**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 <windows.h>  #include <GL/glut.h>  #include <math.h>  bool isDay = true;  void River(){  glBegin(GL\_POLYGON);  if (isDay)  glColor3ub(52, 152, 219);  else  glColor3ub(21, 67, 96);  glVertex2f(-0.9f, -0.2f);  glVertex2f(-0.9f, -0.6f);  glVertex2f(0.9f, -0.6f);  glVertex2f(0.9f, -0.2f);  glEnd();  }  void Boat(float x)  {  glBegin(GL\_POLYGON);  if (isDay)  glColor3ub(231, 76, 60);  else  glColor3ub(100, 30, 22);  glVertex2f(-0.4f+x, -0.3f);  glVertex2f(-0.35f+x, -0.35f);  glVertex2f(-0.2f+x, -0.35f);  glVertex2f(-0.15f+x, -0.3f);  glVertex2f(-0.24f+x, -0.32f);  glVertex2f(-0.3f+x, -0.32f);  glEnd();  glBegin(GL\_POLYGON);  if (isDay)  glColor3ub(231, 76, 60);  else  glColor3ub(100, 30, 22);  glVertex2f(-0.15f+x, -0.3f);  glVertex2f(-0.24f+x, -0.32f);  glVertex2f(-0.3f+x, -0.32f);  glVertex2f(-0.4f+x, -0.3f);  glVertex2f(-0.3f+x, -0.3f);  glVertex2f(-0.24f+x, -0.3f);  glEnd();  glLineWidth(8);  glBegin(GL\_LINES);  glColor3f(0.0f,0.0f,0.0f);  glVertex2f(-0.3f+x, -0.3f);  glVertex2f(-0.3f+x, -0.32f);  glEnd();  glLineWidth(8);  glBegin(GL\_LINES);  glColor3f(0.0f,0.0f,0.0f);  glVertex2f(-0.24f+x, -0.3f);  glVertex2f(-0.24f+x, -0.32f);  glEnd();  }  void Road()  {  glBegin(GL\_POLYGON);  if(isDay)  glColor3ub(220, 118, 51);  else  glColor3ub(40, 55, 71);  glVertex2f(-0.9f, 0.15f);  glVertex2f(-0.9f, 0.0f);  glVertex2f(0.9f, 0.0f);  glVertex2f(0.9f, 0.15f);  glEnd();  glBegin(GL\_POLYGON);  if(isDay)  glColor3ub(220, 118, 51);  else  glColor3ub(40, 55, 71);  glVertex2f(-0.02f, 0.5f);  glVertex2f(-0.15f, 0.15f);  glVertex2f(0.15f, 0.15f);  glVertex2f(0.02f, 0.5f);  glEnd();  }  void Tree( float a, float b)  {  glBegin(GL\_POLYGON);  if(isDay)  glColor3ub(190, 96, 26 );  else  glColor3ub(120, 96, 26 );  glVertex2f(-0.88f+a, 0.38f+b);  glVertex2f(-0.88f+a, 0.18f+b);  glVertex2f(-0.84f+a, 0.18f+b);  glVertex2f(-0.84f+a, 0.38f+b);  glVertex2f(-0.86f+a, 0.36f+b);  glEnd();  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  if(isDay)  glColor3ub(30, 132, 73);  else  glColor3ub(11, 83, 69 );  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.075;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.97+a,y+0.48+b);  }  glEnd();  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  if(isDay)  glColor3ub(30, 132, 73);  else  glColor3ub(11, 83, 69 );  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.075;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.88+a,y+0.55+b);  }  glEnd();  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  if(isDay)  glColor3ub(30, 132, 73);  else  glColor3ub(11, 83, 69 );  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.075;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.84+a,y+0.54+b);  }  glEnd();  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  if(isDay)  glColor3ub(30, 132, 73);  else  glColor3ub(11, 83, 69 );  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.075;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.73+a,y+0.47+b);  }  glEnd();  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  