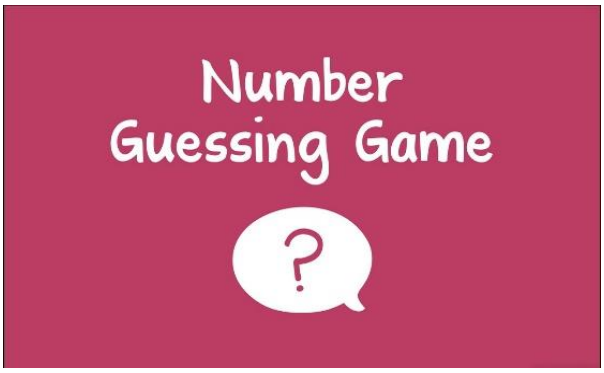
Summer Camp Internship Program

- **Rock, Paper, and Scissors**
- **Guess the Number Game**

Curtin University, Dubai



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1) Acknowledgement

I would like to express my gratitude to my internship instructor “Mrs. Shahra Jafar” mam for their able guidance and support in completing my project.

2) Software Requirements:

- Install Python 3.X
- Install Python - Tkinter
- Install Python Pillow

3) Instructions to run the program:

- Unzip Internship-2022.zip
- Go To **Internship-2022** folder
- Double click on **Arcade.pyw** file

4) Abstract

My program is functioning using python, the GUI module Tkinter and module Pillow. It is a simple arcade consisting of rock paper scissors and guess the number. It uses classes, user defined functions, Image, conditional statements and random module. It is designed as user friendly as possible.

5) Background

All the frontend and backend processes are achieved using python, because python is very user friendly as well as it contains vast numbers of libraries to choose from.

Rock paper scissors is a game where the user inputs either of the 3 mentioned and the robot puts either of the 3 too. So, rock blunts scissors and hence the one who puts rock wins, paper covers rock so paper wins, scissors cuts paper so scissors wins and hence if the input is same then it shows draw.

Guess the number is a game where the user inputs numbers ranging from 1 to 10, and the robot analyses the number inputted , then gives a comment if its too small or

too large. If the number inputted is the same as the robot's number, then the user wins.

6) Methodology

Here, the program uses a unique way of functioning. A variable(rand1) is stored as the random number ranging from 1 to 4(exclusive of 4). When it's 1-Rock, 2-Scissors and 3-Paper. Then a user defined function named win comes into play, 9 conditional statements present these statements decide if the user or robot wins. If the input is wrong, then the program displays wrong output. This is the way my program is made.

In the guess number game, the program uses a random module to get any number from 1 to 10, and it saves the number as rand2. Then, we guess the rand2, and the program tells if the inputted number is smaller or larger than the rand2. If we guess the correct number, we get a congratulatory message. The program uses try and except for checking if the inputted number is actually a number or not, then it uses comparison operators and conditional statements to check whether the inputted number is either larger or smaller or same as the rand2.

7) Code:

Arcade.pyw

```python
from tkinter import *
import random
import os
from PIL import Image, ImageTk

root = Tk()#Starting the root.

class game: #Class:- Contains all the def functions
    def __init__(self,master=None):
        super().__init__(master)
        self.master=master
    def rockpaperscissors(): #Rockpaperscissors
        os.startfile("rock_paper_scissors.pyw")#Opening rock paper scissors.
    def guessthenumber():
        os.startfile("Guess the number.pyw")#Opening guess the number.


root.geometry("612x612") #The dimensions of the screen
root.title("Arcade") #The title
root.resizable(False,False)  #It should not be able to resize itself.
main_img=ImageTk.PhotoImage(Image.open("arcade.jpg"))#Opening the image
#Creating a canvas for the image

canvas=Canvas(root,width=1600,height=1600)
canvas.pack(expand=True,fill=BOTH)
canvas.create_image(0,0,image=main_img,anchor="nw")

#Labels
Lab=Label(root,text="Welcome to the Arcade!!", font=("Candara",20,"bold"),bg="#6d1c6b").place(x=160,y=30)
Lab1=Label(root,text="Choose any one from the options below",font=("Canadara",12,"bold"),bg="#6d1c6b").place(x=160,y=100)
#Buttons for accessing the game
Game1=Button(root,relief=SOLID,text="Rock Paper Scissors!",font=("Candara",15,"bold"),bg="#8C26A8",activebackground="#8C26A8",border=1,command=game.rockpaperscissors).place(x=215,y=400)
Game2=Button(root,relief=SOLID,text="Guess the Number!",font=("Candara",15,"bold"),bg="#8C26A8",activebackground="#8C26A8",border=1,command=game.guessthenumber).place(x=220,y=450)

root.mainloop()
```

