Minor Project

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Case Study

Title: Multi-Player Dice Roll Game

1. Project Overview

The **Multi-Player Dice Roll Game** is a simple and engaging game designed for multiple players. It aims to provide entertainment while allowing players to test their guessing skills based on the outcome of dice rolls. The game fosters interaction among players, making it ideal for family gatherings, parties, or casual game nights.

2. Objectives

- **Engagement**: To create an interactive game that engages players in a fun and competitive environment.

- **Skill Development**: To enhance players' guessing abilities and introduce them to basic probability concepts.

- **Social Interaction**: To encourage socializing and friendly competition among players.

3. Features

- **Multiple Players**: The game accommodates any number of players, making it versatile for different group sizes.

- **Round-based Gameplay**: Players compete over multiple rounds, allowing for continuous engagement and score tracking.

- **Scorekeeping**: The game maintains a score for each player, rewarding correct guesses and determining a winner at the end of all rounds.

- **Simplified Inputs**: Players only need to guess the total of two dice rolls, reducing complexity and making it accessible for younger audiences.

- **Winner Announcement**: At the end of the game, the player with the highest score is declared the winner, adding excitement to the gameplay.

4. Code Explanation

- **Random Dice Rolls**: The game uses the random module to simulate the rolling of two dice, generating results between 1 and 6.

- **Input Handling**: The game captures user input for the number of players, rounds to be played, and players' guesses, incorporating error handling for invalid inputs.

- **Score Calculation**: Players receive points for correct guesses, and scores are displayed after each round.
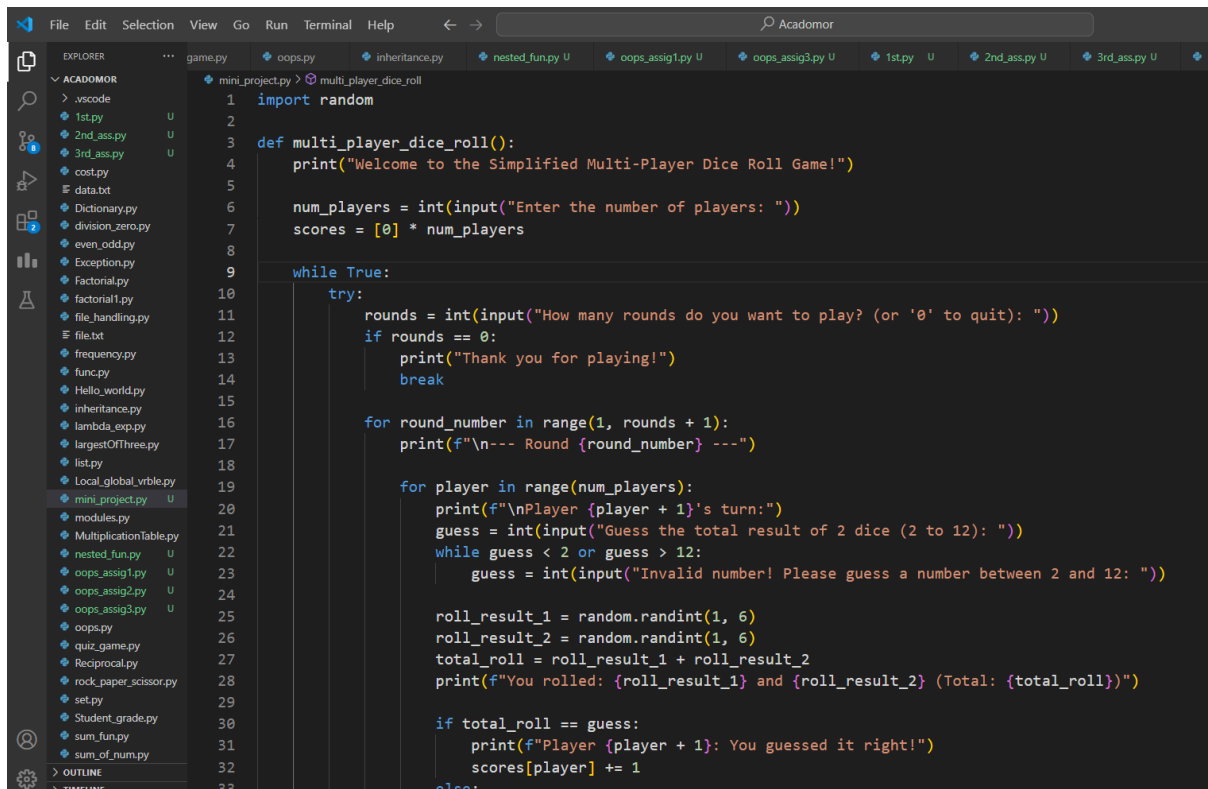
5. Potential Improvements

