

Python TW 1

Program to read distance in kilometers and then
display it in meters($\text{km} * 1000$),
feet (1 meter = 3.2805399), inches (1 feet = 12
inches) and centimeters(1 inch = 2.56 cms)

NAME : ADVAIT GURUNATH CHAVAN

PRN : 4119008

BRANCH : S.E. ELECTRONICS, SEM 4

PROGRAM

```
"""TW PROGRAM 1 """
```

```
"""Program to read distance in kilometers and then display it in  
meters(km*1000),  
feet (1 meter = 3.2805399), inches (1 feet = 12 inches) and centimeters(1 inch  
= 2.56 cms)
```

```
"""
```

```
km = float(input("Enter the distance between two cities in kilometers: "))
```

```
meters = km * 1000
```

```
feets = meters * 3.2805399
```

```
inches = feets * 12
```

```
centimeters = inches * 2.56
```

```
print(km, f"Kilometers is ", meters, " in meters")
```

```
print(km, f"Kilometers is ", feets, " in feets")
```

```
print(km, f"Kilometers is ", inches, " in inches")
```

```
print(km, f"Kilometers is ", centimeters, " in centimeters")
```

OUTPUT :-

The screenshot shows a PyCharm IDE interface with the following details:

- Project:** Python - distance.py
- File Menu:** File Edit View Navigate Code Refactor Run Tools VCS Window Help
- Toolbars:** Standard toolbar with icons for Run, Stop, Refresh, and others.
- Search Bar:** A search bar with a magnifying glass icon.
- Scratches:** A folder under Scratches and Consoles containing a file named scratch.py.
- Code Editor:** The distance.py file is open, displaying the following code:

```
"""TW PROGRAM 1 """
"""
Program to read distance in kilometers and then display it in meters(km*1000),
feets (1 meter = 3.2805399), inches (1 feet = 12 inches) and centimeters(1 inch = 2.56 cms)

km = float(input("Enter the distance between two cities in Kilometers: "))
meters = km * 1000
feets = meters * 3.2805399
inches = feets * 12
centimeters = inches * 2.56
print(km, f"Kilometers is ", meters, " in meters")
print(km, f"Kilometers is ", feets, " in feets")
print(km, f"Kilometers is ", inches, " in inches")
print(km, f"Kilometers is ", centimeters, " in centimeters")
```
- Run Tab:** Shows the command: "C:\Users\Advait\Desktop\degree\SE\SEM 4\Python\venv\Scripts\python.exe" "C:/Users/Advait/Desktop/degree/SE/SEM 4/Python/distance.py". The output window displays the following results:

```
Enter the distance between two cities in Kilometers: 4108
4108.0 Kilometers is 4108000.0 in meters
4108.0 Kilometers is 13476457.9092 in feets
4108.0 Kilometers is 161717494.9104 in inches
4108.0 Kilometers is 413996786.970624 in centimeters
```

Process finished with exit code 0
- Bottom Navigation:** Run, TODO, Problems, Debug, Terminal, Python Console, Event Log.

Python TW 2

Program to carry out the following operations on the given set

s = {10, 2, -3, 4, 5, 88}

- a. Number of items in sets s**
- b. Maximum element in sets s**
- c. Minimum element in sets s**
- d. Sum of all elements in sets s**
- e. Obtain a new sorted set from s, set s remaining unchanged**
- f. Report whether 88 is an element of sets s**
- g. Report whether -3 is not an element of sets s**

NAME : ADVAIT GURUNATH CHAVAN

PRN : 4119008

BRANCH : SE ELECTRONICS, SEM 4

PROGRAM :-

""""**NAME: ADVAIT GURUNATH CHAVAN, PRN: 4119008, SE
ELECTRONICS, SEM 4, TW2 , DATE : 29/03/2021**"""

```
set_s = {10, 2, -3, 4, 5, 88}
print("The number of items in set s is : ", len(set_s))
print("The maximum element in set s is : ", max(set_s))
print("The minimum element in set s is : ", min(set_s))
print("The sum of all elements in the set s is : ", sum(set_s))
sorted_set_s = sorted(set_s)
print("The sorted set s is : ", sorted_set_s)
print("Whether 88 is an element of set s : ", 88 in set_s)
print("Whether -3 is not an element of set s : ", -3 not in set_s)
```

OUTPUT :-

The screenshot shows the PyCharm IDE interface with the following details:

- Title Bar:** TW_2.py - TW_2.py
- Menu Bar:** File, Edit, View, Navigate, Code, Refactor, Run, Tools, VCS, Window, Help
- Toolbar:** Project, Run, Stop, Refresh, Python Console, Event Log.
- Project Tree:** TW2, External Libraries, Scratches and Consoles.
- Code Editor:** TW_2.py containing Python code to demonstrate set operations.
- Output Panel:** Run: TW_2, showing the execution results of the code.
- Bottom Navigation:** Run, TODO, Problems, Terminal, Python Console, Event Log.

```
TW_2.py
1 """NAME: ADVAIT GURUNATH CHAVAN, PRN: 4119008, SE ELECTRONICS, SEM 4, TW2 , DATE : 29/03/2021"""
2 set_s = {10, 2, -3, 4, 5, 88}
3 print("The number of items in set s is : ", len(set_s))
4 print("The maximum element in set s is : ", max(set_s))
5 print("The minimum element in set s is : ", min(set_s))
6 print("The sum of all elements in the set s is : ", sum(set_s))
7 sorted_set_s = sorted(set_s)
8 print("The sorted set s is : ", sorted_set_s)
9 print("Whether 88 is an element of set s : ", 88 in set_s)
10 print("Whether -3 is not an element of set s : ", -3 not in set_s)
11
```

Run: TW_2

```
C:\Users\Advait\Desktop\degree\SE\SEM 4\Python\TW\TW2\venv\Scripts\python.exe "C:/Users/Advait/Desktop/degree/SE/SEM 4/Python/TW/TW2/TW_2.py"
The number of items in set s is : 6
The maximum element in set s is : 88
The minimum element in set s is : -3
The sum of all elements in the set s is : 106
The sorted set s is : [-3, 2, 4, 5, 10, 88]
Whether 88 is an element of set s : True
Whether -3 is not an element of set s : False

Process finished with exit code 0
```

PYTHON TW - 3

Write a program to understand different file handling operations.

NAME : ADVAIT GURUNATH CHAVAN

PRN : 419008

BRANCH : S.E. ELECTRONICS, SEM 4

PROGRAM :

```
"""""Name : ADVAIT GURUNATH CHAVAN ; PRN : 4119008"""
file = open('name_prn.txt', 'w')
file.write("NAME : ADVAIT GURUNATH CHAVAN \n")
file.write("PRN : 4119008")
file.close()
file = open('name_prn.txt', 'r')
for line in file:
    print(line, "\n")
file.close()
```

OUTPUT :

"C:\Users\Advait\Desktop\degree\SE\SEM
4\Python\TW\TW3\venv\Scripts\python.exe"

"C:/Users/Advait/Desktop/degree/SE/SEM 4/Python/TW/TW3/TW3.py"

NAME : ADVAIT GURUNATH CHAVAN

PRN : 4119008

Process finished with exit code 0

OUTPUT :

The screenshot shows the PyCharm IDE interface. The top bar displays the title "TW3 – TW3.py". The menu bar includes File, Edit, View, Navigate, Code, Refactor, Run, Tools, VCS, Window, and Help. The toolbar on the right contains icons for Run, Stop, Refresh, and Search. The Project tool window on the left shows a single file "TW3.py". The code in "TW3.py" is as follows:

```
1 """Name : ADVAIT GURUNATH CHAVAN ; PRN : 4119008"""
2 file = open('name_prn.txt', 'w')
3 file.write("NAME : ADVAIT GURUNATH CHAVAN \n")
4 file.write("PRN : 4119008")
5 file.close()
6 file = open('name_prn.txt', 'r')
7 for line in file:
8     print(line, "\n")
9 file.close()
```

The Run tool window at the bottom shows the output of the script:

```
Run: TW3 ×
C:\Users\Advait\Desktop\degree\SE\SEM 4\Python\TW\TW3\venv\Scripts\python.exe" "C:/Users/Advait/Desktop/degree/SE/SEM 4/Python/TW/TW3/TW3.py"
NAME : ADVAIT GURUNATH CHAVAN

PRN : 4119008

Process finished with exit code 0
```

The bottom navigation bar includes Run, TODO, Problems, Terminal, Python Console, and Event Log.

Python TW 4

Program to create 3 lists – a list of names, a list of ages and a list of salaries.

Generate and print a list of tuples containing name, age and salary from the 3 lists.

From this list generate 3 tuples – one containing all names, another containing all ages and third containing all salaries.

NAME : ADVAIT GURUNATH CHAVAN

PRN : 4119008

BRANCH : S.E. ELECTRONICS, SEM 4

PROGRAM :-

""“NAME : ADVAIT GURUNATH CHAVAN, PRN : 4119008, S.E. ELECTRONICS, SEM IV, TW4””

””Program to create 3 lists – a list of names, a list of ages and a list of salaries. Generate and print a list of tuples containing name, age and salary from the 3 lists. From this list generate 3 tuples – one containing all names, another containing all ages and third containing all salaries.””

creating four list

```
list_name = ['ADVAIT', 'MARK', 'ELON MUSK']
```

```
list_ages = [19, 49, 42]
```

```
list_code = [4119008, 12, 16, 78]
```

```
list_salary = [900000, 800000, 350000]
```

merging the list to create tuples

```
tuple1 = (list_name[0], list_ages[0], list_code[0], list_salary[0])
```

```
tuple2 = (list_name[1], list_ages[1], list_code[1], list_salary[1])
```

```
tuple3 = (list_name[2], list_ages[2], list_code[2], list_salary[2])
```

```
print("Displaying the merged tuples :-")
```

```
print("Details of employee 1 : ", tuple1)
```

```
print("Details of employee 2 : ", tuple2)
```

```
print("Details of employee 3 : ", tuple3)
```

merging the tuples to have name age and salary in separate tuples

```
tuple_name = (tuple1[0], tuple2[0], tuple3[0])
```

```
tuple_ages = (tuple1[1], tuple2[1], tuple3[1])
```

```
tuple_code = (tuple1[2], tuple2[2], tuple3[2])
```

```
tuple_salary = (tuple1[3], tuple2[3], tuple3[3])
```

```
print("Displaying the separated tuples :-")
```

```
print("Names of the employees : ", tuple_name)
```

```
print("Ages of the employees : ", tuple_ages)
```

```
print("Codes of the employees : ", tuple_code)
```

```
print("Salaries of the employees : ", tuple_salary)
```

OUTPUT :-

"C:\Users\Advait\Desktop\degree\SE\SEM

4\Python\TW\TW4\venv\Scripts\python.exe"

"C:/Users/Advait/Desktop/degree/SE/SEM 4/Python/TW/TW4/TW4.py"

Displaying the merged tuples :-

Details of employee 1 : ('ADVAIT', 19, 4119008, 900000)

Details of employee 2 : ('MARK', 49, 12, 800000)

Details of employee 3 : ('ELON MUSK', 42, 16, 350000)

