Paper Rock Scissors

A beginner Python project demonstrating game logic and data visualization

Benyamin Adrian

http://www.linkedin.com/in/benyamin-adrian-081158173

Today's agenda

Project recap
Key Features
Technology
Process
Code Overview
Game Results & Input Validations
Summary

Project Recap

This project involves creating an interactive Rock-Paper-Scissors game where a user competes against the computer. The game records match result and generates visualized statistics to provide insights into gameplay trends.

Key Features

- Interactive Gameplay - Allows users to play multiple rounds against the computer.
- Randomized Computer Moves – Ensures fair play using Python's random module.
- Game Statistics & Visualization – The code tracks the results of each round and, upon exiting, calculates the total games played, win rate, and displays the results using a pie chart
- Beginner-Friendly Code Structure – Designed with clear functions, modularity, and basic error handling.

Technology

- Python (for game logic and data handling)
- Matplotlib (for visualizing game statistic)

Process

1. Problem Understanding
2. Planning & Design
3. Implementation
4. Testing & Debugging

Code Overview

Logic for determining the winner using if-else statements

```
if input_game == random_computer:
  result = "draw"
  print(result)
elif (input_game == 'paper' and random_computer == 'rock') or \
 (input_game == 'rock' and random_computer == 'scissors') or \
  (input_game == 'scissors' and random_computer == 'paper'):
    result = "User Win"
    print(result)
else:
    result = "Computer Win"
    print(result)
```

How to calculate the win rate

```
count_game = len(list_result)

if count_game == 0:
  print("No games were played. Thanks for stopping by!")
  break

count_user_win = list_result.count("User Win")
count_computer_win = list_result.count("Computer Win")
count_draw = list_result.count("draw")
win_rate = (count_user_win / count_game) * 100
```

How to create Pie Chart

```
import matplotlib.pyplot as plt
#Data for the Pie Chart
labels = ['User Win', ' Computer Win', 'Draw']
sizes = [count_user_win, count_computer_win, count_draw]

#Pie Chart Size
plt.pie(sizes, labels=labels, autopct='%1.1f%%')
plt.title('Game Result')
plt.show()
```

Game Results & Input Validation

```
Masukan nama: Ben
Hai Ben Selamat datang dalam PRS
```

To begin, the player enters their name

```
Paper/Rock/Scissors/Exit: Paper
Paper x Rock
User Win

Paper/Rock/Scissors/Exit: rock
Rock x Scissors
User Win
```

Once the player's name is entered, they select their play: rock, paper, scissors, or exit

Valid Input

```
Paper/Rock/Scissors/Exit: scissro
input invalid
```

Invalid Input

In case of invalid input, the player must re-enter a correct selection

```
Paper/Rock/scissors: Rock
Rock x Rock
draw
```

Invalid Handling

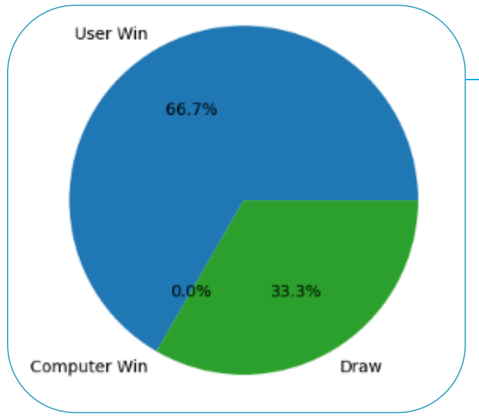
Result

The total games played is determined by the length of the game list

Hey Ben, thanks for playing! You played 3 times, and your win rate was 66.7%.

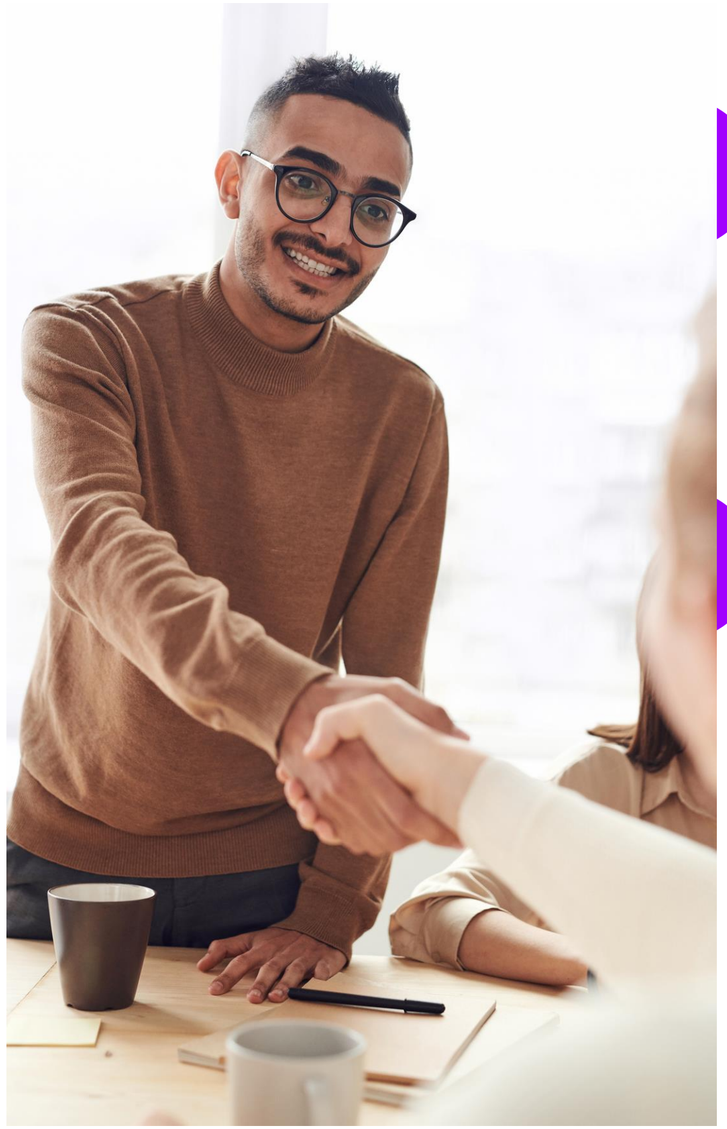
Win rate: (count_user_win / count_games) x 100

Game Result



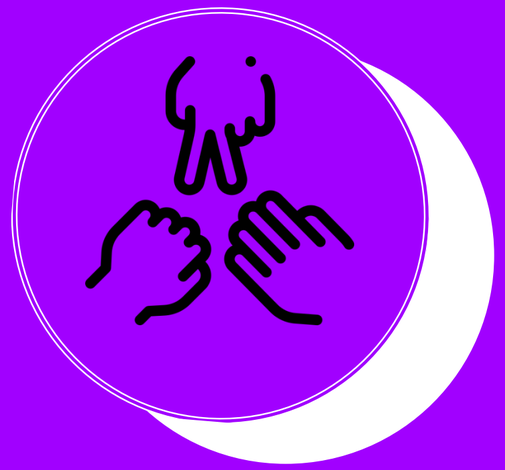
Pie Chart

Summary



I have successfully developed a Rock-Paper-Scissors game using Python.

This project allowed me to practice fundamental programming logic and data visualization techniques



Thank you!

ANY QUESTIONS?