-2.1);**  **glVertex2f(10,-5);**  **glEnd();**  **//riverside1**  **glBegin(GL\_POLYGON);**  **glColor3ub(156, 91, 8);**  **glVertex2f(-10,-2.5);**  **glVertex2f(-0.9,-2.5);**  **glVertex2f(0,-2.9);**  **glVertex2f(-10,-2.9);**  **glEnd();**  **//riverside2**  **glBegin(GL\_POLYGON);**  **glColor3ub(156, 91, 8);**  **glVertex2f(-0.9,-2.5);**  **glVertex2f(-1.3,-2);**  **glVertex2f(10,-2);**  **glVertex2f(10,-2.5);**  **glEnd();**  **//riverside2**  **glBegin(GL\_POLYGON);**  **glColor3ub(156, 91, 8);**  **glVertex2f(-0.9,-2.5);**  **glVertex2f(-1.3,-2);**  **glVertex2f(-0.4,-2.5);**  **glVertex2f(0,-2.9);**  **glEnd();**  **//boatout**  **glMatrixMode(GL\_MODELVIEW);**  **glPushMatrix();**  **glTranslatef( \_move,0.0f, 0.0f);**  **if (day)**  **glColor3ub(100, 59, 6);**  **else**  **glColor3ub(79, 63, 9);**  **glBegin(GL\_POLYGON);**  **//glColor3ub(100, 59, 6);**  **glVertex2f(-8,-4.2);**  **glVertex2f(-8.8,-3.2);**  **glVertex2f(-7.5,-3.8);**  **glVertex2f(-5.2,-3.8);**  **glVertex2f(-4,-3.2);**  **glVertex2f(-4.8,-4.2);**  **glEnd();**  **//boatin1**  **glBegin(GL\_POLYGON);**  **glColor3ub(159, 111, 49);**  **glVertex2f(-7.5,-3.8);**  **glVertex2f(-8.8,-3.2);**  **glVertex2f(-7.5,-3.4);**  **glVertex2f(-6.8,-3.8);**  **glEnd();**  **//boatin2**  **glBegin(GL\_POLYGON);**  **glColor3ub(159, 111, 49);**  **glVertex2f(-6.8,-3.8);**  **glVertex2f(-7.5,-3.4);**  **glVertex2f(-6,-3.4);**  **glVertex2f(-5.2,-3.8);**  **glEnd();**  **//boatin3**  **glBegin(GL\_POLYGON);**  **glColor3ub(159, 111, 49);**  **glVertex2f(-5.2,-3.8);**  **glVertex2f(-6,-3.4);**  **glVertex2f(-5.3,-3.4);**  **glVertex2f(-4,-3.2);**  **glEnd();**  **glLineWidth(10);**  **glBegin(GL\_LINES);**  **glColor3ub(151, 96, 25);**  **glVertex2f(-5.2,-3.8);**  **glVertex2f(-6,-3.4);**  **glEnd();**  **glLineWidth(10);**  **glBegin(GL\_LINES);**  **glColor3ub(151, 96, 25);**  **glVertex2f(-6.8,-3.8);**  **glVertex2f(-7.6,-3.4);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3ub(209, 156, 58);**  **glVertex2f(-8.3,-3.4);**  **glVertex2f(-8.3,-2);**  **glVertex2f(-8,-2);**  **glVertex2f(-8,-3.6);**  **glEnd();**  **glPopMatrix();**  **}**  **void update(int value)**  **{**  **\_move -= a;**  **if(\_move < -5)**  **{**  **\_move = 0.02;**  **a=0;**  **day=false;**  **}**  **glutPostRedisplay();**  **glutTimerFunc(20, update, 0);**  **}**  **void display()**  **{**  **glClearColor(1,1,1,1);**  **glClear(GL\_COLOR\_BUFFER\_BIT);**  **farvillage();**  **river();**  **glFlush();**  **}**  **int main(int argc, char\*\* argv)**  **{**  **glutInit(&argc, argv);**  **glutCreateWindow("OpenGL Scenery");**  **glutInitWindowSize(320,320);**  **glutDisplayFunc(display);**  **gluOrtho2D(-10,10,-5,5);**  **glutTimerFunc(2,update,0);**  **glutMainLoop();**  **return 0;**  **}** |
