8. To draw a simple shaded scene consisting of a tea pot on a table. Define suitably the position and properties of the light source along with the properties of the surfaces of the solid object used in the scene.

```
#include<stdio.h>
#include<GL/glut.h>
void tableLeg(double thick,double len)
{
glPushMatrix();
glTranslated(0,len/2,0);
glScaled(thick,len,thick);
glutSolidCube(1.0);
glPopMatrix();
}
void table(double topWid,double topThick,double legThick,double legLen)
{
glPushMatrix();
glTranslated(0,legLen,0);
glScaled(topWid,topThick,topWid);
glutSolidCube(1.0);
glPopMatrix();
double dist=0.95*topWid/2.0-legThick/2.0;
glPushMatrix();
glTranslated(dist,0,dist);
tableLeg(legThick,legLen);
glTranslated(0.0,0.0,-2*dist);
tableLeg(legThick,legLen);
glTranslated(-2*dist,0,2*dist);
tableLeg(legThick,legLen);
glTranslated(0,0,-2*dist);
tableLeg(legThick,legLen);
glPopMatrix();
}
void displaySolid(void)
{
GLfloat mat_ambient[]={0.7f,0.7f,0.7f,1.0f};
GLfloat mat_diffuse[]={0.5f,0.5f,0.5f,1.0f};
GLfloat mat_specular[]={1.0f,1.0f,1.0f,1.0f};
GLfloat mat_shininess[]={50.0f};
glMaterialfv(GL_FRONT,GL_AMBIENT,mat_ambient);
glMaterialfv(GL_FRONT,GL_DIFFUSE,mat_diffuse);
glMaterialfv(GL_FRONT,GL_SPECULAR,mat_specular);
glMaterialfv(GL_FRONT,GL_SHININESS,mat_shininess);
```

```
GLfloat lightIntensity[]={0.7f,0.7f,0.7f,0.7f};
GLfloat light_position[]={2.0f,6.0f,3.0f,0.0f};
glLightfv(GL_LIGHT0,GL_POSITION,light_position);
glLightfv(GL_LIGHT0,GL_DIFFUSE,lightIntensity);
glMatrixMode(GL_PROJECTION);
glLoadIdentity();
double winHt=1.0;
glOrtho(-winHt*64/48.0,winHt*64/48.0,-winHt,winHt,0.1,100.0);
glMatrixMode(GL_MODELVIEW);
glLoadIdentity();
gluLookAt(2.3,1.3,2.0,0.0,0.25,0.0,0.0,1.0,0.0);
glClear(GL_COLOR_BUFFER_BIT|GL_DEPTH_BUFFER_BIT);
glPushMatrix();
glTranslated(0.6,0.38,0.5);
glRotated(30,0,1,0);
glutSolidTeapot(0.08);
glPopMatrix();
glPushMatrix();
glTranslated(0.25,0.42,0.35);
glPopMatrix();
glPushMatrix();
glTranslated(0.4,0,0.4);
table(0.6,0.02,0.02,0.3);
glPopMatrix();
glFlush();
}
int main(int argc,char *argv[])
{
glutInit(&argc,argv);
glutInitDisplayMode(GLUT_SINGLE|GLUT_RGB|GLUT_DEPTH);
glutInitWindowSize(640,480);
glutInitWindowPosition(100,100);
glutCreateWindow("Simple shaded scene consisting of a teapot");
glutDisplayFunc(displaySolid);
glEnable(GL_LIGHTING);
glEnable(GL_LIGHT0);
glShadeModel(GL_SMOOTH);
glEnable(GL_DEPTH_TEST);
glEnable(GL_NORMALIZE);
glClearColor(1,1,1,0.0);
glViewport(0,0,640,480);
glutMainLoop();
}
```