

Rock Paper Scissors Game using Python

Rock Paper Scissors is a hand game usually played between two people. In this game, scissors can beat paper, paper can beat rock, and rock can beat scissors. If you want to learn how to create a rock paper scissors game with Python, this article is for you. In this article, I will take you through a tutorial on creating a rock paper scissors game using Python.

Fundamentals of Python

1. Functions
2. Lists
3. Tuples
4. Dictionary
5. If Else Statement
6. Loops (i) while Loops (ii) For Loops
7. Class

In []:

What Is Rock Paper Scissors?

You may have played rock paper scissors before. Maybe you've used it to decide who pays for dinner or who gets first choice of players for a team.

If you're unfamiliar, rock paper scissors is a hand game for two or more players. Participants say "rock, paper, scissors" and then simultaneously form their hands into the shape of a rock (a fist), a piece of paper (palm facing downward), or a pair of scissors (two fingers extended). The rules are straightforward:

1. Rock smashes scissors.
2. Paper covers rock.
3. Scissors cut paper.

Rock Paper Scissors Game using Python

To create and play rock paper scissors, I will be using the if and elif statements in Python. I will prepare this game to be played between two players. Player-1 will be the user, and player-2 will be the computer. Player one will manually select the rock paper or scissor, while player two will choose randomly. So I will also use the random module in Python to create this game.

I hope you now have understood everything about the rock, paper, and scissors game and how I will create it. Now, below is how we can write a Python script to create and play rock paper scissors using Python:

Building game using programming are a great way to learn programming languages. You get to use tools and design patterns you see in real-world situations. An ideal game to start building games in Python is Rock Paper Scissors. In the article, we will learn to build a Rock Paper Scissor python game using Python programming language. We will start building the project for a single game and later expand the logic to play the game indefinitely.

What Are We Building?

You might have played a rock paper scissors game with your friends before. Possibly to settle a discussion or to decide who will take that window seat in the college tour.

Building Rock Paper Scissors Game using Python

To build the Rock paper scissors python game, we will divide the problem statement into three simple steps to help us build the game.

The steps are as follows:

1. Take the input from the user to know their choice (rock, paper or scissors).
2. Randomly allow the program to choose its choice.
3. Based on the game rules, decide the winner and display the winner on the screen.

We will later use the logic to play several games and refactor our Rock paper scissors python program for better readability and edge case handling. Let us start by building the project first by playing a single game.

Algorithm for Single Game

Before we start building our Rock paper scissors python game, we will first be required to import a random module in our program that will help to simulate the program's choice.

```
In [1]: import random    # imported random module for rock paper scissors python code to simulate
```

1. Taking user's input

In Python, taking the user's input is quite simple. Our goal here is to take the input from the user on which action they would like to choose and then assign the choice to a variable. To take the user input, we can use the following code snippet.

```
In [2]: user_choice = input('Enter your choice (rock, paper or scissors): ')    # taking users
```

2. Making the program choose

Now that we have user choice stored in a variable, the next step is deciding on program choice. We will make the computer choose its action randomly. To make a random selection, we use the `random.choice()` function from the previously imported `random` module to choose from available three actions.

```
In [3]: actions = ['rock', 'paper', 'scissors']  
  
        program_choice = random.choice(actions)
```

```
In [4]: print(f"Your choice {user_choice}, computer choice {program_choice}\n")  
  
Your choice user_chice, computer choice paper
```

```
In [5]: # Rock paper scissors python code to detremine the winner  
if user_choice == program_choice:  
    print(f"Both players selected {user_choice}. It's a tie!")  
elif user_choice == "rock":  
    if program_choice == "scissors":  
        print("You win! because Rock smashes scissors.")  
    else:  
        print("You lose :( Paper covers rock!")  
elif user_choice == "paper":  
    if program_choice == "rock":  
        print("You win! because Paper covers rock.")  
    else:  
        print("You lose :( Scissors cuts paper!")  
elif user_choice == "scissors":  
    if program_choice == "paper":  
        print("You win! because Scissors cuts paper.")  
    else:  
        print("You lose :( Rock smashes scissors!")
```

```
In [6]: # Rock paper scissors python code for single game  
import random  
  
actions = ['rock', 'paper', 'scissors']  
  
user_choice = input('Enter your choice (rock, paper or scissors): ')  
  
program_choice = random.choice(actions)  
  
print(f"Your choice {user_choice}, computer choice {program_choice}\n")  
  
if user_choice == program_choice:  
    print(f"Both players selected {user_choice}. It's a tie!")  
elif user_choice == "rock":  
    if program_choice == "scissors":  
        print("You win! because Rock smashes scissors.")  
    else:  
        print("You lose :( Paper covers rock!")
```

```

elif user_choice == "paper":
    if program_choice == "rock":
        print("You win! because Paper covers rock.")
    else:
        print("You lose :( Scissors cuts paper!")
elif user_choice == "scissors":
    if program_choice == "paper":
        print("You win! because Scissors cuts paper.")
    else:
        print("You lose :( Rock smashes scissors!")

