Informatics Institute of Technology

Foundation certificate in Higher Education

Module : - DOC 313 Introduction to Programming in Python – P1

Module Leader : - Mr. Sudharshan Welihinda

Assignment Number : - 1

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1. Introduction about the problem

To start the game, we need to enter the name of the player as a string. Then we must display his name, the player's name, and the game's name .As a result, we must print "hi, name, welcome to gameint."Then, using import random, we must generate four import random numbers. The variables I used are "r1num, r2num, r3num, r4num." After that, I made a list for importing random numbers as "list=[r1num, r2num, r3num, r4num]".

Then, following the instructions, we must use numbers to guess the color mapping. After that, we need to tell the user that he or she needs to enter 4 numbers, and each number should be in the range of 0–6. Also, we need to tell him that if the user needs to end the game, he or she needs to enter "0000."

After that, again, we need to show the attempt, guess, or result as given in the instructions. If the user needs to restart the game, I used the while loop with rep = 0, and then I took a variable called attempt = 1. It took a while again under while (rep = 0). While (attempt = 8) is true, print "attempt."

Now we should tell the user to enter four numbers. I used "num1, num2, num3, num4".

If the user enters 0000 to terminate the program, we need to use an if clause, as if (num1==0 and num2==0 and num3==0 and num4==0). After using that, print "game over" and "end game," then exit.

If (num1 > 6) then print " invalid number "; elif (num2 > 6) then print " invalid number "; elif (num3 > 6) then print " invalid number "; elif (num4 > 6) then print " invalid number "; elif (num1 0) then print " invalid number "; elif (num2 0) then print " invalid number "; elif (num3 > 6)

Now we need to match random numbers to color mapping. I used an if clause for each random number .So, I used this method,

```
if(r1num==1):
    r1num=="White"
elif(r1num==2):
    r1num=="Blue"
elif(r1num==3):
    r1num=="Red"
elif(r1num==4):
    r1num=="Yellow"
elif(r1num==5):
    r1num=="Green"
elif(r1num==6):
    r1num=="Purple"
```

```
if(r2num==1):
    r2num=="White"
elif(r2num==2):
    r2num=="Blue"
elif(r2num==3):
    r2num=="Red"
elif(r2num==4):
    r2num=="Yellow"
elif(r2num==5):
    r2num=="Green"
elif(r2num==6):
    r2num=="Purple"
```

```
if(r3num==1):
    r3num=="White"
elif(r3num==2):
    r3num=="Blue"
elif(r3num==3):
    r3num=="Red"
elif(r3num==4):
    r3num=="Yellow"
elif(r3num==5):
    r3num=="Green"
elif(r3num==6):
    r3num=="Purple"
```

```
if(r4num==1):
    r4num=="White"
elif(r4num==2):
    r4num=="Blue"
elif(r4num==3):
    r4num=="Red"
elif(r4num==4):
    r4num=="Yellow"
elif(r4num==5):
    r4num=="Green"
elif(r4num==6):
    r4num=="Purple"
```

After the mapping we need to check whether the user entered number &system generated number is equal or not. If the guess pegs are in the correct place or wrong colour in the wrong place and entirely colour id different for that also we need to use if clause for each random numbers, So this is the way I used it,

```
#r1num
    if(r1num==1):
        r1num=="White"
    elif(r1num==2):
        r1num=="Blue"
    elif(r1num==3):
        r1num=="Red"
    elif(r1num==4):
        r1num=="Yellow"
    elif(r1num==5):
        r1num=="Green"
    elif(r1num==6):
        r1num=="Purple"
```

```
#r2num
    if(r2num==1):
        r2num=="White"
    elif(r2num==2):
        r2num=="Blue"
    elif(r2num==3):
        r2num=="Red"
    elif(r2num==4):
        r2num=="Yellow"
    elif(r2num==5):
        r2num=="Green"
    elif(r2num==6):
        r2num=="Purple"
```

```
#r3num
    if(r3num==1):
        r3num=="White"
    elif(r3num==2):
        r3num=="Blue"
    elif(r3num==3):
        r3num=="Red"
    elif(r3num==4):
        r3num=="Yellow"
    elif(r3num==5):
        r3num=="Green"
    elif(r3num==6):
        r3num=="Purple"
```

```
#r4num
    if(r4num==1):
        r4num=="White"
    elif(r4num==2):
        r4num=="Blue"
    elif(r4num==3):
        r4num=="Red"
    elif(r4num==4):
        r4num=="Yellow"
    elif(r4num==5):
        r4num=="Green"
    elif(r4num==6):
        r4num=="Purple"
```

Now we need to print “The 4 guess numbers and 4 results”.

If guess numbers and generated numbers are equal, we need to use an if clause. Inside that if clause need to use random number==guess numbers. The code is “r1num==num1 and r2num==num2 and r3num==num3 and r4num==num4”, then after we need to aske whether the user need to continue the game if the user says “yes”, we need to repeat the process, else exit.

If the user said “yes”, we need to use attempt=-attempt+1 then program will run 8 times after that 8 attempts we need to aske again whether the user need o continue the game, if it is “yes” the programe will repeat. If it is “no”, rep=rep+1 then print “end game “and “game over “then exit.

