ASSIGNMENT 5

ADITYA BHAT
S11 13
2 | 02 | 24

FUNCTIONS

CODE :

```python
"""
Write a function to generate square,square root,cube,cube root for 1 to 10
WAF to print sum of all numbers in the give list
WAF to take string as a input and print reverse of that string
WAF for factorial,prime,armstrong number for a given input
"""
import math

def calculate_roots(num):
    """
    Calculates and prints the square, square root, cube, and cube root of a given number.

    Args:
        num (int): The number to calculate roots for.

    Returns:
        None
    """

    square = num * num
    square_root = math.sqrt(num)
    cube = num * num * num
    cube_root = num ** (1/3)  # Use Python 3's power operator for cube root

    print(f"Number: {num}")
    print(f"Square: {square}")
    print(f"Square Root: {square_root:.2f}")  # Format square root to 2 decimal places
    print(f"Cube: {cube}")
    print(f"Cube Root: {cube_root:.2f}")  # Format cube root to 2 decimal places
    print("\n")  # Add a newline for better readability

def sum_of_numbers(numbers):
    """
    Calculates and prints the sum of all numbers in a given list.

    Args:
        numbers (list): The list of numbers.

    Returns:
        int: The sum of the numbers.
    """

    total = sum(numbers)
    print(f"The sum of the numbers is: {total}")
```

```python
def reverse_string(string):
    """
    Reverses the given string and prints it.

    Args:
        string (str): The string to reverse.

    Returns:
        None
    """

    reversed_string = string[::-1]
    print(f"The reversed string is: {reversed_string}")

def factorial(num):
    """
    Calculates and prints the factorial of a given number.

    Args:
        num (int): The number for which to calculate the factorial.

    Returns:
        int: The factorial of the number.
    """

    if num < 0:
        print("Factorial is not defined for negative numbers.")
        return
    elif num == 0:
        return 1
    else:
        factorial = 1
        for i in range(1, num + 1):
            factorial *= i
        print(f"The factorial of {num} is: {factorial}")

def is_prime(num):
    """
    Checks if a given number is prime and prints the result.

    Args:
        num (int): The number to check for primality.

    Returns:
        None
    """

    if num <= 1:
        print(f"{num} is not a prime number.")
        return
    for i in range(2, int(num**0.5) + 1):
        if num % i == 0:
            print(f"{num} is not a prime number.")
            return
    print(f"{num} is a prime number.")

def is_armstrong(num):
    """
    Checks if a given number is an Armstrong number and prints the result.

    Args:
        num (int): The number to check for Armstrong property.

    Returns:
        None
    """
```

```python
        num_digits = len(str(num))
        sum_of_digits = 0
        temp = num
        while temp > 0:
            remainder = temp % 10
            sum_of_digits += remainder ** num_digits
            temp //= 10

        if sum_of_digits == num:
            print(f"{num} is an Armstrong number.")
        else:
            print(f"{num} is not an Armstrong number.")

    # Print calculations for numbers 1 to 10
    for i in range(1, 11):
        calculate_roots(i)

    # Example list for sum_of_numbers
    my_list = [1, 2, 3, 4, 5]
    sum_of_numbers(my_list)

    # Example string for reverse_string
    str_to_reverse = "Hello, world!"
    reverse_string(str_to_reverse)

    # Example number for factorial
    num_for_factorial = 5
    factorial(num_for_factorial)

    # Example number for prime check
    num_for_prime_check = 13
    is_prime(num_for_prime_check)

    # Example number for Armstrong check
    # Example number for Armstrong check
    num_for_armstrong_check = 153
    is_armstrong(num_for_armstrong_check)
```

OUTPUT :

PS C:\Users\satish bhat> python -u "c:\Users\satish bhat\Downloads\pyASS6(Functions).py"
Number: 1
Square: 1
Square Root: 1.00
Cube: 1
Cube Root: 1.00

Number: 2
Square: 4

Square Root: 1.41
Cube: 8
Cube Root: 1.26

Number: 3
Square: 9
Square Root: 1.73
Cube: 27
Cube Root: 1.44

Number: 4
Square: 16
Square Root: 2.00
Cube: 64
Cube Root: 1.59

Number: 5
Square: 25
Square Root: 2.24
Cube: 125
Cube Root: 1.71

Number: 6
Square: 36
Square Root: 2.45
Cube: 216
Cube Root: 1.82

Number: 7
Square: 49
Square Root: 2.65
Cube: 343
Cube Root: 1.91

Number: 8
Square: 64
Square Root: 2.83
Cube: 512
Cube Root: 2.00

Number: 9
Square: 81
Square Root: 3.00
Cube: 729
Cube Root: 2.08

Number: 10
Square: 100
Square Root: 3.16
Cube: 1000
Cube Root: 2.15

The sum of the numbers is: 15
The reversed string is: !dlrow ,olleH
The factorial of 5 is: 120
13 is a prime number.
153 is an Armstrong number.
PS C:\Users\satish bhat>

