ROCK-PAPER-SCISSORS GAME

A Course Based Project Submitted in Partial Fulfilment of the Requirement
for the Award of the degree of
BACHELOR OF TECHNOLOGY

COMPUTER SCIENCE AND ENGINEERING

Submitted by

21071A6240-PANUGANTI MADHUSUDHAN
21071A6256-SINGAPAGU PRANATHI

DEPARTMENT OF CSE-CYS, DS & (AI &DS)

VALLURUPALLI NAGESWARARAO VIGNANA JYOTHI

INSTITUTE OF ENGINEERING AND TECHNOLOGY

(An Autonomous Institute, NAAC Accredited With 'A++' Grade, NBA Accredited, Approved by AICTE, New Delhi, Affiliated to JNTUH)

VALLURUPALLI NAGESWARARAO VIGNANA JYOTHI

INSTITUTE OF ENGINEERING AND TECHNOLOGY

(An Autonomous Institute)

CERTIFICATE

This is to Certify that P.MADHUSUDHAN (21071A6240) and S.PRANATHI(21071A6256) has successfully completed their project work at CSE CYS, DS & (AI & DS) Department of VNRVJIET, Hyderabad entitled "ROCK-PAPER-SCISSORS GAME" in partial fulfilment of the requirements for the award of the Bachelor of Technology degree during the Academic year 2022-2023

Project Guide	Head of Department
Mrs.E. Lalitha Assistant Prof. and Internal Guide Dept. of CSE-CYS, DS and AI&DS VNRVJIET	Dr.Mr. Rajasekhar Prof. and Head Dept. of CSE-CYS, DS and AI&DS VNRVJIET

DECLARATION

This is to certify that the project work entitled "ROCK-PAPER-SCISSORS GAME" submitted in VNR Vignana Jyothi Institute of Engineering & Technology in partial fulfilment of requirement for the award of Bachelor of Technology in Computer Science and Engineering. It is a Bonafide report of the work carried out by us under the guidance and supervision of Mrs.E.Lalitha (Assistant Professor), Department of CSE-CYS,DS,AI&DS, VNRVJIET. To the best of our knowledge, this report has not been submitted in any form to any university or institution for the award of any degree or diploma.

P.MADHUSUDHAN
21071A6240-CSE-CYS

S.PRANATHI
21071A6256-CSE-CYS

ACKNOWLEDGEMENT

Behind every achievement lies the heartfelt gratitude to those who activated in completing the project. To them we lay the words of gratitude within us.

We are indebted to our venerable principal Dr. C.D. NAIDU for this inflicting devotion, which led us to complete this project. The support, encouragement given by him and his motivation led us to complete the project.

We express our sincere thanks to internal guide Mrs.E.Lalitha and also Head of the Department Dr. M. RAJA SHEKHAR for having provided us a lot of facilities to undertake the project work and guide us to complete the project.

We take the opportunity to express thanks to our faculty of the Dept. of COMPUTER SCIENCE AND ENGINEERING - CYBER
SECURITY and remaining members of our college VNR VIGNANA JYOTHI INSTITUTE OF ENGINEERING AND TECHNOLOGY who extended their valuable support in helping us to complete the project in time.

P.MADHUSUDHAN (21071A6240)
S.PRANATHI (21071A6256)

ABSTRACT

The object of the rock-paper-scissor python project is to build a game for a single player that plays with a computer, anywhere, and anytime. This project is base on the rules that:

- rock blunts scissors so rock wins
- scissors cut the paper so scissors win
- paper cover rock so paper wins

This project is build using tkinter, random modules, and the basic concept of python.

In this python project, players have to choose any one from rock, paper, and scissors. Then click on the play button will show the result of the game.

CONTENTS

INTRODUCTION

Rock paper scissors game is also known as stone paper scissors. It is a hand game that is usually played between 2 people, each player can randomly form any one of three from their hand.

A player who chooses rock will win by another player who chooses scissors but loose by the player who chooses paper; a player with paper will loose by the player with the scissors.

If both players choose the same then the game is tied. Rock paper

scissors game is mainly played among kids.