Displaying the separated tuples :-

Names of the employees : ('ADVAIT', 'MARK', 'ELON MUSK')

Ages of the employees : (19, 49, 42)

Codes of the employees : (4119008, 12, 16)

Salaries of the employees : (900000, 800000, 350000)

Process finished with exit code 0

Process finished with exit code 0

```
1 """NAME : ADVAIT GURUNATH CHAVAN , PRN: 4119008, S.E. ELECTRONICS, SEM IV, TW4"""
2 """Program to create 3 lists - a list of names, a list of ages and a list of salaries.
3 Generate and print a list of tuples containing name, age and salary
4 from the 3 lists. From this list generate 3 tuples - one containing all
5 names, another containing all ages and third containing all salaries."""
6
7 # creating four list
8 list_name = ['ADVAIT', 'MARK', 'ELON MUSK']
9 list_ages = [19, 49, 42]
10 list_code = [4119008, 12, 16, 78]
11 list_salary = [900000, 800000, 350000]
12
13 # merging the list to create tuples
14 tuple1 = (list_name[0], list_ages[0], list_code[0], list_salary[0])
15 tuple2 = (list_name[1], list_ages[1], list_code[1], list_salary[1])
16 tuple3 = (list_name[2], list_ages[2], list_code[2], list_salary[2])
17
18 print("Displaying the merged tuples :-")
19 print("Details of employee 1 : ", tuple1)
20 print("Details of employee 2 : ", tuple2)
21 print("Details of employee 3 : ", tuple3)
22
23 # merging the tuples to have name age and salary in separate tuples
24 tuple_name = (tuple1[0], tuple2[0], tuple3[0])
25 tuple_ages = (tuple1[1], tuple2[1], tuple3[1])
26 tuple_salary = (tuple1[2], tuple2[2], tuple3[2])
```

```
11 list_salary = [900000, 800000, 350000]
12
13 # merging the list to create tuples
14 tuple1 = (list_name[0], list_ages[0], list_code[0], list_salary[0])
15 tuple2 = (list_name[1], list_ages[1], list_code[1], list_salary[1])
16 tuple3 = (list_name[2], list_ages[2], list_code[2], list_salary[2])
17
18 print("Displaying the merged tuples :-")
19 print("Details of employee 1 : ", tuple1)
20 print("Details of employee 2 : ", tuple2)
21 print("Details of employee 3 : ", tuple3)
22
23 # merging the tuples to have name age and salary in separate tuples
24 tuple_name = (tuple1[0], tuple2[0], tuple3[0])
25 tuple_ages = (tuple1[1], tuple2[1], tuple3[1])
26 tuple_code = (tuple1[2], tuple2[2], tuple3[2])
27 tuple_salary = (tuple1[3], tuple2[3], tuple3[3])
28 print("Displaying the separated tuples :-")
29 print("Names of the employees : ", tuple_name)
30 print("Ages of the employees : ", tuple_ages)
31 print("Codes of the employees : ", tuple_code)
32 print("Salaries of the employees : ", tuple_salary)
33
```

TW4 – TW4.py

File Edit View Navigate Code Refactor Run Tools VCS Window Help

TW4 > TW4.py

TW4

Project

TW4.py

```
24 tuple_name = (tuple1[0], tuple2[0], tuple3[0])
25 tuple_ages = (tuple1[1], tuple2[1], tuple3[1])
26 tuple_code = (tuple1[2], tuple2[2], tuple3[2])
27 tuple_salary = (tuple1[3], tuple2[3], tuple3[3])
28 print("Displaying the separated tuples :-")
29 print("Names of the employees : ", tuple_name)
30 print("Ages of the employees : ", tuple_ages)
31 print("Codes of the employees : ", tuple_code)
32 print("Salaries of the employees : ", tuple_salary)
33
```

Run: TW4

C:\Users\Advait\Desktop\degree\SE\SEM 4\Python\TW\TW4\venv\Scripts\python.exe "C:/Users/Advait/Desktop/degree/SE/SEM 4/Python/TW/TW4/TW4.py"

Displaying the merged tuples :-

Details of employee 1 : ('ADVAIT', 19, 4119008, 900000)

Details of employee 2 : ('MARK', 49, 12, 800000)

Details of employee 3 : ('ELON MUSK', 42, 16, 350000)

Displaying the separated tuples :-

Names of the employees : ('ADVAIT', 'MARK', 'ELON MUSK')

Ages of the employees : (19, 49, 42)

Codes of the employees : (4119008, 12, 16)

Salaries of the employees : (900000, 800000, 350000)

Process finished with exit code 0

Run TODO Problems Terminal Python Console Event Log

33:1 CRLF UTF-8 4 spaces Python 3.8 (TW4)

Python TW 5

If ages of Ram, Shyam, and Ajay are given as an input through the keyboard, write a program to determine the youngest of the three. Write a program using object and class.

NAME : ADVAIT GURUNATH CHAVAN

PRN : 4119008

BRANCH : S.E. ELECTRONICS, SEM 4

PROGRAM :-

"""**NAME : ADVAIT GURUNATH CHAVAN, PRN : 4119008, S.E.ELECTRONICS, SEM IV**"""
"""**If ages of Ram, Shyam, and Ajay are given as an input through the keyboard, write a program to determine the youngest of the three.**
write a program using object and class"""

```
class Youngest: # Creation of class Youngest
    Ram_age = 0
    Shyam_age = 0
    Ajay_age = 0

    def read_age(self):
        self.Ram_age = int(input("Enter the age of Ram in numeric form : "))
        self.Ajay_age = int(input("Enter the age of Ajay in numeric form : "))
        self.Shyam_age = int(input("Enter the age of Shyam in numeric form : "))

    def display_age(self):
        print("Age of Ram entered by you is : ", self.Ram_age)
        print("Age of Shyam entered by you is : ", self.Shyam_age)
        print("Age of Ajay entered by you is : ", self.Ajay_age)
```

PROGRAM (CONT..):-

def validation(self):

```
if self.Ram_age <= 0 or self.Ajay_age <= 0 or self.Shyam_age <= 0:  
    print("Age must be greater than 0")  
    print("The age entered by you for Ram, Shyam or Ajay might be less than 0 or 0")  
    print("Please check and run the program again with correct age numbers.")  
    print("Exiting the program.....")  
    exit(0)  
  
if self.Ram_age > 120 or self.Ajay_age > 120 or self.Shyam_age > 120:  
    print("Age cannot be greater than 120. It is impractical(Practically not possible/not  
        possible in reality)")  
    print("The age entered by you for Ram, Shyam or Ajay might be greater than 120")  
    print("Please check and run the program again with correct age numbers.")  
    print("Exiting the program.....")  
    exit(0)
```

def find_youngest(self):

```
if self.Ram_age < self.Shyam_age and self.Ram_age < self.Ajay_age:  
    print("Ram is the youngest!!")  
elif self.Shyam_age < self.Ajay_age:  
    print("Shyam is the youngest!!")  
else:  
    print("Ajay is the youngest!!")
```

PROGRAM (CONT....):-

```
y1 = Youngest() # Creation of object y1  
y1.read_age()  
y1.display_age()  
y1.validation()  
y1.find_youngest()
```

```
1 """NAME : ADVAIT GURUNATH CHAVAN, PRN : 4119008, S.E.ELECTRONICS, SEM IV"""
2
3 """If ages of Ram, Shyam, and Ajay are given as an input through the keyboard, write a program to
4 determine the youngest of the three.
5
6
7 class Youngest: # Creation of class Youngest
8     Ram_age = 0
9     Shyam_age = 0
10    Ajay_age = 0
11
12    def read_age(self):
13        self.Ram_age = int(input("Enter the age of Ram in numeric form : "))
14        self.Ajay_age = int(input("Enter the age of Ajay in numeric form : "))
15        self.Shyam_age = int(input("Enter the age of Shyam in numeric form : "))
16
17    def display_age(self):
18        print("Age of Ram entered by you is : ", self.Ram_age)
19        print("Age of Shyam entered by you is : ", self.Shyam_age)
20        print("Age of Ajay entered by you is : ", self.Ajay_age)
21
22    def validation(self):
23        if self.Ram_age <= 0 or self.Ajay_age <= 0 or self.Shyam_age <= 0:
24            print("Age must be greater than 0")
25            print("The age entered by you for Ram, Shyam or Ajay might be less than 0 or 0")
26            print("Please check and run the program again with correct age numbers.")
27            print("Exiting the program.....")
```

Youngest > validation() > if self.Ram_age > 120 or self.A...

```
19     print("Age of Shyam entered by you is : ", self.Shyam_age)
20     print("Age of Ajay entered by you is : ", self.Ajay_age)
21
22     def validation(self):
23         if self.Ram_age <= 0 or self.Ajay_age <= 0 or self.Shyam_age <= 0:
24             print("Age must be greater than 0")
25             print("The age entered by you for Ram, Shyam or Ajay might be less than 0 or 0")
26             print("Please check and run the program again with correct age numbers.")
27             print("Exiting the program.....")
28             exit(0)
29
30         if self.Ram_age > 120 or self.Ajay_age > 120 or self.Shyam_age > 120:
31             print("Age cannot be greater than 120. It is impractical(Practically not possible/not possible in reality)")
32             print("The age entered by you for Ram, Shyam or Ajay might be greater than 120")
33             print("Please check and run the program again with correct age numbers.")
34             print("Exiting the program.....")
35             exit(0)
36
37     def find_youngest(self):
38         if self.Ram_age < self.Shyam_age and self.Ram_age < self.Ajay_age:
39             print("Ram is the youngest!!")
40         elif self.Shyam_age < self.Ajay_age:
41             print("Shyam is the youngest!!")
42         else:
43             print("Ajay is the youngest!!")
44
45
46 y1 = Youngest() # Creation of object y1
47 Youngest > validation() > if self.Ram_age > 120 or self.A...
```

```
25     print("The age entered by you for Ram, Shyam or Ajay might be less than 0 or 0")
26     print("Please check and run the program again with correct age numbers.")
27     print("Exiting the program.....")
28     exit(0)
29
30     if self.Ram_age > 120 or self.Ajay_age > 120 or self.Shyam_age > 120:
31         print("Age cannot be greater than 120. It is impractical(Practically not possible/not possible in reality)")
32         print("The age entered by you for Ram, Shyam or Ajay might be greater than 120")
33         print("Please check and run the program again with correct age numbers.")
34         print("Exiting the program.....")
35         exit(0)
36
37     def find_youngest(self):
38         if self.Ram_age < self.Shyam_age and self.Ram_age < self.Ajay_age:
39             print("Ram is the youngest!!")
40         elif self.Shyam_age < self.Ajay_age:
41             print("Shyam is the youngest!!")
42         else:
43             print("Ajay is the youngest!!")
44
45     y1 = Youngest() # Creation of object y1
46     y1.read_age()
47     y1.display_age()
48     y1.validation()
49     y1.find_youngest()
```

Youngest > validation() > if self.Ram_age > 120 or self.A...

```
43  
44  
45 y1 = Youngest() # Creation of object y1  
46 y1.read_age()  
47 y1.display_age()  
48 y1.validation()  
49 y1.find_youngest()  
50
```

