Task:5:- Importing python modules and packages in python programming.

Aim:-

To write python demonsting important pgthon modules and packages.

a. You are tasked with developing a molecular calculator application in Python. The calculator should support basic arithmetic operation: addition, subtraction, multiplication, and division. Each operation should be implemented in a separate module. Additionally, you should create a main program to handle user input, call the appropiate module, and display the results.

Algorithm:

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

Output:

Addition: 15

subtraction: 5

Multiplication: 50

Division: 2.0

Program:

```
def add(a,b):
    return a+b
def subtraction(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.subtraction(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 area calculations. To organize your code better, you decide to create a package mypackage with include sub packages pack1, and pack2 with two modules: mathfunctions and areafunctions Demonstrate the use of the functions by performing a few calculations and printing the results.

Algorithm:

1. Create mathfunctions.py module.
2. Create areafunctions.py module:
3. Create __init__.py files in pack1 and pack2:
4. Create main.py:
5. Print the output as expected:

Program:

1. Create the mathfunctions.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
```

2. Create the areafunctions.py module

```
import math
def circle_area(radius):
```

Output:

Addition : 15

Subtraction: 5

Multiplication: 50

Division: 2.0

Circle Area (radius=7): 153.93804002589985

Rectangle Area (5x10): 50

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

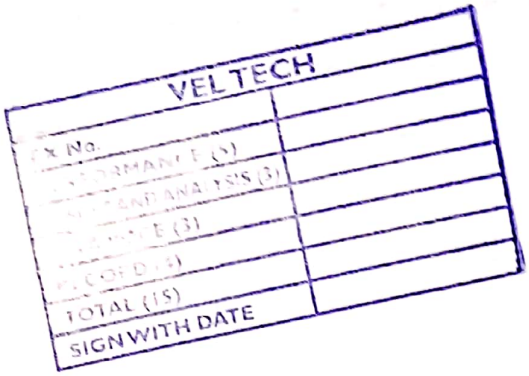
```
    return math.pi * radus * radius
def rectangle_area(length, width)
    return length * width
def triangle_area(base, height):
    return 0.5 * base * height
```

3. Create __init__.py in each package folder (pack1 & pack 2)

```
from .mathfunctions import add, subtract, multiply, divide
from .areafunctions import circle_area, rectangle_area, triangle_area.
```

4. Create the main.py file

```
from pack import mathfunctions.
from pack import areafunctions
#using mathfunctions
print("Addition", mathfunctions.add(10,5))
print("Subtraction:", mathfunction.subtract(10,5))
print("Multiplication:", mathfunction.multiply(10,5))
print("Division:", mathfunction.divide(10,5))
# Using area function.
print("Circle Area (radius = 7):", areafunction.circle
    .area(7))
print("Rectangle Area(5x10):", areafunction.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 successfully executed and the output was verified.