Lab 4: Function

1. Create a Python function called **'sumOfTwoNumbers'** that takes two numbers as arguments and returns their sum. In the main program, prompt the user to input two numbers. Then, call the **'sumOfTwoNumbers'** function with the user input as arguments to calculate and display their sum.

   Sample input/output:

   Enter first number: 23

   Enter second number: 7

   Sum of the given two numbers is: 30

```
def sumOfTwoNumbers(number1, number2):
    totalOfTwoNumbers = number1 + number2
    return totalOfTwoNumbers

#Alternatively you can simplify the above function as follows:
"""
def sumOfTwoNumbers(number1, number2):
    return number1+number2
"""
firstNumber = int(input('Enter first number: '))
secondNumber = int(input('Enter second number: '))
total = sumOfTwoNumbers(firstNumber, secondNumber)
print('Sum of the given two numbers is', total)

#Alternatively you can print as follows:
#print('Sum of', firstNumber, 'and', secondNumber, 'is', total)
```

2. Develop a program that calculates the difference between two numbers using a function.
   a. Define a function called 'findDifference' that takes two numbers as arguments.
   b. Inside the function, subtract the second number from the first number to find the difference.
   c. Return the calculated difference from the function.
   d. In the main program, prompt the user to input two numbers.

e. Call the 'findDifference' function with the user input as arguments to calculate the difference.
f. Display the calculated difference to the user.

Sample input/output:

Enter first number: 3

Enter second number: 7

Difference of the given two numbers is: 4

3. Design a program that calculates the average of three numbers using a function.
   a. Define a function called 'findAverage' that takes three numbers as arguments.
   b. Inside the function, add the three numbers together and divide the sum by 3 to find the average.
   c. Return the calculated average from the function.
   d. In the main program, prompt the user to input three numbers.
   e. Call the 'findAverage' function with the user input as arguments to calculate the average.
   f. Display the calculated average to the user.

   Sample input/output:

   Enter first number: 3

   Enter second number: 7

   Enter third number: 5

   Average of the given three numbers is: 5

4. Design a Python program to create a calculator that performs basic arithmetic operations (addition, subtraction, multiplication, and division) using functions and proper selection control structure (such as if-else) to call the defined functions based on the user's input.
   a. Define four functions for each arithmetic operation: 'add', 'subtract', 'multiply', and 'divide'. Each function should take two numbers as arguments and return the result of the respective operation.
   b. In the main program, display a menu to the user with the following options: 'ADD', 'SUBTRACT', 'MULTIPLY', and 'DIVIDE'.
   c. Prompt the user to choose an operation by entering the corresponding option number.
   d. Based on the user's input, call the corresponding function to perform the chosen arithmetic operation.
   e. Prompt the user to enter the two numbers for the chosen operation.
   f. Call the chosen function with the user input as arguments to perform the arithmetic operation and store the result.

g. Display the result to the user in the format 'Product/Sum/Difference/Quotient of <first_number> and <second_number> is <result>.'

Make sure to handle possible errors, such as division by zero, and provide clear instructions to the user throughout the program.

Sample input/output:

Calculator:

1. ADD

2. SUBTRACT

3. MULTIPLY

4. DIVIDE

Choose the operation from the given options: 3

Enter first number: 2

Enter second number: 3

Product of 2 and 3 is 6.

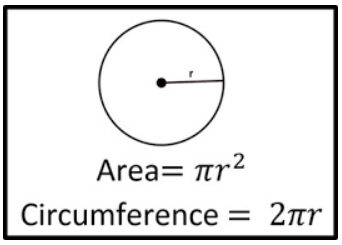
5. Design a Python program that prompts the user to enter the radius of a circle as a float value, and then calculates and displays its diameter, circumference, or area based on the user's selection. To accomplish this, create separate functions to calculate the diameter, circumference, and area, and name them accordingly.
   a. Define three functions for each calculation: 'calculate_diameter', 'calculate_circumference', and 'calculate_area'. Each function should take the radius as an argument and return the corresponding result.
   b. In the main program, create a menu function called 'display_menu' that displays the options to the user: '1. Calculate Diameter', '2. Calculate Circumference', and '3. Calculate Area'.
   c. Prompt the user to choose an option by entering the corresponding number.
   d. Based on the user's input, call the corresponding function to perform the chosen calculation.
   e. Prompt the user to enter the radius of the circle as a float value.
   f. Call the chosen function with the user input as an argument to perform the calculation and store the result.
   g. Display the result to the user in a formatted manner.

   Use the value 3.14159 as the approximation of π, or you can import the math library and use its pi constant for more accurate calculations.

   Make sure to handle possible errors, such as invalid input or division by zero, and provide clear instructions to the user throughout the program.:

To import math library:

```
import math
```



Sample output:

```
Enter 1 to calculate diameter
Enter 2 to calculate circumference
Enter 3 to calculate area
Enter your choice: 1
Enter the radius of the circle: 3.4
The diameter of the circle is 6.8
```