

Module

- A group of functions, variables and classes saved to a file, which is nothing but module.
- Every Python file (.py) acts as a module.

Types of Modules

- **Inbuilt Module**
 - Math
 - Random
- **Userdefined Module**
 - srk module contains one variable and 2 functions.
 - If we want to use members of module in our program then we should import that module.
 - import modulename

Various Possibilities of import:

- 1) import modulename
- 2) import module1,module2,module3
- 3) import module1 as m
- 4) import module1 as m1,module2 as m2,module3
- 5) from module import member
- 6) from module import member1,member2,memebr3
- 7) from module import memeber1 as x
- 8) from module import *

We can access members by using module name

- modulename.variable
- modulename.function()

Inbuilt Module

Working with math Module

- Python provides inbuilt module math.
- This module defines several functions which can be used for mathematical operations.

```
In [1]: import math
```

```
In [2]: #We can find help for any module by using help() function  
help(math)
```

...

```
In [3]: math.sqrt(4)
```

```
Out[3]: 2.0
```

```
In [4]: math.exp(1)
```

```
Out[4]: 2.718281828459045
```

```
In [5]: from math import sqrt,exp
```

```
In [6]: sqrt(4)
```

```
Out[6]: 2.0
```

```
In [7]: exp(1)
```

```
Out[7]: 2.718281828459045
```

```
In [8]: from math import *  
  
print(sqrt(4))  
print(exp(1))
```

```
2.0
```

```
2.718281828459045
```

Working with random Module:

- This module defines several functions to generate random numbers.
- We can use these functions while developing games,in cryptography and to generate random numbers on fly for authentication.

```
In [9]: import random
```

```
In [12]: #random() Function: This function always generate some float value between 0 and 1  
random.random()
```

```
Out[12]: 0.3984972327666949
```

```
In [13]: # randint() Function: To generate random integer between two given numbers(inclusive)  
random.randint(1,40)
```

```
Out[13]: 13
```

```
In [14]: # randrange() Function: To generate random integer or intergers in given range
random.randrange(0,101,5)
```

Out[14]: 80

```
In [15]: #choice() Function: It won't return random number.It will return a random object
list=["Sunny","Bunny","Chinny","Vinny"]
random.choice(list)
```

Out[15]: 'Vinny'

Userdefined Modules

Setting Working directory

```
In [16]: import os # OS module provides a way of using operating system dependent functions
```

```
In [17]: # to check the current working directory
os.getcwd()
```

Out[17]: 'D:\\SRK Classes\\01. Core Python'

```
In [ ]: # changing the working directory
os.chdir('F:\\python class')
```

```
In [18]: import srk
```

```
In [19]: print(srk.x)
print(srk.add(10,20))
print(srk.sub(10,20))
```

99
30
-10

```
In [20]: import srk as m #Renaming a Module at the time of import

print(m.x)
print(m.add(10,20))
print(m.sub(10,20))
```

99
30
-10

In [21]: *#from ... import: We can import particular members of module by using from ... in*

```
from srk import x,add,sub
print(x)
print(add(10,20))
print(sub(10,20))
```

```
99
30
-10
```

In [22]: *#We can import all members of a module as follows from srk import **

```
from srk import *

print(x)
print(add(10,20))
print(sub(10,20))
```

```
99
30
-10
```

In [23]: *#Member Aliasing*

```
from srk import x as y,add as sum
print(y)
print(sum(10,20))
```

```
99
30
```