**Lab Taks-4**

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| **Question- 1**  Draw the scenario of a traffic signal |
| **Graph Plot (Picture)-**  **(Not Needed)** |
| **Code-**  #include <windows.h>  #include <GL/glut.h>  #include<math.h>  void buildBuilding(float x, float y, float width, float height, float r, float g, float b) {  // Draw the main body of the building  glBegin(GL\_QUADS);  glColor3f(r, g, b);  glVertex2f(x - width / 2, y - height / 2); // Bottom-left  glVertex2f(x + width / 2, y - height / 2); // Bottom-right  glVertex2f(x + width / 2, y + height / 2); // Top-right  glVertex2f(x - width / 2, y + height / 2); // Top-left  glEnd();  }  void display() {  glClearColor(1.0f, 1.0f, 1.0f, 1.0f);  glClear(GL\_COLOR\_BUFFER\_BIT);  buildBuilding(0.0, 0.0, 0.4, 0.6, 0.6, 0.6, 0.6); // Gray building  // Draw a second building  buildBuilding(-0.5, 0.0, 0.3, 0.5, 0.8, 0.2, 0.2); // Red building  //sky  glBegin(GL\_POLYGON);  glColor3ub(173,209,224);  glVertex2f(1.0, 1.0f);  glVertex2f(1.0f, -1.0f);  glVertex2f(-1.0f, -1.0f);  glVertex2f(-1.0f, 1.0f);  glEnd();  //cloud1  glLineWidth(7.5);  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  glColor3ub(255,255,255);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.05;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-1,y+0.6);  }  for(int i=0;i<200;i++)  {  glColor3ub(255,255,255);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.05;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.913,y+0.6);  }  for(int i=0;i<200;i++)  {  glColor3ub(255,255,255);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.05;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.826,y+0.6);  }  glEnd();  //cloud2  glLineWidth(7.5);  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  glColor3ub(255,255,255);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.06;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x+0.21,y+0.7);  }  for(int i=0;i<200;i++)  {  glColor3ub(255,255,255);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.09;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x+0.297,y+0.7);  }  for(int i=0;i<200;i++)  {  glColor3ub(255,255,255);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.06;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x+0.384,y+0.7);  }  glEnd();  //cloud3  glLineWidth(7.5);  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  glColor3ub(255,255,255);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.07;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.2,y+0.4);  }  for(int i=0;i<200;i++)  {  glColor3ub(255,255,255);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.04;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.287,y+0.4);  }  for(int i=0;i<200;i++)  {  glColor3ub(255,255,255);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.05;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.374,y+0.4);  }  glEnd();  //cloud4  glLineWidth(7.5);  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  glColor3ub(255,255,255);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.09;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x+1,y+0.5);  }  for(int i=0;i<200;i++)  {  glColor3ub(255,255,255);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.08;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x+0.913,y+0.5);  }  for(int i=0;i<200;i++)  {  glColor3ub(255,255,255);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.09;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x+0.826,y+0.5);  }  glEnd();  //sun  glLineWidth(7.5);  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  glColor3ub(227,240,120);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.10;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x,y+0.7);  }  glEnd();  //grass  glBegin(GL\_POLYGON);  glColor3ub(148,250,52);  glVertex2f(1.0f, -0.500f);  glVertex2f(1.0f, -1.00f);  