| **Output Screenshot (Full Screen)-** |

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| **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. |
| **Graph** |
| **Code-**  **#include<cstdio>**  **#include <windows.h>**  **#include <GL/glut.h>**  **#include <math.h>**  **bool day = true;**  **float \_move=0.0f;**  **void farvillage()**  **{**  **//sky**  **if (day)**  **glColor3ub(90, 225, 254);**  **else**  **glColor3ub(101, 110, 135);**  **glBegin(GL\_POLYGON);**  **//glColor3ub(90, 225, 254);**  **glVertex2f(-10,1);**  **glVertex2f(-10,5);**  **glVertex2f(10,5);**  **glVertex2f(10,1);**  **glEnd();**  **//farvillage**  **glBegin(GL\_POLYGON);**  **for(int i=0;i<200;i++)**  **{**  **glColor3ub(20, 131, 50);**  **float pi=3.1416;**  **float A=(i\*2\*pi)/200;**  **float r=2-1;**  **float x = r \* cos(A);**  **float y = r \* sin(A);**  **glVertex2f(x-9,y+1);**  **}**  **glEnd();**  **glBegin(GL\_POLYGON);**  **for(int i=0;i<200;i++)**  **{**  **glColor3ub(20, 131, 50);**  **float pi=3.1416;**  **float A=(i\*2\*pi)/200;**  **float r=2.4-1.4;**  **float x = r \* cos(A);**  **float y = r \* sin(A);**  **glVertex2f(x-8.1,y+1.4);**  **}**  **glEnd();**  **glBegin(GL\_POLYGON);**  **for(int i=0;i<200;i++)**  **{**  **glColor3ub(20, 131, 50);**  **float pi=3.1416;**  **float A=(i\*2\*pi)/200;**  **float r=2-1;**  **float x = r \* cos(A);**  **float y = r \* sin(A);**  **glVertex2f(x-6.7,y+1);**  **}**  **glEnd();**  **glBegin(GL\_POLYGON);**  **for(int i=0;i<200;i++)**  **{**  **glColor3ub(20, 131, 50);**  **float pi=3.1416;**  **float A=(i\*2\*pi)/200;**  **float r=2.7-1.7;**  **float x = r \* cos(A);**  **float y = r \* sin(A);**  **glVertex2f(x-5,y+1.7);**  **}**  **glEnd();**  **glBegin(GL\_POLYGON);**  **for(int i=0;i<200;i++)**  **{**  **glColor3ub(20, 131, 50);**  **float pi=3.1416;**  **float A=(i\*2\*pi)/200;**  **float r=3.8-2.2;**  **float x = r \* cos(A);**  **float y = r \* sin(A);**  **glVertex2f(x-3,y+2.2);**  **}**  **glEnd();**  **glBegin(GL\_POLYGON);**  **for(int i=0;i<200;i++)**  **{**  **glColor3ub(20, 131, 50);**  **float pi=3.1416;**  **float A=(i\*2\*pi)/200;**  **float r=3.9-3;**  **float x = r \* cos(A);**  **float y = r \* sin(A);**  **glVertex2f(x-1,y+3);**  **}**  **glEnd();**  **glBegin(GL\_POLYGON);**  **for(int i=0;i<200;i++)**  **{**  **glColor3ub(20, 131, 50);**  **float pi=3.1416;**  **float A=(i\*2\*pi)/200;**  **float r=3-2;**  **float x = r \* cos(A);**  **float y = r \* sin(A);**  **glVertex2f(x+1,y+2);**  **}**  **glEnd();**  **glBegin(GL\_POLYGON);**  **for(int i=0;i<200;i++)**  **{**  **glColor3ub(20, 131, 50);**  **float pi=3.1416;**  **float A=(i\*2\*pi)/200;**  **float