from OpenGL.GL import \*

from OpenGL.GLUT import \*

from OpenGL.GLU import \*

def convertToZone0(x, y, X, Y):

a = y

b = x

glBegin(GL\_POINTS)

glVertex2f(a + X, b + Y)

convertToZone1(a, b, X, Y)

convertToZone2(a, b, X, Y)

convertToZone3(a, b, X, Y)

convertToZone4(a, b, X, Y)

convertToZone5(a, b, X, Y)

convertToZone6(a, b, X, Y)

convertToZone7(a, b, X, Y)

glEnd()

def convertToZone1(x, y, X, Y):

a = y

b = x

glVertex2f(a + X, b + Y)

def convertToZone2(x, y, X, Y):

a = -y

b = x

glVertex2f(a + X, b + Y)

def convertToZone3(x, y, X, Y):

a = -x

b = y

glVertex2f(a + X, b + Y)

def convertToZone4(x, y, X, Y):

a = -x

b = -y

glVertex2f(a + X, b + Y)

def convertToZone5(x, y, X, Y):

a = -y

b = -x

glVertex2f(a + X, b + Y)

def convertToZone6(x, y, X, Y):

a = y

b = -x

glVertex2f(a + X, b + Y)

def convertToZone7(x, y, X, Y):

a = x

b = -y

glVertex2f(a + X, b + Y)

def midpointCircle(radius, X, Y):

d = 1 - radius

x = 0

y = radius

while (y > x):

if(d < 0):

d = d + (2\*x) + 3

x = x + 1

convertToZone0(x, y, X, Y)

else:

d = d + (2\*x) - (2\*y) + 5

x = x + 1

y = y - 1

convertToZone0(x, y, X, Y)

def iterate():

glViewport(0, 0, 500, 500)

glMatrixMode(GL\_PROJECTION)

glLoadIdentity()

glOrtho(-200, 200, -200, 200, 0.0, 1.0)

glMatrixMode(GL\_MODELVIEW)

glLoadIdentity()

def showScreen():

glClear(GL\_COLOR\_BUFFER\_BIT | GL\_DEPTH\_BUFFER\_BIT)

glLoadIdentity()

iterate()

glColor3f(1.0, 0.0, 3.0)

midpointCircle(100,0,0)

midpointCircle(50,-50,0)

midpointCircle(50,50,0)

midpointCircle(50,0,50)

midpointCircle(50,0,-50)

glutSwapBuffers()

glutInit()

glutInitDisplayMode(GLUT\_RGBA)

glutInitWindowSize(500, 500)

glutInitWindowPosition(200, 200)

wind = glutCreateWindow(b"OpenGL Coding Practice")

glutDisplayFunc(showScreen)

glutMainLoop()