glVertex2f(-1.0f, -1.00f);  glVertex2f(-1.f, -0.500f);  glEnd();  //road  glBegin(GL\_POLYGON);  glColor3ub(0,0,0);  glVertex2f(0.150f, -0.500f);  glVertex2f(0.250f, -1.00f);  glVertex2f(-0.250f, -1.00f);  glVertex2f(-0.150f, -0.500f);  glEnd();  glBegin(GL\_POLYGON);  glColor3ub(0,0,0);  glVertex2f(1.0f, -0.500f);  glVertex2f(1.0f, -0.75f);  glVertex2f(-1.0f, -0.75f);  glVertex2f(-1.0f, -0.500f);  glEnd();  glBegin(GL\_POLYGON);  glColor3ub(255,255,255);  glVertex2f(1.0f, -0.600f);  glVertex2f(1.0f, -0.64f);  glVertex2f(0.80f, -0.640f);  glVertex2f(0.8f, -0.600f);  glEnd();  glBegin(GL\_POLYGON);  glColor3ub(255,255,255);  glVertex2f(0.35f, -0.600f);  glVertex2f(0.35f, -0.64f);  glVertex2f(0.60f, -0.640f);  glVertex2f(0.6f, -0.600f);  glEnd();  glBegin(GL\_POLYGON);  glColor3ub(255,255,255);  glVertex2f(0.15f, -0.600f);  glVertex2f(0.15f, -0.64f);  glVertex2f(-0.1f, -0.640f);  glVertex2f(-0.1f, -0.600f);  glEnd();  glBegin(GL\_POLYGON);  glColor3ub(255,255,255);  glVertex2f(-0.3f, -0.600f);  glVertex2f(-0.3f, -0.64f);  glVertex2f(-0.55f, -0.640f);  glVertex2f(-0.55f, -0.600f);  glEnd();  glBegin(GL\_POLYGON);  glColor3ub(255,255,255);  glVertex2f(-0.8f, -0.600f);  glVertex2f(-0.8f, -0.64f);  glVertex2f(-1.0f, -0.640f);  glVertex2f(-1.0f, -0.600f);  glEnd();  glBegin(GL\_POLYGON);  glColor3ub(255,255,255);  glVertex2f(0.012f, -0.80f);  glVertex2f(0.035f, -1.00f);  glVertex2f(-0.035f, -1.00f);  glVertex2f(-0.012f, -0.80f);  glEnd();  //zebracrossing  glBegin(GL\_POLYGON);  glColor3ub(50,50,50);  glVertex2f(-0.4f, -0.500f);  glVertex2f(-0.35f, -0.75f);  glVertex2f(-0.7f, -0.75f);  glVertex2f(-0.6f, -0.500f);  glEnd();  glBegin(GL\_POLYGON);  glColor3ub(225,225,225);  glVertex2f(-0.36f, -0.70f);  glVertex2f(-0.35f, -0.75f);  glVertex2f(-0.7f, -0.75f);  glVertex2f(-0.68f, -0.700f);  glEnd();  glBegin(GL\_POLYGON);  glColor3ub(225,225,225);  glVertex2f(-0.37f, -0.65f);  glVertex2f(-0.38f, -0.6f);  glVertex2f(-0.64f, -0.6f);  glVertex2f(-0.66f, -0.65f);  glEnd();  glBegin(GL\_POLYGON);  glColor3ub(225,225,225);  glVertex2f(-0.39f ,-0.55f);  glVertex2f(-0.4f, -0.5f);  glVertex2f(-0.6f, -0.5f);  glVertex2f(-0.62f, -0.55f);  glEnd();  //trsfficlight  glBegin(GL\_POLYGON);  glColor3ub(95,95,95);  glVertex2f(0.24, -0.40f);  glVertex2f(0.24f, -0.80f);  glVertex2f(0.27f, -0.80f);  glVertex2f(0.27f, -0.40f);  glEnd();  glBegin(GL\_POLYGON);  glColor3ub(95,95,95);  glVertex2f(0.21, -0.42f);  glVertex2f(0.21f, -0.17f);  glVertex2f(0.3f, -0.17f);  glVertex2f(0.3f, -0.42f);  glEnd();  glBegin(GL\_POLYGON);  glColor3ub(75,75,75);  glVertex2f(0.22f, -0.40f);  glVertex2f(0.22f, -0.18f);  glVertex2f(0.29f, -0.18f);  glVertex2f(0.29f, -0.40f);  glEnd();  glBegin(GL\_POLYGON);  glColor3ub(95,95,95);  glVertex2f(0.19, -0.15f);  glVertex2f(0.19f, -0.17f);  glVertex2f(0.315f, -0.17f);  glVertex2f(0.315f, -0.15f);  glEnd();  glLineWidth(7.5);  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  glColor3ub(255,0,0);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.03;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x+0.255,y-0.22 );  }  glEnd();  glLineWidth(7.5);  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  glColor3ub(200,255,50);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.03;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x+0.255,y-0.29 );  }  glEnd();  glLineWidth(7.5);  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  glColor3ub(0,255,0);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.03;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x+0.255,y-0.36 );  }  glEnd();  //car1  glColor3ub(255,100,120);  glBegin(GL\_POLYGON);  glVertex2f(0.9f, -0.35f);  glVertex2f(0.45f, -0.35f);  glVertex2f(0.4f, -0.53f);  glVertex2f(0.95f, -0.53f);  glEnd();  glBegin(GL\_POLYGON);  glVertex2f(0.85f, -0.35f);  glVertex2f(0.5f, -0.35f);  glVertex2f(0.55f, -0.2f);  