2. Pseudocodes which explains the program

```
BEGIN
        name=input "Enter a Name "
        DISPLAY"                    \t\t\t", "Hi",name,"Welcome to GameInt"
        import random
        r1num=random.randint(1,6)
        import random
        r2num=random.randint(1,6)
        import random
        r3num=random.randint(1,6)
        import random
        r4num=random.randint(1,6)
        PRINT "Numbers to Guess - X X X X""""
        Color Mapping:

        1-White 2-Blue 3-Red
        4-Yellow 5-Green 6-Purple"""
        PRINT "          Enter 4 numbers and each number should be in range
        of 0-6                                                    "
        PRINT  "          If you enter 0000 as guess numbers programme will
        be  terminated”                                           "
        PRINT "Attempt No","          ","Guess","          ","Result")
        SET rep=0
        WHILE rep==0
            attempt=1
            WHILE attempt<=8
                PRINT “attempt”
                INPUT "Enter the guess number1-",num1
                INPUT "Enter the guess number2-",num2
                INPUT "Enter the guess number3-",num3
```

```
INPUT "Enter the guess number4-",num4
IF(num1==0 and num2==0 and num3==0 and num4==0):
  PRINT "Game Over"
  PRINT "End Game"
  EXIT()
IF num1>6
  PRINT "Invalid number"
ELSEIF num2>6
  PRINT "Invalid number"
ELSEIF num3>6
  PRINT "Invalid number"
ELSEIF num4>6
  PRINT "Invalid number"
ELSEIF num1<0
  PRINT "Invalid number"
ELSEIF num2<0
  PRINT "Invalid number"
ELSEIF num3<0
  PRINT "Invalid number"
ELSEIF num4<0
  PRINT "Invalid number"
ELSE
  PRINT “num1,num2,num3,num4”
ENDIF
IF  r1num==1
  r1num=="White"
ELSEIF r1num==2
  r1num=="Blue"
ELSEIF r1num==3
  r1num=="Red"
```

```
    ELSEIF r1num==4
      r1num=="Yellow"
    ELSEIF r1num==5
      r1num=="Green"
    ELSEIF r1num==6
      r1num=="Purple"
  ENDIF
    IF r2num==1
      r2num=="White"
    ELSEIF r2num==2
      r2num=="Blue"
    ELSEIF r2num==3
      r2num=="Red"
    ELSEIF r2num==4
      r2num=="Yellow"
    ELSEIF r2num==5
      r2num=="Green"
    ELSEIF r2num==6
      r2num=="Purple"
    ENDIF
    IF r3num==1
      r3num=="White"
    ELSEIF r3num==2
      r3num=="Blue"
    ELSEIF r3num==3
      r3num=="Red"
    ELSEIF r3num==4
      r3num=="Yellow"
    ELSEIF r3num==5
      r3num=="Green"
```

```
    ELSEIF r3num==6
      r3num=="Purple"
ENDIF


    IF r4num==1
      r4num=="White"
    ELIF r4num==2
      r4num=="Blue"
    ELIF(r4num==3):
      r4num=="Red"
    ELIF(r4num==4):
      r4num=="Yellow"
    ELIF(r4num==5):
      r4num=="Green"
    ELIF(r4num==6):
      r4num=="Purple"
    ELIF r1num==num1
      result1="1"
    ELIF r1num==num2
      result1="0"
    ELIF r1num==num3
      result1="0"
    ELIF r1num==num4
      result1="0"
    ELSE
ENDIF
      result1="."
    ELIF(r2num==num2):
```

```
  result2="1"
ELIF(r2num==num1):
  result2="0"
ELIF(r2num==num3):
  result2="0"
ELIF(r2num==num4):
  result2="0"

ELSE
   result2="."
IF(r3num==num3):
  result3="1"
ELSEIF(r3num==num1):
  result3="0"
ELSEIF(r3num==num2):
  result3="0"
ELSEIF(r3num==num4):
  result3="0"
ELSE
  result3="."
ENDIF
IF r4num==num4
  result4="1"
ELSEIF r4num==num1
  result4="0"
ELSEIF r4num==num2
  result4="0"
ELSEIF r4num==num3
  result4="0"
ELSE
```

```
        result4="."
    ENDIF
    PRINT "                    ",num1,num2,num3,num4," ",result1,result2,result3,result4"
    PRINT("_____
    _____")

    IF r1num==num1 and r2num==num2 and r3num==num3 and r4num==num4):
        PRINT "Congraduations!!!! You have won the game...."
        PRINT "You have scored XXX points.")
    ENDIF
        game=str(input("Do you want to continue this game (yes/no)?"
    IF game=="yes"
        rep==0
      ELSE:
        EXIT()
    ENDIF
    SET  attempt=attempt+1
    game=str(input("Do you want to continue this game (yes/no)?"))
    IF game=="yes"
      rep==0
     ELSE
      rep=rep+1
      PRINT "End Game"
      PRINT "Game Over"
      EXIT()
    ENDIF
  END WHILE
END WHILE
```