r=3.4-2;**  **float x = r \* cos(A);**  **float y = r \* sin(A);**  **glVertex2f(x+2.6,y+2);**  **}**  **glEnd();**  **//sun**  **glMatrixMode(GL\_MODELVIEW);**  **glPushMatrix();**  **//glTranslatef(0.0f, \_move, 0.0f);**  **glBegin(GL\_POLYGON);**  **for(int i=0;i<200;i++)**  **{**  **if (day)**  **glColor3ub(240, 215, 33);**  **else**  **glColor3ub(251, 248, 238);**  **//glColor3ub(240, 215, 33);**  **float pi=3.1416;**  **float A=(i\*2\*pi)/200;**  **float r=3.7-1;**  **float x = r \* cos(A);**  **float y = r \* sin(A);**  **glVertex2f(x+6.5,y+2);**  **}**  **glEnd();**  **glPopMatrix();**  **glBegin(GL\_POLYGON);**  **for(int i=0;i<200;i++)**  **{**  **glColor3ub(20, 131, 50);**  **float pi=3.1416;**  **float A=(i\*2\*pi)/200;**  **float r=3-1;**  **float x = r \* cos(A);**  **float y = r \* sin(A);**  **glVertex2f(x+4.9,y+1);**  **}**  **glEnd();**  **glBegin(GL\_POLYGON);**  **for(int i=0;i<200;i++)**  **{**  **glColor3ub(20, 131, 50);**  **float pi=3.1416;**  **float A=(i\*2\*pi)/200;**  **float r=3.1-1.6;**  **float x = r \* cos(A);**  **float y = r \* sin(A);**  **glVertex2f(x+8.9,y+1.6);**  **}**  **glEnd();**  **glBegin(GL\_POLYGON);**  **for(int i=0;i<200;i++)**  **{**  **glColor3ub(20, 131, 50);**  **float pi=3.1416;**  **float A=(i\*2\*pi)/200;**  **float r=2-1.1;**  **float x = r \* cos(A);**  **float y = r \* sin(A);**  **glVertex2f(x+6.9,y+1.1);**  **}**  **glEnd();**  **glBegin(GL\_POLYGON);**  **for(int i=0;i<200;i++)**  **{**  **glColor3ub(20, 131, 50);**  **float pi=3.1416;**  **float A=(i\*2\*pi)/200;**  **float r=3.1-1.7;**  **float x = r \* cos(A);**  **float y = r \* sin(A);**  **glVertex2f(x-0.5,y+2);**  **}**  **glEnd();**  **//fronthome**  **if (day)**  **glColor3ub(232, 191, 104);**  **else**  **glColor3ub(173, 150, 6 );**  **glBegin(GL\_POLYGON);**  **//glColor3ub(232, 191, 104);**  **glVertex2f(-10,-3);**  **glVertex2f(-10,1);**  **glVertex2f(10,1);**  **glVertex2f(10,-2);**  **glEnd();**  **//tree**  **glBegin(GL\_POLYGON);**  **glColor3ub(138, 87, 8 );**  **glVertex2f(-0.4,1);**  **glVertex2f(-0.4,2);**  **glVertex2f(0,2);**  **glVertex2f(0,0.5);**  **glEnd();**  **//home2**  **glBegin(GL\_POLYGON);**  **glColor3ub(191, 134, 67);**  **glVertex2f(1.2,0);**  **glVertex2f(1.2,1);**  **glVertex2f(3.2,1);**  **glVertex2f(3.2,0);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3ub(151, 130, 57);**  **glVertex2f(1,1);**  **glVertex2f(1.4,2);**  **glVertex2f(3,2);**  **glVertex2f(3.4,1);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3ub(128, 79, 19);**  **glVertex2f(1.8,0);**  **glVertex2f(1.8,0.8);**  **glVertex2f(2.6,0.8);**  **glVertex2f(2.6,0);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3ub(104, 59, 5);**  **glVertex2f(1.3,-0.2);**  **glVertex2f(1.3,0);**  **glVertex2f(3.2,0);**  **glVertex2f(3.2,-0.2);**  **glEnd();**  **//paddy**  **glBegin(GL\_POLYGON);**  **for(int i=0;i<200;i++)**  **{**  **if (day)**  **glColor3ub(232, 174, 19);**  **else**  **glColor3ub(212, 184, 9);**  **//glColor3ub(232, 174, 19);**  **float pi=3.1416;**  **float A=(i\*2\*pi)/200;**  **float r=1-0;**  **float x = r \* cos(A);**  **float y = r \* sin(A);**  **glVertex2f(x+0.4,y+0);**  **}**  **glEnd();**  **glBegin(GL\_POLYGON);**  **for(int i=0;i<200;i++)**  **{**  **if (day)**  **glColor3ub(232, 174, 19);**  **else**  **glColor3ub(212, 184, 9);**  **//glColor3ub(232, 174, 19);**  **float pi=3.1416;**  **float A=(i\*2\*pi)/200;**  **float r=1-0.4;**  **float x = r \* cos(A);**  **float y = r \* sin(A);**  **glVertex2f(x+0.9,y-0.4);**  **}**  **glEnd();**  **glBegin(GL\_POLYGON);**  **for(int i=0;i<200;i++)**  **{**  **glColor3ub(34, 118, 12);**  **float pi=3.1416;**  **float A=(i\*2\*pi)/200;**  **float r=4.2-3.3;**  **float x = r \* cos(A);**  **float y = r \* sin(A);**  **glVertex2f(x-0.3,y+3.3);**  **}**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3ub(138, 87, 8 );**  **glVertex2f(-0.2,-1);**  **glVertex2f(-0.2,-0.8);**  **glVertex2f(1.5,-0.8);**  **glVertex2f(1.5,-1);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3ub(138, 87, 8 );**  **glVertex2f(0.3,1);**  **glVertex2f(0.4,1.4);**  **glVertex2f(0.5,1);**  **glEnd();**  **//home1**  **glBegin(GL\_POLYGON);**  **glColor3ub(148, 131, 101);**  **glVertex2f(-5,0.9);**  **glVertex2f(-4,2);**  **glVertex2f(-3.7,1.7);**  **glVertex2f(-4.5,0.9);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3ub(218, 138, 15);**  **glVertex2f(-4.5,-0.2);**  **glVertex2f(-4.5,0.9);**  **glVertex2f(-3.7,1.7);**  **glVertex2f(-3,0.7);**  **glVertex2f(-3,-1);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3ub(228, 150, 30);**  **glVertex2f(-3,-1);**  **glVertex2f(-3,0.7);**  **glVertex2f(-0.2,0.7);**  **glVertex2f(-0.2,-1);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3ub(145, 130, 104 );**  **glVertex2f(-2.9,0.5);**  **glVertex2f(-4,2);**  **glVertex2f(-1,2);**  **glVertex2f(0,0.5);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3ub(236, 200, 17);**  **glVertex2f(-4,0.2);**  **glVertex2f(-4,0.7);**  **glVertex2f(-3.5,0.5);**  **glVertex2f(-3.5,0);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3ub(180, 130, 8);**  **glVertex2f(-2,-1);**  **glVertex2f(-2,0);**  **glVertex2f(-1.2,0);**  **glVertex2f(-1.2,-1);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3ub(188, 120, 16);**  **glVertex2f(-4.7,-0.3);**  **glVertex2f(-4.5,-0.2);**  **glVertex2f(-3,-1);**  **glVertex2f(-3,-1.2);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3ub(188, 120, 