from OpenGL.GL import \*

from OpenGL.GLUT import \*

from OpenGL.GLU import \*

import random

x0, y0, x1, y1 = 0, 350, 2500, 350 #Catcher

a0, b0, a1, b1 = 4700, 7800, 5000, 8200 #Diamond

leftShift = 0

rightShift = 0

dSpeed = 100

dColor = [(0.5, 0.3, 0.3), (0.3, 0.5, 0.3), (0.3, 0.3, 0.5)]

colorInitial = 0

pauseBool = False

score = 0

over = False

def catcher(x0, y0, x1, y1):

global over, dSpeed

if b1 <= 0:

glColor3f(0.1, 0.0, 0.0)

if over == False:

over = True

print(f"Game over, Score: {score}")

dSpeed = 40

else:

glColor3f(0.7, 0.7, 0.7)

midpoint(x0-leftShift+rightShift, y0, x1-leftShift+rightShift, y1)

midpoint(x0+250-leftShift+rightShift, y0-350, x1-250-leftShift+rightShift, y1-350)

midpoint(x0-leftShift+rightShift, y0, x0+250-leftShift+rightShift, y0-350)

midpoint(x1-250-leftShift+rightShift, y1-350, x1-leftShift+rightShift, y1)

def diamond(a0, b0, a1, b1):

global colorInitial

color = dColor[colorInitial]

glColor3f(\*color)

midpoint(a0, b0, a1, b1)

midpoint(a1, b1, a0+600, b0)

midpoint(a0, b0, a1, b1-800)

midpoint(a1, b1-800, a0+600, b0)

def arrowLeft():

glColor3f(0.0, 0.5, 0.5)

midpoint(500, 9250, 1500, 9250)

midpoint(500, 9250, 1000, 9600)

midpoint(500, 9250, 1000, 8900)

def reset():

global a0, b0, a1, b1

a0, b0, a1, b1 = 4700, 7800, 5000, 8200

def midLines():

glColor3f(0.5, 0.5, 0.0)

midpoint(4800, 9600, 4800, 8900)

midpoint(5200, 9600, 5200, 8900)

def linesPause():

glColor3f(0.5, 0.5, 0.0)

midpoint(4800, 9600, 4800, 8900)

midpoint(4800, 8900, 5400, 9250)

midpoint(4800, 9600, 5400, 9250)

def pause():

global pauseBool

if pauseBool == False:

pauseBool = True

else:

pauseBool = False

def cross():

glColor3f(0.5, 0.0, 0.0)

midpoint(8800, 9600, 9500, 8900)

midpoint(8800, 8900, 9500, 9600)

def draw\_points(x0, y0):

glPointSize(2)

glBegin(GL\_POINTS)

glVertex2f(x0,y0)

glEnd()

def midpoint(x0, y0, x1, y1):

zone = zoneOrg(x0, y0, x1, y1)

x0, y0 = convertToZero(zone, x0, y0)

x1, y1 = convertToZero(zone, x1, y1)

dx = x1 - x0

dy = y1 - y0

dinit = 2 \* dy - dx

dne = 2 \* dy - 2 \* dx

de = 2 \* dy

for i in range(x0, x1):

a, b = convertToOrg(zone, x0, y0)

if dinit >= 0:

dinit = dinit + dne

draw\_points(a, b)

x0 += 1

y0 += 1

else:

dinit = dinit + de

draw\_points(a, b)

x0 += 1

def zoneOrg(x0, y0, x1, y1):

dx = x1 - x0

dy = y1 - y0

if abs(dx) > abs(dy): #0, 3, 4 & 7

if dx > 0 and dy > 0:

return 0

elif dx < 0 and dy > 0:

return 3

elif dx < 0 and dy < 0:

return 4

else:

return 7

else: #1, 2, 5 & 6

if dx > 0 and dy > 0:

return 1

elif dx < 0 and dy > 0:

return 2

elif dx < 0 and dy < 0:

return 5

else:

return 6

def convertToZero(zone, x0, y0):

if zone == 0:

return x0, y0

elif zone == 1:

return y0, x0

elif zone == 2:

return -y0, x0

elif zone == 3:

return -x0, y0

elif zone == 4:

return -x0, -y0

elif zone == 5:

return -y0, -x0

elif zone == 6:

return -y0, x0

elif zone == 7:

return x0, -y0

def convertToOrg(zone, x0, y0):

if zone == 0:

return x0, y0

if zone == 1:

return y0, x0

if zone == 2:

return -y0, -x0

if zone == 3:

return -x0, y0

if zone == 4:

return -x0, -y0

if zone == 5:

return -y0, -x0

if zone == 6:

return y0, -x0

if zone == 7:

return x0, -y0

def specialKeyListener(key, left, right):

glutPostRedisplay()

global leftShift, rightShift, x0, x1

if pauseBool == False:

if key == GLUT\_KEY\_LEFT:

if x0-leftShift+rightShift > 0:

leftShift += 200

elif key == GLUT\_KEY\_RIGHT:

if x1-leftShift+rightShift <= 10000:

rightShift += 200

glutPostRedisplay()

def mouseListener(button, state, x, y):

global ballx, bally, create\_new, pauseBool, over, score

if button==GLUT\_LEFT\_BUTTON:

if(state == GLUT\_DOWN):

if 200 <= x <= 300 and 0 <= y <= 75:

pause()

if 0 <= x <= 100 and 0 <= y <= 75:

over = False

score = 0

reset()

if 415 <= x <= 500 and 0 <= y <= 75:

glutLeaveMainLoop()

def animate():

glutPostRedisplay()

global b0, b1, x0, x1, y0, y1, colorInitial, score, dSpeed, a0, a1

if pauseBool == False:

b0 = b0 - dSpeed

b1 = b1 - dSpeed

if b1-800 < y1 and x0-leftShift+rightShift <= a1 <= x1-leftShift+rightShift:

b0 = 7800

b1 = 8200

colorInitial = (colorInitial + 1) % len(dColor)

score += 1

dSpeed += 130

print(f'Score: {score}')

a0 = random.randint(500, 9500)

a1 = a0 + 300

def iterate():

glViewport(0, 0, 500, 500)

glMatrixMode(GL\_PROJECTION)

glLoadIdentity()

glOrtho(0.0, 10000, 0.0, 10000, 0.0, 1.0)

glMatrixMode (GL\_MODELVIEW)

glLoadIdentity()

def showScreen():

global x0, y0, x1, y1

global a0, b0, a1, b1

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

glLoadIdentity()

iterate()

animate()

glColor3f(1.0, 0.0, 0.0)

arrowLeft()

if pauseBool == False:

midLines()

else:

linesPause()

cross()

diamond(a0, b0, a1, b1)

catcher(x0, y0, x1, y1)

glutSwapBuffers()

glutInit()

glutInitDisplayMode(GLUT\_DEPTH | GLUT\_DOUBLE | GLUT\_RGB)

glutInitWindowSize(500, 500)

glutInitWindowPosition(0, 0)

wind = glutCreateWindow(b"Mayeesha\_Mahbub\_21201462")

glutDisplayFunc(showScreen)

glutIdleFunc(showScreen)

glutSpecialFunc(specialKeyListener)

glutMouseFunc(mouseListener)

glutMainLoop()