if(isDay)  glColor3ub(30, 132, 73);  else  glColor3ub(11, 83, 69 );  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.075;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.80+a,y+0.46+b);  }  glEnd();  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  if(isDay)  glColor3ub(30, 132, 73);  else  glColor3ub(11, 83, 69 );  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.075;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.84+a,y+0.43+b);  }  glEnd();  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  if(isDay)  glColor3ub(30, 132, 73);  else  glColor3ub(11, 83, 69 );  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.075;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.9+a,y+0.44+b);  }  glEnd();  glBegin(GL\_POLYGON);  if(isDay)  glColor3ub(30, 132, 73);  else  glColor3ub(11, 83, 69 );  glVertex2f(-0.3f, 0.54f);  glVertex2f(-0.3f, 0.5f);  glVertex2f(0.9f, 0.5f);  glVertex2f(0.9f, 0.54f);  glEnd();  glBegin(GL\_TRIANGLES);  if(isDay)  glColor3ub(30, 132, 73);  else  glColor3ub(11, 83, 69 );  glVertex2f(-0.66f, 0.55f);  glVertex2f(-0.72f, 0.5f);  glVertex2f(-0.60f, 0.5f);  glEnd();  glBegin(GL\_TRIANGLES);  if(isDay)  glColor3ub(30, 132, 73);  else  glColor3ub(11, 83, 69 );  glVertex2f(-0.56f, 0.55f);  glVertex2f(-0.62f, 0.5f);  glVertex2f(-0.50f, 0.5f);  glEnd();  glBegin(GL\_TRIANGLES);  if(isDay)  glColor3ub(30, 132, 73);  else  glColor3ub(11, 83, 69 );  glVertex2f(-0.46f, 0.55f);  glVertex2f(-0.52f, 0.5f);  glVertex2f(-0.40f, 0.5f);  glEnd();  glBegin(GL\_TRIANGLES);  if(isDay)  glColor3ub(30, 132, 73);  else  glColor3ub(11, 83, 69 );  glVertex2f(-0.36f, 0.55f);  glVertex2f(-0.30f, 0.5f);  glVertex2f(-0.42f, 0.5f);  glEnd();  glBegin(GL\_TRIANGLES);  if(isDay)  glColor3ub(30, 132, 73);  else  glColor3ub(11, 83, 69 );  glVertex2f(-0.26f, 0.60f);  glVertex2f(-0.20f, 0.5f);  glVertex2f(-0.32f, 0.5f);  glBegin(GL\_TRIANGLES);  if(isDay)  glColor3ub(30, 132, 73);  else  glColor3ub(11, 83, 69 );  glVertex2f(-0.16f, 0.60f);  glVertex2f(-0.10f, 0.5f);  glVertex2f(-0.22f, 0.5f);  glEnd();  glBegin(GL\_TRIANGLES);  if(isDay)  glColor3ub(30, 132, 73);  else  glColor3ub(11, 83, 69 );  glVertex2f(0.66f, 0.60f);  glVertex2f(0.72f, 0.5f);  glVertex2f(0.60f, 0.5f);  glEnd();  glBegin(GL\_TRIANGLES);  if(isDay)  glColor3ub(30, 132, 73);  else  glColor3ub(11, 83, 69 );  glVertex2f(0.56f, 0.60f);  glVertex2f(0.62f, 0.5f);  glVertex2f(0.50f, 0.5f);  glEnd();  glBegin(GL\_TRIANGLES);  if(isDay)  glColor3ub(30, 132, 73);  else  glColor3ub(11, 83, 69 );  glVertex2f(0.46f, 0.56f);  glVertex2f(0.52f, 0.5f);  glVertex2f(0.40f, 0.5f);  glEnd();  }  void sky()  {  glBegin(GL\_POLYGON);  if (isDay)  glColor3ub(133, 193, 233 );  // Day color  else  glColor3ub(52, 73, 94 );  glVertex2f(-0.9f, 0.9f);  glVertex2f(-0.9f, 0.50f);  glVertex2f(0.9f, 0.50f);  glVertex2f(0.9f, 0.9f);  glEnd();  // ----sun----  glBegin(GL\_POLYGON);// Draw a Red 1x1 Square centered at origin  for(int i=0;i<200;i++)  {  if (isDay)  glColor3ub(247, 220, 111);  // Day color  else  glColor3ub(208, 211, 