Youngest > validation() > if self.Ram_age > 120 or self.A...

```
"C:\Users\Advait\Desktop\degree\SE\SEM 4\Python\TW\TW5\venv\Scripts\python.exe" "C:/Users/Advait/Desktop/degree/SE/SEM 4/Python/TW/TW5/TW5.py"  
Enter the age of Ram in numeric form : 56  
Enter the age of Ajay in numeric form : 121  
Enter the age of Shyam in numeric form : 32  
Age of Ram entered by you is : 56  
Age of Shyam entered by you is : 32  
Age of Ajay entered by you is : 121  
Age cannot be greater than 120. It is impractical(Practically not possible/not possible in reality)  
The age entered by you for Ram, Shyam or Ajay might be greater than 120  
Please check and run the program again with correct age numbers.  
Exiting the program.....  
  
Process finished with exit code 0
```

```
43  
44  
45 y1 = Youngest() # Creation of object y1  
46 y1.read_age()  
47 y1.display_age()  
48 y1.validation()  
49 y1.find_youngest()  
50
```

Youngest > validation() > if self.Ram_age > 120 or self.A...

```
"C:\Users\Advait\Desktop\degree\SE\SEM 4\Python\TW\TW5\venv\Scripts\python.exe" "C:/Users/Advait/Desktop/degree/SE/SEM 4/Python/TW/TW5/TW5.py"
```

```
Enter the age of Ram in numeric form : 52
```

```
Enter the age of Ajay in numeric form : -63
```

```
Enter the age of Shyam in numeric form : 59
```

```
Age of Ram entered by you is : 52
```

```
Age of Shyam entered by you is : 59
```

```
Age of Ajay entered by you is : -63
```

```
Age must be greater than 0
```

```
The age entered by you for Ram, Shyam or Ajay might be less than 0 or 0
```

```
Please check and run the program again with correct age numbers.
```

```
Exiting the program.....
```

```
Process finished with exit code 0
```



File Edit View Navigate Code Refactor Run Tools VCS Window Help

TW5 > TW5.py



Project TW5.py

```
43  
44  
45 y1 = Youngest() # Creation of object y1  
46 y1.read_age()  
47 y1.display_age()  
48 y1.validation()  
49 y1.find_youngest()  
50
```

Youngest > validation() > if self.Ram_age > 120 or self.A...

Run: TW5

"C:\Users\Advait\Desktop\degree\SE\SEM 4\Python\TW\TW5\venv\Scripts\python.exe" "C:/Users/Advait/Desktop/degree/SE/SEM 4/Python/TW/TW5/TW5.py"

Enter the age of Ram in numeric form : 23

Enter the age of Ajay in numeric form : 34

Enter the age of Shyam in numeric form : 56

Age of Ram entered by you is : 23

Age of Shyam entered by you is : 56

Age of Ajay entered by you is : 34

Ram is the youngest!!

Process finished with exit code 0

Structure
Favorites

Run TODO Problems Terminal Python Console

Event Log

11:1 CRLF UTF-8 4 spaces Python 3.8 (TW5)

Python TW 6

Program to find factorial of a number entered through keyboard by applying validation for the user to enter always an integer value(no character or float or string) and also for symbols and negative numbers and spaces. Program will reattempt for user input if the user enters an invalid number.

NAME : ADVAIT GURUNATH CHAVAN

PRN : 4119008

BRANCH : S.E. ELECTRONICS, SEM 4

PROGRAM :

"**NAME : ADVAIT GURUNATH CHAVAN, PRN : 4119008, S.E.
ELECTRONICS, SEM 4, TW-6**""

"**Program to find factorial of a number entered through
keyboard by applying validation for the user to enter always
an integer value(no character or float or string) and also for
symbols and negative numbers and spaces. Program will
reattempt for user input if the
user enters an invalid number**""

fact_number = 0

flag = True

PROGRAM (CONT....):

```
while flag:  
    try:  
        fact_number = int(input("Enter the number whose  
factorial needs to be found : "))  
    except ValueError:  
        print("Factorial can be found for only integer numbers")  
    else:  
        if fact_number < 0:  
            print("Sorry number can't be a negative number")  
        else:  
            flag = False
```

PROGRAM (CONT....):

```
fact_result = 1
i = 1
for i in range(i, fact_number + i):
    fact_result = fact_result * i
print(f"The factorial of the entered number {fact_number} is
{fact_result}")
```

```
1 """NAME : ADVAIT GURUNATH CHAVAN, PRN : 4119008, S.E. ELECTRONICS, SEM 4, TW-6"""
2 """Program to find factorial of a number entered through keyboard by applying
3 validation for the user to enter always an integer value(no character or float or string )
4 and also for symbols and negative numbers and spaces. Program will reattempt for user input if the
5 user enters an invalid number"""
6 fact_number = 0
7 flag = True
8 while flag:
9     try:
10         fact_number = int(input("Enter the number whose factorial needs to be found : "))
11     except ValueError:
12         print("Factorial can be found for only integer numbers")
13     else:
14         if fact_number < 0:
15             print("Sorry number can't be a negative number")
16         else:
17             flag = False
18
19 fact_result = 1
20 i = 1
21 for i in range(i, fact_number + i):
22     fact_result = fact_result * i
23 print(f"The factorial of the entered number {fact_number} is {fact_result}")
24
```

Project TW6.py

```
18  
19 fact_result = 1  
20 i = 1  
21 for i in range(i, fact_number + i):  
22     fact_result = fact_result * i  
23 print(f"The factorial of the entered number {fact_number} is {fact_result}")
```

Run: TW6



```
"C:\Users\Advait\Desktop\degree\SE\SEM 4\Python\TW\TW-6\venv\Scripts\python.exe" "C:/Users/Advait/Desktop/degree/SE/SEM 4/Python/TW/TW-6/TW6.py"  
Enter the number whose factorial needs to be found : ADVAIT  
Factorial can be found for only integer numbers  
Enter the number whose factorial needs to be found : chavan  
Factorial can be found for only integer numbers  
Enter the number whose factorial needs to be found : @#$%^&*()_+!  
Factorial can be found for only integer numbers  
Enter the number whose factorial needs to be found :  
Factorial can be found for only integer numbers  
Enter the number whose factorial needs to be found : -89  
Sorry number can't be a negative number  
Enter the number whose factorial needs to be found : 1 2  
Factorial can be found for only integer numbers  
Enter the number whose factorial needs to be found : 8  
The factorial of the entered number 8 is 40320  
  
Process finished with exit code 0
```

Structure

Favorites

Python TW 7

Program to define a function that accepts a string and calculates the number of uppercase and lowercase alphabets in it.

NAME : ADVAIT GURUNATH CHAVAN

PRN : 4119008

BRANCH : S.E. ELECTRONICS, SEM 4

PROGRAM :

"""**NAME: ADVAIT GURUNATH CHAVAN, PRN : 4119008, S.E.ELECTRONICS, SEM 4,
TW-7**"""

"""**Program to define a function count_lower_upper()that accepts a string and
calculates the number of uppercase and
lowercase alphabets in it.**"""

```
def sorted_user_input(user_input):
    count = {'upper_case': 0, 'lower_case': 0, 'space': 0, 'number': 0, 'symbol': 0}
    for i in user_input:
        if i.isupper():
            count['upper_case'] += 1
        elif i.islower():
            count['lower_case'] += 1
        elif iisspace():
            count['space'] += 1
        elif i.isnumeric():
            count['number'] += 1
        else:
            count['symbol'] += 1
```

PROGRAM(CONT..) :

```
print("Input given by user : ", user_input)
print("Number of characters entered by user : ", len(user_input))
print("Number of Upper case characters : ", count['upper_case'])
print("Number of Lower case characters : ", count['lower_case'])
print("Number of spaces : ", count['space'])
print("Number of Integer numbers : ", count['number'])
print("Number of symbols : ", count['symbol'])
```

```
string = str(input("Enter any string: "))
sorted_user_input(string)
```

OUTPUT :

"C:\Users\Advait\Desktop\degree\SE\SEM 4\Python\TW\TW7\venv\Scripts\python.exe"

"C:/Users/Advait/Desktop/degree/SE/SEM 4/Python/TW/TW7/TW7.py"

Enter any string: Advait Chavan @ 4119008 @ sem 4 @ S.E. Electronics @ MHSSCE

Input given by user : Advait Chavan @ 4119008 @ sem 4 @ S.E. Electronics @ MHSSCE

Number of characters entered by user : 59

Number of Upper case characters : 11

Number of Lower case characters : 23

Number of spaces : 11

Number of Integer numbers : 8

Number of symbols : 6

Process finished with exit code 0

OUTPUT :

The screenshot shows the PyCharm IDE interface with the following details:

- Title Bar:** TW7 - TW7.py
- Menu Bar:** File, Edit, View, Navigate, Code, Refactor, Run, Tools, VCS, Window, Help
- Toolbar:** Includes icons for Run, Stop, Refresh, and others.
- Project View:** Shows a single file TW7.py.
- Code Editor:** Displays the following Python script:

```
1 """NAME: ADVAIT GURUNATH CHAVAN, PRN : 4119008, S.E.ELECTRONICS, SEM 4, TW-7"""
2 """Program to define a function count_lower_upper( )that accepts a string and calculates the number of uppercase and
3 lowercase alphabets in it. """
4
5
6 def sorted_user_input(user_input):
7     count = {'upper_case': 0, 'lower_case': 0, 'space': 0, 'number': 0, 'symbol': 0}
8     for i in user_input:
9         if i.isupper():
10             count['upper_case'] += 1
11         elif i.islower():
12             count['lower_case'] += 1
13         elif iisspace():
14             count['space'] += 1
15         elif i.isnumeric():
16             count['number'] += 1
17         else:
18             count['symbol'] += 1
19     print("Input given by user : ", user_input)
20     print("Number of characters entered by user : ", len(user_input))
21     print("Number of Upper case characters : ", count['upper_case'])
22     print("Number of Lower case characters : ", count['lower_case'])
23     print("Number of spaces : ", count['space'])
24     print("Number of Integer numbers : ", count['number'])
25     print("Number of symbols : ", count['symbol'])

sorted_user_input()
```

- Run Tab:** Shows a run configuration for TW7.
- Bottom Status Bar:** Event Log, Run, TODO, Problems, Terminal, Python Console, 10:1 CRLF UTF-8 4 spaces Python 3.8 (TW7)

TW7 – TW7.py

File Edit View Navigate Code Refactor Run Tools VCS Window Help

TW7 / TW7.py

TW7 ▾

Project

TW7.py ×

10 count['upper_case'] += 1
11 elif i.islower():
12 count['lower_case'] += 1
13 elif i.isspace():
14 count['space'] += 1
15 elif i.isnumeric():
16 count['number'] += 1
17 else:
18 count['symbol'] += 1
19 print("Input given by user : ", user_input)
20 print("Number of characters entered by user : ", len(user_input))
21 print("Number of Upper case characters : ", count['upper_case'])
22 print("Number of Lower case characters : ", count['lower_case'])
23 print("Number of spaces : ", count['space'])
24 print("Number of Integer numbers : ", count['number'])
25 print("Number of symbols : ", count['symbol'])
26
27
28 string = str(input("Enter any string: "))
29 sorted_user_input(string)
30

