Rock, Paper, Scissors Game: Report

Title Page

Title: Rock, Paper, Scissors Game Implementation
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Introduction

The **Rock, Paper, Scissors** game is a simple and widely recognized hand game traditionally played between two people. Each player simultaneously forms one of three shapes with their hand: **rock**, **paper**, or **scissors**. The winner is determined by the following rules:

- **Rock** beats **Scissors**.
- **Scissors** beats **Paper**.
- **Paper** beats **Rock**. In the case where both players choose the same shape, the game results in a **tie**.

The following report outlines a Python implementation of the **Rock, Paper, Scissors** game, where the player competes against a computer AI. The AI selects its choice randomly, and the game logic determines the winner based on the traditional rules.

Methodology

The game follows a simple structure involving the following steps:

1. **User Input:** The player is prompted to enter their choice of "rock", "paper", or "scissors". If the input is invalid, the system asks for the input again until it receives a valid response.
2. **AI Input:** The AI randomly chooses one of the three options ("rock", "paper", or "scissors").
3. **Game Logic:** The game compares the player's choice with the AI's choice and determines the winner:
    - If both the user and the AI select the same option, it results in a tie.
    - If the player's choice beats the AI's choice according to the game rules, the player wins.
    - Otherwise, the AI wins.
4. **Output:** The game outputs the AI's choice and the result of the match, indicating whether the player won, the AI won, or it was a tie.

CODE:

```
import random


# Block 1: Get user's choice
def get_user_choice():
    """Get the player's choice of rock, paper, or scissors."""
    # Prompt the user to enter their choice
    print("Enter your choice (rock, paper, or scissors):")
    # Get the user's input and convert it to lowercase
    user_choice = input().lower()
    # Keep asking for input until a valid choice is entered
    while user_choice not in ["rock", "paper", "scissors"]:
        print("Invalid choice. Please choose rock, paper, or scissors:")
        user_choice = input().lower()
        # Return the user's choice


    return user_choice
```

```
# Block 2: Get AI's choice
def get_ai_choice():
    """AI randomly selects between rock, paper, or scissors."""
    # Randomly select a choice for the AI
    return random.choice(["rock", "paper", "scissors"])

# Block 3: Determine the winner
def determine_winner(user_choice, ai_choice):
    """Determine the winner of the game."""
    # Check if it's a tie
    if user_choice == ai_choice:
        return "It's a tie!"
        # Check if the user wins
    elif (user_choice == "rock" and ai_choice == "scissors") or \
        (user_choice == "paper" and ai_choice == "rock") or \
        (user_choice == "scissors" and ai_choice == "paper"):
        return "You win!"
        # Otherwise, the AI wins
    else:
        return "AI wins!"
```

```
# Block 4: Play the game
def play_game():
    """Play a single round of Rock-Paper-Scissors."""
     # Get the user's choice
    user_choice = get_user_choice()
    # Get the AI's choice
    ai_choice = get_ai_choice()
    # Print the AI's choice
    print(f"AI chose: {ai_choice}")
     # Determine the winner
    result = determine_winner(user_choice, ai_choice)
    # Print the result
    print(result)

# Block 5: Start the game
if __name__ == "__main__":
  # Call the play_game function to start the game
    play_game()
```

RESULT

Result 1:-

```
Enter your choice (rock, paper, or scissors):
PAPER
AI chose: scissors
AI wins!
```

Result 2:-

```
Enter your choice (rock, paper, or scissors):
ROCK
AI chose: scissors
You win!
```

Result 3:-

```
Enter your choice (rock, paper, or scissors):
SCISSORS
AI chose: scissors
It's a tie!
```

References

1. "Rock, Paper, Scissors". Wikipedia, Link.
2. Python Documentation, Link.

3. **"How to Use the Random Module in Python". Real Python, Link.**