Python is a programming language that can serve different purposes, and one can do anything with it. Python can also be utilized for developing games. Developing a game is a great way to learn how to code a program.

Most of us may have played rock paper scissors before. Rock Paper Scissors is often used as a fair selection method between two people or more in order to settle a dispute or make an unbiased group decision. This method is similar to flipping a coin, drawing straws, or throwing dice.

If someone is unfamiliar, a rock paper scissors game is considered a hand game between two or more players. Participants say "Rock, Paper, Scissors!" and then 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) in a simultaneous manner.

The rules of this game are simple:

Rule 1: Rock smashes scissors, so **rock** wins

Rule 2: Paper covers rock, so **paper** wins

Rule 3: Scissors cut paper, so **scissors** win

Now that we have understood what the rock paper scissors game is and its rule, we can begin thinking about how these rules might translate to the Python code.

In the following Python project, players will select anyone from rock, paper, and scissors. Then they will click on the play button to display the game's result

1. Importing Libraries

```
from tkinter import *
import random
```

The first step is to import libraries. Here, we required two modules so we need to import Tkinter and random modules.

2. Initialize Window

```
root = Tk()
root.geometry('400x400')
root.resizable(0,0)
root.title('DataFlair-Rock,Paper,Scissors')
root.config(bg ='seashell3')
```

- **Tk ( )** use to initialized Tkinter to create window
- **Geometry ( )** sets the window width and height
- **resizable (0,0)** by this command we can fix the size of the window
- **title ( )** used to set the title of the window
- **bg = ‘’** use to set the color of the background

```
Label(root, text = 'Rock, Paper ,Scissors' , font='arial 20 bold', bg = 'seashell2').pack()
```

- **Label()** widget used when we want to display text that users can’t modify.
- **root** is the name of our window
- **text** which displays on the label as the title of that label
- **font** in which form the text is written
- **pack** used to the organized widget in form of block

3. For User Choice

```
user_take = StringVar()
Label(root, text = 'choose any one: rock, paper ,scissors' , font='arial 15 bold', bg = 'seashell2').place(x = 20,y=70)
Entry(root, font = 'arial 15', textvariable = user_take , bg = 'antiquewhite2').place(x=90 , y = 130)
```

- **user_take** is a string type variable that stores the choice that the user enters.
- **Entry()** widget used when we want to create an input text field.

1. *textvariable used to retrieve the text to entry widget*
2. *place() – place widgets at specific position*

4. For Computer Choice

```
comp_pick = random.randint(1,3)
if comp_pick == 1:
comp_pick = 'rock'
```

```
elif comp_pick ==2:
comp_pick = 'paper'
else:
comp_pick = 'scissors'
```

random.randint() function will randomly take any number from the given number.

Here we give the if-else() condition to play rock paper scissors

- If the computer choose 1then the rock will set to comp_pick variable
- If the computer choose 2 then the paper will set to comp_pick variable
- If the computer choose 3 then scissors will set to comp_pick variable

5. Function to Start Game

```
Result = StringVar()
def play():
user_pick = user_take.get()
if user_pick == comp_pick:
Result.set('tie,you both select same')
elif user_pick == 'rock' and comp_pick == 'paper':
Result.set('you loose,computer select paper')
elif user_pick == 'rock' and comp_pick == 'scissors':
Result.set('you win,computer select scissors')
elif user_pick == 'paper' and comp_pick == 'scissors':
Result.set('you loose,computer select scissors')
elif user_pick == 'paper' and comp_pick == 'rock':
Result.set('you win,computer select rock')
elif user_pick == 'scissors' and comp_pick == 'rock':
Result.set('you loose,computer select rock')
elif user_pick == 'scissors' and comp_pick == 'paper':
Result.set('you win ,computer select paper')
else:
Result.set('invalid: choose any one -- rock, paper, scissors')
```

6. Function to Reset

- **user_take** is a string type variable that stores the choice that the user enters.
- We give if-else() condition to check who wins between user choice and computer choice.
- In this rock paper scissors game, a player who chooses rock will win by another player who chooses scissors but loose by the

player who chooses paper; a player with paper will loose by the player with the scissors. If both choose the same then the game will tie.

```
def Reset():
    Result.set("")
    user_take.set("")
```

7. Function to Exit

This function set all variables to an empty string.

```
    def Exit():
    root.destroy()
```

root.destroy() will quit the rock paper scissors program by stopping the mainloop().