212);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.056;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x+0.54,y+0.80);  }  glEnd();  }  //-----Cloud------  void cloud(float a){  glBegin(GL\_POLYGON);// Draw a Red 1x1 Square centered at origin  for(int i=0;i<200;i++)  {  if(isDay)  glColor3ub(240, 243, 244);  else  glColor3ub(98, 101, 103 );  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.056;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.44+a,y+0.77);  }  glEnd();  glBegin(GL\_POLYGON);// Draw a Red 1x1 Square centered at origin  for(int i=0;i<200;i++)  {  if(isDay)  glColor3ub(240, 243, 244);  else  glColor3ub(98, 101, 103 );  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.056;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-39+a,y+0.80);  }  glEnd();  glBegin(GL\_POLYGON);// Draw a Red 1x1 Square centered at origin  for(int i=0;i<200;i++)  {  if(isDay)  glColor3ub(240, 243, 244);  else  glColor3ub(98, 101, 103 );  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.056;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.34+a,y+0.76);  }  glEnd();  glBegin(GL\_POLYGON);// Draw a Red 1x1 Square centered at origin  for(int i=0;i<200;i++)  {  if(isDay)  glColor3ub(240, 243, 244);  else  glColor3ub(98, 101, 103 );  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.056;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.39+a,y+0.72);  }  glEnd();  }  void house(float x, float y) {  glBegin(GL\_POLYGON);  if (isDay)  glColor3ub(121, 125, 127); // Day color  else  glColor3ub(31, 36, 37); // Night color  glVertex2f(-0.7f + x, 0.4f + y);  glVertex2f(-0.8f + x, 0.3f + y);  glVertex2f(-0.6f + x, 0.3f + y);  glVertex2f(-0.5f + x, 0.4f + y);  glEnd();  glBegin(GL\_POLYGON);  if (isDay)  glColor3ub(156, 100, 12); // Day color  else  glColor3ub(52, 73, 94); // Night color  glVertex2f(-0.78f + x, 0.3f + y);  glVertex2f(-0.78f + x, 0.2f + y);  glVertex2f(-0.58f + x, 0.2f + y);  glVertex2f(-0.58f + x, 0.3f + y);  glEnd();  glBegin(GL\_POLYGON);  if (isDay)  glColor3ub(93, 109, 126); // Day color  else  glColor3ub(41, 128, 185); // Night color  glVertex2f(-0.78f + x, 0.2f + y);  glVertex2f(-0.8f + x, 0.18f + y);  glVertex2f(-0.6f + x, 0.18f + y);  glVertex2f(-0.58f + x, 0.2f + y);  glEnd();  glBegin(GL\_POLYGON);  if (isDay)  glColor3ub(93, 109, 126); // Day color  else  glColor3ub(41, 128, 185); // Night color  glVertex2f(-0.58f + x, 0.2f + y);  glVertex2f(-0.6f + x, 0.18f + y);  glVertex2f(-0.4f + x, 0.18f + y);  glVertex2f(-0.42f + x, 0.2f + y);  glEnd();  glBegin(GL\_POLYGON);  if (isDay)  glColor3ub(156, 100, 12); // Day color  else  glColor3ub(52, 73, 94); // Night color  glVertex2f(-0.58f + x, 0.3f + y);  glVertex2f(-0.58f + x, 0.2f + y);  glVertex2f(-0.42f + x, 0.2f + y);  glVertex2f(-0.42f + x, 0.3f + y);  glEnd();  glBegin(GL\_POLYGON);  if (isDay)  glColor3ub(95, 106, 106); // Day color  else  glColor3ub(44, 62, 80); // Night color  glVertex2f(-0.5f + x, 0.4f + y);  glVertex2f(-0.52f + x, 0.39f + y);  glVertex2f(-0.42f + x, 0.3f + y);  glVertex2f(-0.4f + x, 0.3f + y);  glEnd();  glBegin(GL\_POLYGON);  if (isDay)  