**MODULES AND PACKAGES**

**Modules:** A module is a file it containing python code.

It can define functions classes and variables that can be reused in other python scripts using import keyword.

Module has its own namespace.

Use case: It is used to organized code & provide a modular architecture.

Modules are used to reuse code. And it is a single python file.

It contains .py file in python code.

In modules there are two types

* User defined modules
* Built-in modules

User defined modules:

The modules which are created by programmers is called user defined modules.

a=7  
b=5

result= a+b  
print(result)  
  
result=a-b  
print(result)  
  
result=a\*b  
print(result)  
  
result=a/b  
print(result)

Output:

12

2

35

1.4

Built-in modules:

The modules which are already predefined in python

There are three types in it:

1. Math

2. Random

3. Datetime

Import math

Import math

Print(math.pi)

Output:

3.1415

import random

import random

random.random()  
nums = [1,2,3,4,5,6]  
get = random.choice(nums)  
print(get)

Output:

We will get 1 to 6 any number

import datetime

import datetime

now = datetime.datetime.now()  
print(now)

Output:

2024-12-16 11:04:48.294543

**Packages:** It is a way of organizing related python modules into a single directory hierarchy. A directory that contains multiple python files and subdirectories.

It allows you to organize your python code into a reusable modules and organized manner. It provides a namespace for all the modules.

Use case: It is used to organize related module into a coherent hierarchy.

You can use packages by importing the using the “import” keyword.

Package is the collection of modules and sub packages.

Each package contains a special file called as \_\_init\_\_.py

When a directory contains a \_\_init\_\_.py file python treats the directory as a package allowing u to import modules and sub packages.

In python we have larger developer community so code which is written by the developer he will add that package to the Pypl.

we knowing about the pypl (python package index) we call this pypl as a repository more than 2 lakh packages are present in this repository so we will install those packages from this repository with the help of pip we can say this as package manager we can install, uninstall, search, upgrade, list operations in with this pip.