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from tkinter import *
from time import *
from random import *

#intro
P1 = input("Enter your name, player 1: ")
P2 = input("Enter your name, player 2: ")
rounds = int(input("How many rounds would you like? (must be an odd, positive integer): "))
while rounds % 2 == 0 or rounds < 1:
    rounds = int(input("Sorry, but that wasn't an odd, positive integer. How many rounds would you like?
(must be an odd, positive integer): "))

points = int(input("How many points must a player need to win a round? (must be above 1) : "))
while points < 2:
    points = int(input("Sorry, but that wasn't above 1. How many points must a player need to win a round?
(must be above 1) : "))

f = input("What ball speed would you like? (slow/fast) ")
j = input("BETA What level of accuracy would like for the rebounds off paddles? (inaccurate/accurate) ")
print()
print(P1 + ",", "you will be blue, on the left-hand side. Use the 'W' & 'S' letter keys to move up and down
respectively.")
print(P2 + ",", "you will be pink, on the right-hand side. Use the 'UP' & 'DOWN' arrow keys to move up and
down respectively.")
print("There will be up to", rounds, "rounds. Each round will end after a player has reached the score of",
points, "points.", "The player who wins the most rounds will be the winner. (best of", rounds, "rounds)")
print("You have chosen the ball speed to be", f + ".")
print("You have chosen the rebounds off the paddles to be", j + ".")
print()
input("Press ENTER to start")

sleep(2.5)#delay to open screen and start

#creating window
WIDTH = 800
HEIGHT = 600
window = Tk()
window.title("PONG")
c = Canvas(window, width=WIDTH, height=HEIGHT, bg="black")
c.pack()


#creating centre separation
y0 = 10
for i in range(30):
    c.create_rectangle(397, y0, 403, y0+10,  fill="grey")
    y0 += 20

#creating paddles
paddleA = c.create_rectangle(15, 260, 25, 340, fill="light blue")
paddleB = c.create_rectangle(775, 260, 785, 340, fill="light pink")

#making paddles stay on screen
def colissionsA():
    pos = c.coords(paddleA)
    yA = pos[1]
    if yA < 0:
        c.move(paddleA, 0, 20)
    elif yA > 520:
        c.move(paddleA, 0, -20)

def colissionsB():
    pos = c.coords(paddleB)
    yB = pos[1]
    if yB < 0:
        c.move(paddleB, 0, 20)
    elif yB > 520:
        c.move(paddleB, 0, -20)

#setting up score board
P1_score = 0
P2_score = 0
P1_scoreR = 0
P2_scoreR = 0
p1 = c.create_text(200, 20, \
    text=P1, fill="light blue", font=("AR DESTINE", 20))
p2 = c.create_text(600, 20, \
    text=P2, fill="light pink", font=("AR DESTINE", 20))
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p1score = c.create_text(200, 50, \
    text=(P1_scoreR, ":", P1_score), fill="light blue", font=("AR DESTINE", 20))
p2score = c.create_text(600, 50, \
    text=(P2_scoreR, ":", P2_score), fill="light pink", font=("AR DESTINE", 20))

#making a function to move batons
def paddle_movement(event):
    key = event.keysym
    if key == "Up":
        c.move(paddleB, 0, -20)
        colissionsB()
    elif key == "Down":
        c.move(paddleB, 0, 20)
        colissionsB()
    elif key == "w":
        c.move(paddleA, 0, -20)
        colissionsA()
    elif key == "s":
        c.move(paddleA, 0, 20)
        colissionsA()

c.bind_all("<Key>", paddle_movement)

#making function to update score
def show_score1(scoreR, score):
    c.itemconfig(p1score, text=(scoreR, ":", score))

def show_score2(scoreR, score):
    c.itemconfig(p2score, text=(scoreR, ":", score))

#making ball
ball = c.create_oval(387, 287, 413, 313, fill="white")

#making ball's movement
ball_speedx = 1
ball_speedy = 1
def move_ball():
    global f, x, ball_speedx, ball_speedy
    if f == "fast":
        c.move(ball, ball_speedx, ball_speedy)
        colissions_ball()
    for i in range(x):
        c.move(ball, ball_speedx, ball_speedy)
        colissions_ball()

