

Date: 20/8/25 Task 3

Importing and creating python modules and packages in Python program.

Aim: To implement and demonstrate the process of importing built-in modules, creating user-defined modules, and organizing code into packages in Python, thereby promoting code reusability, modularity, and maintainability.

Algorithm:

1. Importing required modules: math, random, os, sys, statistics, pathlib
2. math, random,
3. os & sys
4. statistics
5. print nicely formatted results

Program:

```
import math  
import random  
import os import  
sys  
import statistics as stat  
from pathlib import Path
```

```
print("In - math & random - ")
```

```
print("sqrt(0).", math.sqrt(0))
```

```
print("radians (30) =", math.radians(30))
```

~~```
print("random() in [0,1] = "random.random())
```~~

```

print("random(2,6) = ", random.random(2,6))
print("pi = ", math.pi)
print("ceil(2.3) = ", math.ceil(2.3))
print("floor(2.3) = ", math.floor(2.3)) print("factorial")
print(f"\n log10({a-val}) = ", math.log10(a-val))
inf-val = float('inf') nan-val = float('nan')
print(f"\n {inf} is inf(\infty) = {math.isnan(inf-val)} \n
nan(nan) = {math.isnan(nan-val)}")
print("\n -- os & sys --")
path = path - pythonlab
path.mkdir(parents=True, exist_ok=True)
os.chdir(target-dir) print("changed into: " + target-dir)
print("Directory contents: ", os.listdir())
print("python version: ", sys.version)
print("in- statistics --")
data1 = [2, 5, 3, 2, 8, 3, 9, 4, 2, 5] print("mean
of data1 = ", stats.mean(data1)) print(
"median(data1) = ", stats.median(data1)) print("mode (data1) = ",
stats.mode(data1))
print("stddev(data1) = ", stats.stdev(data1))

```

Result: 

thus, the python program implement and  
modules packages are executed successfully

OUT OF

(19-AD2011-15-19)  
[5, 24, 13, 22, 20, 61, 38, 51, 4, 134, 49, 14, 5,  
40, 5, 35, 17, 18, 33, 18, 36, 62, 12, 6, 16, 19,  
29, 21, 27, 11, 81, 6, 28, 21, 32, 8, 25, 30, 2,  
26, 50, 43, 147, 31, 66, 52, 1, 45, 9]  
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## TASK 3.2

Aim: Create a python package named card pack containing a module that imports the random module . Assign of cards, call a function from the module, and display a random sample of cards.

### Algorithm:

1. Start
2. To create a package .card pack
3. Assign a card range
4. Call a module function
5. Display the random Sample cards.
6. Stop

### Program:

```
cardfun import
random def func():
(cards = [j for i in range(1,53):]
(cards).append(i) shuffled - cards = random.sample
(cards,k=52)
print (" \n\n", shuffled - cards, "\n\n")
```

### mymod.py

```
import cardfun
cardfun.func()
```

### Result:



Thus the python program u package and card pack modules u executed successfully

### TASK 3

Aim: you're working on a Python project that requires you to perform various mathematical operations related geometric area calculations. To your code better, you decide to create a package named mypackage which includes sub packages pack1 and pack2 with two modules mathfunction and areafunction. Demonstrate the use of the function by performing a few calculations and printing the results.

#### Algorithm:

1. Create mathfunction.py module
2. Create areafunction.py module
3. Create main.py
4. Print the output as expected

#### Program:

```
def add(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
import math
def circle_area(radius):
return math.pi * radius * radius
def rectangle_area(length, width):
return length * width.
```

Output:

Addition: 15.

Subtraction: 5

multiplication: 45

Division 2.0

Circle Area (radius = 1) : (3.141592653589793)

Rectangle Area: (5 \* 1) = 50

Triangle Area (base 20, height=1) = 20.00

```
def triangle_area (base,height):
 return 0.5 * base*height
```

```
import mathfunctions
```

```
import areafunctions
```

```
print("Addition:",mathfunction.add(10,5)) print
```

```
("Subtraction:",mathfunctions.subtract(10,5))
```

```
print("Multiplication:",mathfunctions.multiply
(10,5))
```

```
print("Division:",mathfunctions.divide(10,5))
```

```
print("Rectangle Area(5x10):",areafunctions.
rectangle_area(5,10))
```

```
.print("Triangle Area(base=6, height=8):" area
functions.triangle_area(6,8))
```

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|-------------------------|----|
| EX NO.                  | 3  |
| PERFORMANCE (5)         | 5  |
| RESULT AND ANALYSIS (3) | 3  |
| VIVA VOCE (3)           | 3  |
| RECORD (4)              | 4  |
| TOTAL (15)              | 15 |

ON WITH DATE

Result:

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