END

3. Actual python codes for the program

```
#Input name
name=input("Enter a Name ")
print("                              \t\t\t", "Hi",name,"Welcome to GameInt")



#Generating 4 random numbers
import random
r1num=random.randint(1,6)
import random
r2num=random.randint(1,6)
import random
r3num=random.randint(1,6)
import random
r4num=random.randint(1,6)
list=[r1num,r2num,r3num,r4num]


print("Numbers to Guess - X X X X""""                                                                    Color Mapping:



                                                                                                        1-White 2-Blue 3-Red
                                                                                                        4-Yellow 5-Green 6-Purple""")

print("                        Enter 4 numbers and each number should be in range of 0-6                                                ")
print("                        If you enter 0000 as guess numbers programme will be terminated                                          ")


print("Attempt No","                        ","Guess","                ","Result")
rep=0
while(rep==0):
 attempt=1
 while(attempt<=8):
     print(attempt)

#User entering 4 numbers
     num1=int(input("Enter the guess number1-"))
     num2=int(input("Enter the guess number2-"))
     num3=int(input("Enter the guess number3-"))
     num4=int(input("Enter the guess number4-"))
     list1=[num1,num2,num3,num4]
         r1num=="Red"
     elif(r1num==4):
         r1num=="Yellow"
     elif(r1num==5):
         r1num=="Green"
     elif(r1num==6):
```

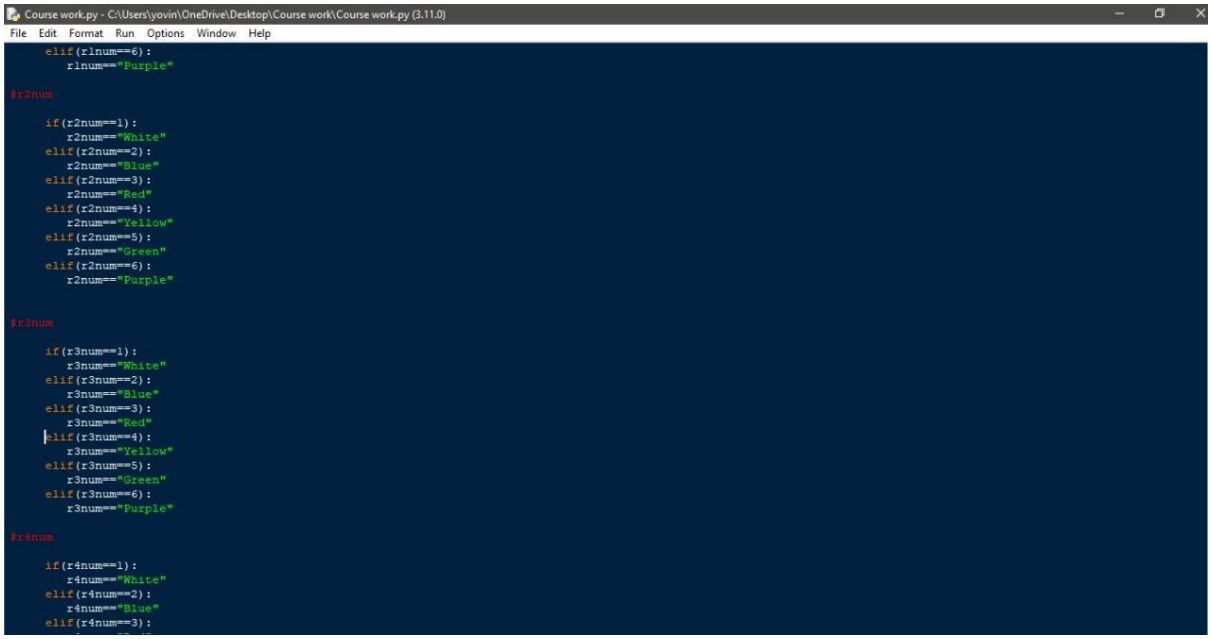
Course work.py - C:\Users\yovin\OneDrive\Desktop\Course work\Course work.py (3.11.0)

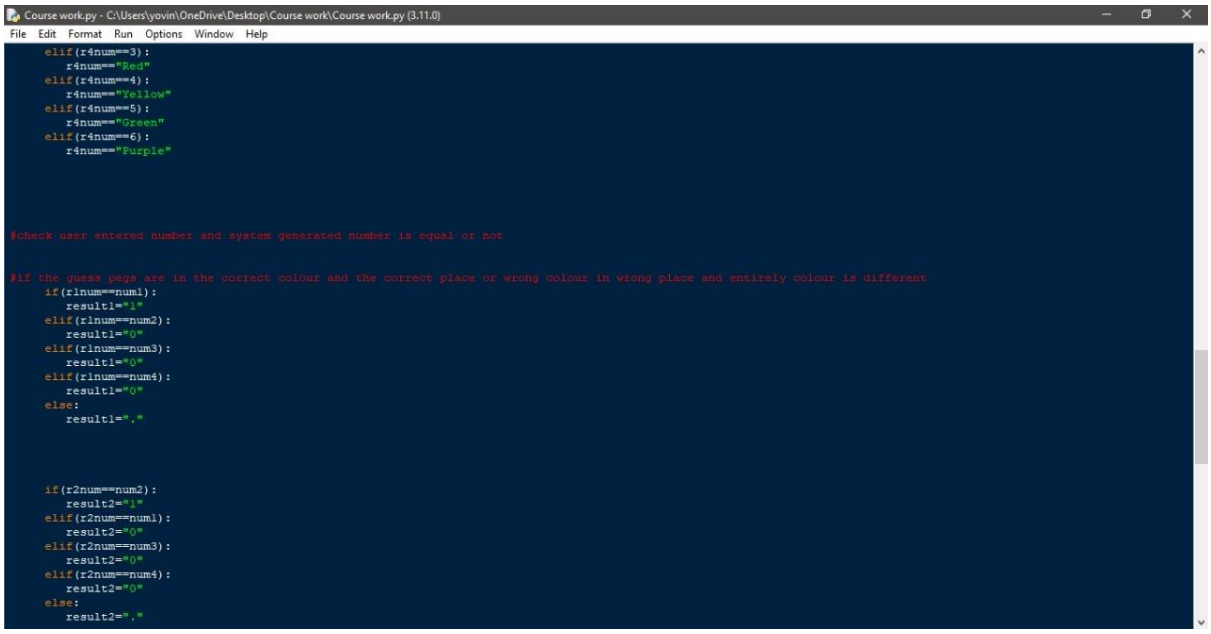
File Edit Format Run Options Window Help

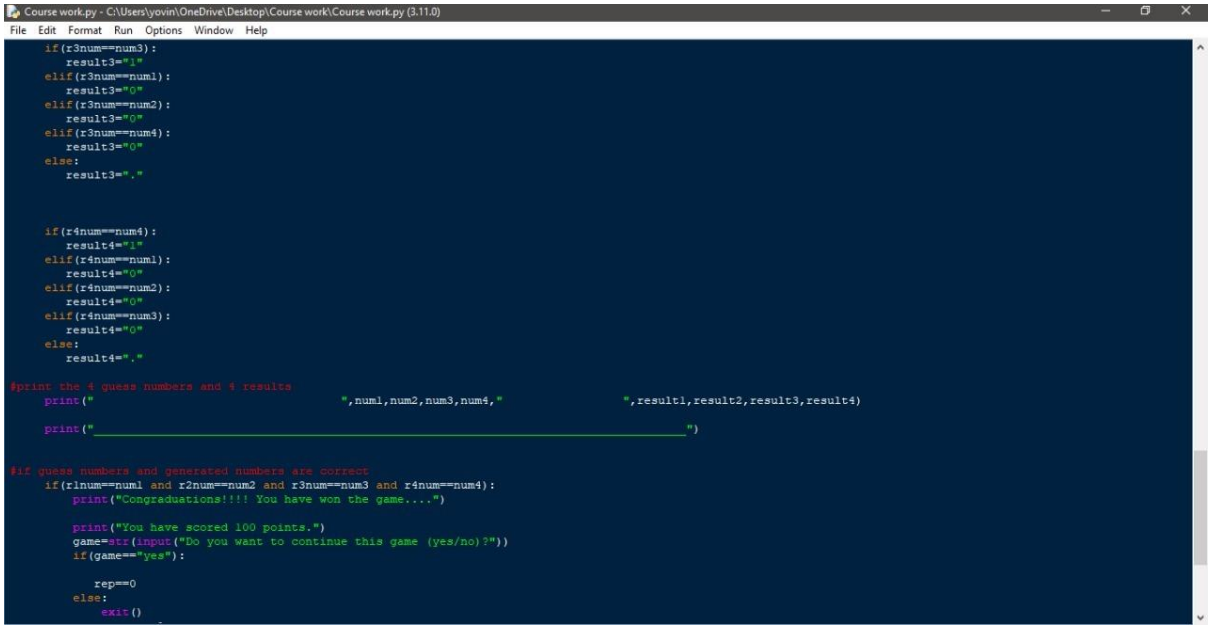
```
#If user enter 0000 Terminate the programme
     if(num1==0 and num2==0 and num3==0 and num4==0):
        print("Game Over")
        print("End Game")
        exit()
#Controling user enter numbers in range of 0-6
     if(num1>6):
        print("Invalid number")
     elif(num2>6):
        print("Invalid number")
     elif(num3>6):
        print("Invalid number")
     elif(num4>6):
        print("Invalid number")
     elif(num1<0):
        print("Invalid number")
     elif(num2<0):
        print("Invalid number")
     elif(num3<0):
        print("Invalid number")
     elif(num4<0):
        print("Invalid number")
     else:
        print(num1,num2,num3,num4)



# Matching random numbers in to colours
#r1num
     if(r1num==1):
        r1num=="White"
     elif(r1num==2):
        r1num=="Blue"
     elif(r1num==3):
        r1num=="Red"
     elif(r1num==4):
        r1num=="Yellow"
     elif(r1num==5):
        r1num=="Green"
     elif(r1num==6):
```


