What are Modules?

- **Code libraries** in Python.
- **Contain functions** for use.

Examples:

- **Math**: Math ops
- **Random**: Random numbers
- **os**: OS interaction
- **time**: Time tasks

In [1]:
```
help('modules')
```

```
Please wait a moment while I gather a list of all available modules...


WARNING: AstropyDeprecationWarning: The private astropy._erfa module has been made into its own package, pyerfa, whic
h is a dependency of astropy and can be imported directly using "import erfa" [astropy._erfa]
C:\Users\Ahmed Ali\anaconda3\lib\site-packages\paramiko\transport.py:219: CryptographyDeprecationWarning: Blowfish ha
s been deprecated
  "class": algorithms.Blowfish,
C:\Users\Ahmed Ali\anaconda3\lib\site-packages\llvmlite\llvmpy\__init__.py:3: UserWarning: The module `llvmlite.llvmp
y` is deprecated and will be removed in the future.
  warnings.warn(
C:\Users\Ahmed Ali\anaconda3\lib\site-packages\nltk\twitter\__init__.py:20: UserWarning: The twython library has not
been installed. Some functionality from the twitter package will not be available.
  warnings.warn(
C:\Users\Ahmed Ali\anaconda3\lib\site-packages\notebook\utils.py:280: DeprecationWarning: distutils Version classes a
re deprecated. Use packaging.version instead.
  return LooseVersion(v) >= LooseVersion(check)
C:\Users\Ahmed Ali\anaconda3\lib\site-packages\notebook\utils.py:280: DeprecationWarning: distutils Version classes a
re deprecated. Use packaging.version instead
```

In [2]:
```
# keyword module
import keyword
print(keyword.kwlist)  # Reserved keywords in Python
```

```
['False', 'None', 'True', 'and', 'as', 'assert', 'async', 'await', 'break', 'class', 'continue', 'def', 'del', 'elif',
'else', 'except', 'finally', 'for', 'from', 'global', 'if', 'import', 'in', 'is', 'lambda', 'nonlocal', 'not', 'or', 'p
ass', 'raise', 'return', 'try', 'while', 'with', 'yield']
```

Math Module

In [1]:
```
# include <stdio.h>
import math
```

In [2]:
```
math.pi
```

Out[2]:
```
3.141592653589793
```

In [3]:
```
math.e
```

Out[3]:
```
2.718281828459045
```

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

Out[4]:
```
6
```

In [7]:
```
math.ceil(6.4)
```

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

In [11]:
```
math.floor(3.2)
```

Out[11]:
```
3
```

Random Module

In [8]:
```
import random
```

In [9]:
```
random.randint(1, 7)
```

Out[9]:
```
4
```

In [16]:
```
a = [1, 2, 3, 4, 5]
random.shuffle(a)
a
```

Out[16]:
```
[4, 3, 5, 1, 2]
```

Time Module

In [17]:
```
import time
```

In [20]:
```
time.time() # Current time (seconds)
```

Out[20]:
```
1752483811.8074062
```

In [24]:
```
time.ctime() # Current time (string)
```

Out[24]:
```
'Mon Jul 14 14:34:01 2025'
```

In [27]:
```
print("Tera answer sahi hai.....")
time.sleep(5) # Delay for 5 seconds
print("hehehe me toh mazaak kr raha tha ;-)")
```

```
Tera answer sahi hai.....
hehehe me toh mazaak kr raha tha ;-)
```

Datetime Module

In [28]:
```
import datetime
print(datetime.datetime.now()) # Current date/time
```

```
2025-07-14 14:35:09.873068
```

OS Module

In [29]:
```
import os
```

In [30]:
```
os.getcwd() # Current working dir
```

Out[30]:
```
'C:\\Users\\Ahmed Ali\\Python\\Python_Programming'
```

In [31]:
```
os.listdir() # Files in dir
```

Out[31]:
```
['.ipynb_checkpoints',
 'cachedir',
 'Day 02 - data-types.ipynb',
 'Day 04 - variables.ipynb',
 'Day 05 - keywords-identifiers.ipynb',
 'Day 06 - user-input-type-conv.ipynb',
 'Day 07 - literals.ipynb',
 'Day 08 - operators.ipynb',
 'Day 09 - decision-control.ipynb',
 'Day 11 - while-loop.ipynb',
 'Day 13 - for-loop.ipynb',
 'Day 14 - nested-loops.ipynb',
 'Day 15 - break-continue-pass.ipynb',
 'Day 16 - built-in-funcs.ipynb',
 'Day 17 - built-in-modules.ipynb',
 'Day 18 - strings.ipynb',
 'Day 19 - list.ipynb',
 'Day 20 - tuple.ipynb',
 'Day 21 - sets.ipynb',
 'Day 22 - dict.ipynb',
 'Day 24 - funcs.ipynb',
 'Day 25 - recursion - memoization.ipynb',
 'Day 26 - lambda - map - filter - reduce.ipynb',
 'Day 27 - oops.ipynb',
 'Day 28 - threading - multi-processing.ipynb',
 'Day 29 - iterators.ipynb',
 'Day 30 - generators.ipynb',
 'Day 31 - file-handling.ipynb',
 'Day 32 - exception-handling.ipynb',
 'Day 33 - namespaces - decorators.ipynb',
 'funcdemo3.py',
 'main.py',
 'mysql connector.ipynb',
 'sample.txt',
 '__pycache__']
```

In [ ]: