# CodroidHub Summer Training

# Title:-

**MODULE&PACKAGE in Python**

## MODULE & PACKAGE IN PYTHON

*The module is a simple Python file that contains collections of functions and global variables and with having a . py extension file. It is an executable file and to organize all the modules we have the concept called Package in Python.*

### *What is a Module in Python?*

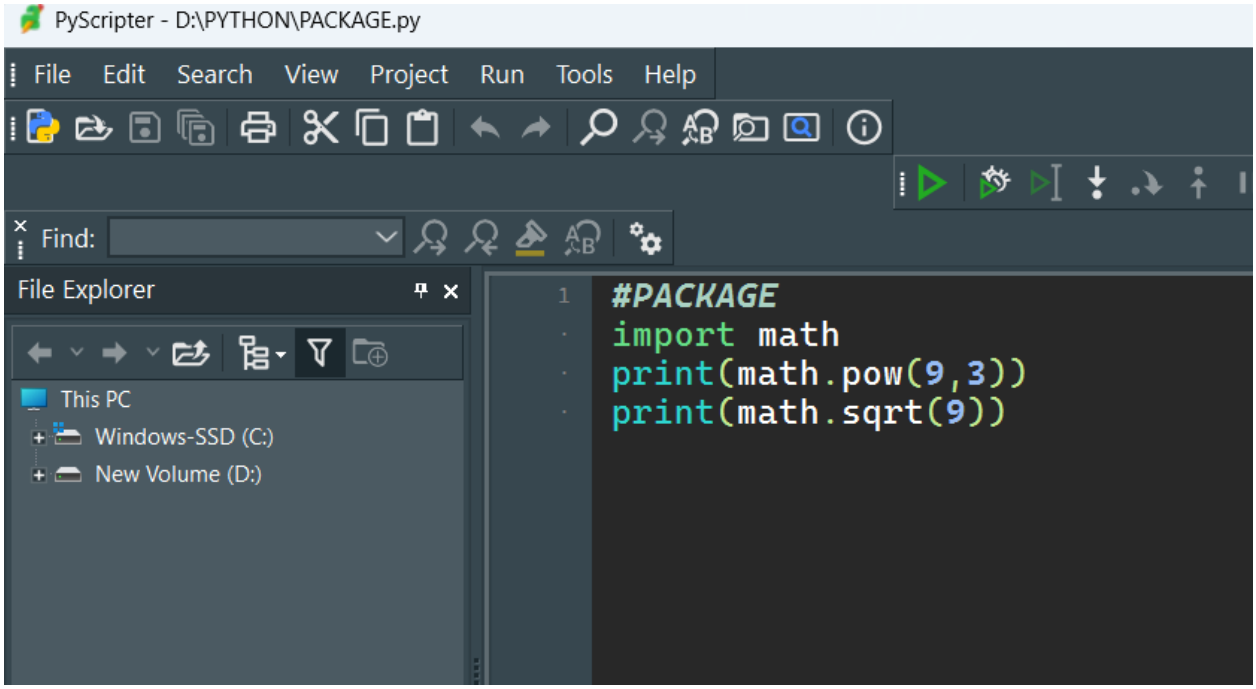
*In Python, a module is a single file containing Python definitions and statements. These definitions and statements can include variables, functions, and classes and can be used to organize related functionality into a single, reusable package. Module organizes and reuses code in Python by grouping related code into a single file.*
*Modules can be imported and used in other Python files using the* ***import*** *statement.*

### *What is a Package in Python?*

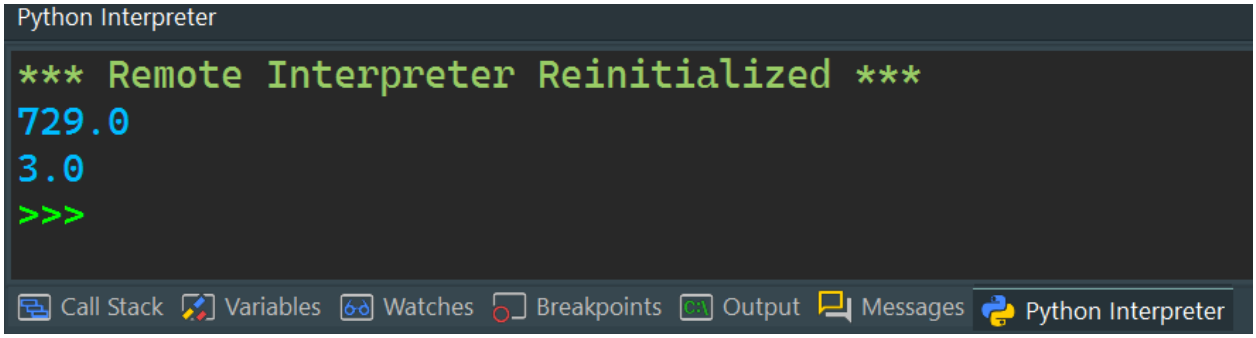
*Python Packages are collections of modules that provide a set of related functionalities, and these modules are organized in a directory hierarchy. In simple terms, packages in Python are a way of organizing related modules in a single namespace.*

- *Packages in Python are installed using a package manager like pip (a tool for installing and managing Python packages).*
- *Each Python package must contain a file named _init_.py.*
    - *_init_ file may be empty.*
    - *This file contains the initialization code for the corresponding package.*
    - *Some popular Python packages are: NumPy, Pandas, and Matplotlib.*

*EXAMPLE:*




*OUTPUT:*




## *Key Difference Between Python Module and Python Package*

- *The module is a single Python file that can be imported into another module. In contrast, a package is a collection of modules organized into a directory hierarchy.*
- *A package can have multiple sub-packages and modules, and each module and sub-package has its own namespace, whereas when modules are imported, their content is placed inside a namespace.*
- *The module is initialized when first imported into a program, whereas the package is initialized when one of its modules is imported.*
    - *Both package and module remain in the memory until the program exits.*
- *A package is installed using the import keyword followed by the package name, and you can access the module and sub-packages within the package name using dot notation. In contrast, the module can be directly installed using the import keyword followed by the module name.*