Rock, Paper, Scissors game in Python

A PYTHON PROGRAMMING LABORATORY PROJECT REPORT SUBMITTED IN PARTIAL FULFILMENT FOR THE AWARD OF THE DEGREE OF BACHELOR OF TECHNOLOGY

Submitted by

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VALLURUPALLI NAGESWARA RAO VIGNANA JYOTHI INSTITUTE OF ENGINEERING AND TECHNOLOGY

An Autonomous Institute, NAAC Accredited with 'A++' Grade (CGPA: 3.73/4.0)
NBA Accredited for CE, EEE, ME, ECE, CSE, EIE, IT B.Tech. Programmes
Approved by AICTE, New Delhi, Affiliated to JNTU-H, Recognised as "College with Potential for Excellence" by UGC
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CERTIFICATE

This is to certify that the project title **"Rock, Paper, Scissors Game in Python"** is being submitted by **21071A6203 - ALLOJI SRAVYA 21071A6233 - LINGAMPELLY NIKHIL** in the partial fulfilment of the requirement for the award of the degree **Bachelor of Technology in PYTHON LABORATORY at the VALLURUPALLI NAGESHWARA RAO VIGNANA JYOTHI INSTITUTE OF ENGINEERING AND TECHNOLOGY** is a record of bonafide work carried out by them under our pedagogy. The Result embodied in this thesis have not been submitted by any another University or Institute for the award of any Degree.

LALITHA
Assistant Professor

Title:

Rock, Paper, Scissors Game in Python

Introduction:

Rock, Paper, Scissors is a popular hand game played between two players. The objective of the game is to beat the opponent by choosing either rock, paper, or scissors. The player who makes the winning choice wins the game. The game can be played between two human players or between a human player and a computer.

Objective:

The objective of this project is to create a Rock, Paper, Scissors game in Python that allows a human player to play against the computer. The program should be able to take the player's choice, generate a random choice for the computer, and then determine the winner based on the rules of the game.

Methodology:

To achieve the objective of this project, the following steps were taken:

1. Familiarize with the rules of the Rock, Paper, Scissors game.
2. Choose the Python programming language to implement the program.
3. Write code to take input from the player, generate a random choice for the computer, and determine the winner based on the rules of the game.
4. Test the program to ensure that it works as expected.

Code:

```
import random

print("Rock, Paper, Scissors Game")


def human_vs_human():
    p1 = input("Player 1, make your move (rock, paper, scissors): ")
    p2 = input("Player 2, make your move (rock, paper, scissors): ")


    if p1 == p2:
```

```
        print("It's a tie!")
    elif p1 == "rock":
        if p2 == "scissors":
            print("Player 1 wins!")
        elif p2 == "paper":
            print("Player 2 wins!")
    elif p1 == "paper":
        if p2 == "rock":
            print("Player 1 wins!")
        elif p2 == "scissors":
            print("Player 2 wins!")
    elif p1 == "scissors":
        if p2 == "paper":
            print("Player 1 wins!")
        elif p2 == "rock":
            print("Player 2 wins!")
    else:
        print("Invalid input, please enter either rock, paper, or scissors.")

def human_vs_computer():
    p1 = input("Player, make your move (rock, paper, scissors): ")
    p2 = random.choice(["rock", "paper", "scissors"])
    print(f"Computer plays {p2}")

    if p1 == p2:
        print("It's a tie!")
    elif p1 == "rock":
        if p2 == "scissors":
```

```
            print("Player wins!")
        elif p2 == "paper":
            print("Computer wins!")
    elif p1 == "paper":
        if p2 == "rock":
            print("Player wins!")
        elif p2 == "scissors":
            print("Computer wins!")
    elif p1 == "scissors":
        if p2 == "paper":
            print("Player wins!")
        elif p2 == "rock":
            print("Computer wins!")
    else:
        print("Invalid input, please enter either rock, paper, or scissors.")


mode = input("Choose game mode (1 for human vs. human, 2 for human vs.
    computer): ")
if mode == "1":
    human_vs_human()
elif mode == "2":
    human_vs_computer()
else:
    print("Invalid game mode selected.")
```

Testing:

The program was tested by playing several rounds of Rock, Paper, Scissors against the computer and human. The program was able to take the player's choice, generate a random choice for the computer, and determine the winner based on the rules of the game. The program also handles invalid inputs, such as entering a number other than 1, or 2, and prompts the player to enter a valid choice.

The code first prints an introduction to the game, then defines two functions human_vs_human and human_vs_computer. The human_vs_human function takes in two inputs from the players, compares them to determine the winner, and prints the result. The human_vs_computer function takes in an input from the player and generates a random move for the computer, then compares the moves to determine the winner and prints the result. The player is then prompted to select the game mode (either human vs. human or human vs. computer), and the corresponding function is called. If an invalid game mode is selected, an error message is printed.

Conclusion:

The Rock, Paper, Scissors program in Python was successfully implemented and tested. The program allows a human player to play against the computer, or human player to play against a human player.