glColor3ub(135, 54, 0 );// Day color  else  glColor3ub(243, 156, 18); // Night color  glVertex2f(-0.52f + x, 0.28f + y);  glVertex2f(-0.52f + x, 0.24f + y);  glVertex2f(-0.48f + x, 0.24f + y);  glVertex2f(-0.48f + x, 0.28f + y);  glEnd();  glBegin(GL\_POLYGON);  if (isDay)  glColor3ub(135, 54, 0); // Day color  else  glColor3ub(39, 55, 70); // Night color  glVertex2f(-0.7f + x, 0.28f + y);  glVertex2f(-0.7f + x, 0.2f + y);  glVertex2f(-0.64f + x, 0.2f + y);  glVertex2f(-0.64f + x, 0.28f + y);  glEnd();  glBegin(GL\_TRIANGLES);  if (isDay)  glColor3ub(66, 73, 73); // Day color  else  glColor3ub(44, 62, 80); // Night color  glVertex2f(-0.51f + x, 0.39f + y);  glVertex2f(-0.6f + x, 0.3f + y);  glVertex2f(-0.42f + x, 0.3f + y);  glEnd();  }  void display() {  if (isDay)  glClearColor(0.60f, 0.60f, 0.60f, 1.0f);  else  glClearColor(0.40f, 0.40f, 0.40f, 1.0f);  glClear(GL\_COLOR\_BUFFER\_BIT);  River();  Boat(0);  Boat(0.8);  Boat(0.3);  Road();  sky();  cloud(0);  cloud(0.4);  Tree(0,0);  Tree(1.05,0);  house(0.3,0.09);  house(0,0);  house(1.2,0.1);  house(1.0,0);  glFlush();  }  void Timer(int value) {  isDay = !isDay;  glutPostRedisplay();  glutTimerFunc(1500, Timer, 0);  }  int main(int argc, char\*\* argv) {  glutInit(&argc, argv);  glutInitWindowSize(800, 600);  glutInitWindowPosition(100, 100);  glutCreateWindow("Day-Night Scene");  glutDisplayFunc(display);  glutTimerFunc(1500, Timer, 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 <windows.h>  #include <GL/glut.h>  #include <math.h>  bool isDay = true;  void River(){  glBegin(GL\_POLYGON);  if (isDay)  glColor3ub(52, 152, 219);  else  glColor3ub(21, 67, 96);  glVertex2f(-0.9f, -0.2f);  glVertex2f(-0.9f, -0.6f);  glVertex2f(0.9f, -0.6f);  glVertex2f(0.9f, -0.2f);  glEnd();  }  void Boat(float x)  {  glBegin(GL\_POLYGON);  if (isDay)  glColor3ub(231, 76, 60);  else  glColor3ub(100, 30, 22);  glVertex2f(-0.4f+x, -0.3f);  glVertex2f(-0.35f+x, -0.35f);  glVertex2f(-0.2f+x, -0.35f);  glVertex2f(-0.15f+x, -0.3f);  glVertex2f(-0.24f+x, -0.32f);  glVertex2f(-0.3f+x, -0.32f);  glEnd();  glBegin(GL\_POLYGON);  if (isDay)  glColor3ub(231, 76, 60);  else  glColor3ub(100, 30, 22);  glVertex2f(-0.15f+x, -0.3f);  glVertex2f(-0.24f+x, -0.32f);  glVertex2f(-0.3f+x, -0.32f);  glVertex2f(-0.4f+x, -0.3f);  glVertex2f(-0.3f+x, -0.3f);  glVertex2f(-0.24f+x, -0.3f);  glEnd();  glLineWidth(8);  glBegin(GL\_LINES);  glColor3f(0.0f,0.0f,0.0f);  glVertex2f(-0.3f+x, -0.3f);  glVertex2f(-0.3f+x, -0.32f);  glEnd();  glLineWidth(8);  glBegin(GL\_LINES);  glColor3f(0.0f,0.0f,0.0f);  glVertex2f(-0.24f+x, -0.3f);  glVertex2f(-0.24f+x, -0.32f);  glEnd();  }  void Road()  {  glBegin(GL\_POLYGON);  if(isDay)  glColor3ub(220, 118, 51);  else  glColor3ub(40, 55, 71);  glVertex2f(-0.9f, 0.15f);  glVertex2f(-0.9f, 0.0f);  glVertex2f(0.9f, 0.0f);  glVertex2f(0.9f, 0.15f);  glEnd();  glBegin(GL\_POLYGON);  if(isDay)  glColor3ub(220, 118, 51);  else  glColor3ub(40, 55, 71);  glVertex2f(-0.02f, 0.5f);  glVertex2f(-0.15f, 0.15f);  glVertex2f(0.15f, 0.15f);  glVertex2f(0.02f, 0.5f);  glEnd();  }  void Tree( float