Course work.py - C:\Users\yovin\OneDrive\Desktop\Course work\Course work.py (3.11.0)
File Edit Format Run Options Window Help
elif(r1num==6):
r1num=="Purple"
#r2num
if(r2num==1):
r2num=="White"
elif(r2num==2):
r2num=="Blue"
elif(r2num==3):
r2num=="Red"
elif(r2num==4):
r2num=="Yellow"
elif(r2num==5):
r2num=="Green"
elif(r2num==6):
r2num=="Purple"
#r3num
if(r3num==1):
r3num=="White"
elif(r3num==2):
r3num=="Blue"
elif(r3num==3):
r3num=="Red"
elif(r3num==4):
r3num=="Yellow"
elif(r3num==5):
r3num=="Green"
elif(r3num==6):
r3num=="Purple"
#r4num
if(r4num==1):
r4num=="White"
elif(r4num==2):
r4num=="Blue"
elif(r4num==3):

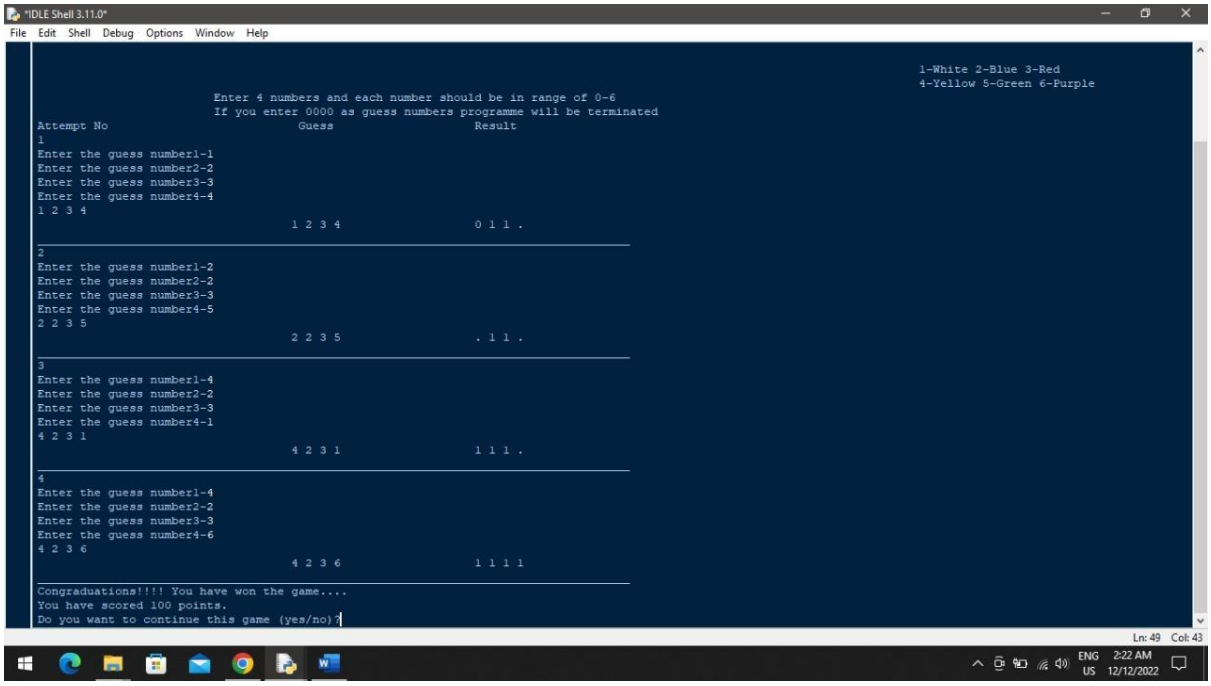

Course work.py - C:\Users\yovin\OneDrive\Desktop\Course work\Course work.py (3.11.0)
File Edit Format Run Options Window Help
elif(r4num==3):
r4num=="Red"
elif(r4num==4):
r4num=="Yellow"
elif(r4num==5):
r4num=="Green"
elif(r4num==6):
r4num=="Purple"
#check user entered number and system generated number is equal or not
#if the guess pegs are in the correct colour and the correct place or wrong colour in wrong place and entirely colour is different
if(r1num==num1):
result1="1"
elif(r1num==num2):
result1="0"
elif(r1num==num3):
result1="0"
elif(r1num==num4):
result1="0"
else:
result1="."
if(r2num==num2):
result2="1"
elif(r2num==num1):
result2="0"
elif(r2num==num3):
result2="0"
elif(r2num==num4):
result2="0"
else:
result2="."