Rock_paper_scissors.pyw

```python
from tkinter import *
import random,os
from PIL import Image, ImageTk



root = Tk()#Starting the root.

root.geometry("800x600") #The dimensions of the screen
root.title("Rock Paper Scissors") #The title
root.resizable(False,False)  #It should not be able to resize itself.
#Adding an image
image2=Image.open("rock1.png")
image1=ImageTk.PhotoImage(image2)

label1=Label(root,image=image1).place(x=0,y=0)

var1=StringVar()#String Variable 1

#Labels:- Labels are used for showing the text on the main screen. The (.place)is used for setting the coordinates of the particular text.

Heading1=Label(root,text="Welcome!", font=("Candara",40), bg="#ffea00").place(x=300,y=5)
Heading2=Label(root,text="Rock,Paper and Scissors Game",font=("Candara",30,"bold"),bg="#ffea00").place(x=160,y=100)
instructions=Label(root,text="Instructions: Type if U want scissors, rock or paper and wait for the computer to play its move.",font=("Candara",15), bg="#ffea00").place(x=1,y=160)
instructions2=Label(root,text="Pls type either Paper, Rock or Scissors in the box given below and then click enter.",font=("Candara",15), bg="#ffea00").place(x=50,y=460)




Computer=""

#random.randrange(1,4):- It saves any number from 1 to 3 in the variable named var1.

rand1=random.randrange(1,4)
if rand1==1:
    Computer="Rock"
elif rand1==2:
    Computer="Scissors"
elif rand1==3:
    Computer="Paper"

def rockpaperscissor(e): #These are conditions which are used in the backend of the program to give us the result.
 #state=Disabled is used so that the user does not manipulate the game to win. It does not allow to change the entry once the game is completed.
    x1=419
    y1=410
    Label(root,text=" ", bg="#1c8e9d").place(x=x1,y=y1)
    if var1.get().lower()=="paper" and rand1==1:
                dispaly_label = Label(root,text="Congrats on winning, Robot selected - Rock", font=("Candara",15), bg="#19C25D")
                dispaly_label.place(x=x1,y=y1)
```

```
                dispaly_label.place(x=x1,y=y1)
                entry.config(state=DISABLED)

    elif var1.get().lower()=="paper" and rand1==2  :
        dispaly_label = Label(root,text="Try again next time Robot selected - Scissors", font=("Candara",15), bg="#D31818")
        dispaly_label.place(x=x1,y=y1)
        entry.config(state=DISABLED)
    elif var1.get().lower()=="paper" and rand1==3 :
        dispaly_label = Label(root,text="Nice Try, Robot selected - Paper", font=("Candara",15), bg="#F0D10B")
        dispaly_label.place(x=x1,y=y1)
        entry.config(state=DISABLED)
    elif var1.get().lower()=="scissors" and rand1==1  :
        dispaly_label = Label(root,text="Try again next time, Robot selected - Rock", font=("Candara",15), bg="#D31818")
        dispaly_label.place(x=x1,y=y1)
        entry.config(state=DISABLED)
    elif var1.get().lower()=="scissors" and rand1==2  :
        dispaly_label = Label(root,text="Nice try, Robot selected - Scissors", font=("Candara",15), bg="#F0D10B")
        dispaly_label.place(x=x1,y=y1)
        entry.config(state=DISABLED)
    elif var1.get().lower()=="scissors" and rand1==3 :
        dispaly_label = Label(root,text="Congrats on winning, Robot selected - Paper", font=("Candara",15), bg="#19C25D")
        dispaly_label.place(x=x1,y=y1)
        entry.config(state=DISABLED)
    elif var1.get().lower()=="rock" and rand1==1 :
        dispaly_label = Label(root,text="Nice try, Robot selected - Rock", font=("Candara",15), bg="#F0D10B")
        dispaly_label.place(x=x1,y=y1)
        entry.config(state=DISABLED)
    elif var1.get().lower()=="rock" and rand1==2 :
        dispaly_label = Label(root,text="Congrats on winning, Robot selected - Scissors", font=("Candara",15), bg="#19C25D")
        dispaly_label.place(x=412,y=y1)
        entry.config(state=DISABLED)
    elif var1.get().lower()=="rock" and rand1==3  :
        dispaly_label = Label(root,text="Try again next time, Robot selected - Paper", font=("Candara",15), bg="#D31818")
        dispaly_label.place(x=x1,y=y1)
        entry.config(state=DISABLED)

    else:
        Label(root,text="Please input valid words:- (Rock, Paper, Scissors)",font=("Candara",13),bg="#BD3434").place(x=x1,y=y1)
root.bind('<Return>', rockpaperscissor)#This is for binding the "Enter button" on our keyboard to the event.
def restart():
    root.destroy()#Closing the program
    os.startfile("rock_paper_scissors.pyw")#Starting the program using the path we saved.



#Entry:- This is for typing an entry.

entry = Entry(root, font=('Candara', 18, 'bold'), bd=7, state=NORMAL, width=6, textvariable=var1)
```

```
#Entry:- This is for typing an entry.

entry = Entry(root, font=('Candara', 18, 'bold'), bd=7, state=NORMAL, width=6, textvariable=var1)
entry.place(x=1, y=400, width=400)

def function1():
    entry.config(state=DISABLED)#state=Disabled is used so that the user does not manipulate the game to win. It does not allow to change the entry once the game is completed.

Lab=Label(root,text="Thanks a lot for playing", font=("Candara",30),bg="#1c8e9d").place(x=200,y=700)
Reset=Button(root,relief=SOLID,text="Play Again!",font=("Candara",20),bg="#8C26A8",activebackground="#8C26A8",border=1,command=restart).place(x=325,y=540)
#Button is used for restarting the game.

#root.mainloop():- The tkinter program runs using this.

root.mainloop()
```