a, float b)  {  glBegin(GL\_POLYGON);  if(isDay)  glColor3ub(190, 96, 26 );  else  glColor3ub(120, 96, 26 );  glVertex2f(-0.88f+a, 0.38f+b);  glVertex2f(-0.88f+a, 0.18f+b);  glVertex2f(-0.84f+a, 0.18f+b);  glVertex2f(-0.84f+a, 0.38f+b);  glVertex2f(-0.86f+a, 0.36f+b);  glEnd();  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  if(isDay)  glColor3ub(30, 132, 73);  else  glColor3ub(11, 83, 69 );  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.075;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.97+a,y+0.48+b);  }  glEnd();  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  if(isDay)  glColor3ub(30, 132, 73);  else  glColor3ub(11, 83, 69 );  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.075;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.88+a,y+0.55+b);  }  glEnd();  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  if(isDay)  glColor3ub(30, 132, 73);  else  glColor3ub(11, 83, 69 );  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.075;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.84+a,y+0.54+b);  }  glEnd();  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  if(isDay)  glColor3ub(30, 132, 73);  else  glColor3ub(11, 83, 69 );  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.075;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.73+a,y+0.47+b);  }  glEnd();  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  if(isDay)  glColor3ub(30, 132, 73);  else  glColor3ub(11, 83, 69 );  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.075;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.80+a,y+0.46+b);  }  glEnd();  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  if(isDay)  glColor3ub(30, 132, 73);  else  glColor3ub(11, 83, 69 );  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.075;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.84+a,y+0.43+b);  }  glEnd();  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  if(isDay)  glColor3ub(30, 132, 73);  else  glColor3ub(11, 83, 69 );  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.075;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.9+a,y+0.44+b);  }  glEnd();  glBegin(GL\_POLYGON);  if(isDay)  glColor3ub(30, 132, 73);  else  glColor3ub(11, 83, 69 );  glVertex2f(-0.3f, 0.54f);  glVertex2f(-0.3f, 0.5f);  glVertex2f(0.9f, 0.5f);  glVertex2f(0.9f, 0.54f);  glEnd();  glBegin(GL\_TRIANGLES);  if(isDay)  glColor3ub(30, 132, 73);  else  glColor3ub(11, 83, 69 );  glVertex2f(-0.66f, 0.55f);  glVertex2f(-0.72f, 0.5f);  glVertex2f(-0.60f, 0.5f);  glEnd();  glBegin(GL\_TRIANGLES);  if(isDay)  glColor3ub(30, 132, 73);  else  glColor3ub(11, 83, 69 );  glVertex2f(-0.56f, 0.55f);  glVertex2f(-0.62f, 0.5f);  glVertex2f(-0.50f, 0.5f);  glEnd();  glBegin(GL\_TRIANGLES);  if(isDay)  glColor3ub(30, 132, 73);  else  glColor3ub(11, 83, 69 );  glVertex2f(-0.46f, 0.55f);  glVertex2f(-0.52f, 0.5f);  glVertex2f(-0.40f, 0.5f);  glEnd();  glBegin(GL\_TRIANGLES);  if(isDay)  glColor3ub(30, 132, 73);  else  glColor3ub(11, 83, 69 );  glVertex2f(-0.36f, 0.55f);  glVertex2f(-0.30f, 0.5f);  glVertex2f(-0.42f, 