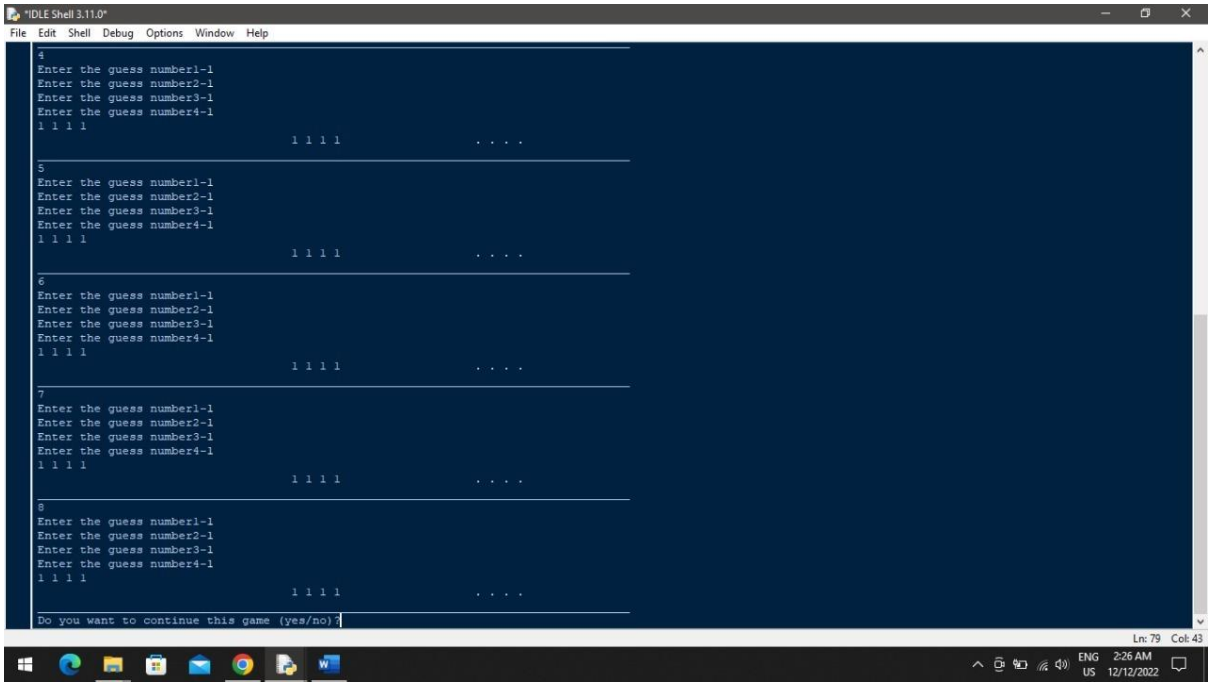

Course work.py - C:\Users\yovin\OneDrive\Desktop\Course work\Course work.py (3.11.0)
File Edit Format Run Options Window Help
if(r3num==num3):
result3="1"
elif(r3num==num1):
result3="0"
elif(r3num==num2):
result3="0"
elif(r3num==num4):
result3="0"
else:
result3="."
if(r4num==num4):
result4="1"
elif(r4num==num1):
result4="0"
elif(r4num==num2):
result4="0"
elif(r4num==num3):
result4="0"
else:
result4="."
#print the 4 guess numbers and 4 results
print(" ",num1,num2,num3,num4," ",result1,result2,result3,result4)
print("_____")
#if guess numbers and generated numbers are correct
if(r1num==num1 and r2num==num2 and r3num==num3 and r4num==num4):
print("Congraduations!!!! You have won the game....")
print("You have scored 100 points.")
game=str(input("Do you want to continue this game (yes/no)?"))
if(game=="yes"):
rep==0
else:
exit()


attempt=attempt+1
#game running process
game=str(input("Do you want to continue this game (yes/no)?"))
if(game=="yes"):
rep==0
else:
rep=rep+1
print("End Game")
print("Game Over")
exit()
Ln: 110 Col: 5

