import tkinter as tk

from tkinter import messagebox

import random

class NumberGuessingGame:

def \_\_init\_\_(self, root):

self.root = root

self.root.title("Number Guessing Game")

self.root.geometry("450x550")

self.root.resizable(False, False)

self.player\_name = "Player"

self.score = 0

self.games\_played = 0

self.games\_won = 0

self.total\_guesses = 0

self.correct\_guesses = 0

self.leaderboard = {}

self.init\_ui()

self.reset\_game()

def init\_ui(self):

tk.Label(self.root, text="Number Guessing Game", font=("Helvetica", 18, "bold")).pack(pady=10)

name\_frame = tk.Frame(self.root)

name\_frame.pack(pady=5)

tk.Label(name\_frame, text="Name: ").pack(side='left')

self.name\_entry = tk.Entry(name\_frame)

self.name\_entry.insert(0, self.player\_name)

self.name\_entry.pack(side='left')

tk.Button(self.root, text="Instructions", command=self.show\_instructions).pack(pady=5)

tk.Label(self.root, text="Select Difficulty:", font=("Helvetica", 10)).pack()

self.difficulty\_var = tk.StringVar(value="Medium")

for level in ["Easy", "Medium", "Hard", "Extreme"]:

tk.Radiobutton(self.root, text=level, variable=self.difficulty\_var, value=level).pack()

tk.Button(self.root, text="Start Game", command=self.start\_game).pack(pady=10)

self.guess\_entry = tk.Entry(self.root, font=("Helvetica", 14), state='disabled')

self.guess\_entry.pack(pady=10)

self.submit\_button = tk.Button(self.root, text="Submit Guess", command=self.check\_guess, state='disabled')

self.submit\_button.pack(pady=5)

self.feedback\_label = tk.Label(self.root, text="", font=("Helvetica", 12))

self.feedback\_label.pack(pady=10)

self.score\_label = tk.Label(self.root, text="", font=("Helvetica", 10))

self.score\_label.pack()

self.restart\_button = tk.Button(self.root, text="Restart", command=self.reset\_game, state='disabled')

self.restart\_button.pack(side='left', padx=30, pady=20)

self.stats\_button = tk.Button(self.root, text="Statistics", command=self.show\_stats)

self.stats\_button.pack(side='left', padx=10)

self.leaderboard\_button = tk.Button(self.root, text="Leaderboard", command=self.show\_leaderboard)

self.leaderboard\_button.pack(side='left', padx=10)

self.quit\_button = tk.Button(self.root, text="Exit", command=self.root.quit)

self.quit\_button.pack(side='right', padx=30)

def show\_instructions(self):

messagebox.showinfo("Instructions",

"1. Enter your name and choose a difficulty level.\n"

"2. Try to guess the number between 1 and 100.\n"

"3. You get fewer attempts on harder levels.\n"

"4. Points are awarded based on remaining attempts.\n"

"5. Track your wins and scores in the leaderboard!")

def start\_game(self):

self.player\_name = self.name\_entry.get().strip() or "Player"

self.target = random.randint(1, 100)

self.difficulty = self.difficulty\_var.get()

self.attempts = {"Easy": 10, "Medium": 7, "Hard": 5, "Extreme": 3}[self.difficulty]

self.original\_attempts = self.attempts

self.feedback\_label.config(text="")

self.score\_label.config(text=f"Attempts left: {self.attempts}")

self.guess\_entry.config(state='normal')

self.submit\_button.config(state='normal')

self.restart\_button.config(state='normal')

self.guess\_entry.delete(0, tk.END)

def check\_guess(self):

try:

guess = int(self.guess\_entry.get())

if not 1 <= guess <= 100:

raise ValueError

except ValueError:

self.feedback\_label.config(text="Enter a number between 1 and 100.")

return

self.attempts -= 1

self.total\_guesses += 1

self.guess\_entry.delete(0, tk.END)

if guess == self.target:

self.feedback\_label.config(text=f"🎉 Correct! The number was {self.target}.")

self.correct\_guesses += 1

self.end\_game(win=True)

elif guess < self.target:

self.feedback\_label.config(text="Too low!")

else:

self.feedback\_label.config(text="Too high!")

if abs(guess - self.target) <= 5 and guess != self.target:

self.feedback\_label.config(text=self.feedback\_label.cget("text") + " Very close!")

self.score\_label.config(text=f"Attempts left: {self.attempts}")

if self.attempts == 0 and guess != self.target:

self.end\_game(win=False)

def end\_game(self, win):

self.games\_played += 1

if win:

points = self.attempts \* 10

self.score += points

self.games\_won += 1

msg = f"Well done, {self.player\_name}! You earned {points} points!"

else:

msg = f"You ran out of attempts. The number was {self.target}."

self.leaderboard[self.player\_name] = self.leaderboard.get(self.player\_name, 0) + (self.attempts \* 10 if win else 0)

messagebox.showinfo("Game Over", msg)

self.submit\_button.config(state='disabled')

self.guess\_entry.config(state='disabled')

def reset\_game(self):

self.feedback\_label.config(text="")

self.score\_label.config(text="")

self.guess\_entry.config(state='disabled')

self.submit\_button.config(state='disabled')

self.restart\_button.config(state='disabled')

self.guess\_entry.delete(0, tk.END)

def show\_stats(self):

accuracy = (self.correct\_guesses / self.total\_guesses \* 100) if self.total\_guesses else 0

msg = (

f"Name: {self.player\_name}\n"

f"Games Played: {self.games\_played}\n"

f"Games Won: {self.games\_won}\n"

f"Total Score: {self.score}\n"

f"Guess Accuracy: {accuracy:.2f}%"

)

messagebox.showinfo("Statistics", msg)

def show\_leaderboard(self):

if not self.leaderboard:

messagebox.showinfo("Leaderboard", "No scores yet!")

return

sorted\_scores = sorted(self.leaderboard.items(), key=lambda x: x[1], reverse=True)

msg = "\n".join([f"{i+1}. {name}: {score} pts" for i, (name, score) in enumerate(sorted\_scores)])

messagebox.showinfo("Leaderboard", msg)

if \_\_name\_\_ == "\_\_main\_\_":

root = tk.Tk()

app = NumberGuessingGame(root)

root.mainloop()