- **Visual Interface**: Implementing a graphical user interface (GUI) using libraries such as Tkinter could enhance the user experience.

- **Customizable Rules**: Allowing players to set their own rules (like the number of dice or scoring system) could increase engagement.

- **Multiplayer Online Mode**: Expanding the game to support online play would allow friends to compete remotely.

- **Statistics Tracking**: Adding features to track player performance over multiple sessions could create a more competitive environment.

- **Themed Versions**: Introducing themes (like holiday or character-based) could attract a wider audience.
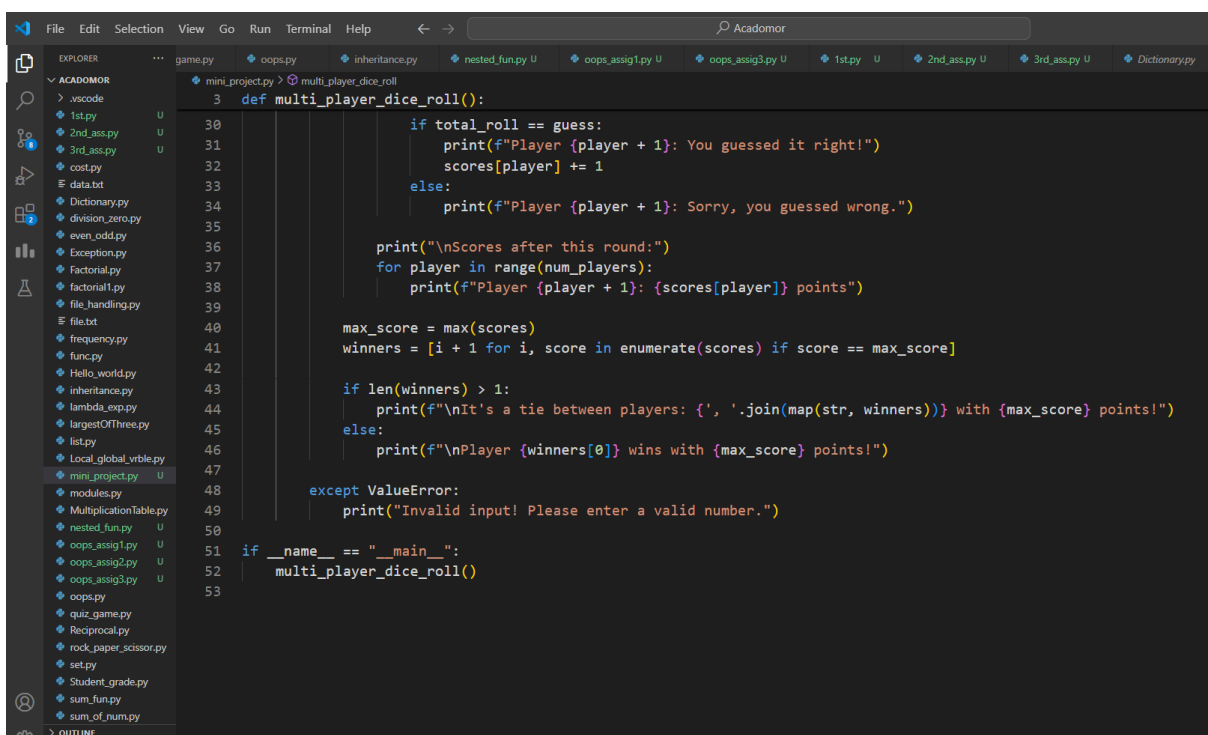
6. Conclusion

The Multi-Player Dice Roll Game serves as a fun and interactive project that promotes social interaction and cognitive skills among players. Its simplicity makes it accessible to all ages, while potential improvements can further enhance its appeal. This project can serve as a foundation for learning programming concepts while delivering an engaging gaming experience.