0.5f);  glEnd();  glBegin(GL\_TRIANGLES);  if(isDay)  glColor3ub(30, 132, 73);  else  glColor3ub(11, 83, 69 );  glVertex2f(-0.26f, 0.60f);  glVertex2f(-0.20f, 0.5f);  glVertex2f(-0.32f, 0.5f);  glBegin(GL\_TRIANGLES);  if(isDay)  glColor3ub(30, 132, 73);  else  glColor3ub(11, 83, 69 );  glVertex2f(-0.16f, 0.60f);  glVertex2f(-0.10f, 0.5f);  glVertex2f(-0.22f, 0.5f);  glEnd();  glBegin(GL\_TRIANGLES);  if(isDay)  glColor3ub(30, 132, 73);  else  glColor3ub(11, 83, 69 );  glVertex2f(0.66f, 0.60f);  glVertex2f(0.72f, 0.5f);  glVertex2f(0.60f, 0.5f);  glEnd();  glBegin(GL\_TRIANGLES);  if(isDay)  glColor3ub(30, 132, 73);  else  glColor3ub(11, 83, 69 );  glVertex2f(0.56f, 0.60f);  glVertex2f(0.62f, 0.5f);  glVertex2f(0.50f, 0.5f);  glEnd();  glBegin(GL\_TRIANGLES);  if(isDay)  glColor3ub(30, 132, 73);  else  glColor3ub(11, 83, 69 );  glVertex2f(0.46f, 0.56f);  glVertex2f(0.52f, 0.5f);  glVertex2f(0.40f, 0.5f);  glEnd();  }  void sky()  {  glBegin(GL\_POLYGON);  if (isDay)  glColor3ub(133, 193, 233 );  // Day color  else  glColor3ub(52, 73, 94 );  glVertex2f(-0.9f, 0.9f);  glVertex2f(-0.9f, 0.50f);  glVertex2f(0.9f, 0.50f);  glVertex2f(0.9f, 0.9f);  glEnd();  // ----sun----  glBegin(GL\_POLYGON);// Draw a Red 1x1 Square centered at origin  for(int i=0;i<200;i++)  {  if (isDay)  glColor3ub(247, 220, 111);  // Day color  else  glColor3ub(208, 211, 212);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.056;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x+0.54,y+0.80);  }  glEnd();  }  //-----Cloud------  void cloud(float a){  glBegin(GL\_POLYGON);// Draw a Red 1x1 Square centered at origin  for(int i=0;i<200;i++)  {  if(isDay)  glColor3ub(240, 243, 244);  else  glColor3ub(98, 101, 103 );  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.056;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.44+a,y+0.77);  }  glEnd();  glBegin(GL\_POLYGON);// Draw a Red 1x1 Square centered at origin  for(int i=0;i<200;i++)  {  if(isDay)  glColor3ub(240, 243, 244);  else  glColor3ub(98, 101, 103 );  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.056;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-39+a,y+0.80);  }  glEnd();  glBegin(GL\_POLYGON);// Draw a Red 1x1 Square centered at origin  for(int i=0;i<200;i++)  {  if(isDay)  glColor3ub(240, 243, 244);  else  glColor3ub(98, 101, 103 );  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.056;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.34+a,y+0.76);  }  glEnd();  glBegin(GL\_POLYGON);// Draw a Red 1x1 Square centered at origin  for(int i=0;i<200;i++)  {  if(isDay)  glColor3ub(240, 243, 244);  else  glColor3ub(98, 101, 103 );  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.056;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.39+a,y+0.72);  }  glEnd();  }  void house(float x, float y) {  glBegin(GL\_POLYGON);  if (isDay)  glColor3ub(121, 125, 127); // Day color  else  glColor3ub(31, 36, 37); // Night color  glVertex2f(-0.7f + x, 0.4f + y);  glVertex2f(-0.8f + x, 0.3f + y);  glVertex2f(-0.6f + x, 0.3f + y);  glVertex2f(-0.5f + x, 0.4f + y);  