Task3: 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 simple calculator application in python. The calculator should support basic arithmetic operations: addition, subtraction, multiplication, and division

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 containing these functions
4. Initialize two numbers (a = 6, b = 3).
5. Call each function using mymodule.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:
        return("Error! Cannot divide by zero")
    return a/b
```

Tasks: Importing python modules and packages in python programming.

Aim:-

To write python demonstrating importing python modules and packages

a. you are tacked with developing a modular calculator application in python the calculator should support basic arithmetic operations: addition, substration, multiplication, and devision

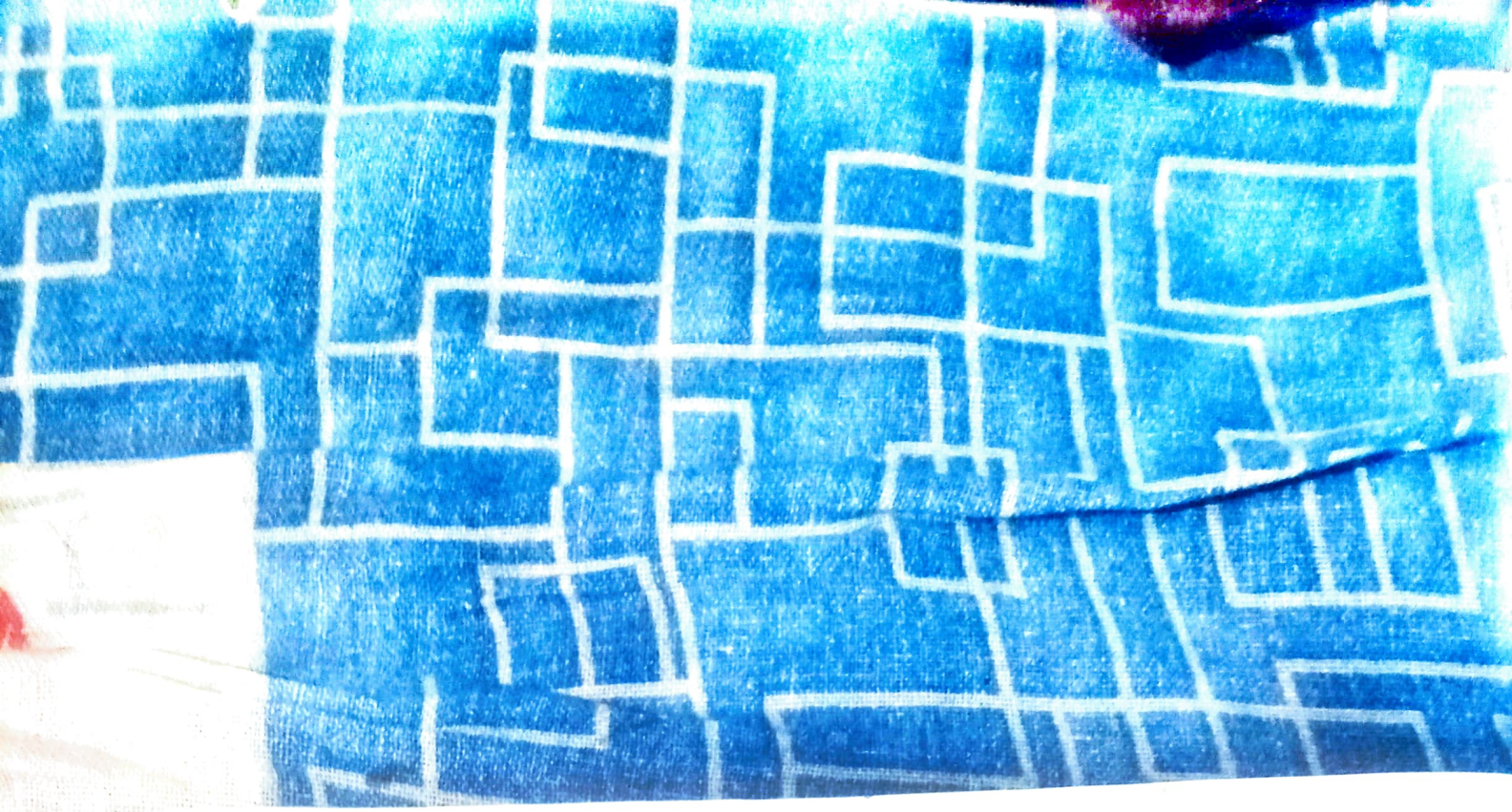
Algorithm:

1. Define functions for addition, substration, multiplication, and division.
2. Handle division by zero by raising an error if the divisor is zero.
3. Import the module 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 results of all operations.

Program:-

```
def add(a,b):
    return a+b
def substract(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
```

```
a = 5
b = 5
print("Addition", mymath.add(a,b))
print("Substraction", mymath.subtract(a,b))
print("Multiplication:", mymath.multiply(a,b))
print("Division:", mymath.divide(a,b))
```



output:

Addition : 15

Subtraction : 5

Multiplication : 50

Division : 2.0

5. 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: math functions and area functions. Demonstrate the use of the use of the functions by performing a few calculations and printing the results.

Algorithm:

1. create math_functions.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 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
```

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 (pack1 and pack2)

```
from .math_functions import add, substract, multiply, divide
from .area_functions import circle_area, rectangle_area, triangle_area
```

4. Create the main.py file

```
from pack1 import area_functions
from pack2 import area_functions
# using math factions.
print("Addition:", math_functions.add(10,5))
Print("Subtraction:", math_functions.sub(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, heights)
area functions.triangle_area (6,8))

Result:

Thus the program for creating python modules and packages was successfully executed and the output was verified

out put1

Addition : 15

Substraction : 5

Multeplication : 50

Division : 2.0

circle Area (radius = 7) : 153.93804002589985

Rectangle Area (5x10) : 50

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