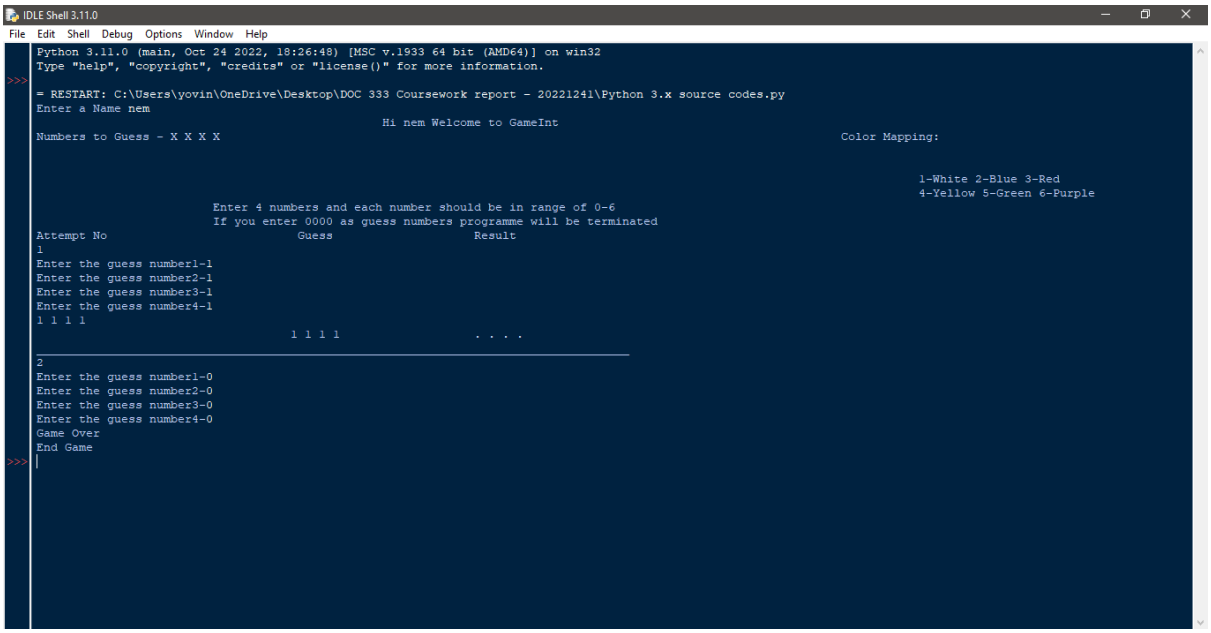
4. Screenshots of the working program

4.1 Positive

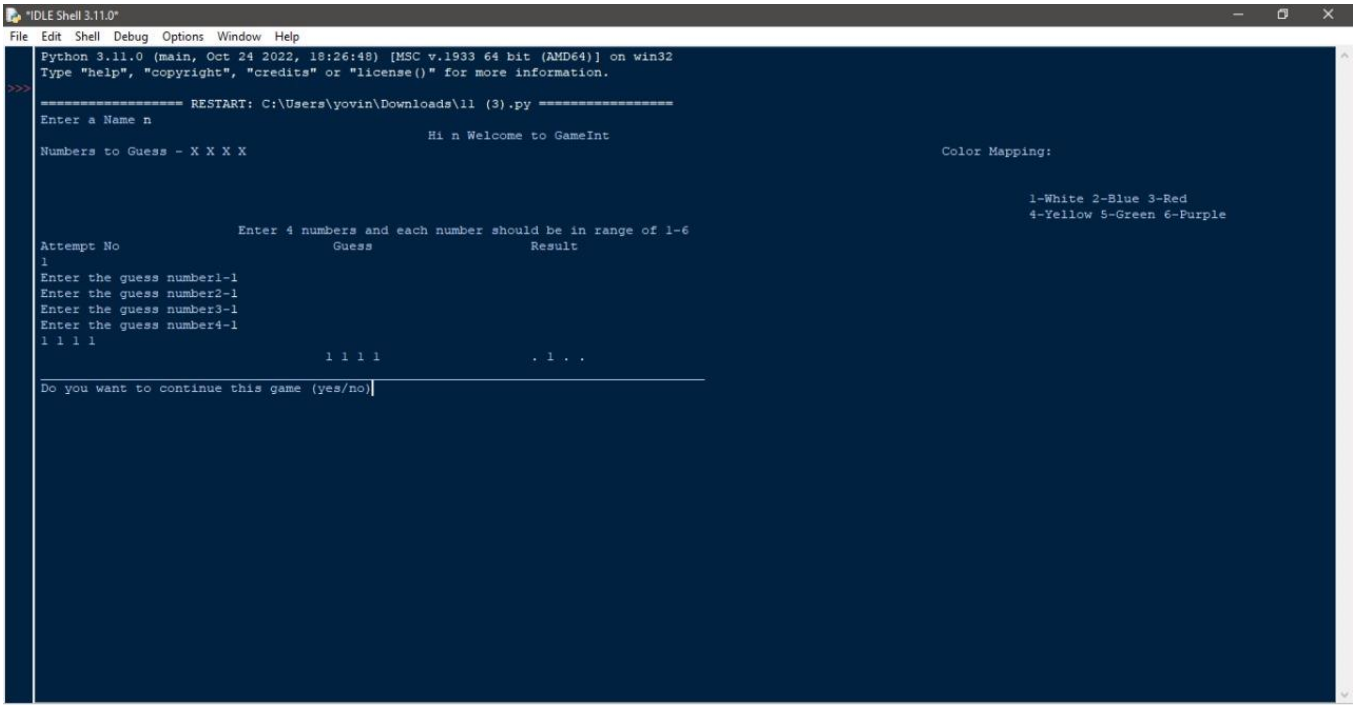


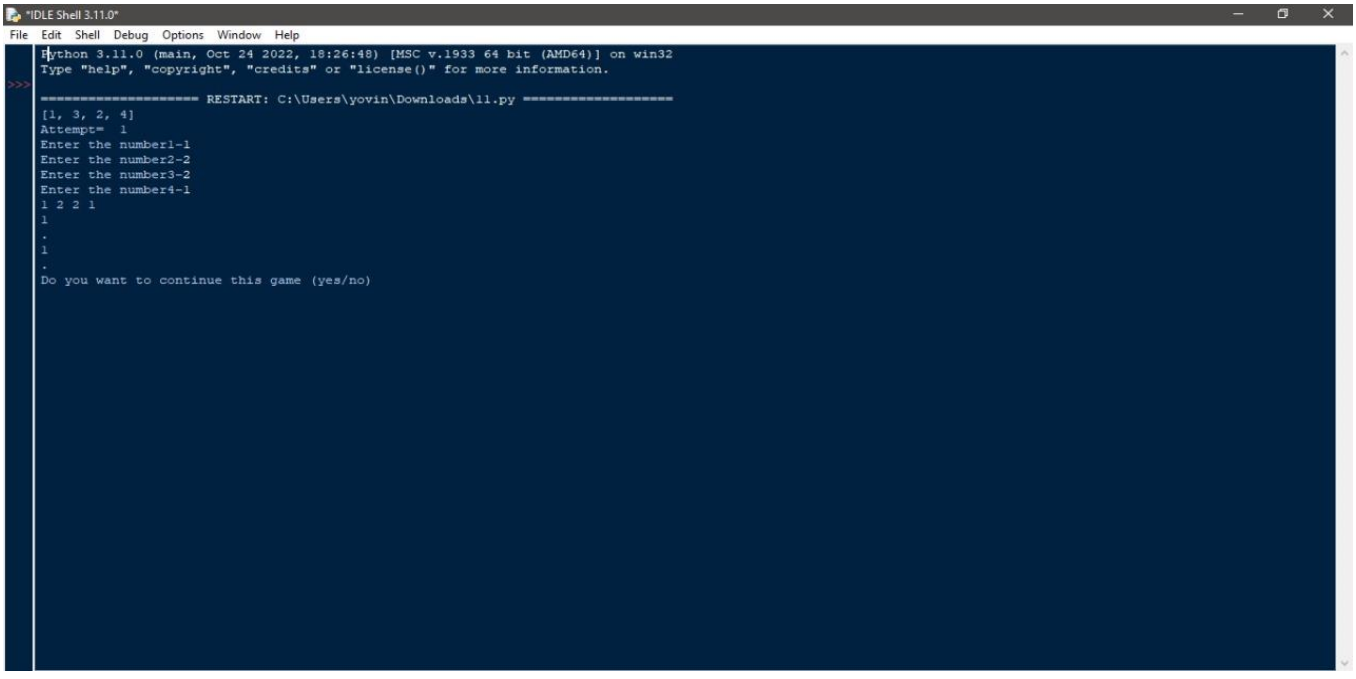



IDLE Shell 3.11.0
File Edit Shell Debug Options Window Help
Enter the guess number2-1
Enter the guess number3-1
Enter the guess number4-1
1 1 1 1
1 1 1 1 1 . . .
6
Enter the guess number1-1
Enter the guess number2-1
Enter the guess number3-1
Enter the guess number4-1
1 1 1 1
1 1 1 1 1 . . .
7
Enter the guess number1-1
Enter the guess number2-1
Enter the guess number3-1
Enter the guess number4-1
1 1 1 1
1 1 1 1 1 . . .
8
Enter the guess number1-1
Enter the guess number2-1
Enter the guess number3-1
Enter the guess number4-1
1 1 1 1
1 1 1 1 1 . . .
Do you want to continue this game (yes/no)?yes
1
Enter the guess number1-1
Enter the guess number2-1
Enter the guess number3-1
Enter the guess number4-1
1 1 1 1
1 1 1 1 1 . . .
2
Enter the guess number1-
Ln: 89 Col: 24


IDLE Shell 3.11.0
File Edit Shell Debug Options Window Help
Python 3.11.0 (main, Oct 24 2022, 18:26:48) [MSC v.1933 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:\Users\yovin\OneDrive\Desktop\DOC 333 Coursework report - 20221241\Python 3.x source codes.py
Enter a Name nem
Hi nem Welcome to GameInt
Numbers to Guess - X X X X
Color Mapping:
1-White 2-Blue 3-Red
4-Yellow 5-Green 6-Purple
Enter 4 numbers and each number should be in range of 0-6
If you enter 0000 as guess numbers programme will be terminated
Attempt No
Guess
Result
1
Enter the guess number1-1
Enter the guess number2-1
Enter the guess number3-1
Enter the guess number4-1
1 1 1 1
1 1 1 1 . . . .
2
Enter the guess number1-0
Enter the guess number2-0
Enter the guess number3-0
