Python

Python Environment

jupyter

spyder

ANACONDA®

Types Of Variables

- Integer
- Float / double
- String
- Logical / Boolean

Operators

- **Comparison opr.**

  <   >   <=   >=   != <> ==

- **Logical Operator**

  and or   not

- **Arithmetic opr.**

  +   -   /   ( ) %

While Loop

No { } brackets
Indentation is important

```
while condition:
        executable code1
        executable code2
        executable code3
executable code4
```

```
while condition:
        executable code1
        executable code2
executable code3
executable code4
```

For Loop

```
for i in range(5):
        print('Hello ')
```

```
for j in range(1,10):
        print('Hello :', j)
```

range(begin,end,step)

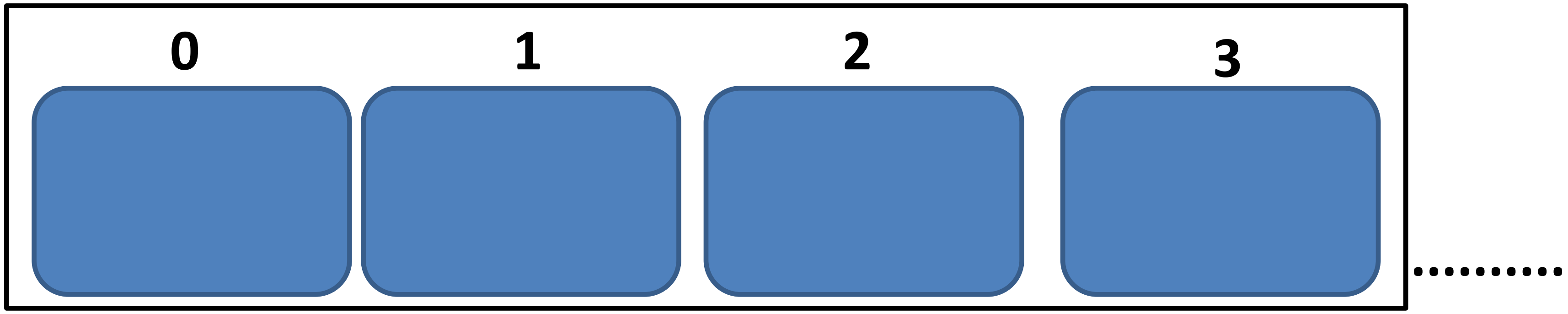
```
for k in range(10,100,5):
                print( k )
```

If stmt

```
if condition1:
        executable code
elif condition2:
        executable code
else:
        executable code
```

List

- Like Arrays
- Ordered Sequence of values
- Enumerated starting with zero
- Can be of mixed datatype



List

- list1 = [1,2,3,4,5,6]
- list2 = [‘a’, 55.5, ‘b’,2000]
- list3 = [‘123’,’how are you?’, list2]

list1.append(55)