8. Define Buttons

```
    Entry(root, font = 'arial 10 bold', textvariable = Result, bg ='antiquewhite2',width = 50,).place(x=25, y = 250)
    Button(root, font = 'arial 13 bold', text = 'PLAY' ,padx =5,bg ='seashell4' ,command = play).place(x=150,y=190)
    Button(root, font = 'arial 13 bold', text = 'RESET' ,padx =5,bg ='seashell4' ,command = Reset).place(x=70,y=310)
    Button(root, font = 'arial 13 bold', text = 'EXIT' ,padx =5,bg ='seashell4' ,command = Exit).place(x=230,y=310)
    root.mainloop()
```

- **Button()** widget used when we want to display a button.
- **command** called the specific function when the button will be clicked.
- **root.mainloop()** method executes when we run our program.

CODE FOR ROCK-PAPER-SCISSORS GAME

```
from tkinter import *
import random
root = Tk()
root.geometry('400x400')
root.resizable(0,0)
root.title('DataFlair-Rock,Paper,Scissors')
root.config(bg ='seashell3')
Label(root, text = 'Rock, Paper ,Scissors' , font='arial 20 bold', bg = 'seashell2').pack()
user_take = StringVar()
Label(root, text = 'choose any one: rock, paper ,scissors' , font='arial 15 bold', bg = 'seashell2').place(x = 20,y=70)
Entry(root, font = 'arial 15', textvariable = user_take , bg = 'antiquewhite2').place(x=90 , y = 130)
comp_pick = random.randint(1,3)
if comp_pick == 1:
    comp_pick = 'rock'
elif comp_pick ==2:
    comp_pick = 'paper'
else:
    comp_pick = 'scissors'
Result = StringVar()

def play():
    user_pick = user_take.get()
    if user_pick == comp_pick:
        Result.set('tie,you both select same')
    elif user_pick == 'rock' and comp_pick == 'paper':
        Result.set('you loose,computer select paper')
    elif user_pick == 'rock' and comp_pick == 'scissors':
        Result.set('you win,computer select scissors')
    elif user_pick == 'paper' and comp_pick == 'scissors':
        Result.set('you loose,computer select scissors')
    elif user_pick == 'paper' and comp_pick == 'rock':
        Result.set('you win,computer select rock')
    elif user_pick == 'scissors' and comp_pick == 'rock':
        Result.set('you loose,computer select rock')
    elif user_pick == 'scissors' and comp_pick == 'paper':
```

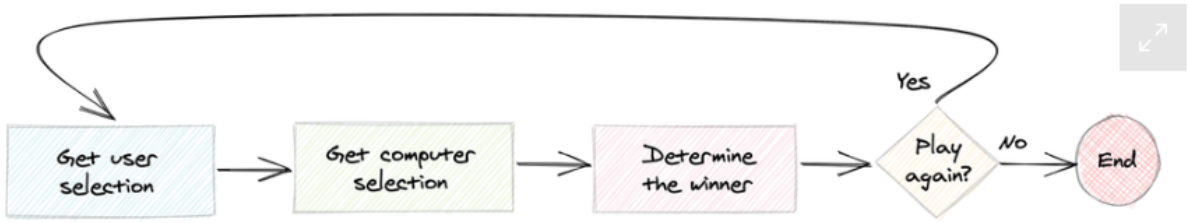
```
    elif user_pick == 'scissors' and comp_pick == 'paper':
        Result.set('you win ,computer select paper')
    else:
        Result.set('invalid: choose any one -- rock, paper, scissors')

def Reset():
    Result.set("")
    user_take.set("")

def Exit():
    root.destroy()

Entry(root, font = 'arial 10 bold', textvariable = Result, bg ='antiquewhite2',width = 50,).place(x=25, y = 250)

Button(root, font = 'arial 13 bold', text = 'PLAY'  ,padx =5,bg ='seashell4' ,command = play).place(x=150,y=190)

Button(root, font = 'arial 13 bold', text = 'RESET'  ,padx =5,bg ='seashell4' ,command = Reset).place(x=70,y=310)

Button(root, font = 'arial 13 bold', text = 'EXIT'  ,padx =5,bg ='seashell4' ,command = Exit).place(x=230,y=310)

root.mainloop()
```