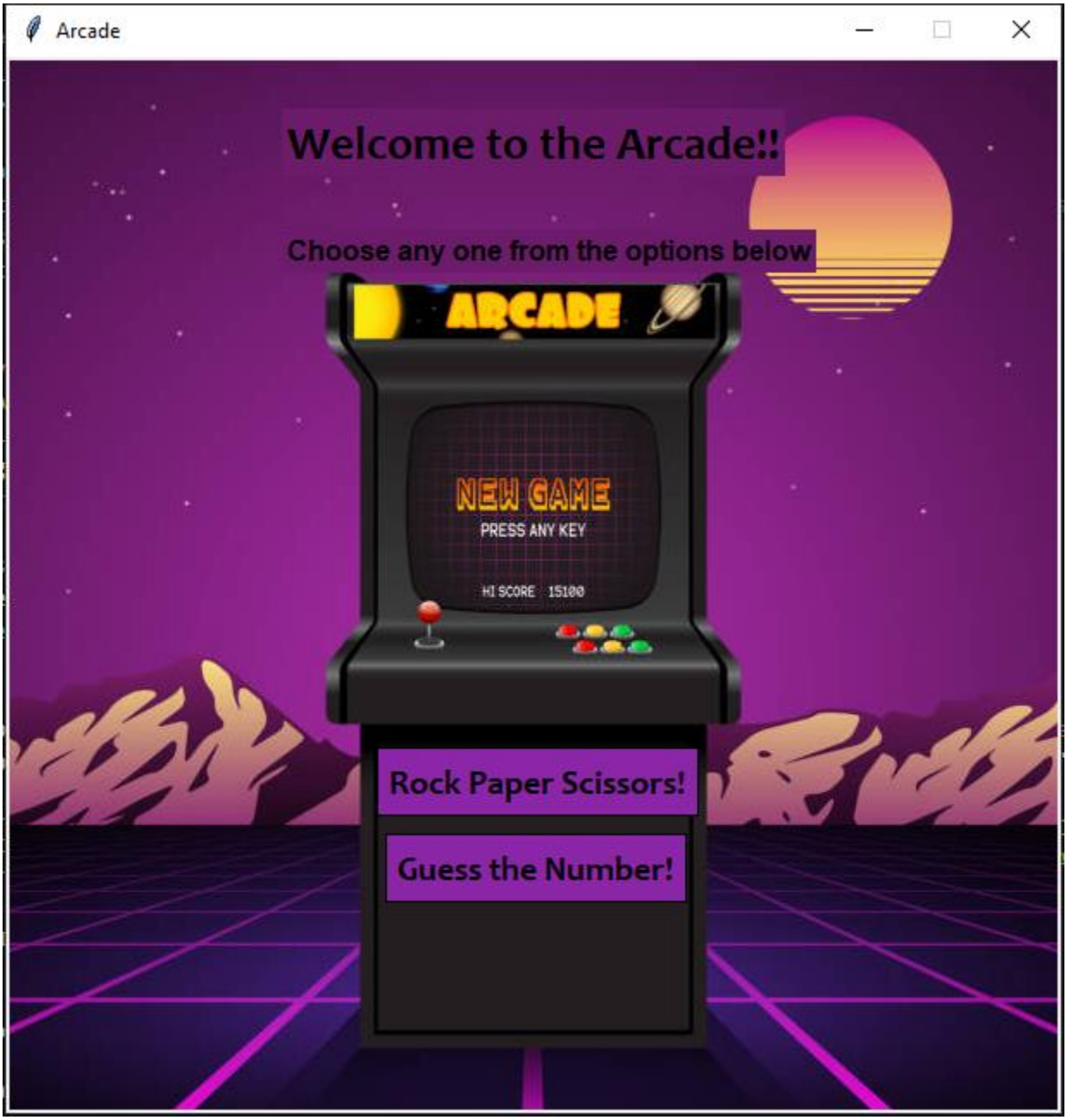
Guess the number.pyw

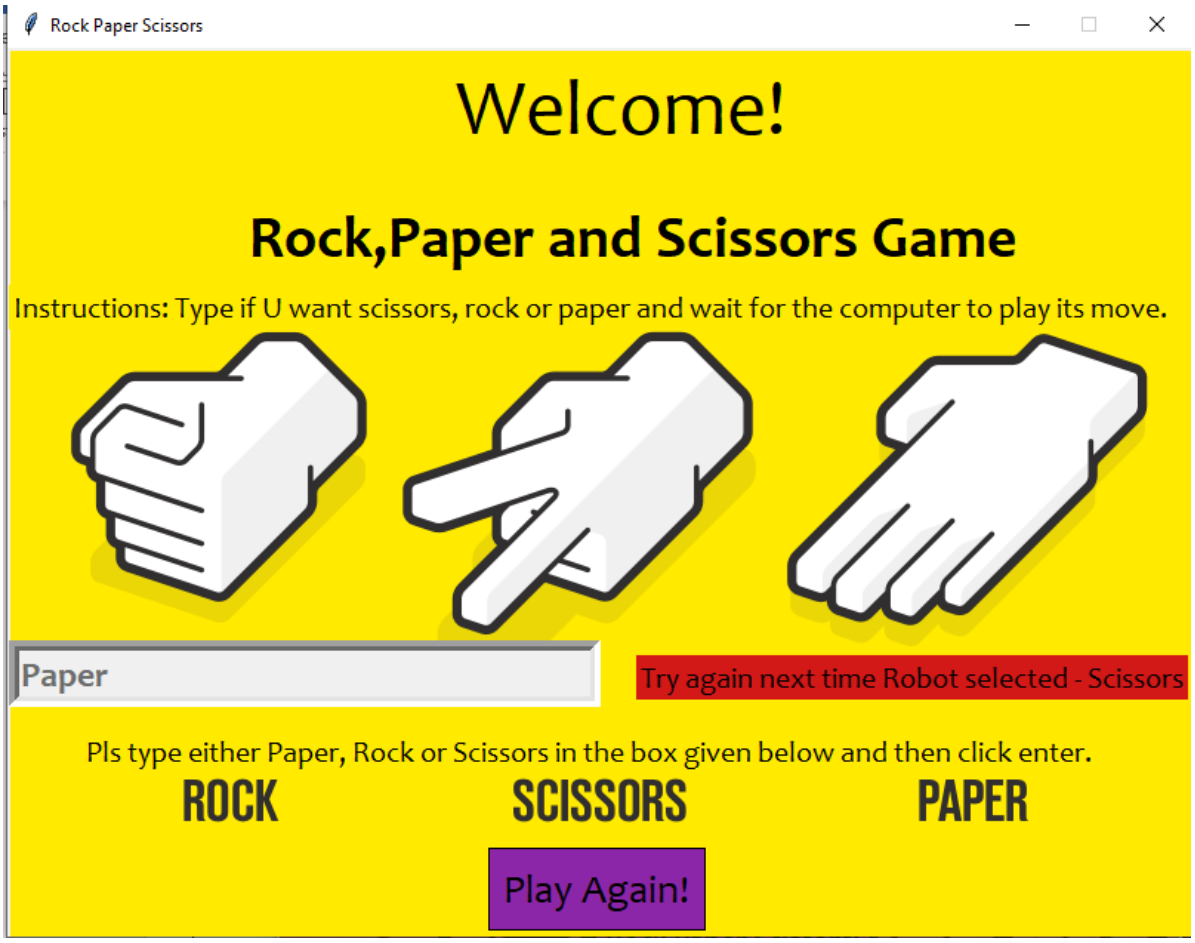
```python
#Guess the number:-)
from tkinter import *
import random
import os
from PIL import Image, ImageTk
root = Tk()#Starting the root.



class win:#Class
    def __init__(self,master=None):
        super().__init__(master)
        self.master=master


    def event(e):
        number = var1.get()
        Label1=Label(root,text="", font=("Candara",24), bg="#c6cdaf")
        Label1.place(x=250,y=400)
        try:
            if int(number) < 0:
                dispaly_label = Label(root,text="Number cannot be negative", font=("Candara",24), bg="#06fc5c").place(250,400)
            else:
                dispaly_label = Label(root,text="Enter space to continue", font=("Candara",24), bg="#06fc5c").place(250,400)
        except:
            dispaly_label = Label(root,text="Pls input valid number", font=("Candara",18), bg="#c6cdaf")
            dispaly_label.place(x=1,y=350)
        count=0
        x1=1
        y1=350

        if int(var1.get())==rand2:
            dispaly_label = Label(root,text="Congrats on winning", font=("Candara",24), bg="#06fc5c")
            dispaly_label.place(x=x1,y=y1)
            Entry1.config(state=DISABLED)

        elif int(var1.get())>rand2:
            dispaly_label = Label(root,text="The number is too large", font=("Candara",20), bg="#FABF2D")
            dispaly_label.place(x=x1,y=y1)

        elif int(var1.get())<rand2:
            dispaly_label = Label(root,text="The number is too small", font=("Candara",20), bg="#FABF2D")
            dispaly_label.place(x=x1,y=y1)



    def restart():
```