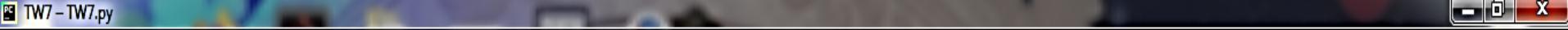
sorted_user_input()

Run: TW7 ×

Run TODO Problems Terminal Python Console

Event Log

10:1 CRLF UTF-8 4 spaces Python 3.8 (TW7)



File Edit View Navigate Code Refactor Run Tools VCS Window Help



TW7 > TW7.py

Project TW7.py

```
20     print("Number of characters entered by user : ", len(user_input))
21     print("Number of Upper case characters : ", count['upper_case'])
22     print("Number of Lower case characters : ", count['lower_case'])
23     print("Number of spaces : ", count['space'])
24     print("Number of Integer numbers : ", count['number'])
25     print("Number of symbols : ", count['symbol'])
```

26

sorted_user_input()

Run: TW7 x

"C:\Users\Advait\Desktop\degree\SE\SEM 4\Python\TW\TW7\venv\Scripts\python.exe" "C:/Users/Advait/Desktop/degree/SE/SEM 4/Python/TW/TW7/TW7.py"

```
Enter any string: Advait Chavan @ 4119008 @ sem 4 @ S.E. Electronics @ MHSCE
Input given by user : Advait Chavan @ 4119008 @ sem 4 @ S.E. Electronics @ MHSCE
Number of characters entered by user : 59
Number of Upper case characters : 11
Number of Lower case characters : 23
Number of spaces : 11
Number of Integer numbers : 8
Number of symbols : 6
```

Process finished with exit code 0

Structure

Favorites

Run

TODO

Problems

Terminal

Python Console

Event Log

Python TW 8

Program to calculate the current age of user by giving his/her date of birth as input

NAME : ADVAIT GURUNATH CHAVAN

PRN : 4119008

BRANCH : S.E. ELECTRONICS, SEM 4

PROGRAM :

"""**NAME : ADVAIT GURUNATH CHAVAN, PRN : 4119008, SEM 4, S.E. ELECTRONICS,
TW - 8**"""

"""**Program to calculate the current age of user by giving his/her date of birth as
input**"""

```
import datetime
```

```
name = input("Enter your name: ")  
print("Hi ", name, " enter your Date of Birth in dd/mm/yyyy format : ")  
date_of_birth = input()  
day, month, year = [int(x) for x in date_of_birth.split('/')]  
date_of_birth_date = datetime.date(year, month, day)  
current_date = datetime.date.today()  
user_age = current_date - date_of_birth_date  
years = user_age.days // 365  
days = user_age.days % 365  
print("Hi ", name, " you are now ", user_age, " old.")  
print(f"OR \nYou are now {years} years and {days} days old.")
```

OUTPUT :

"C:\Users\Advait\Desktop\degree\SE\SEM
4\Python\TW\TW8\venv\Scripts\python.exe"

"C:/Users/Advait/Desktop/degree/SE/SEM 4/Python/TW/TW8/TW-
8.py"

Enter your name: ADVAIT CHAVAN

**Hi ADVAIT CHAVAN enter your Date of Birth in dd/mm/yyyy format :
03/05/2001**

Hi ADVAIT CHAVAN you are now 7306 days, 0:00:00 old.

OR

You are now 20 years and 6 days old.

Process finished with exit code 0

OUTPUT :

The screenshot shows the PyCharm IDE interface. The title bar says "TW8 - TW-8.py". The menu bar includes File, Edit, View, Navigate, Code, Refactor, Run, Tools, VCS, Window, and Help. The toolbar has icons for Run, Stop, Refresh, and Search. The Project tool window on the left shows a single file "TW-8.py". The code editor contains a Python script for calculating a user's age based on their date of birth input. The code uses the `datetime` module to parse the birth date and calculate the difference from today's date. The output is printed in two ways: a standard print statement and a formatted string. The code is well-commented with docstrings explaining the purpose and variables.

```
1 """NAME : ADVAIT GURUNATH CHAVAN, PRN : 4119008, SEM 4, S.E. ELECTRONICS, TW - 8"""
2 """Program to calculate the current age of user by giving his/her date of birth as input"""
3 import datetime
4
5 name = input("Enter your name: ")
6 print("Hi ", name, " enter your Date of Birth in dd/mm/yyyy format : ")
7 date_of_birth = input()
8 day, month, year = [int(x) for x in date_of_birth.split('/')]
9 date_of_birth_date = datetime.date(year, month, day)
10 current_date = datetime.date.today()
11 user_age = current_date - date_of_birth_date
12 years = user_age.days // 365
13 days = user_age.days % 365
14 print("Hi ", name, " you are now ", user_age, " old.")
15 print(f"OR \nYou are now {years} years and {days} days old.")
16 |
```

The screenshot shows the Run tab of the PyCharm interface. It displays the command-line output of the executed Python script. The user inputs their name and date of birth, and the script outputs their current age in years and days. The run process completed successfully with an exit code of 0. The bottom navigation bar includes Run, TODO, Problems, Terminal, and Python Console tabs. The status bar at the bottom right shows the current time as 16:1, file encoding as CRLF, character set as UTF-8, and spaces as 4 spaces, along with the Python version Python 3.8 (TW8).

Run: TW-8 ×

Structure

Favorites

```
Run: TW-8 ×
Hi ADVAIT CHAVAN enter your Date of Birth in dd/mm/yyyy format :
03/05/2001
Hi ADVAIT CHAVAN you are now 7306 days, 0:00:00 old.
OR
You are now 20 years and 6 days old.

Process finished with exit code 0
```

Run TODO Problems Terminal Python Console Event Log

16:1 CRLF UTF-8 4 spaces Python 3.8 (TW8)

```
7 date_of_birth = input()
8 day, month, year = [int(x) for x in date_of_birth.split('/')]
9 date_of_birth_date = datetime.date(year, month, day)
10 current_date = datetime.date.today()
11 user_age = current_date - date_of_birth_date
12 years = user_age.days // 365
13 days = user_age.days % 365
14 print("Hi ", name, " you are now ", user_age, " old.")
15 print(f"OR \nYou are now {years} years and {days} days old.")
16
```



"C:\Users\Advait\Desktop\degree\SE\SEM 4\Python\TW\TW8\venv\Scripts\python.exe" "C:/Users/Advait/Desktop/degree/SE/SEM 4/Python/TW/TW8/TW-8.py"

Enter your name: ADVAIT CHAVAN

Hi ADVAIT CHAVAN enter your Date of Birth in dd/mm/yyyy format :

03/05/2001

Hi ADVAIT CHAVAN you are now 7306 days, 0:00:00 old.

OR

You are now 20 years and 6 days old.

Process finished with exit code 0

PYTHON TW 9

**Program to create a GUI image of a smiling
face using Canvas class of Tkinter**

NAME : ADVAIT GURUNATH CHAVAN

PRN : 4119008

BRANCH : S.E. ELECTRONICS, SEM 4

PROGRAM:

"""\bNAME : ADVAIT GURUNATH CHAVAN, PRN : 4119008, S.E. ELECTRONICS, SEM 4, TW-9"""\b

"""\bProgram to create a GUI image of a smiling face using Canvas class of Tkinter"""\b

```
from tkinter import *
root = Tk()
blank_space = ''
title = "SMILING FACE"
root.title(190 * blank_space + title)
root.geometry('1000x650')
c = Canvas(root, height=650, width=1000, bg='light green')
c.create_text(650, 80, fill='dark red', font='Algerian', text='Hi, advait keep
    'yourself smiling just like this smiley.')
c.create_text(650, 110, fill='dark red', font='Algerian', text='No matter how
    'big or difficult is the problem or
    'assignment or project be!!')
c.create_text(650, 610, fill='blue', font='Times', text='Made by: ADVAIT
    'GURUNATH CHAVAN, PRN: 4119008, S.E.
    'ELECTRONICS, SEM 4, MHSSCE.')
```

PROGRAM (CONT....):

```
c.create_oval(5, 5, 250, 300, width=4, fill='yellow')
c.create_arc(15, 40, 105, 40, width=5, style='arc')
c.create_arc(105, 40, 200, 40, width=5, style='arc')
c.create_oval(50, 45, 100, 100, width=3, fill='white')
c.create_oval(60, 65, 90, 100, fill='black')
c.create_oval(70, 75, 80, 85, fill='white')
c.create_oval(155, 45, 205, 100, width=3, fill='white')
c.create_oval(165, 65, 195, 100, fill='black')
c.create_oval(175, 75, 185, 85, fill='white')
c.create_line(125, 100, 125, 220, width=4)
c.create_line(145, 200, 125, 100, width=4)
c.create_line(105, 200, 125, 100, width=4)
c.create_arc(105, 100, 145, 220, width=4, start=205, extent=125, style='arc')
c.create_line(50, 230, 209, 230, width=6)
arv2 = c.create_arc(49, 209, 210, 251, start=180, extent=180, fill='white')
c.create_arc(50, 189, 209, 263, width=8, start=180, extent=180, style='arc')
arc = c.create_arc(60, 210, 200, 263, start=180, extent=180, fill='red')
c.pack()
root.mainloop()
```

OUTPUT :

TW9.py - TW9.py

File Edit View Navigate Code Refactor Run Tools VCS Window Help

TW9 > TW9.py

Project

TW9.py

```
1 """NAME : ADVAIT GURUNATH CHAVAN, PRN : 4119008, S.E. ELECTRONICS, SEM 4, TW-9"""
2 """Program to create a GUI image of a smiling face using Canvas class of Tkinter"""
3 from tkinter import *
4
5 root = Tk()
6 blank_space = ' '
7 title = "SMILING FACE"
8 root.title(190 * blank_space + title)
9 root.geometry('1000x650')
10 c = Canvas(root, height=650, width=1000, bg='light green')
11 c.create_text(650, 80, fill='dark red', font='Algerian', text='Hi, ADVAIT keep yourself smiling just like ')
12 c.create_text(650, 110, fill='dark red', font='Algerian',
13                 text='No matter how big or difficult is the problem or assignment ')
14 c.create_text(650, 140, fill='dark red', font='Algerian',
15                 text='or project be!!')
16 c.create_text(650, 610, fill='blue', font='Times',
17                 text='Made by: ADVAIT GURUNATH CHAVAN, PRN: 4119008, S.E. ELECTRONICS, SEM 4, MHSSCE.')
18 c.create_oval(5, 5, 250, 300, width=4, fill='yellow')
19 c.create_arc(15, 40, 105, 40, width=5, style='arc')
20 c.create_arc(105, 40, 200, 40, width=5, style='arc')
21 c.create_oval(50, 45, 100, 100, width=3, fill='white')
22 c.create_oval(60, 65, 90, 100, fill='black')
23 c.create_oval(70, 75, 80, 85, fill='white')
24 c.create_oval(155, 45, 205, 100, width=3, fill='white')
```

Structure

Run: TW9

» »

