

Task 3 :- Importing Python modules and packages in the python programming.

Aim:- To write Python demonstrating importing Python modules and packages

- Q 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 your 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 (say math) 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  
  
def divide(a,b):  
    if b==0:  
        raise ValueError("Cannot divide by zero")  
    return a/b  
  
input mymath  
a=10  
b=5
```

```

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))

```

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```
Print ("addition:", my.math.add (a,b))  
Print ("subtraction:", my.math.subtract (a,b))  
Print ("multiplication:", my.math.multiply (a,b))  
Print ("division:", my.math.divide (a,b))
```

- (b) you are working on a Python project that requires you to perform various mathematical operations and geometric area of calculations. To organize your code better, you decide to create a package named my package which includes subpackages pack1 and pack2 with two modules: math functions and formula functions. Demonstrate the use of the functions by performing a calculation and printing the result.

Algorithm:-

1. Create math functions .py module.
2. Create one functions .py modules.
3. Create __init__.py files in pack1 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 a

add : 15

Subtraction : 5

multiplication : 50

Division : 20

error: Division by zero

error: Area of circle

error: Area of rectangle

error: Area of triangle

error: Area of circle

error: Area of rectangle

error: Area of triangle

error: Area of circle

error: Area of rectangle

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error: Area of triangle

error: Area of circle

error: Area of rectangle

error: Area of triangle

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Output :-

(130) 600 * Hours
((10) 20000) * 10000
Addition : 15
Subtraction : 5
Multiplication : 50

Addition : 15
Subtraction : 5
Multiplication : 50

Division : 2.0

Circle Area (Radius = 9) : 153.

93804002589985

Rectangle Area (5x10) : 50

Triangle Area (Base = 8, height = 8) : 24.0

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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 (int - int in each package folder (pack1 and pack2)
```

```
return length * width / 2
```

```
3. Create __init__.py in each package folder (pack1 and pack2)
```

```
from mathfunctions import add, subtract, multiply, divide from
```

```
area functions import circle_area, rectangle_area,
```

```
area functions import triangle_area
```

4. Create the main.py file

```
from pack import math functions
```

```
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=5):", area functions.triangle_area (6,5))
```

~~Author:~~ ~~After, the program for importing packages was successfully executed~~

~~Verified.~~

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