#making colissions for ball
def colissions_ball():
    global P1_score, P2_score, ball, paddleA, paddleB, ball_speedy, ball_speedx, x, P1_scoreR, P2_scoreR
    posb = c.coords(ball)
    pospA = c.coords(paddleA)
    pospB = c.coords(paddleB)
    xb = (posb[0] + posb[2]) / 2
    yb = (posb[1] + posb[3]) / 2
    yA = pospA[3]
    yB = pospB[1]
    if xb == 13:
        P2_score += 1
        show_score2(P2_scoreR, P2_score)
        window.update()
        sleep(0.5)
        x = 1
        c.delete(ball)
        ball = c.create_oval(387, 287, 413, 313, fil="white")
        ball_speedx *= -1
        g = randint(1, 2)
        if g == 1:
            ball_speedy *= -1
    elif xb == 787:
        P1_score += 1
        show_score1(P1_scoreR, P1_score)
        window.update()
        sleep(0.5)
        x = 1
        c.delete(ball)
        ball = c.create_oval(387, 287, 413, 313, fil="white")
        ball_speedx *= -1
        g = randint(1, 2)
        if g == 1:
            ball_speedy *= -1
    elif yb == 13:
        ball_speedy *= -1
    elif yb == 587:
        ball_speedy *= -1
        c.move(ball, ball_speedx, ball_speedy)
    elif xb == 38 and ((yb < yA + 1) and (yb > yA - 41)):
        ball_speedx *= -1
        x = 2
        if ball_speedy == -1 and j == "accurate":
            ball_speedy *= -1
    elif xb == 38 and ((yb < yA - 40) and (yb > yA - 81)):
        ball_speedx *= -1
        x = 2
        if ball_speedy == 1 and j == "accurate":
            ball_speedy *= -1
    elif xb == 767 and ((yb > yB - 1) and (yb < yB + 41)):
        ball_speedx *= -1
        x = 2
        if ball_speedy == 1 and j == "accurate":
            ball_speedy *= -1
    elif xb == 767 and ((yb > yB + 40) and (yb < yB + 81)):
        ball_speedx *= -1
        x = 2
        if ball_speedy == -1 and j == "accurate":
            ball_speedy *= -1

#Count in
TT = c.create_text(400, 300, \
                  text="5", fill="orange", font=("AR DESTINE", 100))
window.update()
sleep(1.0)
c.delete(TT)
window.update()
TT = c.create_text(400, 300, \
                  text="4", fill="orange", font=("AR DESTINE", 100))
window.update()
sleep(1.0)
c.delete(TT)
window.update()
TT = c.create_text(400, 300, \
                  text="3", fill="orange", font=("AR DESTINE", 100))
window.update()
sleep(1.0)
c.delete(TT)
window.update()
TT = c.create_text(400, 300, \
                  text="2", fill="orange", font=("AR DESTINE", 100))
window.update()
sleep(1.0)
c.delete(TT)
window.update()
TT = c.create_text(400, 300, \
                  text="1", fill="orange", font=("AR DESTINE", 100))
window.update()
sleep(1.0)
c.delete(TT)
window.update()

#MAIN GAME LOOP ---------------------------------------------------------------------------------------------
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x = 1
roundsR = 1
while roundsR <= rounds:
    move_ball()
    if P1_score == points:
        ball_speedx *= -1
        P1_score = 0
        P2_score = 0
        show_score2(P2_scoreR, P2_score)
        P1_scoreR += 1
        show_score1(P1_scoreR, P1_score)
        c.itemconfig(ball, state=HIDDEN)
        TT = c.create_text(400, 300, \
                      text=P1 + " WINS ROUND " + str(roundsR), fill="light blue", font=("AR DESTINE", 40))
        window.update()
        sleep(2.0)
        c.delete(TT)
        c.itemconfig(ball, state=NORMAL)
        window.update()
        roundsR += 1
        if P1_scoreR > (rounds/2):
            roundsR *= 2
        sleep(0.01)
    elif P2_score == points:
        ball_speedx *= -1
        P1_score = 0
        show_score1(P1_scoreR, P1_score)
        P2_score = 0
        P2_scoreR += 1
        show_score2(P2_scoreR, P2_score)
        c.itemconfig(ball, state=HIDDEN)
        TT = c.create_text(400, 300, \
                      text=P2 + " WINS ROUND " + str(roundsR), fill="light pink", font=("AR DESTINE", 40))
        window.update()
        sleep(2.0)
        c.delete(TT)
        c.itemconfig(ball, state=NORMAL)
        window.update()
        roundsR += 1
        if P2_scoreR > (rounds/2):
            roundsR *= 2
        sleep(0.01)
    window.update()
    sleep(0.01)


c.delete(ball)
window.update()
if P2_scoreR > P1_scoreR:
    c.create_text(400, 300, \
                  text=P2 + " WINS!!!", fill="light pink", font=("AR DESTINE", 75))
elif P2_scoreR < P1_scoreR:
    c.create_text(400, 300, \
                  text=P1 + " WINS!!!", fill="light blue", font=("AR DESTINE", 75))
sleep(10.0)
#END
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