Run TODO Problems Debug Terminal Python Console

Event Log

Connection to Python debugger failed: Interrupted function call: accept failed (1 hour ago)

37:1 CRLF UTF-8 4 spaces Python 3.8 (TW9)



File Edit View Navigate Code Refactor Run Tools VCS Window Help

TW9 / TW9.py

TW9 ▾ ▶ ⚡ 🔍

Project TW9.py

```
16 c.create_text(650, 610, fill='blue', font='Times',
17             text='Made by: ADVAIT GURUNATH CHAVAN, PRN: 4119008, S.E. ELECTRONICS, SEM 4, MHSSCE.')
18 c.create_oval(5, 5, 250, 300, width=4, fill='yellow')
19 c.create_arc(15, 40, 105, 40, width=5, style='arc')
20 c.create_arc(105, 40, 200, 40, width=5, style='arc')
21 c.create_oval(50, 45, 100, 100, width=3, fill='white')
22 c.create_oval(60, 65, 90, 100, fill='black')
23 c.create_oval(70, 75, 80, 85, fill='white')
24 c.create_oval(155, 45, 205, 100, width=3, fill='white')
25 c.create_oval(165, 65, 195, 100, fill='black')
26 c.create_oval(175, 75, 185, 85, fill='white')
27 c.create_line(125, 100, 125, 220, width=4)
28 c.create_line(145, 200, 125, 100, width=4)
29 c.create_line(105, 200, 125, 100, width=4)
30 c.create_arc(105, 100, 145, 220, width=4, start=205, extent=125, style='arc')
31 c.create_line(50, 230, 209, 230, width=6)
32 arv2 = c.create_arc(49, 209, 210, 251, start=180, extent=180, fill='white')
33 c.create_arc(50, 189, 209, 263, width=8, start=180, extent=180, style='arc')
34 arc = c.create_arc(60, 210, 200, 263, start=180, extent=180, fill='red')
35 c.pack()
36 root.mainloop()
37 |
```

Structure

Favorites

Run: TW9 X



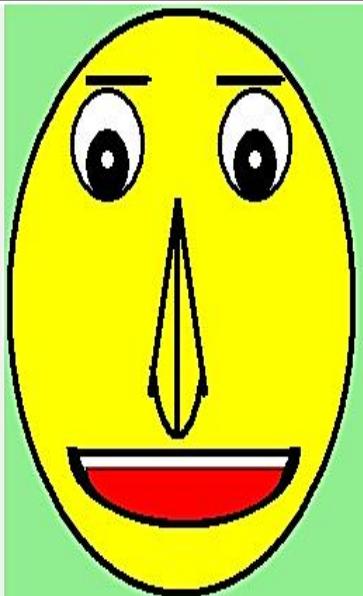
» »

▶ Run TODO Problems Debug Terminal Python Console

Event Log

Connection to Python debugger failed: Interrupted function call: accept failed (yesterday 23:54)

37:1 CRLF UTF-8 4 spaces Python 3.8 (TW9) 🔍



HI, ADVAIT KEEP YOURSELF SMILING JUST LIKE THIS SMILEY.
NO MATTER HOW BIG OR DIFFICULT IS THE PROBLEM OR ASSIGNMENT OR PROJECT BE!!



File Edit View Navigate Code Refactor Run Tools VCS Window Help

TW9 > TW9.py

TW9 ▾

Project TW9.py ×

```
16     c.create_text(650, 610, fill='blue', font='Times',
17                     text='Made by: ADVAIT GURUNATH CHAVAN, PRN: 4119008, S.E. ELECTRONICS, SEM 4, MHSSCE.')
18     c.create_oval(5, 5, 250, 300, width=4, fill='yellow')
19     c.create_arc(15, 40, 105, 40, width=5, style='arc')
20     c.create_arc(105, 40, 200, 40, width=5, style='arc')
21     c.create_oval(50, 45, 100, 100, width=3, fill='white')
22     c.create_oval(60, 65, 90, 100, fill='black')
23     c.create_oval(70, 75, 80, 85, fill='white')
24     c.create_oval(155, 45, 205, 100, width=3, fill='white')
25     c.create_oval(165, 65, 195, 100, fill='black')
26     c.create_oval(175, 75, 185, 85, fill='white')
27     c.create_line(125, 100, 125, 220, width=4)
28     c.create_line(145, 200, 125, 100, width=4)
29     c.create_line(105, 200, 125, 100, width=4)
30     c.create_arc(105, 100, 145, 220, width=4, start=205, extent=125, style='arc')
31     c.create_line(50, 230, 209, 230, width=6)
```

Run: TW9 ×

"C:\Users\Advait\Desktop\degree\SE\SEM 4\Python\TW\TW9\venv\Scripts\python.exe" "C:\Users\Advait\Desktop\degree\SE\SEM 4\Python\TW\TW9\TW9.py"

Process finished with exit code 0

Structure
Favorites

▶ Run TODO Problems Debug Terminal Python Console

Event Log

Connection to Python debugger failed: Interrupted function call: accept failed (yesterday 23:54)

4:1 CRLF UTF-8 4 spaces Python 3.8 (TW9)

PYTHON TW 10

Program to create a GUI with three buttons of different color. On the click of button the background color should as per the color of the button using Frame class of Tkinter

NAME : ADVAIT GURUNATH CHAVAN

PRN : 4119008

BRANCH : S.E. ELECTRONICS, SEM 4

PROGRAM :

"""**NAME : ADVAIT GURUNATH CHAVAN, PRN: 4119008, S.E. ELECTRONICS, SEM 4, TW-10**"""

"" **Program to create a GUI with three buttons of different color. On the click of button the background color should as per the color of the button using Frame class of Tkinter**"""

```
from tkinter import *
from tkinter import messagebox

root = Tk()
blank_space = ''
title = 'COLOR BUTTONS'
root.title(15 * blank_space + title)
messagebox.showinfo(" Welcome to color buttons program", "Hi ADVAIT,click on each color
    "button and you will see the "
    "window color changing to the color specified on the button. "
    "Click on Ok or close this window to continue....")
```

PROGRAM (CONT....) :

```
def red_button_clicked():
    messagebox.showinfo("RED BUTTON CLICKED", "Hi ADVAIT you just clicked on RED button.
                        " Now click on the Ok button "
                        "or close this window to make the window appear red")
    root.configure(bg='red')

def blue_button_clicked():
    messagebox.showinfo("BLUE BUTTON CLICKED", "Hi ADVAIT you just clicked on BLUE
                        "button. Now click on the Ok button "
                        "or close this window to make the window appear blue")
    root.configure(bg='blue')

def yellow_button_clicked():
    messagebox.showinfo("YELLOW BUTTON CLICKED", "Hi ADVAIT you just clicked on YELLOW
                        "button. Now click on the Ok "
                        "button or close this window to make the window appear yellow")
    root.configure(bg='yellow')

def green_button_clicked():
    messagebox.showinfo("GREEN BUTTON CLICKED", "Hi ADVAIT you just clicked on GREEN
                        "button. Now click on the Ok "
                        "button or close this window to make the window appear green")
    root.configure(bg='green')
```

PROGRAM (CONT....) :

```
class ColorButton:  
    def __init__(self, root1):  
        self.f = Frame(root1, height=500, width=900)  
        self.f.propagate(0)  
        self.b1 = Button(root1, text='RED', command=red_button_clicked, activeforeground='red',  
                         activebackground='pink', height=1, width=10, font='algerian', bd=4)  
  
        self.b2 = Button(root1, text='BLUE', command=blue_button_clicked,  
                         activeforeground='blue', activebackground='pink', height=1,  
                         width=10, font='algerian', bd=4)  
  
        self.b3 = Button(root1, text='YELLOW', command=yellow_button_clicked,  
                         activeforeground='yellow', activebackground='pink',  
                         height=1, width=10, font='algerian', bd=4)  
  
        self.b4 = Button(root1, text='GREEN', command=green_button_clicked,  
                         activeforeground='green', activebackground='pink',  
                         height=1, width=10, font='algerian', bd=4)  
        self.b1.pack(side=LEFT)  
        self.b2.pack(side=TOP)  
        self.b3.pack(side=RIGHT)  
        self.b4.pack(side=BOTTOM)
```

PROGRAM (CONT....) :

```
mb = ColorButton(root)  
root.mainloop()
```

OUTPUT :

The screenshot shows the PyCharm IDE interface with the following details:

- Title Bar:** TW10 - TW10.py
- Menu Bar:** File, Edit, View, Navigate, Code, Refactor, Run, Tools, VCS, Window, Help
- Toolbar:** TW10, Run, TODO, Problems, Terminal, Python Console, Event Log
- Project Tree:** Shows a single file TW10.py
- Code Editor:** Displays Python code for a Tkinter application. The code includes imports for Tkinter and messagebox, sets up a window titled 'COLOR BUTTONS', and displays a welcome message box. It defines two functions: 'red_button_clicked' and 'blue_button_clicked', both of which show info messages and change the window background color to red or blue respectively.
- Status Bar:** Shows the run configuration as TW10, the Python version as Python 3.8 (TW10), and the current line as 70:1.

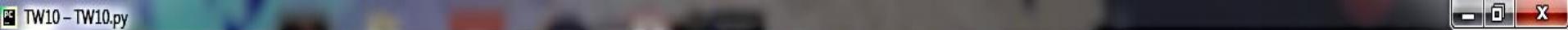
```
1 """NAME : ADVAIT GURUNATH CHAVAN, PRN: 4119008, S.E. ELECTRONICS, SEM 4, TW-10"""
2
3 """ Program to create a GUI with three buttons of different color. On the click of button the background color should
4 as per the color of the button using Frame class of Tkinter"""
5
6 from tkinter import *
7 from tkinter import messagebox
8
9 root = Tk()
10 blank_space = ' '
11 title = 'COLOR BUTTONS'
12 root.title(15 * blank_space + title)
13 messagebox.showinfo(" Welcome to color buttons program", "Hi ADVAIT,click on each color button and you will see the "
14 "window color changing to the color specified on the button. "
15 "Click on Ok or close this window to continue....")
16
17
18 def red_button_clicked():
19     messagebox.showinfo("RED BUTTON CLICKED", "Hi ADVAIT you just clicked on RED button. Now click on the Ok button "
20     "or close this window to make the window appear red")
21     root.configure(bg='red')
22
23
24 def blue_button_clicked():
25     messagebox.showinfo("BLUE BUTTON CLICKED", "Hi ADVAIT you just clicked on BLUE button. Now click on the Ok button "
26     "or close this window to make the window appear blue")
```



```
22
23
24 def blue_button_clicked():
25     messagebox.showinfo("BLUE BUTTON CLICKED", "Hi ADVAIT you just clicked on BLUE button. Now click on the Ok button "
26                         "or close this window to make the window appear blue")
27     root.configure(bg='blue')
28
29
30 def yellow_button_clicked():
31     messagebox.showinfo("YELLOW BUTTON CLICKED", "Hi ADVAIT you just clicked on YELLOW button. Now click on the Ok "
32                         "button or close this window to make the window appear yellow")
33     root.configure(bg='yellow')
34
35
36 def green_button_clicked():
37     messagebox.showinfo("GREEN BUTTON CLICKED", "Hi ADVAIT you just clicked on GREEN button. Now click on the Ok "
38                         "button or close this window to make the window appear green")
39     root.configure(bg='green')
40
41
42 class ColorButton:
43     def __init__(self, root1):
44         self.f = Frame(root1, height=500, width=900)
45         self.f.propagate(0)
46         self.b1 = Button(root1, text='RED', command=red_button_clicked, activeforeground='red', activebackground='pink',
47                         bg='white', fg='black', font='bold', width=10, height=2)
```



```
40
41
42 class ColorButton:
43     def __init__(self, root1):
44         self.f = Frame(root1, height=500, width=900)
45         self.f.propagate(0)
46         self.b1 = Button(root1, text='RED', command=red_button_clicked, activeforeground='red', activebackground='pink',
47                         height=1,
48                         width=10, font='algerian', bd=4)
49
50         self.b2 = Button(root1, text='BLUE', command=blue_button_clicked, activeforeground='blue',
51                         activebackground='pink',
52                         height=1,
53                         width=10, font='algerian', bd=4)
54
55         self.b3 = Button(root1, text='YELLOW', command=yellow_button_clicked, activeforeground='yellow',
56                         activebackground='pink',
57                         height=1, width=10, font='algerian', bd=4)
58
59         self.b4 = Button(root1, text='GREEN', command=green_button_clicked, activeforeground='green',
60                         activebackground='pink',
61                         height=1, width=10, font='algerian', bd=4)
62         self.b1.pack(side=LEFT)
63         self.b2.pack(side=TOP)
64         self.b3.pack(side=RIGHT)
```