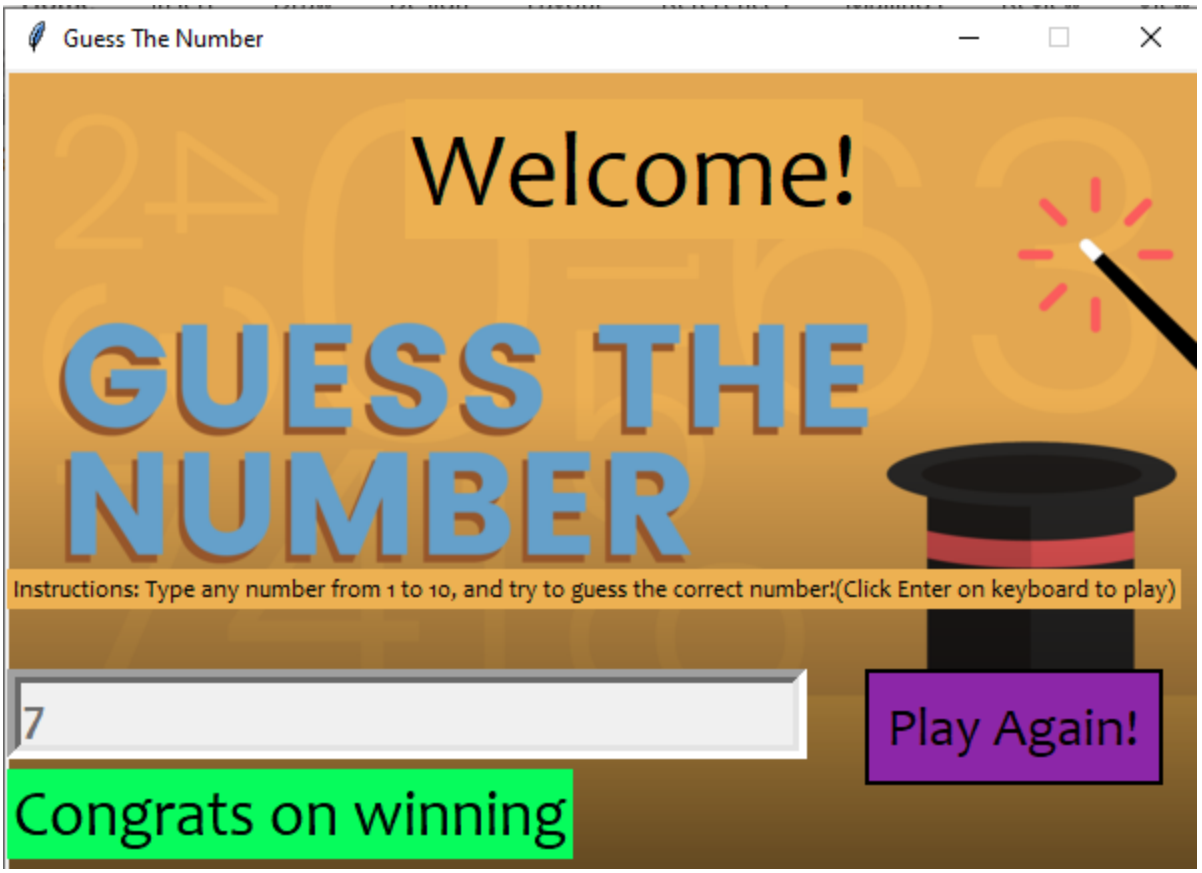
```python
    def restart():

        root.destroy()#Closing the program
        os.startfile("Guess the number.pyw")#Starting the program using the path we saved.


root.geometry("596x400") #The dimensions of the screen
root.title("Guess The Number") #The title
root.resizable(False,False)  #It should not be able to resize it
root.config(bg="#c6cdaf")#It configures the background to blue
#Image
image2=Image.open("guess the number.png")
image1=ImageTk.PhotoImage(image2)

label1=Label(root,image=image1).place(x=0,y=0)

var1=StringVar()#Integer Variable 1

#Labels:- Labels are used for showing the text on the main screen. The (.place)is used for setting the coordinates of the particular text.

Heading1=Label(root,text="Welcome!", font=("Candara",40), bg="#edb152").place(x=200,y=15)

instructions=Label(root,text="Instructions: Type any number from 1 to 10, and try to guess the correct number!(Click Enter on keyboard to play)",font=("Candara",9), bg="#edb152").place(x=1,y=250)

rand2=random.randrange(1,11)



Entry1=Entry(root,font=("Candara",18,"bold"),bd=7, state=NORMAL, width=6, textvariable=var1)
Entry1.place(x=1, y=300, width=400)



Reset=Button(root,relief=SOLID,text="Play Again!",font=("Candara",20),bg="#8C26A8",activebackground="#8C26A8",command=win.restart).place(x=430,y=300)


root.bind('<Return>', win.event)
root.mainloop()
```

8) Results

First screen after running the Arcade.pyw




Rock Paper Scissors
Welcome!
Rock,Paper and Scissors Game
Instructions: Type if U want scissors, rock or paper and wait for the computer to play its move.
Paper
Try again next time Robot selected - Scissors
Pls type either Paper, Rock or Scissors in the box given below and then click enter.
ROCK
SCISSORS
PAPER
Play Again!


Guess The Number
Welcome!
GUESS THE NUMBER
Instructions: Type any number from 1 to 10, and try to guess the correct number!(Click Enter on keyboard to play)
7
Play Again!
Congrats on winning

9) Conclusion

The project was very interesting but faced some obstacles in between, and these obstacles helped me to improve myself. I had done python previously, but now I realized that python is not all about learning, it's also about implementing and making the programs as user friendly as possible.

10) Future Work

I would like to learn more in Python programming and advance my skills. Attend more camps, take part in internships and develop myself to be the best programmer. I would like to improve my program by adding additional futures like score card.