glVertex2f(0.8f, -0.2f);  glEnd();  glColor3ub(100,255,255);  glBegin(GL\_POLYGON);  glVertex2f(0.83f, -0.34f);  glVertex2f(0.52f, -0.34f);  glVertex2f(0.56f, -0.23f);  glVertex2f(0.79f, -0.23f);  glEnd();  glColor3ub(0,0,0);  glLineWidth(4);  glBegin(GL\_LINES);  glVertex2f(0.67f, -0.52f);  glVertex2f(0.67f, -0.23f);  glEnd();  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  glColor3ub(90,90,90);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.06;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x+0.8,y-0.53 );  }  glEnd();  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  glColor3ub(90,90,90);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.06;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x+0.54,y-0.53 );  }  glEnd();  //building  glFlush();  }  int main(int argc, char\*\* argv) {  glutInit(&argc, argv);  glutCreateWindow("Traffic Signal Scenario");  glutInitWindowSize(1300, 900);  glutDisplayFunc(display);  glutMainLoop();  return 0;  } |
| **Output Screenshot (Full Screen)-** |

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| **Question- 2**  Draw two village scenarios for day and night |
| **Graph Plot (Picture)-**  **(Not Needed)** |
| **Code-**  #include <windows.h>  #include <GL/glut.h>  #include<math.h>  void display() {  glClearColor(1.0f, 1.0f, 1.0f, 1.0f);  glClear(GL\_COLOR\_BUFFER\_BIT);  //sky  glBegin(GL\_POLYGON);  glColor3ub(185,200,255);  glVertex2f(1.0, 1.0f);  glVertex2f(1.0f, -1.0f);  glVertex2f(-1.0f, -1.0f);  glVertex2f(-1.0f, 1.0f);  glEnd();  //cloud1  glLineWidth(7.5);  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  glColor3ub(255,255,255);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.05;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-1,y+0.6);  }  for(int i=0;i<200;i++)  {  glColor3ub(255,255,255);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.05;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.913,y+0.6);  }  for(int i=0;i<200;i++)  {  glColor3ub(255,255,255);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.05;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.826,y+0.6);  }  glEnd();  //cloud2  glLineWidth(7.5);  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  glColor3ub(255,255,255);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.06;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x+0.21,y+0.7);  }  for(int i=0;i<200;i++)  {  glColor3ub(255,255,255);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.09;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x+0.297,y+0.7);  }  for(int i=0;i<200;i++)  {  glColor3ub(255,255,255);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.06;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x+0.384,y+0.7);  }  glEnd();  //cloud3  glLineWidth(7.5);  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  glColor3ub(255,255,255);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.07;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.2,y+0.4);  }  for(int i=0;i<200;i++)  {  glColor3ub(255,255,255);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.04;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.287,y+0.4);  }  for(int i=0;i<200;i++)  {  glColor3ub(255,255,255);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.05;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.374,y+0.4);  }  glEnd();  //cloud4  glLineWidth(7.5);  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  glColor3ub(255,255,255);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.09;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x+1,y+0.5);  }  for(int i=0;i<200;i++)  {  glColor3ub(255,255,255);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.08;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x+0.913,y+0.5);  }  for(int i=0;i<200;i++)  {  