File Edit View Navigate Code Refactor Run Tools VCS Window Help



TW10 / TW10.py

Project

TW10.py X

```
49
50     self.b2 = Button(root1, text='BLUE', command=blue_button_clicked, activeforeground='blue',
51                     activebackground='pink',
52                     height=1,
53                     width=10, font='algerian', bd=4)
54
55     self.b3 = Button(root1, text='YELLOW', command=yellow_button_clicked, activeforeground='yellow',
56                     activebackground='pink',
57                     height=1, width=10, font='algerian', bd=4)
58
59     self.b4 = Button(root1, text='GREEN', command=green_button_clicked, activeforeground='green',
60                     activebackground='pink',
61                     height=1, width=10, font='algerian', bd=4)
62     self.b1.pack(side=LEFT)
63     self.b2.pack(side=TOP)
64     self.b3.pack(side=RIGHT)
65     self.b4.pack(side=BOTTOM)
66
67
68     mb = ColorButton(root)
69     root.mainloop()
70 |
```

Structure

Favorites

★ Run: TW10 X



▶ Run □ TODO ⚙ Problems ☰ Terminal 🗂 Python Console

Event Log

70:1 Python 3.8 (TW10)



File Edit View Navigate Code Refactor Run Tools VCS Window Help

TW10 / TW10.py

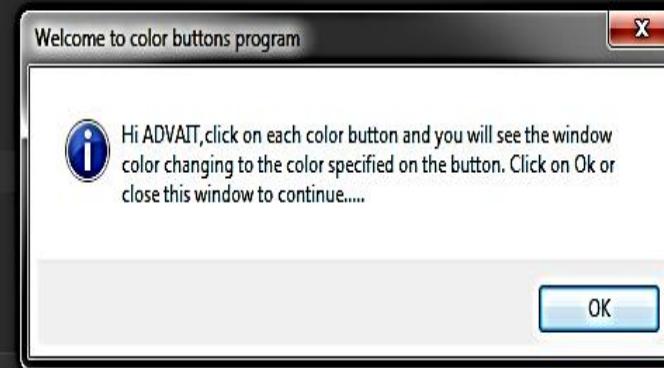


Project



TW10.py x

```
57                                     height=1, width=10, font='algerian', bd=4)
58
59                                         text='GREEN', command=green_button_clicked, activeforeground='green',
60                                         background='pink',
61                                         1, width=10, font='algerian', bd=4)
62
63
64
65
66
67
68     mb =
69
70     root.mainloop()
```



Run: TW10 x



"C:\Users\Advait\Desktop\degree\SE\SEM 4\Python\TW\TW10\venv\Scripts\python.exe" "C:/Users/Advait/Desktop/degree/SE/SEM 4/Python/TW/TW10/TW10.py"

Structure



Run TODO Problems Terminal Python Console Event Log

Python 3.8 (TW10)

TW10 - TW10.py

File Edit View Navigate Code Refactor Run Tools VCS Window Help

TW10 / TW10.py

Project

TW10.py

```
height=1, width=10, font='algerian', bd=4)
text='GREEN', command=green_button_clicked, activeforeground='green',
background='pink',
1, width=10, font='algerian', bd=4)

mb =
root.mainloop()
```

CO... X

Welcome to color buttons program X

Hi ADVAIT, click on each color button and you will see the window color changing to the color specified on the button. Click on Ok or close this window to continue.....

OK

Run: TW10

"C:\Users\Advait\Desktop\degree\SE\SEM 4\Python\TW\TW10\venv\Scripts\python.exe" "C:/Users/Advait/Desktop/degree/SE/SEM 4/Python/TW/TW10/TW10.py"

Structure

Favorites

Run TODO Problems Terminal Python Console Event Log

Python 3.8 (TW10)

TW10 - TW10.py

File Edit View Navigate Code Refactor Run Tools VCS Window Help

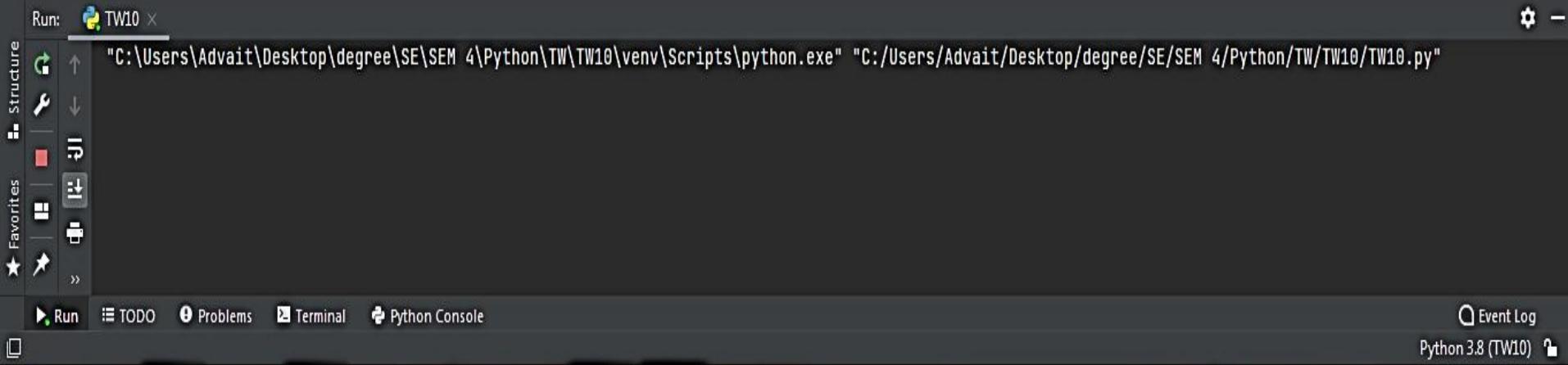
TW10 / TW10.py

Project

TW10.py

```
height=1, width=10, font='algerian', bd=4)
COLOR BUTTONS X
and=green_button_clicked, activeforeground='green',
'blue'
RED
GREEN
YELLOW
self.b2.pack(side=TOP)
self.b3.pack(side=RIGHT)
self.b4.pack(side=BOTTOM)

mb = ColorButton(root)
root.mainloop()
```



TW10 - TW10.py

File Edit View Navigate Code Refactor Run Tools VCS Window Help

TW10 / TW10.py

TW10.py

Project

57 height=1, width=10, font='algerian', bd=4)

58 COLOR BUTTONS X

59 and=green_button_clicked, activeforeground='green',

60 'algerian', bd=4)

61 self.b2.pack(side=TOP)

62 self.b3.pack(side=RIGHT)

63 self.b4.pack(side=BOTTOM)

64

65

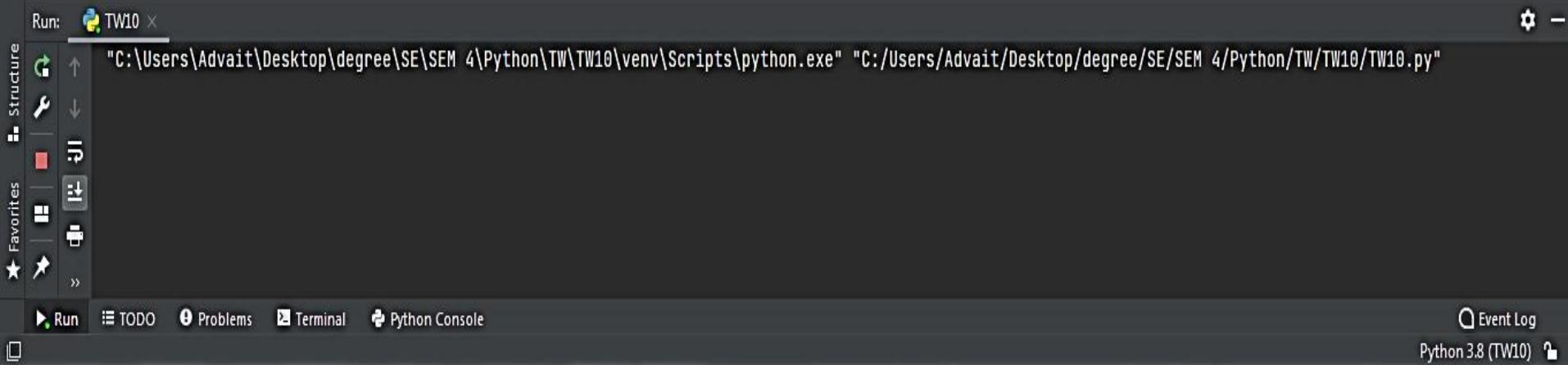
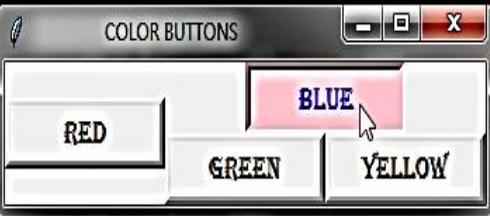
66

67

68 mb = ColorButton(root)

69 root.mainloop()

70



TW10 - TW10.py

File Edit View Navigate Code Refactor Run Tools VCS Window Help

TW10 / TW10.py

Project

TW10.py

```
height=1, width=10, font='algerian', bd=4)
COLOR BUTTONS
    RED      BLUE
    GREEN    YELLOW
self.b2.pack(side=TOP)
self.b3.pack(side=RIGHT)
self.b4.pack(side=BOTTOM)

mb = ColorButton(root)
root.mainloop()
```

COLOR BUTTONS

RED BLUE

GREEN YELLOW

mb = ColorButton(root)

root.mainloop()

