

### Task-3: Importing python modules and packages in python Programming.

Aim: TO write python demonstrating importing python modules and packages.

a) You are tasked with developing a modular calculation application in python. The calculator should support basic arithmetic operations, additions, subtraction, multiplication, and division. Each operation should be implemented in separate module. Additionally, you should create a main program to handle user input, call the appropriate module, and display the result.

#### Algorithm:

1. Define functions for addition, subtraction, multiplication, & division.
2. Handle division by zero by raising an error if the divisor is zero.
3. Import the module (my math) containing these functions.
4. Initialize two numbers ( $a=10, b=5$ ).
5. Call each function using `my math < function name > (a,b)`.
6. Print the result of all operations.

#### Program:

```
def add(a,b):  
    return a+b  
def subtract(a,b):  
    return a-b  
def multiply(a,b):  
    return a*b
```

```
def divide(a,b):
```

```
    if b == 0:
```

```
        raise ValueError("cannot divide by zero")
```

```
    return a/b
```

```
import mymath
```

```
a = 10
```

```
b = 5
```

```
print("Addition:", mymath.add(a,b))
```

```
print("Subtraction:", mymath.subtract(a,b))
```

```
print("Multiplication:", mymath.multiply(a,b))
```

```
print("Division:", mymath.divide(a,b))
```

b) You are working on a python project that requires you to perform various mathematical operations and geometric calculations.

Algorithm :-

1. create mathfunctions.py module:
2. create area functions.py module:
3. create \_\_init\_\_.py files in pack 1 and pack2:
4. create main.py:
5. print the output as expected.

Program :-

1. create the math-functions.py module

```
def add(a,b):
```

```
    return a+b
```

```
def subtract(a,b):
```

```
    return a-b
```

```
def multiply(a,b):
```

```
    return a*b
```

```
def divide(a,b):
```

```
    if b == 0:
```

```
        return "Error! Division by zero."
```

```
    return a/b
```

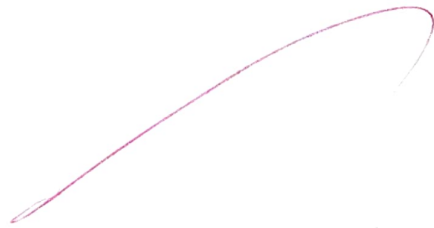
Output:

Addition : 15

Subtraction : 5

Multiplication : 50

Division : 2.0





Output:

Addition: 15

Subtraction: 5

Multiplication: 50

Division: 2.0

Circle Area (radius = 7): 153.93804002589985

Rectangle Area (5 x 10): 50

Triangle Area (base = 6, height = 8): 24.0



2. Create the area functions. Py module

```
import math
def circle_area(radius):
    return math.pi * radius * radius
def rectangle_area(length, width):
    return length * width.
def triangle_area(base, height):
    return 0.5 * base * height.
```

3. Create `__init__.py` in each package folder (pack 1 and pack2) from math functions import add, subtract, multiply, divide from. area functions import circle\_area, rectangle\_area, triangle\_area.

4. create the main.py file  
 from pack import math functions.  
 from pack import area functions.

```
Print("Addition:", mathfunctions.add(10, 5))
Print("Subtraction:", mathfunctions.subtract(10, 5))
Print("Multiplication:", mathfunctions.multiply(10, 5))
Print("Division:", mathfunctions.divide(10, 5))
Print("Circle Area (radius)=7:", areafunctions.circle_area(7))
Print("Rectangle Area (5x10):", areafunctions.rectangle_area(5, 10))
Print("Triangle Area (base=6, height=8):", areafunctions.triangle_area(6, 8))
```

Result:- Thus, the program for importing python modules and packages was executed and the output was verified.

VELTECH	
EX.No.	Success 11g 8
PERFORMANCE (5)	
RESULT AND ANALYSIS (3)	verified.
VIVA VOCE (3)	5
RECORD (4)	5
TOTAL (15)	20
SIGNATURE DATE	