Project code screenshots

```python
import random

def multi_player_dice_roll():
    print("Welcome to the Simplified Multi-Player Dice Roll Game!")

    num_players = int(input("Enter the number of players: "))
    scores = [0] * num_players

    while True:
        try:
            rounds = int(input("How many rounds do you want to play? (or '0' to quit): "))
            if rounds == 0:
                print("Thank you for playing!")
                break

            for round_number in range(1, rounds + 1):
                print(f"\n--- Round {round_number} ---")

                for player in range(num_players):
                    print(f"\nPlayer {player + 1}'s turn:")
                    guess = int(input("Guess the total result of 2 dice (2 to 12): "))
                    while guess < 2 or guess > 12:
                        guess = int(input("Invalid number! Please guess a number between 2 and 12: "))

                    roll_result_1 = random.randint(1, 6)
                    roll_result_2 = random.randint(1, 6)
                    total_roll = roll_result_1 + roll_result_2
                    print(f"You rolled: {roll_result_1} and {roll_result_2} (Total: {total_roll})")

                    if total_roll == guess:
                        print(f"Player {player + 1}: You guessed it right!")
                        scores[player] += 1
                    else:
```

```python
def multi_player_dice_roll():

                    if total_roll == guess:
                        print(f"Player {player + 1}: You guessed it right!")
                        scores[player] += 1
                    else:
                        print(f"Player {player + 1}: Sorry, you guessed wrong.")

                print("\nScores after this round:")
                for player in range(num_players):
                    print(f"Player {player + 1}: {scores[player]} points")

            max_score = max(scores)
            winners = [i + 1 for i, score in enumerate(scores) if score == max_score]

            if len(winners) > 1:
                print(f"\nIt's a tie between players: {', '.join(map(str, winners))} with {max_score} points!")
            else:
                print(f"\nPlayer {winners[0]} wins with {max_score} points!")

        except ValueError:
            print("Invalid input! Please enter a valid number.")

if __name__ == "__main__":
    multi_player_dice_roll()
```

Code output screenshot:


```
PROBLEMS    OUTPUT    DEBUG CONSOLE    TERMINAL    PORTS

C:\Users\K.JAGADHISH\Desktop\Acadomor>C:/Users/K.JAGADHISH/AppData/Local/Programs/Python/Python311/python.exe c:/Users/K.JAGADHISH/Desktop/Acadomor/mini_project.py
Welcome to the Simplified Multi-Player Dice Roll Game!
Enter the number of players: 2
How many rounds do you want to play? (or '0' to quit): 2

--- Round 1 ---

Player 1's turn:
Guess the total result of 2 dice (2 to 12): 6
You rolled: 2 and 2 (Total: 4)
Player 1: Sorry, you guessed wrong.

Player 2's turn:
Guess the total result of 2 dice (2 to 12): 6
You rolled: 3 and 3 (Total: 6)
Player 2: You guessed it right!

Scores after this round:
Player 1: 0 points
Player 2: 1 points

--- Round 2 ---

Player 1's turn:
Guess the total result of 2 dice (2 to 12): 9
You rolled: 3 and 2 (Total: 5)
Player 1: Sorry, you guessed wrong.

Player 2's turn:
Guess the total result of 2 dice (2 to 12): 5
You rolled: 1 and 2 (Total: 3)
Player 2: Sorry, you guessed wrong.

Scores after this round:
Player 1: 0 points
Player 2: 1 points

Player 2 wins with 1 points!
How many rounds do you want to play? (or '0' to quit): 0
Thank you for playing!
```