

18-06-25
Task 3:-

AIM:- To implement and demonstrate the process of importing built-in modules, creating is designed modules and organizing code into packages in Python.

3:-

1. Perform common math and random operations
2. work with operating system.
3. compute basic statistics

Algorithm:-

1. Input required modules, math, random; o.s system
2. math & random
 $[0, 0, 1, 0]$ a random integer, $\text{in}[2, 6]$
 $\text{floor}[2, 3]$ factorial[5]
 $\log(10) a$ for $a=100$
3. OS & say.
4. create: Python if not present and Print the current working directory
- list all files / directories in new current directory
- Print Python interpreter version.

Program:-

import math

import random

import os

import sys

import statistics

from math import

print ("random (5) =", math.sqrt(5)).

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

print ("random (0,1) =", math.random(1))

print ("Pi =", math.pi)

print ("ceil (2.3) =", math.ceil(2.3))

print ("floor (2.3) =", math.floor(2.3))

print ("factorial (5) =", math.factorial(5)).

print ("gcd (5,15) =", math.gcd(5,15)).

print ("power (3,5) =", math.pow(3,5))

print ("log base 3 of 2 =", math.log(2,3))

a=vol=100

int_val = float('inf')

print ("f sin f (∞) = {math : (sin f - val) is (NaN) = {m
[nan-val

```
Print ("In --- OS & Sys ---")
```

```
Path = Python lab = Path ("C:\\Python 1ad")
```

```
Path = Python lab mkdir (Parents = True, exists = ok = True)
```

```
Print (f" Created ensured = {Path - Python lab}")
```

```
target = dir mkdir (Parents = True, exist = ok = True)
```

```
os.chdir (target - dir)
```

```
Print (f" changed into O.S dir")
```

```
Print ("Directory contents :", os.listdir())
```

```
Print ("Python version :", sys.version)
```

```
Print ("In --- statistics ---")
```

```
data 1 = [5, 6, 8, 10]
```

```
data 2 = [2, 5, 3, 8, 3, 9, 4, 2, 5, 6]
```

```
Print (f"mean ({data1}) =", stats.mean (data1))
```

```
Print (f"({data2}) = stats mode (data2)
```

```
Print (f" Stder ({data1}) mode (data1)
```

```
Print (f" Stder ({data2}); "stats.stdev (data2))
```


Expected sample output:-

--- MATH & Random ---

sqrt(5) = 2.23606 7977249979

randoms(30) = 0.5235967755982988

randoms() in [0,1] = 0.37444887175646646

randint(2,6)=6

Print neatly formatted result.

--- STATISTICS TEST ---

mean = [10, 8, 2, 2]

std = [10, 8, 2, 2]

var = [10, 8, 2, 2]



$$\pi = 3.141592653589793$$

$$\text{ceil}(2.3) = 3$$

$$\text{floor}(2.3) = 2$$

$$\text{factorial}(5) = 120$$

$$\text{gcd}(5, 15) = 5$$

$$\text{abs}(-10) = 10$$

$$\text{pow}(3, 5) = 243$$

$$\log_{\text{base } 3} \text{ of } 2 = 0.6209297535714574$$

$$\log_{10}(100) = 2.0$$

$$\text{int}(\infty) = \text{True}, \text{ is nan (nan)} = \text{True}$$

--- OS & SYS ---

Created / ensured c:\python lab

Python version: 3.x.x

--- ~~STAT~~ STATISTICS ---

$$\text{mean}([5, 6, 8, 10]) = 7.25$$

$$\text{median}([5, 6, 8, 10]) = 2$$

$$\text{stdev}([1, 5, 3, 2, 8, 3, 9, 4, 2, 5, 6]) = 2.2715633383206$$

Task 3.2:-

create a python package named card pack containing a module card_fun that imports the random module. Assign a cards . cell a function from the module and display a random sample of cards.

Algorithm:-

Step 1:- Start

Step 2:- To create a package card pack

Step 3:- To create a module

Step 4:- Assign a card range

Step 5:- call a module function

Step 6:- Display the random sample card

Step 7:- Stop.

Program:-

Card -fun:-

```
import random
def fun():
    cards = []
    for i in range(1,53):
        cards.append(i)
    print("In\n", shuffled = cards, "\n\n")
```

my modpy

```
import card_fun
card_fun.fun()
```

Output:-

Restart

C:\Users\students.MAT 2VC6833\APP Data\local\Programs
Python\311\lib\site-package

[5, 24, 13, 22, 40, 41, 42, 34, 39, 49, 14, 50, 15, 35, 17, 18, 33,
36, 42, 12, 6, 16, 48, 28, 2, 27, 11, 46, 78, 25, 30, 23, 26, 10,
47, 3, 44, 52, 1, 45, 9]

Task 3.3:-

You are tasked with developing a modular calculator application in Python. The calculator should support basic arithmetic operations.

Algorithm:

1. Define functions for addition, subtraction, multiplication & division.
2. Handle division by zero.
3. Import the module these functions.
4. Initialize two numbers (a and b).
5. Call each function $> (a, b)$.
6. Print result of all operations.

`((d, a) add(a, b), (d, a) sub(a, b), (d, a) mul(a, b), (d, a) div(a, b))`

`((d, a) add(a, b), (d, a) sub(a, b), (d, a) mul(a, b), (d, a) div(a, b))`

rogram:-

```
def add(a,b)
```

```
    return a+b
```

```
def subtract(a,b)
```

```
    return a-b
```

```
def multiply(a,b):
```

```
    return 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))
```



TASK 3.4

you are working on a Python programming that require
you to perform various mathematical operations and
geometric are calculation. To organize your code better:
you decide to create a package named my package
which includes sub package.

Algorithm :-

1. Create math-functions. py module
2. Create area-functions. py module
3. Create main.py
4. Print the output as expected.

1. $(\{0,1\}^*)$ ເປັນ ສາຍຕາ ຂອງ " $(\{0,1\}^*)$ ເປັນ ສາຍຕາ " ທີ່
 2. $(\{0,1\}^*)$ ເປັນ ສາຍຕາ ຂອງ " $(\{0,1\}^*)$ ເປັນ ສາຍຕາ " ທີ່
 3. $(\{0,1\}^*)$ ເປັນ ສາຍຕາ ຂອງ " $(\{0,1\}^*)$ ເປັນ ສາຍຕາ " ທີ່

Program:-

1. create the math functions py module.

```
def add(a,b):
```

```
    return a+b
```

```
def subtract(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
```

```
def triangle
```

```
    return 0.5 * base * height
```

3. create the main .py file

It using math functions.

```
Print (" Circle area (radius=7); " area function area(7))
```

```
Print (" Rectangle area (5x10): ", area functions area(5,10))
```

```
Print (" Triangle area (base =6, height=8); area triangle  
are (24)
```


Output:-

Addition : 15

Subtraction : 5

Multiplication : 50

Division : 20

Circle are : 1539 38 0400 258 99 85

Rectangular

Area : 50

Triangle Area : 240

VEL TECH - CSE	
EX NO.	
PERFORMANCE (5)	3
RESULT AND ANALYSIS (5)	5
VIVA VOCE (5)	5
RECORD (5)	
TOTAL (20)	
SIGN WITH DATE	15

Result:- Thus, the Program for importing Python modules & packages was successfully executed and the output was verified.