Enter the guess number4-0
Game Over
End Game
>>>

4.2 Negative


IDLE Shell 3.11.0
File Edit Shell Debug Options Window Help
Python 3.11.0 (main, Oct 24 2022, 18:26:48) [MSC v.1933 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
========== RESTART: C:\Users\yovin\Downloads\11 (3).py ==========
Enter a Name n
Hi n Welcome to GameInt
Numbers to Guess - X X X X
Color Mapping:
1-White 2-Blue 3-Red
4-Yellow 5-Green 6-Purple
Enter 4 numbers and each number should be in range of 1-6
Attempt No
Guess
Result
1
Enter the guess number1-1
Enter the guess number2-1
Enter the guess number3-1
Enter the guess number4-1
1 1 1 1
1 1 1 1
. 1 . .
Do you want to continue this game (yes/no)


IDLE Shell 3.11.0
File Edit Shell Debug Options Window Help
Python 3.11.0 (main, Oct 24 2022, 18:26:48) [MSC v.1933 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
========== RESTART: C:\Users\yovin\Downloads\11.py ==========
[1, 3, 2, 4]
Attempt= 1
Enter the number1-1
Enter the number2-2
Enter the number3-2
Enter the number4-1
1 2 2 1
1
.
1
.
Do you want to continue this game (yes/no)

5. Conclusion

Deduction game where each player takes turn making a limited number of guesses, using logic to deduce what pegs the opponent has hidden. Code maker secretly puts four colored pegs and put in spaces behind a screen at once end of the game board. Other player guesses by entering 4-digit number at each guess. The system should be able to generate a 4-digit random number where each digit is in the range of 1-6. The user should NOT accept any number where the number does not fall into criteria specified in point 4. and should give appropriate error message if the criteria do not match.