ASSIGNMENT 5

CONDITIONAL LOOPS

CODE :

```
C: > Users > satish bhat > Downloads >  ASSG 5 Conditional_loops_S11_12.py > ...
  1     print ("----------------------------------CONDITIONAL STATEMENTS ----------------------------
  2
  3
  4     a = input ("Enter the first numnber :")
  5     b= input ("Enter the second number :")
  6     if a==b:
  7         print ("A and B are equal")
  8
  9     if a>b :
 10         print ("the first number is greater than the other ")
 11
 12     if a<b :
 13         print ("the second number is greater than the first number")
 14
 15
 16
 17     c = input ("enter the first number")
 18     d = input ("enter the second number")
 19
 20     if c==d :
 21         print (" the nbumbers are equal")
 22
 23     elif c>d :                          #ELIF CAN BE REPLACED BY ELSE
 24         print ("the first number is greater than the second number")
 25
 26     elif d>c :
 27         print ("he second number is greater than the first number")
 28
 29
 30
 31     print ("--------------------------------assignment----------------------------")
 32     #QUESTION 1 : write a python program to check whether a given character is a vowel or not
 33     #QUESTION 2 : TO check whehter given numjber is positve or not
 34     #QUESTION 3 : to check whther the given no is less than 5. if the number is less than 5
 35     #print the sqaure and cube of the number
 36     #QUESTION 4 : check whether no is divisible by 10
 37     #QUESTION 5 : to check whether profit or loss
 38     #QUESRION 6 : check the entered number is in the range from 50 to 100
 39
 40
 41     print ("----------Solution1----------")
 42     c1 = input ("Enter the character ")
 43     if c1 == 'a' or c1== 'e' or c1 == 'i' or c1 == 'o' or c1 == u'' :
```

```python
44          print ("It is a vowel")
45      else :
46          print ("Its not a vowel")
47
48
49      print ("----------Solution2----------")
50      num = int (input ("Enter the number "))
51
52      if num > 0 :
53          print ("The number is positive")
54      else :
55          print ("The numner is not positive")
56
57
58
59      print ("----------Solution3----------")
60      num1 = int (input ("enter the number "))
61      if num1 > 5 :
62          print ("The square of the number is " + str(num1*num1))
63          print ("The cube of the number is " +str(num1*num1*num1))
64
65
66
67      print ("----------Solution4----------")
68      num2 = int (input ("Enter the number :"))
69      if num2 %10 ==0 :
70          print ("Thw number is divisible by 10")
71
72      else:
73          print ("The number is not divisible by 10")
74
75
76
77      print ("----------Solution5----------")
78      cp = float (input ("Enter the cost price"))
79      sp = float (input ("Enter the selling price"))
80
81      if cp > sp :
82          print ("It is a loss")
83
84      elif cp == sp :
85          print ("BHAV TO BHAV ")
86
87      elif cp < sp :
88          print ("It is a profit")
89
90
91      print ("----------Solution6----------")
92
93      num3 = int (input ("Enter the number :"))
94      if num3 <100 and num3 >50 :
95          print (str(num3)+ "is the required number")
96
97      else:
98          print (str(num3)+ "is not the required number")
99
```

OUTPUT :

```
PROBLEMS    OUTPUT    DEBUG CONSOLE    TERMINAL    PORTS

-------------------------------CONDITIONAL STATEMENTS -------------------------
Enter the first numnber :12
Enter the second number :2
the second number is greater than the first number
enter the first number12
enter the second number12
 the nbumbers are equal
-------------------------------assignment----------------------------
-----------Solution1-----------
Enter the character a
It is a vowel
-----------Solution2-----------
Enter the number 2
The number is positive
-----------Solution3-----------
enter the number 3
-----------Solution4-----------
Enter the number :2
The number is not divisible by 10
-----------Solution5-----------
Enter the cost price12
Enter the selling price33
It is a profit
-----------Solution6-----------
Enter the number :1
1is not the required number
PS C:\Users\satish bhat\OneDrive\Desktop\CODING\PYTHON> []
```