Simple Game AI for Rock-Paper-Scissors

Problem Statement: Develop a simple AI-powered Rock-Paper-Scissors game where a user can play against a computer. The AI should randomly select a move and determine the winner based on the standard game rules.

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Introduction:

Rock-Paper-Scissors is a classic hand game played between two participants. The goal of this project is to create a Python-based Rock-Paper-Scissors game where the user plays against an AI opponent. The AI selects its move randomly, and

the game determines the winner based on the traditional rules. The project is implemented in Python and executed on Google Colab.

Methodology:

1. ***User Input Handling***: The program prompts the user to enter either "rock," "paper," or "scissors." It also provides an option to quit the game.
2. ***AI Move Generation***: The AI opponent randomly selects one of the three choices using Python's random.choice() function.
3. ***Winner Determination***: The game logic compares the user's choice and AI's choice to determine the winner based on standard Rock-Paper-Scissors rules.
4. ***Game Loop***: The program runs in a loop, allowing the user to play multiple rounds until they choose to quit.

5. ***Result Display***: The game prints the AI's choice and the result of each round.
6. ***Code Execution in Google Colab***: The program is written in Python and executed in Google Colab with proper comments for clarity.

Code:

```
import random


# Function to get the computer's choice randomly
def get_computer_choice():
    return random.choice(["rock", "paper", "scissors"])


# Function to determine the winner based on the game rules
def determine_winner(player, computer):
    if player == computer:
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```
        return "It's a tie!"
    elif (player == "rock" and computer == "scissors") or \
         (player == "scissors" and computer == "paper") or \
         (player == "paper" and computer == "rock"):
        return "You win!"
    else:
        return "Computer wins!"

# Main function to handle the game loop
def main():
    print("Welcome to Rock-Paper-Scissors!")
    choices = ["rock", "paper", "scissors"]

    while True:
        # Prompt the user for input
```

```
    player_choice = input("Enter rock, paper, or scissors (or 'quit' to exit): ").lower()

    # Allow the user to exit the game
    if player_choice == 'quit':
        print("Thanks for playing!")
        break

    # Validate user input
    if player_choice not in choices:
        print("Invalid choice. Please try again.")
        continue

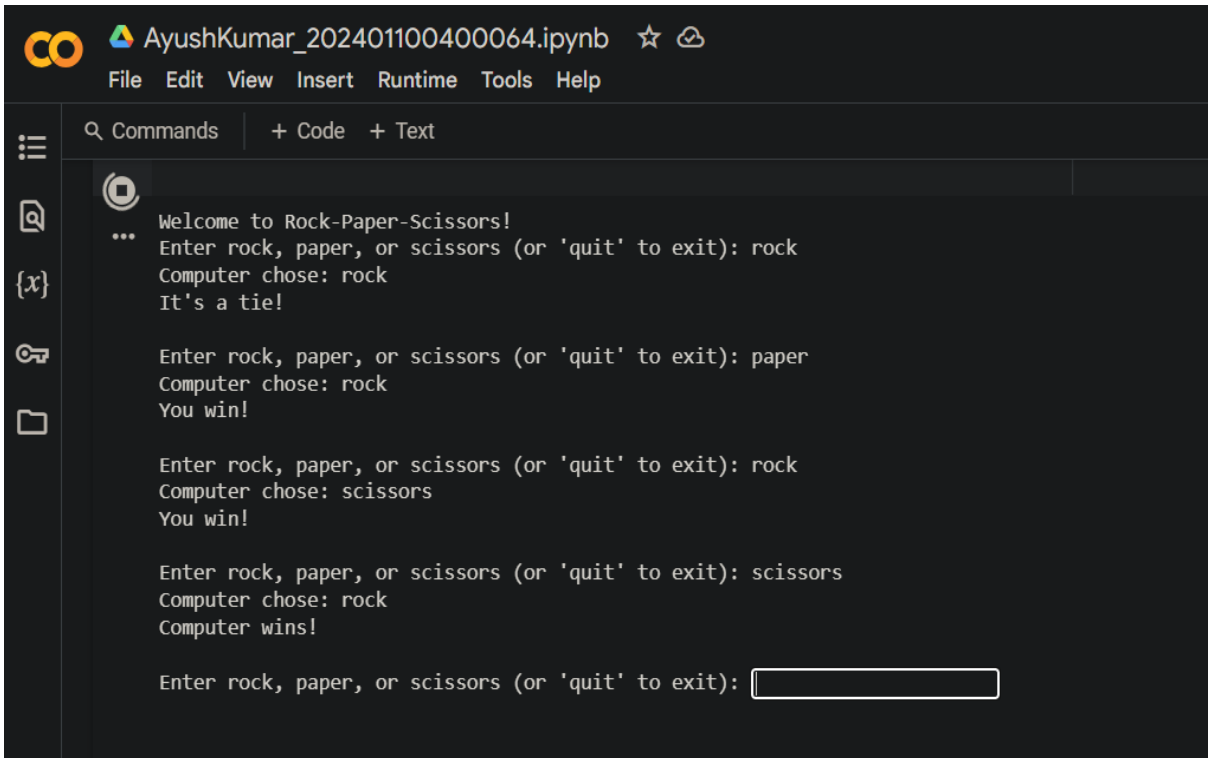
    # Get the computer's choice
    computer_choice = get_computer_choice()
    print(f"Computer chose: {computer_choice}")

    # Determine and display the result
```

```
    result = determine_winner(player_choice, computer_choice)
    print(result)
    print()

# Entry point of the program
if __name__ == "__main__":
    main()
```

Output:



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~Bikki Sir

~Mayank Sir