

Using Python Libraries

The complex program may be divided into functions that performs a specific task.

The functions can be organised by storing them in modules (Kind of libraries created by user).

→ Modules - file that contains python code in the form of functions.

Libraries - commonly used modules that contain source code for generic needs are called libraries.

- * Python comprises of
 - Library or ~~Package~~ Package.
 - Modules.
 - Functions / Sub-modules.

∴ MODULE is a file containing python functions, variables and statements and closes with ".py" extension.

A library is collection of various packages

Q? Why do we use modules -

- It is useful because we can import the module functionality.

- Re-usability because we can use the code in different program once a module is created.
- It allows us to organise a python code logically.
- Python becomes easier to understand and use.

Q} How can we import a module ?

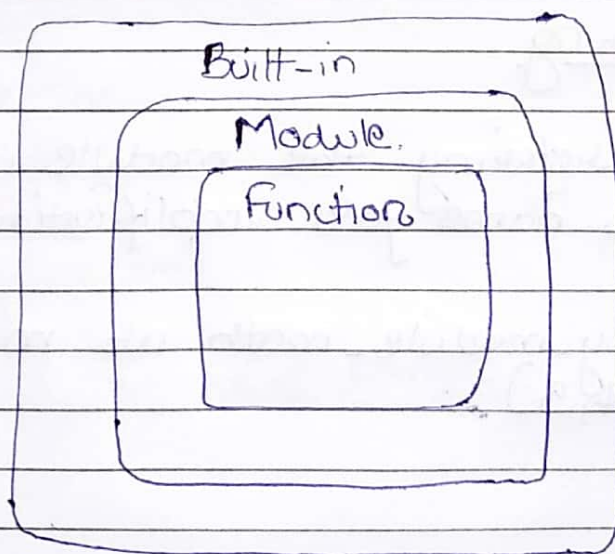
We can import a module by three ways:-

```
i) import <module name >  
ii) from <module name> import <functionname >  
iii) from modulename import *
```

Namespaces in Python.

There are three types of namespace which actually indicate the section in a program.

There can be a global, local & built-in namespace.

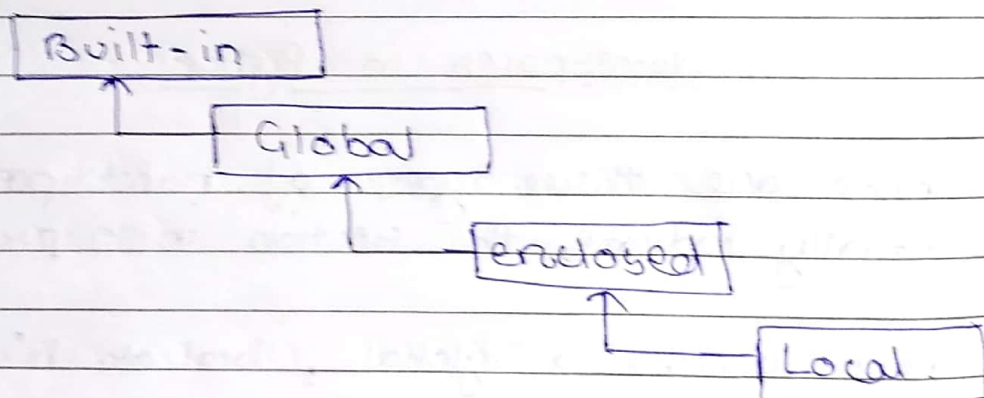


Namespaces are used to distinguish between different sections of program.

Namespace is just like a ~~dict~~ dictionary where the keys are names of variable and dictionary values are values.

Name Resolution

For every name reference within a program python follows ~~LEGB~~ (LEGB) rule.



Module aliasing

It means referring the module with some other name for simplification.

```
import my_module_math as m  
m.add(4,5)
```

Members aliasing - aliasing

```
from my_module.math import difference as d
d(15, 20)
```

```
import mystring as ST
```

```
from from mystring import string line as ST
```

Package / Library

Python package is a collection of related modules.

→ Step to create & import a package -

1. Create a directory and add modules
2. Create a file `__init__.py` in the directory.
3. This file is required to make python treat the directory as containing packages.
4. Import the packages and use the attributes.

① `import os`
`os.mkdirc("Geometry")`

② `Vol.py` → `vol`

③ `Area.py` → `area`

④ `__init__.py`

⑤ `from vol import vol`
`from area import area`

- Importing of module requires the correct module to be specified.
- Python path is used to specify the location of directory if the module is not inside the current directory.

Date time module -

```
import datetime
```

```
t = datetime.date.today()  
print(t)
```

```
>>> 2020-03-10
```

```
now t = datetime.datetime.now()  
print(t)
```

```
>>> 2020-03-10 11:47:23.302276
```