glColor3ub(255,255,255);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.09;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x+0.826,y+0.5);  }  glEnd();  //sun  glLineWidth(7.5);  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  glColor3ub(230,255,0);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.10;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x,y+0.7);  }  glEnd();  //grass  glLineWidth(7.5);  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  glColor3ub(0,255,0);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=1.95;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.7,y-2.1 );  }  for(int i=0;i<200;i++)  {  glColor3ub(0,225,0);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=1.95;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x+0.7,y-2.1 );  }  for(int i=0;i<200;i++)  {  glColor3ub(0,190,0);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=1.95;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.8,y-2.5 );  }  for(int i=0;i<200;i++)  {  glColor3ub(0,170,0);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=1.95;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x+0.8,y-2.5 );  }  glEnd();  //house1  glBegin(GL\_POLYGON);  glColor3ub(219,204,114);  glVertex2f(0.800f, -0.32f);  glVertex2f(0.800f, -0.178f);  glVertex2f(0.550f, -0.178f);  glVertex2f(0.550f, -0.32f);  glEnd();  glBegin(GL\_POLYGON);  glColor3ub(219,204,114);  glVertex2f(0.550f, -0.178f);  glVertex2f(0.500f, -0.036f);  glVertex2f(0.500f, -0.178f);  glVertex2f(0.550f, -0.32f);  glEnd();  glBegin(GL\_POLYGON);  glColor3ub(219,204,114);  glVertex2f(0.550f, -0.178f);  glVertex2f(0.525f, -0.0f);  glVertex2f(0.500f, -0.036f);  glEnd();  glBegin(GL\_LINES);  glLineWidth(4.5);  glColor3ub(115,83,62);  glVertex2f(0.525f, -0.0f);  glVertex2f(0.500f, -0.036f);  glEnd();  glBegin(GL\_POLYGON);  glColor3ub(115,83,62);  glVertex2f(0.545f, -0.178f);  glVertex2f(0.520f, -0.0f);  glVertex2f(0.780f, -0.0f);  glVertex2f(0.805f, -0.178f);  glEnd();  //door  glBegin(GL\_POLYGON);  glColor3ub(79,63,53);  glVertex2f(0.70f, -0.22f);  glVertex2f(0.70f, -0.32f);  glVertex2f(0.650f, -0.32f);  glVertex2f(0.650f, -0.22f);  glEnd();  //Window  glBegin(GL\_POLYGON);  glColor3ub(180,235,240);  glVertex2f(0.77f, -0.22f);  glVertex2f(0.77f, -0.27f);  glVertex2f(0.725f, -0.27f);  glVertex2f(0.725f, -0.22f);  glEnd();  glBegin(GL\_POLYGON);  glColor3ub(180,235,240);  glVertex2f(0.57f, -0.22f);  glVertex2f(0.57f, -0.27f);  glVertex2f(0.615f, -0.27f);  glVertex2f(0.615f, -0.22f);  glEnd();  //house2  glBegin(GL\_POLYGON);  glColor3ub(219,204,114);  glVertex2f(-0.800f, -0.72f);  glVertex2f(-0.800f, -0.578f);  glVertex2f(-0.550f, -0.578f);  glVertex2f(-0.550f, -0.72f);  glEnd();  glBegin(GL\_POLYGON);  glColor3ub(219,204,114);  glVertex2f(-0.550f, -0.578f);  glVertex2f(-0.500f, -0.436f);  glVertex2f(-0.500f, -0.578f);  glVertex2f(-0.550f, -0.72f);  glEnd();  glBegin(GL\_POLYGON);  glColor3ub(219,204,114);  glVertex2f(-0.550f, -0.578f);  glVertex2f(-0.525f, -0.4f);  glVertex2f(-0.500f, -0.436f);  glEnd();  glBegin(GL\_LINES);  glLineWidth(4.5);  glColor3ub(115,83,62);  glVertex2f(-0.525f, -0.4f);  glVertex2f(-0.500f, -0.436f);  glEnd();  glBegin(GL\_POLYGON);  glColor3ub(115,83,62);  glVertex2f(-0.545f, -0.578f);  glVertex2f(-0.520f, -0.4f);  glVertex2f(-0.780f, -0.4f);  glVertex2f(-0.805f, -0.578f);  glEnd();  //door  glBegin(GL\_POLYGON);  glColor3ub(79,63,53);  glVertex2f(-0.70f, -0.62f);  glVertex2f(-0.70f, -0.72f);  glVertex2f(-0.650f, -0.72f);  glVertex2f(-0.650f, -0.62f);  glEnd();  //Window  glBegin(GL\_POLYGON);  glColor3ub(180,235,240);  glVertex2f(-0.77f, -0.62f);  glVertex2f(-0.77f, -0.67f);  glVertex2f(-0.725f, -0.67f);  glVertex2f(-0.725f, -0.62f);  glEnd();  glBegin(GL\_POLYGON);  glColor3ub(180,235,240);  glVertex2f(-0.57f, -0.62f);  glVertex2f(-0.57f, -0.67f);  glVertex2f(-0.615f, -0.67f);  glVertex2f(-0.615f, -0.62f);  glEnd();  //tree  