Color Memory Game - Pygame

This game is a simple memory-based puzzle where the player must memorize a sequence of colored tiles on a 4x4 grid and then click them in the correct order. If the player clicks all the tiles correctly, they move to the next level with a new sequence. A wrong click ends the game.

import pygame  
import random  
import sys

Import necessary libraries for game rendering, random selection, and system exit handling.

pygame.init()

Initialize all Pygame modules.

WIDTH, HEIGHT = 600, 600  
GRID\_SIZE = 4  
TILE\_SIZE = WIDTH // GRID\_SIZE  
FPS = 60

Set up screen size, grid size (4x4), tile dimensions, and frame rate.

WHITE = (255, 255, 255)  
GRAY = (180, 180, 180)  
BLACK = (0, 0, 0)  
YELLOW = (255, 255, 0)  
COLOR\_OPTIONS = [  
 (255, 0, 0),  
 (0, 255, 0),  
 (0, 0, 255),  
 (255, 165, 0)  
]

Define color constants used throughout the game.

screen = pygame.display.set\_mode((WIDTH, HEIGHT))  
pygame.display.set\_caption("Color Memory Game")  
clock = pygame.time.Clock()  
font = pygame.font.SysFont("comicsans", 32)

Set up the screen, game title, clock for timing, and font for text.

tiles = []  
for row in range(GRID\_SIZE):  
 for col in range(GRID\_SIZE):  
 rect = pygame.Rect(col \* TILE\_SIZE, row \* TILE\_SIZE, TILE\_SIZE, TILE\_SIZE)  
 tiles.append(rect)

Create the 4x4 grid of tiles. Each tile is a rectangle.

sequence = []  
player\_clicks = []  
score = 0  
showing\_sequence = True  
game\_over = False  
waiting\_for\_input = False

Initialize game variables to track the game state.

def generate\_sequence():  
 indices = random.sample(range(16), 4)  
 seq = []  
 for i in indices:  
 color = random.choice(COLOR\_OPTIONS)  
 seq.append((i, color))  
 return seq

Generate a sequence of 4 random tile indices, each with a random color.

def show\_sequence(seq):  
 for idx, color in seq:  
 draw\_grid()  
 pygame.draw.rect(screen, color, tiles[idx])  
 pygame.draw.rect(screen, BLACK, tiles[idx], 2)  
 pygame.display.flip()  
 pygame.time.delay(700)  
 pygame.draw.rect(screen, GRAY, tiles[idx])  
 pygame.draw.rect(screen, BLACK, tiles[idx], 2)  
 pygame.display.flip()  
 pygame.time.delay(300)

Display each color in the sequence briefly, then fade it out.

def draw\_grid():  
 screen.fill(WHITE)  
 for tile in tiles:  
 pygame.draw.rect(screen, GRAY, tile)  
 pygame.draw.rect(screen, BLACK, tile, 2)

Draw the full grid with gray tiles and black borders.

def draw\_ui():  
 score\_text = font.render(f"Score: {score}", True, BLACK)  
 screen.blit(score\_text, (10, 10))  
 instr = "Click the tiles in the correct order" if waiting\_for\_input else "Watch the sequence"  
 info\_text = font.render(instr, True, BLACK)  
 screen.blit(info\_text, (10, 50))

Display the current score and instructions to the player.

sequence = generate\_sequence()

Start the game with a newly generated color sequence.

# Game loop

Main loop where all game logic runs. It handles user events, updates the display, and manages timing.