6/08/25

Task 3 : Importing Python modules and packages in Python programming.

Aim:-

To write python demonstrating importing python modules and packages

You are tasked with developing a modular calculator application in python. The Calculator Should Support basic arithmetic operations 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 appropriate module, and display the results

Algorithm:

1. Define functions for addition, subtraction, 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 results 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
```

Output :-

Addition : 15
Subtraction: 5
Multiplication : 50
Division : 8.0

```
def divide (a, b):
  if b = =0:
     raise Value Error ("Cannot divide by Zero")
  return a/b
  import mymath
    a =10
    b = 5
  Print ("Addition:", mymath .ad d (a,b))
  Print ("Subtraction:" mymath .Substrad (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 named mypackage which includes 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 area functions.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 * radius * radius
def rectangle_area (length, width):
    return length * width
def traiangle_area (base, height):
    return 0.5 * base * height.
```

3. Create __init__.py in each package folder (Pack1 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
# using math functions
 Print ("Addition:", math functions . add (10,5))
 Print ("Subtraction:", math functions: Subtract (10,5))
Print ("Multiplication:", math functions . multiply (10,5))
Print ("Division:", math functions . divide (10,5))
# using area functions-
  Print ("Circle Area (radius = 7):", area functions . Circle_area(7))
  Print ("Rectangle Area (5x10):", area functions . rectangle_area(5,10))
Print (" triangle Area (base=6, height=8):" area functions . triangle_area(6,8))
```

Result :-

Thus, the program for Importing Python modules and Packages were Sucessfully executed and the output was verified.

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PERFORMANCE (5)	5
RESULT AND ANALYSIS (5)	5
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