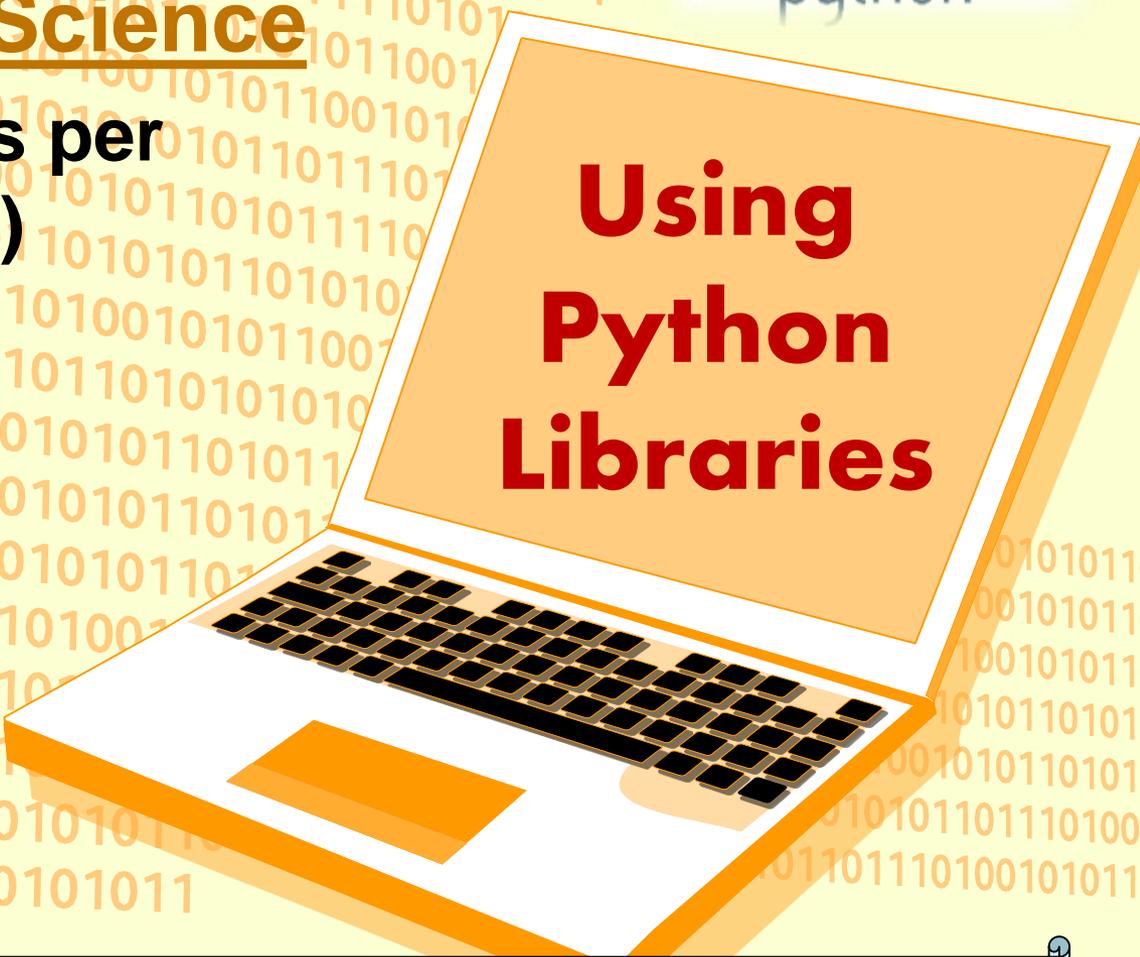


Chapter 4 :



Computer Science

**Class XII (As per
CBSE Board)**

An illustration of a laptop computer with a white body and a black keyboard. The screen is tilted back and displays the text "Using Python Libraries" in a bold, red, sans-serif font. The background of the screen is a light orange color.

**Using
Python
Libraries**

A purple starburst graphic with multiple points, containing the text "New Syllabus 2019-20" in a blue, sans-serif font.

**New
Syllabus
2019-20**

Visit : python.mykvs.in for regular updates

Using Python Libraries

Following terms must be clear while developing any python project/program.

1. Module
2. Package
3. Library
4. Framework

1. Using Module -It is a file which contains python functions/global variables/classes etc. It is just .py file which has python executable code / statement.

For example: Let's create a file usermodule.py

```
def hello_message(user_name):  
    return "Hello " + name
```

Now we can import usermodule.py module either in python interpreter or other py file.

```
import usermodule  
print usermodule.hello_message("India")
```

Using Python Libraries

How to import modules in Python?

Python module can be accessed in any of following way.

1. Python import statement

```
import math
```

```
print("2 to the power 3 is ", math.pow(2,3))
```

Just similar to math ,user defined module can be accessed using import statement

2. Import with renaming

```
import math as mt
```

```
print("2 to the power 3 is ", mt.pow(2,3))
```

3. Python from...import statement

```
from math import pow
```

```
print("2 to the power 3 is ", pow(2,3))
```

4. Import all names

```
from math import *
```

```
print("2 to the power 3 is ", pow(2,3))
```

Using Python Libraries

2. Using Package - It is namespace that contains multiple package or modules. It is a directory which contains a special file `__init__.py`
Let's create a directory `geometry`. Now this package contains multiple packages / modules to handle user related requests.

```
geometry/ # top level package
    __init__.py
```

```
    rectangle/ # first subpackage
        __init__.py
        area_rect.py
        perimeter_rect.py
```

```
    circle/ # second subpackage
        __init__.py
        area_circ.py
        perimeter_circ.py
```

Now we can import it in following way in other .py file

```
from geometry.rectangle import area_rect
from geometry.circle import perimeter_circ
```

Using Python Libraries

3. Using Library

It is a collection of various packages. Conceptually, There is no difference between package and python library. In Python, a library is used loosely to describe a collection of the core modules.

'standard library' of Python language comes bundled with the core Python distribution are collection of exact syntax, token and semantics of the Python language . The python standard library lists down approx more than 200 such core modules that form the core of Python.

“Additional libraries” refer to those optional components that are commonly included in Python distributions.

The Python installers automatically adds the standard library and some additional libraries.

The additional library is generally provided as a collection of packages. To use such additional library we have to use packaging tools like easyinstall or pip to install such additional libraries.

Using Python Libraries

4. Using Framework

Framework is like a collection of various libraries which architects some more component.

For e.g. Django which has various in-built libraries like Auth, user, database connector etc.