glColor3ub(220,80,10);  glBegin(GL\_POLYGON);  glVertex2f(-0.85f, -1.0f);  glVertex2f(-1.0f, -1.0f);  glVertex2f(-1.0f, -0.9f);  glVertex2f(-0.9f, -0.9f);  glEnd();  glBegin(GL\_POLYGON);  glVertex2f(-0.9f, -0.60f);  glVertex2f(-1.0f, -0.60f);  glVertex2f(-1.0f, -0.9f);  glVertex2f(-0.9f, -0.9f);  glEnd();  glBegin(GL\_POLYGON);  glVertex2f(-0.9f, -0.60f);  glVertex2f(-1.0f, -0.60f);  glVertex2f(-1.0f, -0.5f);  glEnd();  glBegin(GL\_POLYGON);  glVertex2f(-0.9f, -0.60f);  glVertex2f(-1.0f, -0.60f);  glVertex2f(-0.85f, -0.5f);  glEnd();  glLineWidth(7.5);  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  glColor3ub(0,90,0);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.15;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.9,y-0.35 );  }  glEnd();  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  glColor3ub(0,90,0);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.10;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-1.05,y-0.45 );  }  glEnd();  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  glColor3ub(0,90,0);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.10;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-1.08,y-0.35 );  }  glEnd();  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  glColor3ub(0,90,0);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.10;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.85,y-0.50 );  }  glEnd();  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  glColor3ub(0,90,0);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.10;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.82,y-0.40 );  }  glEnd();  //tree2  glColor3ub(220,80,10);  glBegin(GL\_POLYGON);  glVertex2f(-0.98f, 0.0f);  glVertex2f(-1.0f, 0.0f);  glVertex2f(-1.0f, -0.18f);  glVertex2f(-0.98f, -0.18f);  glEnd();  glLineWidth(7.5);  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  glColor3ub(0,90,0);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.15;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.9,y-0.35 );  }  glEnd();  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  glColor3ub(0,90,0);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.10;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-1.05,y+0.05 );  }  glEnd();  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  glColor3ub(0,90,0);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.06;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.95,y+0.05 );  }  glEnd();  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  glColor3ub(0,90,0);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.06;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-1.5,y+0.05 );  }  glEnd();  //tree3  glColor3ub(230,80,20);  glBegin(GL\_POLYGON);  glVertex2f(-0.78f, 0.0f);  glVertex2f(-0.8f, 0.0f);  glVertex2f(-0.8f, -0.18f);  glVertex2f(-0.78f, -0.18f);  glEnd();  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  glColor3ub(0,110,0);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.06;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.85,y+0.05 );  }  glEnd();  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  glColor3ub(0,110,0);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.08;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.75,y+0.05 );  }  glEnd();  //tree4  glColor3ub(230,80,20);  glBegin(GL\_POLYGON);  glVertex2f(-0.58f, 0.0f);  glVertex2f(-0.6f, 0.0f);  glVertex2f(-0.6f, -0.18f);  glVertex2f(-0.58f, -0.18f);  glEnd();  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  glColor3ub(0,150,0);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.08;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.65,y+0.05 );  }  glEnd();  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  glColor3ub(0,150,0);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.08;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.55,y+0.05 );  }  glEnd();  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  glColor3ub(0,150,0);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.06;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.58,y+0.15 );  }  glEnd();  glFlush();  }  int main(int argc, char\*\* argv) {  glutInit(&argc, argv);  glutCreateWindow("Village Day");  glutInitWindowSize(700, 700);  glutDisplayFunc(display);  glutMainLoop();  return 0;  }  \*\*\*\*Village Night\*\*\*  #include <windows.h>  #include <GL/glut.h>  #include<math.h>  void display() {  glClearColor(1.0f, 1.0f, 1.0f, 1.0f);  glClear(GL\_COLOR\_BUFFER\_BIT);  //sky  glBegin(GL\_POLYGON);  glColor3ub(29,48,79);  glVertex2f(1.0, 1.0f);  glVertex2f(1.0f, -1.0f);  glVertex2f(-1.0f, -1.0f);  glVertex2f(-1.0f, 1.0f);  glEnd();  //cloud1  glLineWidth(7.5);  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  glColor3ub(255,255,255);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.05;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-1,y+0.6);  }  for(int i=0;i<200;i++)  {  glColor3ub(255,255,255);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.05;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.913,y+0.6);  }  for(int i=0;i<200;i++)  {  glColor3ub(255,255,255);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.05;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.826,y+0.6);  }  glEnd();  //cloud2  glLineWidth(7.5);  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  glColor3ub(255,255,255);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.06;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x+0.21,y+0.7);  }  for(int i=0;i<200;i++)  {  glColor3ub(255,255,255);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.09;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x+0.297,y+0.7);  }  for(int i=0;i<200;i++)  {  glColor3ub(255,255,255);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.06;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x+0.384,y+0.7);  }  glEnd();  //cloud3  glLineWidth(7.5);  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  glColor3ub(255,255,255);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.07;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.2,y+0.4);  }  for(int i=0;i<200;i++)  {  glColor3ub(255,255,255);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.04;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.287,y+0.4);  }  for(int i=0;i<200;i++)  {  glColor3ub(255,255,255);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.05;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.374,y+0.4);  }  glEnd();  //cloud4  glLineWidth(7.5);  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  glColor3ub(255,255,255);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.09;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x+1,y+0.5);  }  for(int i=0;i<200;i++)  {  glColor3ub(255,255,255);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.08;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x+0.913,y+0.5);  }  for(int i=0;i<200;i++)  {  glColor3ub(255,255,255);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.09;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x+0.826,y+0.5);  }  glEnd();  //moon  glLineWidth(7.5);  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  glColor3ub(238,240,211);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.10;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x,y+0.7);  }  glEnd();  glLineWidth(7.5);  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  glColor3ub(29,48,79);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.10;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x+0.04,y+0.7);  }  glEnd();  //grass  glLineWidth(7.5);  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  glColor3ub(0,255,0);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=1.95;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.7,y-2.1 );  }  for(int i=0;i<200;i++)  {  glColor3ub(0,225,0);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=1.95;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x+0.7,y-2.1 );  }  for(int i=0;i<200;i++)  {  glColor3ub(0,190,0);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=1.95;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.8,y-2.5 );  }  for(int i=0;i<200;i++)  {  glColor3ub(0,170,0);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=1.95;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x+0.8,y-2.5 );  }  glEnd();  //house1  glBegin(GL\_POLYGON);  glColor3ub(219,204,114);  glVertex2f(0.800f, -0.32f);  glVertex2f(0.800f, -0.178f);  glVertex2f(0.550f, -0.178f);  glVertex2f(0.550f, -0.32f);  glEnd();  glBegin(GL\_POLYGON);  glColor3ub(219,204,114);  glVertex2f(0.550f, -0.178f);  glVertex2f(0.500f, -0.036f);  glVertex2f(0.500f, -0.178f);  glVertex2f(0.550f, -0.32f);  glEnd();  glBegin(GL\_POLYGON);  glColor3ub(219,204,114);  glVertex2f(0.550f, -0.178f);  glVertex2f(0.525f, -0.0f);  glVertex2f(0.500f, -0.036f);  glEnd();  glBegin(GL\_LINES);  glLineWidth(4.5);  glColor3ub(115,83,62);  glVertex2f(0.525f, -0.0f);  glVertex2f(0.500f, -0.036f);  glEnd();  glBegin(GL\_POLYGON);  glColor3ub(115,83,62);  glVertex2f(0.545f, -0.178f);  glVertex2f(0.520f, -0.0f);  glVertex2f(0.780f, -0.0f);  glVertex2f(0.805f, -0.178f);  glEnd();  //door  glBegin(GL\_POLYGON);  glColor3ub(79,63,53);  glVertex2f(0.70f, -0.22f);  glVertex2f(0.70f, -0.32f);  glVertex2f(0.650f, -0.32f);  glVertex2f(0.650f, -0.22f);  glEnd();  //Window  glBegin(GL\_POLYGON);  glColor3ub(180,235,240);  glVertex2f(0.77f, -0.22f);  glVertex2f(0.77f, -0.27f);  glVertex2f(0.725f, -0.27f);  glVertex2f(0.725f, -0.22f);  glEnd();  glBegin(GL\_POLYGON);  glColor3ub(180,235,240);  glVertex2f(0.57f, -0.22f);  glVertex2f(0.57f, -0.27f);  glVertex2f(0.615f, -0.27f);  glVertex2f(0.615f, -0.22f);  glEnd();  //house2  glBegin(GL\_POLYGON);  glColor3ub(219,204,114);  glVertex2f(-0.800f, -0.72f);  glVertex2f(-0.800f, -0.578f);  glVertex2f(-0.550f, -0.578f);  glVertex2f(-0.550f, -0.72f);  glEnd();  glBegin(GL\_POLYGON);  glColor3ub(219,204,114);  glVertex2f(-0.550f, -0.578f);  glVertex2f(-0.500f, -0.436f);  glVertex2f(-0.500f, -0.578f);  glVertex2f(-0.550f, -0.72f);  glEnd();  glBegin(GL\_POLYGON);  glColor3ub(219,204,114);  glVertex2f(-0.550f, -0.578f);  glVertex2f(-0.525f, -0.4f);  glVertex2f(-0.500f, -0.436f);  glEnd();  glBegin(GL\_LINES);  glLineWidth(4.5);  glColor3ub(115,83,62);  glVertex2f(-0.525f, -0.4f);  glVertex2f(-0.500f, -0.436f);  glEnd();  glBegin(GL\_POLYGON);  glColor3ub(115,83,62);  glVertex2f(-0.545f, -0.578f);  glVertex2f(-0.520f, -0.4f);  glVertex2f(-0.780f, -0.4f);  glVertex2f(-0.805f, -0.578f);  glEnd();  //door  glBegin(GL\_POLYGON);  glColor3ub(79,63,53);  glVertex2f(-0.70f, -0.62f);  glVertex2f(-0.70f, -0.72f);  glVertex2f(-0.650f, -0.72f);  glVertex2f(-0.650f, -0.62f);  glEnd();  //Window  glBegin(GL\_POLYGON);  glColor3ub(180,235,240);  glVertex2f(-0.77f, -0.62f);  glVertex2f(-0.77f, -0.67f);  glVertex2f(-0.725f, -0.67f);  glVertex2f(-0.725f, -0.62f);  glEnd();  glBegin(GL\_POLYGON);  glColor3ub(180,235,240);  glVertex2f(-0.57f, -0.62f);  glVertex2f(-0.57f, -0.67f);  glVertex2f(-0.615f, -0.67f);  glVertex2f(-0.615f, -0.62f);  glEnd();  //tree  glColor3ub(220,80,10);  glBegin(GL\_POLYGON);  glVertex2f(-0.85f, -1.0f);  glVertex2f(-1.0f, -1.0f);  glVertex2f(-1.0f, -0.9f);  glVertex2f(-0.9f, -0.9f);  glEnd();  glBegin(GL\_POLYGON);  glVertex2f(-0.9f, -0.60f);  glVertex2f(-1.0f, -0.60f);  glVertex2f(-1.0f, -0.9f);  glVertex2f(-0.9f, -0.9f);  glEnd();  glBegin(GL\_POLYGON);  glVertex2f(-0.9f, -0.60f);  glVertex2f(-1.0f, -0.60f);  glVertex2f(-1.0f, -0.5f);  glEnd();  glBegin(GL\_POLYGON);  glVertex2f(-0.9f, -0.60f);  glVertex2f(-1.0f, -0.60f);  