*from* OpenGL.GL *import* \*

*from* OpenGL.GLUT *import* \*

*from* OpenGL.GLU *import* \*

*def* midPointCircleDraw(x\_centre\_point, y\_centre\_point, radius):

glPointSize(3) *# pixel size. by default 1 thake*

glBegin(GL\_POINTS)

x\_coordinate = radius

y\_coordinate = 0

*# Printing the initial point the*

*# axes after translation*

glVertex2f(x\_coordinate + x\_centre\_point, y\_coordinate + y\_centre\_point)

*# Initialising the value of P*

P = 1 - radius

*while* x\_coordinate > y\_coordinate:

y\_coordinate += 1

*# Mid-point inside or on the perimeter*

*if* P <= 0:

P = P + 2 \* y\_coordinate + 1

*# Mid-point outside the perimeter*

*else*:

x\_coordinate -= 1

P = P + 2 \* y\_coordinate - 2 \* x\_coordinate + 1

*# All the perimeter points have*

*# already been printed*

*if* x\_coordinate < y\_coordinate:

*break*

*# Printing the generated point its reflection*

*# in the other octants after translation*

glVertex2f(x\_coordinate + x\_centre\_point, y\_coordinate + y\_centre\_point)

glVertex2f(-x\_coordinate + x\_centre\_point, y\_coordinate + y\_centre\_point)

glVertex2f(x\_coordinate + x\_centre\_point, -y\_coordinate + y\_centre\_point)

glVertex2f(-x\_coordinate + x\_centre\_point, -y\_coordinate + y\_centre\_point)

*# If the generated point on the line x = y then*

*# the perimeter points have already been printed*

*if* x\_coordinate != y\_coordinate:

glVertex2f(y\_coordinate + x\_centre\_point, x\_coordinate + y\_centre\_point)

glVertex2f(-y\_coordinate + x\_centre\_point, x\_coordinate + y\_centre\_point)

glVertex2f(y\_coordinate + x\_centre\_point, -x\_coordinate + y\_centre\_point)

glVertex2f(-y\_coordinate + x\_centre\_point, -x\_coordinate + y\_centre\_point)

glEnd()

*def* iterate():

glViewport(0, 0, 500, 500)

glMatrixMode(GL\_PROJECTION)

glLoadIdentity()

glOrtho(0.0, 500, 0.0, 500, 0.0, 1.0)

glMatrixMode (GL\_MODELVIEW)

glLoadIdentity()

*def* showScreen():

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

glLoadIdentity()

iterate()

glColor3f(0.0, 1.0, 0.0) *#konokichur color set (RGB)*

*#call the draw methods here*

midPointCircleDraw(275, 300, 120)

midPointCircleDraw(275, 350, 38)

midPointCircleDraw(175, 185, 47)

midPointCircleDraw(377, 185, 47)

glutSwapBuffers()

glutInit()

glutInitDisplayMode(GLUT\_RGBA)

glutInitWindowSize(1000, 500) *#window size*

glutInitWindowPosition(0, 0)

wind = glutCreateWindow(b"OpenGL Coding Practice") *#window name*

glutDisplayFunc(showScreen)

glutMainLoop()