DESCRIPTION:

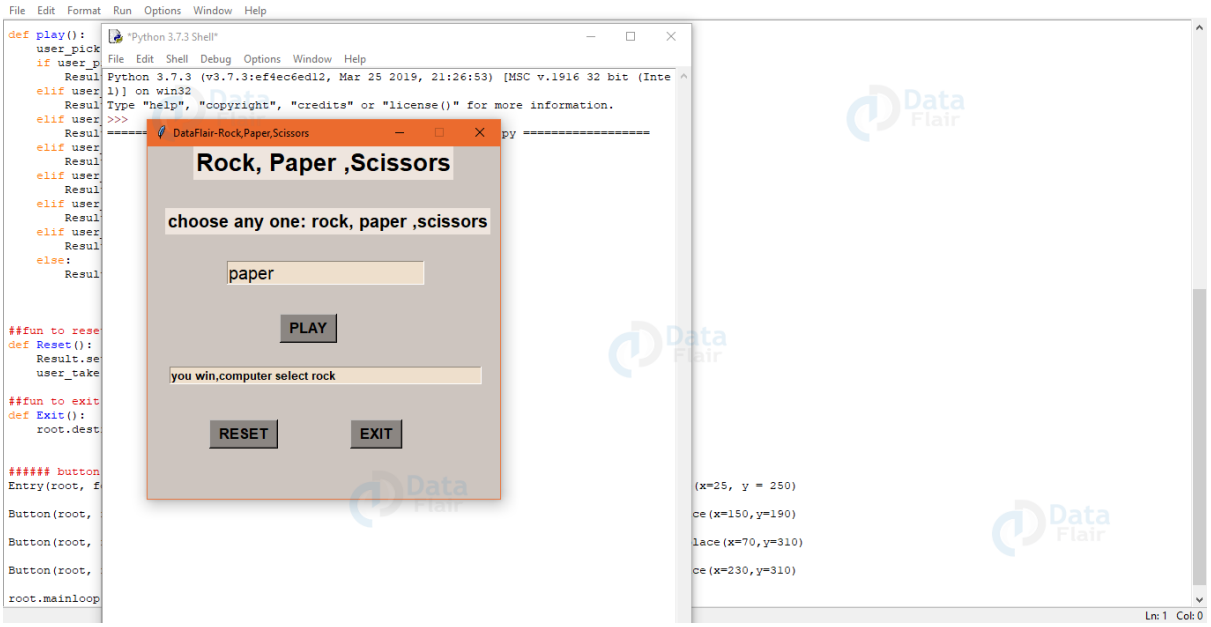
Each player selects an action and then a winner is determined. This flowchart is accurate for a single game as you've coded it, but it's not necessarily accurate for real-life games. In real life, the players select their actions simultaneously rather than one at a time like the flowchart suggests.

In the coded version, however, this works because the player's choice is hidden from the computer, and the computer's choice is hidden from the player. The two players can make their choices at different times without affecting the fairness of the game.

Flowcharts help you catch possible mistakes early on and also let you see if you want to add more functionality. For example, here's a flowchart that describes how to play games repeatedly until the user decides to stop:



OUTPUT


DataFlair-Rock,Paper,Scissors
Rock, Paper ,Scissors
choose any one: rock, paper ,scissors
paper
PLAY
you win,computer select rock
RESET
EXIT

CONCLUSION:

Overall,this script demonstrates how to use and develop games in python from tinker to develop a customized Rock-Paper-scissors game.

we have successfully developed the rock-paper-scissors game using python. We used Tkinter library for rendering graphics. We use a random module to generate random choices. We learn how to create button widget. We also learn how to call the function using button. In this way, we created a rock-paper-scissors python game.

These tools will continue to help us throughout your many programming adventures.