BLUE BUTTON CLICKED

Hi ADVAIT you just clicked on BLUE button. Now click on the Ok button or close this window to make the window appear blue

OK

Run: TW10

"C:\Users\Advait\Desktop\degree\SE\SEM 4\Python\TW\TW10\venv\Scripts\python.exe" "C:/Users/Advait/Desktop/degree/SE/SEM 4/Python/TW/TW10/TW10.py"

Structure

Favorites

Run TODO Problems Terminal Python Console Event Log

Python 3.8 (TW10)

TW10 - TW10.py

File Edit View Navigate Code Refactor Run Tools VCS Window Help

TW10 / TW10.py

Project

TW10.py

```
height=1, width=10, font='algerian', bd=4)
COLOR BUTTONS
    and=green_button_clicked, activeforeground='green',
    'algerian', bd=4)
self.b2.pack(side=TOP)
self.b3.pack(side=RIGHT)
self.b4.pack(side=BOTTOM)

mb = ColorButton(root)
root.mainloop()
```

Run: TW10

Structure

Favorites

Run TODO Problems Terminal Python Console Event Log

Python 3.8 (TW10)



TW10 - TW10.py

File Edit View Navigate Code Refactor Run Tools VCS Window Help

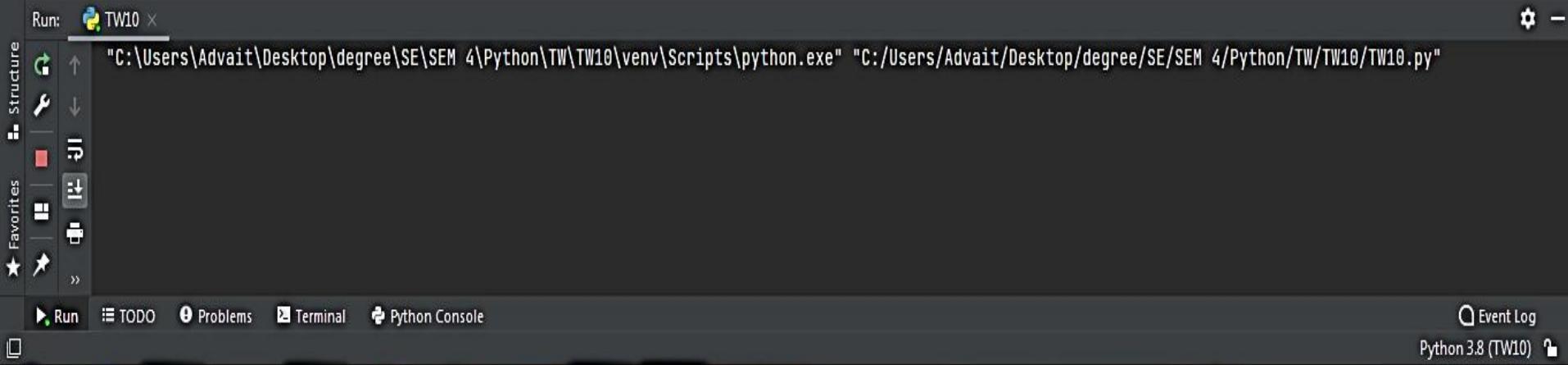
TW10 / TW10.py

Project

TW10.py

```
height=1, width=10, font='algerian', bd=4)
COLOR BUTTONS
      RED      BLUE
      GREEN    YELLOW
mb = ColorButton(root)
root.mainloop()
```

The screenshot shows the PyCharm IDE interface. The top bar displays the title 'TW10 - TW10.py' and the menu options: File, Edit, View, Navigate, Code, Refactor, Run, Tools, VCS, Window, Help. Below the menu is a toolbar with icons for Run, TODO, Problems, Terminal, and Python Console. The main area is divided into two panes: the left pane shows the code editor with the file 'TW10.py' containing Python code for creating a window with four buttons labeled RED, BLUE, GREEN, and YELLOW; the right pane shows the actual Tkinter application window titled 'COLOR BUTTONS' with the four buttons. The bottom bar includes the 'Run' button, 'Event Log' icon, and 'Python 3.8 (TW10)' status message.



TW10 - TW10.py

File Edit View Navigate Code Refactor Run Tools VCS Window Help

TW10 / TW10.py

TW10

Project

TW10.py

57 height=1, width=10, font='algerian', bd=4)
58 COLOR BUTTONS X
59 and=green_button_clicked, activeforeground='green',
60 'algerian', bd=4)
61
62 self.b2.pack(side=TOP)
63 self.b3.pack(side=RIGHT)
64 self.b4.pack(side=BOTTOM)
65
66
67 mb = ColorButton(root)
68 root.mainloop()
69
70

YELLOW BUTTON CLICKED X
Hi ADVAIT you just clicked on YELLOW button. Now click on the Ok button or close this window to make the window appear yellow
OK

Run: TW10
"C:\Users\Advait\Desktop\degree\SE\SEM 4\Python\TW\TW10\venv\Scripts\python.exe" "C:/Users/Advait/Desktop/degree/SE/SEM 4/Python/TW/TW10/TW10.py"

Structure

Favorites

Run TODO Problems Terminal Python Console Event Log

Python 3.8 (TW10)

TW10 - TW10.py

File Edit View Navigate Code Refactor Run Tools VCS Window Help

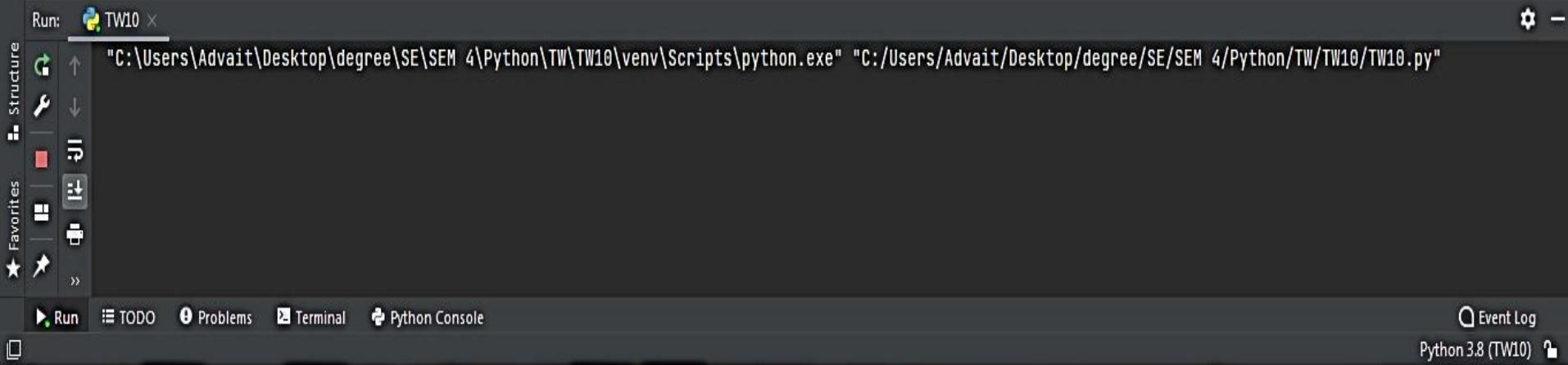
TW10 / TW10.py

TW10.py

```
height=1, width=10, font='algerian', bd=4)
COLOR BUTTONS
    and=green_button_clicked, activeforeground='green',
    'algerian', bd=4)
self.b2.pack(side=TOP)
self.b3.pack(side=RIGHT)
self.b4.pack(side=BOTTOM)

mb = ColorButton(root)
root.mainloop()
```

The screenshot shows the PyCharm IDE interface. The top bar displays the title 'TW10 - TW10.py' and the menu options: File, Edit, View, Navigate, Code, Refactor, Run, Tools, VCS, Window, Help. Below the menu is a toolbar with icons for file operations. The main area shows the code for 'TW10.py'. A window titled 'COLOR BUTTONS' is overlaid on the code editor, displaying four buttons labeled 'RED', 'BLUE', 'GREEN', and 'YELLOW'. The 'BLUE' button is highlighted. The code uses the Tkinter library to create this window. The bottom part of the interface shows the 'Run' tab selected, with the command 'python.exe "C:/Users/Advait/Desktop/degree/SE/SEM 4/Python/TW/TW10.py"' entered in the run field.





File Edit View Navigate Code Refactor Run Tools VCS Window Help

TW10 / TW10.py



Project

57

```
height=1, width=10, font='algerian', bd=4)
```



```
and=green_button_clicked, activeforeground='green',  
'algerian', bd=4)
```

58

59

60

61

62

63

64

65

66

67

68

```
mb = ColorButton(root)
```

```
root.mainloop()
```

69

70

Run: TW10 x



"C:\Users\Advait\Desktop\degree\SE\SEM 4\Python\TW\TW10\venv\Scripts\python.exe" "C:/Users/Advait/Desktop/degree/SE/SEM 4/Python/TW/TW10/TW10.py"

Structure

Up

Down

Left

Right

Home

End

First

Last

Next

Previous

Search

Favorites

Run

TODO

Problems

Terminal

Python Console

Event Log

Python 3.8 (TW10)

TW10 - TW10.py

File Edit View Navigate Code Refactor Run Tools VCS Window Help

TW10 / TW10.py

TW10.py

```
height=1, width=10, font='algerian', bd=4)
```

COLOR BUTTONS

RED BLUE GREEN YELLOW

```
and=green_button_clicked, activeforeground='green',
''algerian', bd=4)

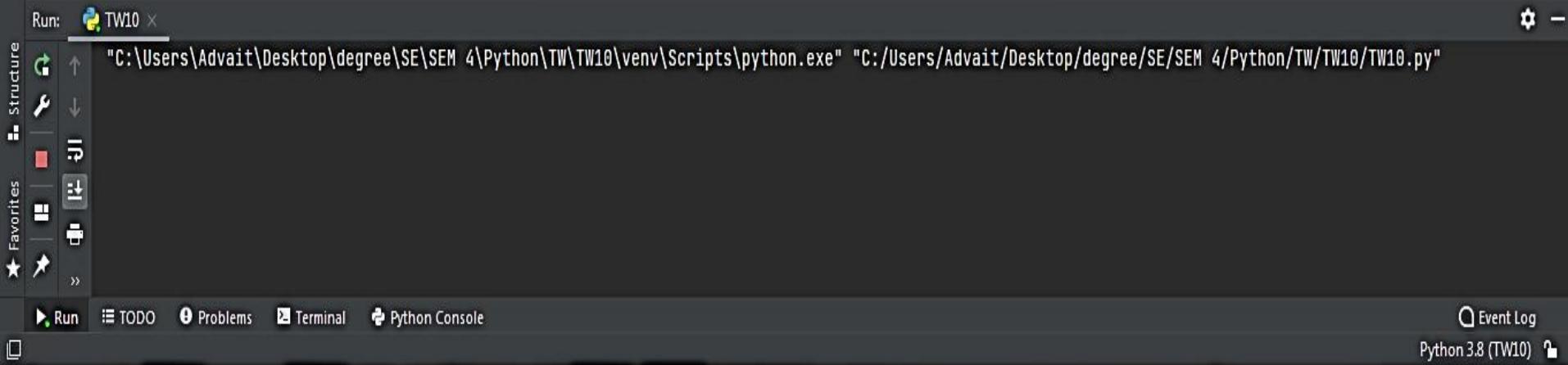
self.b2.pack(side=TOP)
self.b3.pack(side=RIGHT)
self.b4.pack(side=BOTTOM)

mb = ColorButton(root)
root.mainloop()
```