glVertex2f(-0.85f, -0.5f);  glEnd();  glLineWidth(7.5);  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  glColor3ub(0,90,0);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.15;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.9,y-0.35 );  }  glEnd();  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  glColor3ub(0,90,0);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.10;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-1.05,y-0.45 );  }  glEnd();  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  glColor3ub(0,90,0);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.10;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-1.08,y-0.35 );  }  glEnd();  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  glColor3ub(0,90,0);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.10;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.85,y-0.50 );  }  glEnd();  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  glColor3ub(0,90,0);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.10;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.82,y-0.40 );  }  glEnd();  //tree2  glColor3ub(220,80,10);  glBegin(GL\_POLYGON);  glVertex2f(-0.98f, 0.0f);  glVertex2f(-1.0f, 0.0f);  glVertex2f(-1.0f, -0.18f);  glVertex2f(-0.98f, -0.18f);  glEnd();  glLineWidth(7.5);  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  glColor3ub(0,90,0);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.15;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.9,y-0.35 );  }  glEnd();  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  glColor3ub(0,90,0);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.10;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-1.05,y+0.05 );  }  glEnd();  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  glColor3ub(0,90,0);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.06;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.95,y+0.05 );  }  glEnd();  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  glColor3ub(0,90,0);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.06;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-1.5,y+0.05 );  }  glEnd();  //tree3  glColor3ub(230,80,20);  glBegin(GL\_POLYGON);  glVertex2f(-0.78f, 0.0f);  glVertex2f(-0.8f, 0.0f);  glVertex2f(-0.8f, -0.18f);  glVertex2f(-0.78f, -0.18f);  glEnd();  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  glColor3ub(0,110,0);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.06;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.85,y+0.05 );  }  glEnd();  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  glColor3ub(0,110,0);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.08;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.75,y+0.05 );  }  glEnd();  //tree4  glColor3ub(230,80,20);  glBegin(GL\_POLYGON);  glVertex2f(-0.58f, 0.0f);  glVertex2f(-0.6f, 0.0f);  glVertex2f(-0.6f, -0.18f);  glVertex2f(-0.58f, -0.18f);  glEnd();  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  glColor3ub(0,150,0);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.08;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.65,y+0.05 );  }  glEnd();  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  glColor3ub(0,150,0);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.08;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.55,y+0.05 );  }  glEnd();  glBegin(GL\_POLYGON);  for(int i=0;i<200;i++)  {  glColor3ub(0,150,0);  float pi=3.1416;  float A=(i\*2\*pi)/200;  float r=0.06;  float x = r \* cos(A);  float y = r \* sin(A);  glVertex2f(x-0.58,y+0.15 );  }  glEnd();  glFlush();  }  int main(int argc, char\*\* argv) {  glutInit(&argc, argv);  glutCreateWindow("Village Night");  glutInitWindowSize(700, 700);  glutDisplayFunc(display);  glutMainLoop();  return 0;  } |
| **Output Screenshot (Full Screen)-**  Village Day    Village Night |