

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 neatly 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(3):", math.sqrt(3))
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("(pi(2.3) =", math.ceil(2.3))
print("floor(2.3) =", math.floor(2.3)) print("factorial")
print(f" log10({a-val}) =", math.log10(a-val)) (5)
int-val = float(int) nan-val = float("nan")
print(f" is int(∞) = {math.isinf(int-val)} is
  nan(nan) = {math.isnan(nan-val)}")
print("In -- os & sys - ") path = pythonlab.path('C:\
pythonlab')
path = pythonlab.mkdir(parents=True, exist_ok=True)
os.chdir(target-dir) print(f"changed into: {target-
dir}") print("Directory contents:", os.listdir())
print("python version:", sys.version)
print("In- STATISTICS -- ") data1 = [5, 6, 8, 10]
data2 = [2, 5, 3, 2, 8, 3, 9, 4, 2, 5, 6] print(f"mean
({data1}) =", stats.mean(data1)) print
(f"median({data1}) =", stats
median(data1)) print(f"mode ({data1}) =",
stats.mode(data1)
print(f"stdev ({data2}) =", stats.stdev(data2))

```

Result:

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

OUTPUT

51, 24, 13, 22, 20, 41, 38, 51, 4, 4, 34, 49, 14, 30,
40, 51, 35, 17, 18, 33, 39, 36, 42, 12, 6, 16, 19,
29, 21, 27, 11, 8, 46, 28, 21, 32, 8, 25, 30, 2,
26, 10, 43, 47, 3, 44, 52, 1, 45, 9

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TASK 3.2

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

Algorithm:

1. Start
2. To create a package cardpack
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 = [] 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 cardpack module u executed successfully

TASK 3.3

Aim: You're working on a Python project that requires you to perform various mathematical operations and 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: 75

Division: 2.0

Circle Area (radius = 7) : 153.9380400258999

Rectangle Area: $(5 \times 10) = 50$

Triangle Area (base 20, height = 1) $\div 2 = 10$

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

import mathFunctions

import ~~area~~ Functions

print("Addition:", mathFunctions.add(10,5)) print

("Subtraction:", mathFunctions.subtract(10,3))

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))

VEL TECH - CSE	
EX NO.	3
PERFORMANCE (5)	5
RESULT AND ANALYSIS (3)	3
VIVA VOCE (3)	3
RECORD (4)	4
TOTAL (15)	
ON WITH DATE	15

Result:

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