GREEN BUTTON CLICKED

Hi ADVAIT you just clicked on GREEN button. Now click on the Ok button or close this window to make the window appear green

OK



TW10 - TW10.py

File Edit View Navigate Code Refactor Run Tools VCS Window Help

TW10 / TW10.py

TW10.py

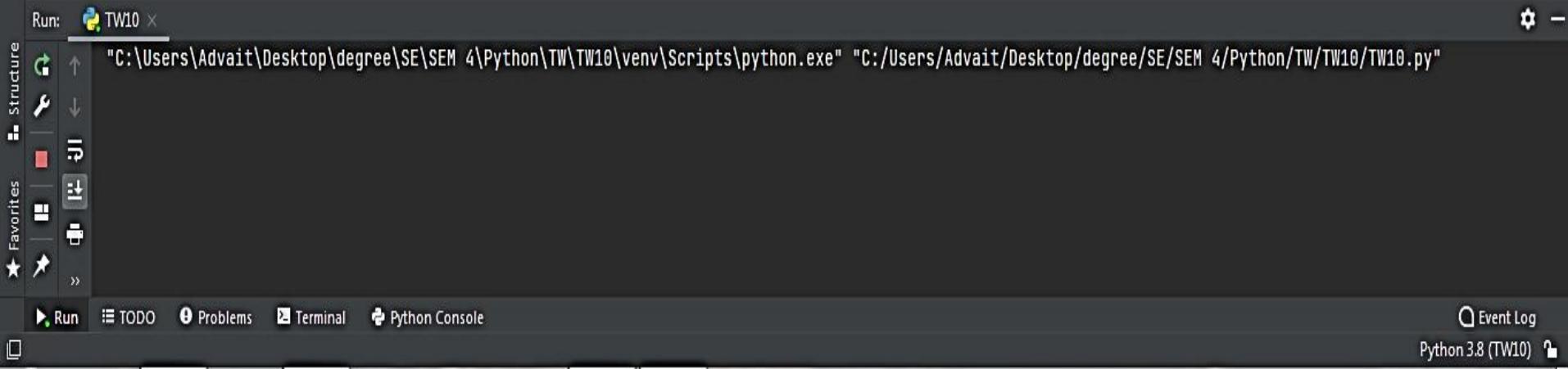
```
height=1, width=10, font='algerian', bd=4)
```

COLOR BUTTONS

```
and=green_button_clicked, activeforeground='green',
' algerian', bd=4)

self.b2.pack(side=TOP)
self.b3.pack(side=RIGHT)
self.b4.pack(side=BOTTOM)

mb = ColorButton(root)
root.mainloop()
```



TW10 - TW10.py

File Edit View Navigate Code Refactor Run Tools VCS Window Help

TW10 / TW10.py

Project

TW10.py

```
height=1, width=10, font='algerian', bd=4)
COLOR BUTTONS
    and=green_button_clicked, activeforeground='green',
    'algerian', bd=4)
self.b2.pack(side=TOP)
self.b3.pack(side=RIGHT)
self.b4.pack(side=BOTTOM)

mb = ColorButton(root)
root.mainloop()
```

Run: TW10

Structure

Favorites

Run TODO Problems Terminal Python Console Event Log

Python 3.8 (TW10)



TW10 - TW10.py

File Edit View Navigate Code Refactor Run Tools VCS Window Help

TW10 / TW10.py

TW10.py

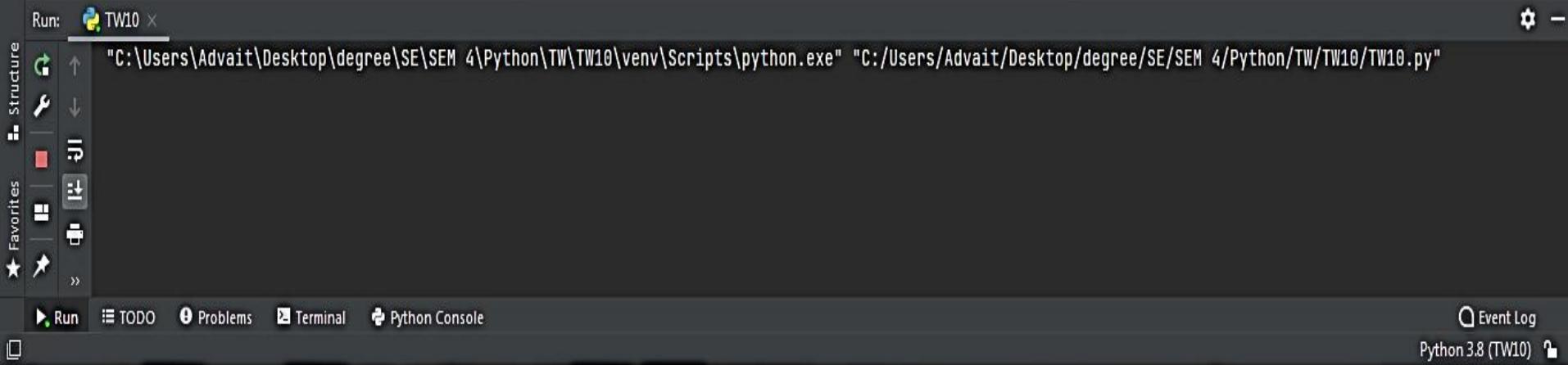
```
height=1, width=10, font='algerian', bd=4)
```

COLOR BUTTONS

```
and=green_button_clicked, activeforeground='green',
' algerian', bd=4)

self.b2.pack(side=TOP)
self.b3.pack(side=RIGHT)
self.b4.pack(side=BOTTOM)

mb = ColorButton(root)
root.mainloop()
```





File Edit View Navigate Code Refactor Run Tools VCS Window Help

TW10 / TW10.py



Project

File

Project

Run

Structure

Favorites

Tool

Help

```
57             height=1, width=10, font='algerian', bd=4)
58
59             COLOR BUTTONS
60             and=green_button_clicked, activeforeground='green',
61             'algerian', bd=4)
62
63             self.b2.pack(side=TOP)
64             self.b3.pack(side=RIGHT)
65             self.b4.pack(side=BOTTOM)
66
67
68 mb = ColorButton(root)
69 root.mainloop()
70
```



Run: TW10



"C:\Users\Advait\Desktop\degree\SE\SEM 4\Python\TW\TW10\venv\Scripts\python.exe" "C:/Users/Advait/Desktop/degree/SE/SEM 4/Python/TW/TW10/TW10.py"

Structure

Favorites

Tool

Help

File

Project

Run

TODO

Problems

Terminal

Python Console

Event Log

Python 3.8 (TW10)

TW10 - TW10.py

File Edit View Navigate Code Refactor Run Tools VCS Window Help

TW10 / TW10.py

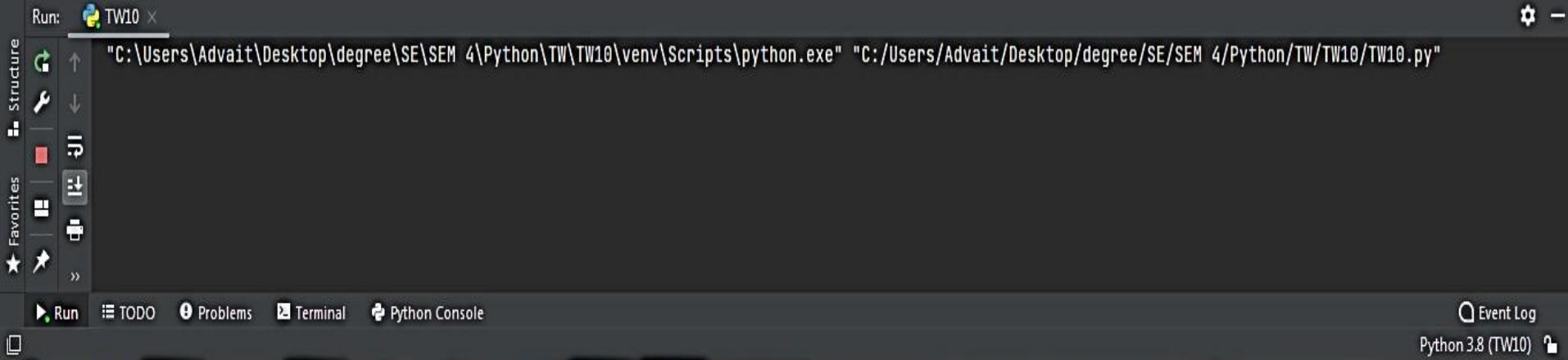
Project

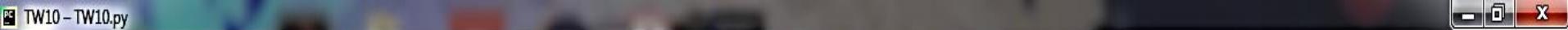
TW10.py

```
height=1, width=10, font='algerian', bd=4)
COLOR BUTTONS X
and=green_button_clicked, activeforeground='green',
'blue'
RED     BLUE
GREEN   YELLOW
self.b2.pack(side=TOP)
self.b3.pack(side=RIGHT)
self.b4.pack(side=BOTTOM)

mb = ColorButton(root)
root.mainloop()
```

The screenshot shows a PyCharm IDE interface with a Python script named 'TW10.py'. The script uses the Tkinter library to create a window titled 'COLOR BUTTONS' containing four buttons labeled 'RED', 'GREEN', 'BLUE', and 'YELLOW'. The 'BLUE' button is currently selected, indicated by a yellow border. A tooltip 'COLOR BUTTONS' is displayed above the buttons. The script code includes logic for button click events and packing the buttons into the window. The PyCharm interface also shows the 'Run' and 'Structure' toolbars at the bottom.





File Edit View Navigate Code Refactor Run Tools VCS Window Help

TW10 / TW10.py

TW10 ▾

Project

```
57             height=1, width=10, font='algerian', bd=4)  
58  
59     self.b4 = Button(root1, text='GREEN', command=green_button_clicked, activeforeground='green',  
60                     activebackground='pink',  
61                     height=1, width=10, font='algerian', bd=4)  
62     self.b1.pack(side=LEFT)  
63     self.b2.pack(side=TOP)  
64     self.b3.pack(side=RIGHT)  
65     self.b4.pack(side=BOTTOM)  
66  
67  
68 mb = ColorButton(root)  
69 root.mainloop()  
70
```

Run: TW10 ×

"C:\Users\Advait\Desktop\degree\SE\SEM 4\Python\TW\TW10\venv\Scripts\python.exe" "C:/Users/Advait/Desktop/degree/SE/SEM 4/Python/TW/TW10/TW10.py"

Process finished with exit code 0

Structure

Favorites

Run TODO Problems Terminal Python Console Event Log

Python 3.8 (TW10)