16);**  **glVertex2f(-3,-1.2);**  **glVertex2f(-3,-1);**  **glVertex2f(-0.2,-1);**  **glVertex2f(-0,-1.2);**  **glEnd();**  **//tree**  **glBegin(GL\_POLYGON);**  **glColor3ub(138, 87, 8 );**  **glVertex2f(-0.4,2);**  **glVertex2f(-0.7,2.5);**  **glVertex2f(-0.5,2.5);**  **glVertex2f(-0.2,2);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3ub(138, 87, 8 );**  **glVertex2f(-0.2,2);**  **glVertex2f(0.2,2.9);**  **glVertex2f(0.5,2.9);**  **glVertex2f(0,2);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **for(int i=0;i<200;i++)**  **{**  **glColor3ub(25, 146, 8);**  **float pi=3.1416;**  **float A=(i\*2\*pi)/200;**  **float r=4.3-3.5;**  **float x = r \* cos(A);**  **float y = r \* sin(A);**  **glVertex2f(x-2.3,y+3.5);**  **}**  **glEnd();**  **glBegin(GL\_POLYGON);**  **for(int i=0;i<200;i++)**  **{**  **glColor3ub(25, 146, 8);**  **float pi=3.1416;**  **float A=(i\*2\*pi)/200;**  **float r=5.3-4.3;**  **float x = r \* cos(A);**  **float y = r \* sin(A);**  **glVertex2f(x+0,y+4.3);**  **}**  **glEnd();**  **glBegin(GL\_POLYGON);**  **for(int i=0;i<200;i++)**  **{**  **glColor3ub(28, 156, 10);**  **float pi=3.1416;**  **float A=(i\*2\*pi)/200;**  **float r=5-4;**  **float x = r \* cos(A);**  **float y = r \* sin(A);**  **glVertex2f(x-1.4,y+4);**  **}**  **glEnd();**  **glBegin(GL\_POLYGON);**  **for(int i=0;i<200;i++)**  **{**  **glColor3ub(28, 156, 10);**  **float pi=3.1416;**  **float A=(i\*2\*pi)/200;**  **float r=5-4;**  **float x = r \* cos(A);**  **float y = r \* sin(A);**  **glVertex2f(x+1.5,y+4);**  **}**  **glEnd();**  **glBegin(GL\_POLYGON);**  **for(int i=0;i<200;i++)**  **{**  **glColor3ub(29, 143, 14);**  **float pi=3.1416;**  **float A=(i\*2\*pi)/200;**  **float r=4.5-3.5;**  **float x = r \* cos(A);**  **float y = r \* sin(A);**  **glVertex2f(x+1,y+3.5);**  **}**  **glEnd();**  **glBegin(GL\_POLYGON);**  **for(int i=0;i<200;i++)**  **{**  **glColor3ub(29, 143, 14);**  **float pi=3.1416;**  **float A=(i\*2\*pi)/200;**  **float r=3.8-3;**  **float x = r \* cos(A);**  **float y = r \* sin(A);**  **glVertex2f(x-1,y+3);**  **}**  **glEnd();**  **}**  **void river()**  **{**  **//river**  **if (day)**  **glColor3ub(4, 193, 235);**  **else**  **glColor3ub(5, 42, 140);**  **glBegin(GL\_POLYGON);**  **//glColor3ub(4, 193, 235);**  **glVertex2f(-10,-5);**  **glVertex2f(-10,-2.9);**  **glVertex2f(10,-2.1);**  **glVertex2f(10,-5);**  **glEnd();**  **//riverside1**  **glBegin(GL\_POLYGON);**  **glColor3ub(156, 91, 8);**  **glVertex2f(-10,-2.5);**  **glVertex2f(-0.9,-2.5);**  **glVertex2f(0,-2.9);**  **glVertex2f(-10,-2.9);**  **glEnd();**  **//riverside2**  **glBegin(GL\_POLYGON);**  **glColor3ub(156, 91, 8);**  **glVertex2f(-0.9,-2.5);**  **glVertex2f(-1.3,-2);**  **glVertex2f(10,-2);**  **glVertex2f(10,-2.5);**  **glEnd();**  **//riverside2**  **glBegin(GL\_POLYGON);**  **glColor3ub(156, 91, 8);**  **glVertex2f(-0.9,-2.5);**  **glVertex2f(-1.3,-2);**  **glVertex2f(-0.4,-2.5);**  **glVertex2f(0,-2.9);**  **glEnd();**  **//boatout**  **glMatrixMode(GL\_MODELVIEW);**  **glPushMatrix();**  **glTranslatef( \_move,0.0f, 0.0f);**  **if (day)**  **glColor3ub(100, 59, 6);**  **else**  **glColor3ub(79, 63, 9);**  **glBegin(GL\_POLYGON);**  **//glColor3ub(100, 59, 6);**  **glVertex2f(-8,-4.2);**  **glVertex2f(-8.8,-3.2);**  **glVertex2f(-7.5,-3.8);**  **glVertex2f(-5.2,-3.8);**  **glVertex2f(-4,-3.2);**  **glVertex2f(-4.8,-4.2);**  **glEnd();**  **//boatin1**  **glBegin(GL\_POLYGON);**  **glColor3ub(159, 111, 49);**  **glVertex2f(-7.5,-3.8);**  **glVertex2f(-8.8,-3.2);**  **glVertex2f(-7.5,-3.4);**  **glVertex2f(-6.8,-3.8);**  **glEnd();**  **//boatin2**  **glBegin(GL\_POLYGON);**  **glColor3ub(159, 111, 49);**  **glVertex2f(-6.8,-3.8);**  **glVertex2f(-7.5,-3.4);**  **glVertex2f(-6,-3.4);**  **glVertex2f(-5.2,-3.8);**  **glEnd();**  **//boatin3**  **glBegin(GL\_POLYGON);**  **glColor3ub(159, 111, 49);**  **glVertex2f(-5.2,-3.8);**  **glVertex2f(-6,-3.4);**  **glVertex2f(-5.3,-3.4);**  **glVertex2f(-4,-3.2);**  **glEnd();**  **glLineWidth(10);**  **glBegin(GL\_LINES);**  **glColor3ub(151, 96, 25);**  **glVertex2f(-5.2,-3.8);**  **glVertex2f(-6,-3.4);**  **glEnd();**  **glLineWidth(10);**  **glBegin(GL\_LINES);**  **glColor3ub(151, 96, 25);**  **glVertex2f(-6.8,-3.8);**  **glVertex2f(-7.6,-3.4);**  **glEnd();**  **glBegin(GL\_POLYGON);**  **glColor3ub(209, 156, 58);**  **glVertex2f(-8.3,-3.4);**  **glVertex2f(-8.3,-2);**  **glVertex2f(-8,-2);**  **glVertex2f(-8,-3.6);**  **glEnd();**  **glPopMatrix();**  **}**  **void update(int value)**  **{**  **\_move -= 0.02;**  **if(\_move < -5)**  **{**  **\_move = 0.02;**  **day=false;**  **}**  **glutPostRedisplay();**  **glutTimerFunc(20, update, 0);**  **}**  **void display()**  **{**  **glClearColor(1,1,1,1);**  **glClear(GL\_COLOR\_BUFFER\_BIT);**  **farvillage();**  **river();**  **glFlush();**  **}**  **void keyboard(unsigned char key, int x, int y)**  **{**  **switch (key)**  **{**  **case 'D' :**  **case 'd' :**  **day=true;**  **break;**  **case 'N' :**  **case 'n' :**  **day=false;**  **break;**  **}**  **glutPostRedisplay();**  **}**  **int main(int argc, char\*\* argv)**  **{**  **glutInit(&argc, argv);**  **glutCreateWindow("OpenGL Scenery");**  **glutInitWindowSize(320,320);**  **glutDisplayFunc(display);**  **gluOrtho2D(-10,10,-5,5);**  **glutKeyboardFunc(keyboard);**  **glutTimerFunc(2,update,0);**  **glutMainLoop();**  **return 0;**  **}** |
| **Output Screenshot (Full Screen)-** |