```
 #include<windows.h>
#include <GL/glut.h>
#include<math.h>
int width = 800, height = 800;
int cx=400,cy=400;
float r=142;
void drawLine(int x1, int y1, int x2, int y2)
{
  glLineWidth(5);
  glBegin(GL_LINES);
  glVertex2i(x1, y1);
  glVertex2i(x2, y2);
  glEnd();
  glFlush();
}
void plot(int x, int y)
{
        glBegin(GL_POINTS);
        glVertex2i(x+cx, y+cy);
        glEnd();
}
void midPointCircleAlgo()
{
        int x = 0;
        int y = r;
        float decision = 5/4 - r;
        plot(x, y);

        while (y > x)
        {
                if (decision < 0)
                {
                        x++;
                        decision += 2*x+1;
                }
                else
                {
                        y--;
                        x++;
                        decision += 2*(x-y)+1;
                }
                plot(x, y);
                plot(x, -y);
                plot(-x, y);
                plot(-x, -y);
                plot(y, x);
                plot(-y, x);
                plot(y, -x);
                plot(-y, -x);
```

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        }

}
void display()
{
  glClearColor(0.0, 0.0,0.0, 0.0);
  glColor3f(1.0, 1.0, 1.0);
  glClear(GL_COLOR_BUFFER_BIT);
  //rectangle
  drawLine(200,600,600,600); //upline
  drawLine(200,200,600,200);//down line
  drawLine(200,200,200,600);//left
  drawLine(600,200,600,600);//right line
  glLineWidth(2);
  //rhombus
  glColor3f(1.0, 1.0, 0.0);
  drawLine(200,400,400,200);
  drawLine(400,200,600,400);
  drawLine(600,400,400,600);
  drawLine(400,600,200,400);
  //circle
  glColor3f (1.0, 1.0, 1.0);
  glPointSize(2.0);
  midPointCircleAlgo();




  glFlush();
}


void myinit()
{
  glViewport(0,0,width,height);
  glMatrixMode(GL_PROJECTION);
  glLoadIdentity();
  gluOrtho2D(0.0,(GLdouble)width,0.0,(GLdouble)height);
  glMatrixMode(GL_MODELVIEW);
}
int main(int argc, char** argv)
{
  glutInit(&argc,argv);
  glutInitDisplayMode (GLUT_SINGLE | GLUT_RGB);
  glutInitWindowSize(width,height);
  glutCreateWindow("7241_Priya_pat2");
  glutDisplayFunc(display);
  myinit();
  glutMainLoop();
  return 0;
```

```
}
```