glEnd();  glBegin(GL\_POLYGON);  if (isDay)  glColor3ub(156, 100, 12); // Day color  else  glColor3ub(52, 73, 94); // Night color  glVertex2f(-0.78f + x, 0.3f + y);  glVertex2f(-0.78f + x, 0.2f + y);  glVertex2f(-0.58f + x, 0.2f + y);  glVertex2f(-0.58f + x, 0.3f + y);  glEnd();  glBegin(GL\_POLYGON);  if (isDay)  glColor3ub(93, 109, 126); // Day color  else  glColor3ub(41, 128, 185); // Night color  glVertex2f(-0.78f + x, 0.2f + y);  glVertex2f(-0.8f + x, 0.18f + y);  glVertex2f(-0.6f + x, 0.18f + y);  glVertex2f(-0.58f + x, 0.2f + y);  glEnd();  glBegin(GL\_POLYGON);  if (isDay)  glColor3ub(93, 109, 126); // Day color  else  glColor3ub(41, 128, 185); // Night color  glVertex2f(-0.58f + x, 0.2f + y);  glVertex2f(-0.6f + x, 0.18f + y);  glVertex2f(-0.4f + x, 0.18f + y);  glVertex2f(-0.42f + x, 0.2f + y);  glEnd();  glBegin(GL\_POLYGON);  if (isDay)  glColor3ub(156, 100, 12); // Day color  else  glColor3ub(52, 73, 94); // Night color  glVertex2f(-0.58f + x, 0.3f + y);  glVertex2f(-0.58f + x, 0.2f + y);  glVertex2f(-0.42f + x, 0.2f + y);  glVertex2f(-0.42f + x, 0.3f + y);  glEnd();  glBegin(GL\_POLYGON);  if (isDay)  glColor3ub(95, 106, 106); // Day color  else  glColor3ub(44, 62, 80); // Night color  glVertex2f(-0.5f + x, 0.4f + y);  glVertex2f(-0.52f + x, 0.39f + y);  glVertex2f(-0.42f + x, 0.3f + y);  glVertex2f(-0.4f + x, 0.3f + y);  glEnd();  glBegin(GL\_POLYGON);  if (isDay)  glColor3ub(135, 54, 0 );// Day color  else  glColor3ub(243, 156, 18); // Night color  glVertex2f(-0.52f + x, 0.28f + y);  glVertex2f(-0.52f + x, 0.24f + y);  glVertex2f(-0.48f + x, 0.24f + y);  glVertex2f(-0.48f + x, 0.28f + y);  glEnd();  glBegin(GL\_POLYGON);  if (isDay)  glColor3ub(135, 54, 0); // Day color  else  glColor3ub(39, 55, 70); // Night color  glVertex2f(-0.7f + x, 0.28f + y);  glVertex2f(-0.7f + x, 0.2f + y);  glVertex2f(-0.64f + x, 0.2f + y);  glVertex2f(-0.64f + x, 0.28f + y);  glEnd();  glBegin(GL\_TRIANGLES);  if (isDay)  glColor3ub(66, 73, 73); // Day color  else  glColor3ub(44, 62, 80); // Night color  glVertex2f(-0.51f + x, 0.39f + y);  glVertex2f(-0.6f + x, 0.3f + y);  glVertex2f(-0.42f + x, 0.3f + y);  glEnd();  }  void display() {  if (isDay)  glClearColor(0.60f, 0.60f, 0.60f, 1.0f);  else  glClearColor(0.40f, 0.40f, 0.40f, 1.0f);  glClear(GL\_COLOR\_BUFFER\_BIT);  River();  Boat(0);  Boat(0.8);  Boat(0.3);  Road();  sky();  cloud(0);  cloud(0.4);  Tree(0,0);  Tree(1.05,0);  house(0.3,0.09);  house(0,0);  house(1.2,0.1);  house(1.0,0);  glFlush();  }  void keyboard(unsigned char key, int x, int y) {  if (key == 'd' || key == 'D') {  isDay = true;  } else if (key == 'n' || key == 'N') {  isDay = false;  }  glutPostRedisplay();  }  int main(int argc, char\*\* argv) {  glutInit(&argc, argv);  glutInitWindowSize(800, 600);  glutInitWindowPosition(100, 100);  glutCreateWindow("Day-Night Scene");  glutDisplayFunc(display);  glutKeyboardFunc(keyboard); // Register keyboard callback function  glutMainLoop();  return 0;  }  **Output Screenshot (Full Screen)-**  **A screenshot of a computer  Description automatically generated** |