```

Your choice paper, computer choice paper

Both players selected paper. It's a tie!

```

In [ ]: # Rock paper scissors python code for several games
import random

actions = ['rock', 'paper', 'scissors']

while True:
    user_choice = input('Enter your choice (rock, paper or scissors): ')
    program_choice = random.choice(actions)

    print(f"Your choice {user_choice}, computer choice {program_choice}\n")

    if user_choice == program_choice:
        print(f"Both players selected {user_choice}. It's a tie!")
    elif user_choice == "rock":
        if program_choice == "scissors":
            print("You win! because Rock smashes scissors.")
        else:
            print("You lose :( Paper covers rock!")
    elif user_choice == "paper":
        if program_choice == "rock":
            print("You win! because Paper covers rock.")
        else:
            print("You lose :( Scissors cuts paper!")
    elif user_choice == "scissors":
        if program_choice == "paper":
            print("You win! because Scissors cuts paper.")
        else:
            print("You lose :( Rock smashes scissors!")

    play_again = input('Play again? (y/n)')
    if (play_again.lower() == 'n'):
        break

```

Your choice scissors, computer choice scissors

Both players selected scissors. It's a tie!

Your choice scissors, computer choice scissors

Both players selected scissors. It's a tie!

Your choice rock, computer choice rock

Both players selected rock. It's a tie!

Your choice scissors, computer choice scissors

Both players selected scissors. It's a tie!

Your choice scissors, computer choice paper

You win! because Scissors cuts paper.

Your choice paper, computer choice scissors

You lose :(Scissors cuts paper!

Your choice paper, computer choice scissors

You lose :(Scissors cuts paper!

Your choice scissors, computer choice rock

You lose :(Rock smashes scissors!

Your choice paper, computer choice paper

Both players selected paper. It's a tie!

Your choice rock, computer choice rock

Both players selected rock. It's a tie!

Your choice scissors, computer choice scissors

Both players selected scissors. It's a tie!

Your choice paper, computer choice scissors

You lose :(Scissors cuts paper!

Your choice paper, computer choice rock

You win! because Paper covers rock.

In []:

```
In [ ]: import random

player1 = input("Select Rock, Paper, or Scissor :").lower()
player2 = random.choice(["Rock", "Paper", "Scissor"]).lower()
print("Player 2 selected: ", player2)

if player1 == "rock" and player2 == "paper":
    print("Player 2 Won")
elif player1 == "paper" and player2 == "scissor":
    print("Player 2 Won")
elif player1 == "scissor" and player2 == "rock":
    print("Player 2 Won")
elif player1 == player2:
```

```
    print("Tie")  
else:  
    print("Player 1 Won")
```

So this is how you can easily create and play rock, paper, and scissors using the Python programming language as a beginner. If you are a beginner in Python

Summary

So this is how to create and play rock paper scissors using the python programming language. Rock Paper Scissors is a hand game usually played between two people. In this game, scissors can beat paper can beat rock can beat scissors.

I hope you liked this concept using this python languages to creating a Rock Papaer Scissors using Python.