import tkinter

import random

import time

ROWS = 25

COLS = 25

TILE\_SIZE = 25

WINDOW\_WIDTH = TILE\_SIZE \* COLS #25\*25 = 625

WINDOW\_HEIGHT = TILE\_SIZE \* ROWS #25\*25 = 625

class Tile:

    def \_\_init\_\_(self, x, y):

        self.x = x

        self.y = y

#game window

window = tkinter.Tk()

window.title("Snake")

window.resizable(False, False)

canvas = tkinter.Canvas(window, bg = "white", width = WINDOW\_WIDTH, height = WINDOW\_HEIGHT, borderwidth = 0, highlightthickness = 0)

canvas.pack()

window.update()

#center the window

window\_width = window.winfo\_width()

window\_height = window.winfo\_height()

screen\_width = window.winfo\_screenwidth()

screen\_height = window.winfo\_screenheight()

window\_x = int((screen\_width/2) - (window\_width/2))

window\_y = int((screen\_height/2) - (window\_height/2))

#format "(w)x(h)+(x)+(y)"

window.geometry(f"{window\_width}x{window\_height}+{window\_x}+{window\_y}")

#initialize game

snake = Tile(TILE\_SIZE \* 5, TILE\_SIZE \* 5) #single tile, snake's head

food = Tile(TILE\_SIZE \* 10, TILE\_SIZE \* 10)

velocityX = 0

velocityY = 0

snake\_body = [] #multiple snake tiles

game\_over = False

score = 0

#game loop

def change\_direction(e): #e = event

    # print(e)

    # print(e.keysym)

    global velocityX, velocityY, game\_over

    if (game\_over):

        return #edit this code to reset game variables to play again

    if (e.keysym == "Up" and velocityY != 1):

        velocityX = 0

        velocityY = -1

    elif (e.keysym == "Down" and velocityY != -1):

        velocityX = 0

        velocityY = 1

    elif (e.keysym == "Left" and velocityX != 1):

        velocityX = -1

        velocityY = 0

    elif (e.keysym == "Right" and velocityX != -1):

        velocityX = 1

        velocityY = 0

    time.sleep(0.1)

def move():

    global snake, food, snake\_body, game\_over, score

    if (game\_over):

        return

    if (snake.x < 0 or snake.x >= WINDOW\_WIDTH or snake.y < 0 or snake.y >= WINDOW\_HEIGHT):

        game\_over = True

        return

    for tile in snake\_body:

        if (snake.x == tile.x and snake.y == tile.y):

            game\_over = True

            return

    #collision

    if (snake.x == food.x and snake.y == food.y):

        snake\_body.append(Tile(food.x, food.y))

        food.x = random.randint(0, COLS-1) \* TILE\_SIZE

        food.y = random.randint(0, ROWS-1) \* TILE\_SIZE

        score += 1

    for i in range(len(snake\_body)-1, -1, -1):

        tile = snake\_body[i]

        if (i == 0):

            tile.x = snake.x

            tile.y = snake.y

        else:

            prev\_tile = snake\_body[i-1]

            tile.x = prev\_tile.x

            tile.y = prev\_tile.y

    snake.x += velocityX \* TILE\_SIZE

    snake.y += velocityY \* TILE\_SIZE

    time.sleep(0.1)

def draw():

    global snake, food, snake\_body, game\_over, score

    move()

    canvas.delete("all")

    #draw food

    canvas.create\_rectangle(food.x, food.y, food.x + TILE\_SIZE, food.y + TILE\_SIZE, fill = 'red')

    #draw snake

    canvas.create\_rectangle(snake.x, snake.y, snake.x + TILE\_SIZE, snake.y + TILE\_SIZE, fill = "lime green")

    for tile in snake\_body:

        canvas.create\_rectangle(tile.x, tile.y, tile.x + TILE\_SIZE, tile.y + TILE\_SIZE, fill = "lime green")

    if (game\_over):

        canvas.create\_text(WINDOW\_WIDTH/2, WINDOW\_HEIGHT/2, font = "Arial 20", text = f"Game Over: {score}", fill = "black")

    else:

        canvas.create\_text(30, 20, font = "Arial 10", text = f"Score: {score}", fill = "black")

    window.after(100, draw) #call draw again every 100ms (1/10 of a second) = 10 frames per second

draw()

window.bind("<KeyRelease>", change\_direction) #when you press on any key and then let go

window.mainloop() #used for listening to wi