list1[2] =55

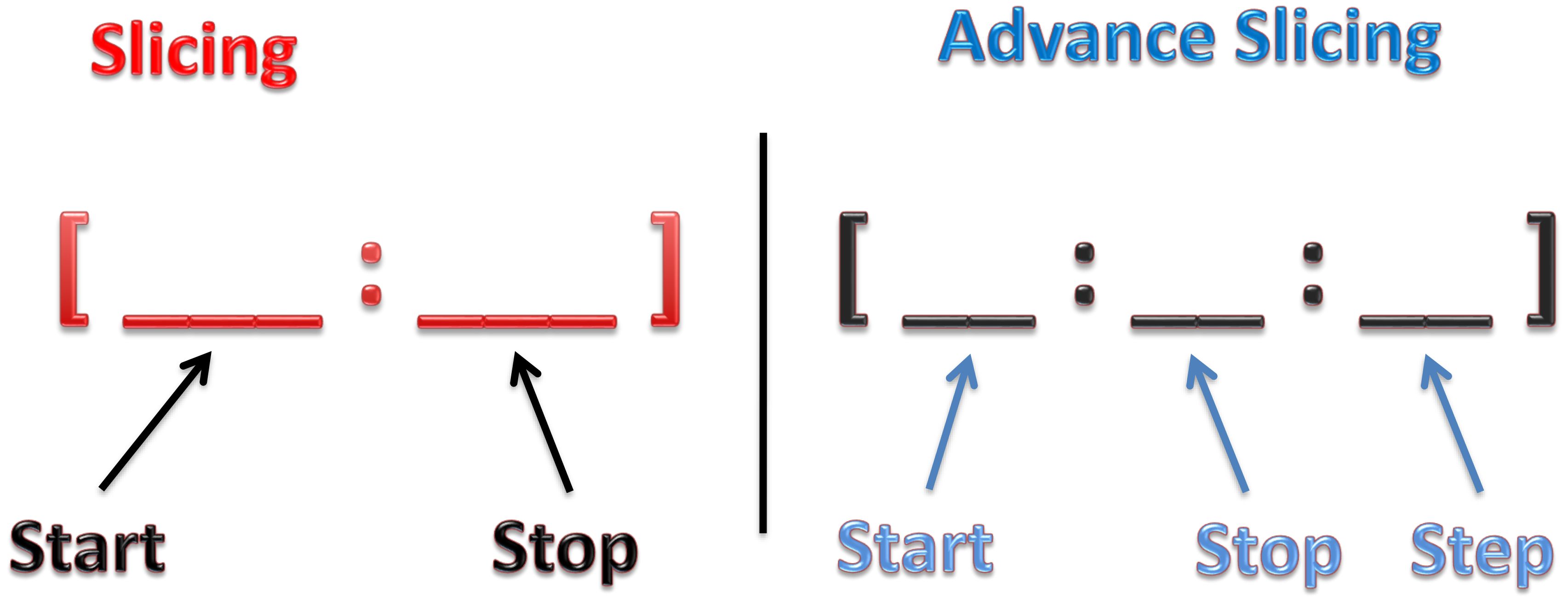
- range(15)
- myList = list(range(10))

list1.sort()

list1.reverse()

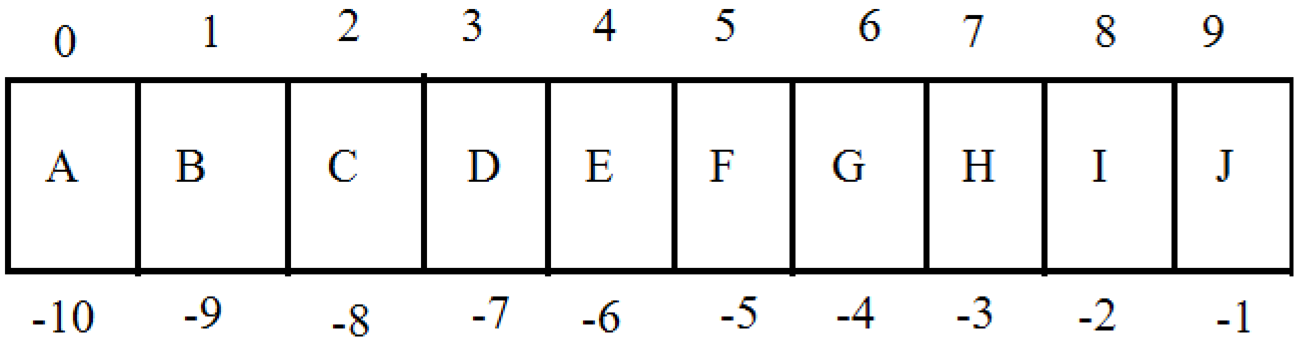
Slicing

- Subset the list



Slicing

letters



0	1	2	3	4	5	6	7	8	9
A	B	C	D	E	F	G	H	I	J
-10	-9	-8	-7	-6	-5	-4	-3	-2	-1

letters[:]

letters[: 7]

letters[2 :]

letters[2 : 7]

letters[2: 9 : 2]

letters[-8 : 7]

letters[: : 3]

letters[: : -1]

Tuples

- **Immutable list of values**
  - myTuple = (123, 456, 343)
  - myTuple[:]
  - type(myTuple)
  - len(myTuple)
  - myTuple[1] = 777   --error

Packages & Modules

- **Modules** in Python are simply **Python files** with a .py extension.
- The name of the module will be the name of the file.
- A Python **module** can have a set of **functions**, **classes** or **variables** defined and implemented.

e.g. Module color (color.py)

Function red()

Function blue()

Function green()

```
import color
        color.red
        color.green
OR
from color import red

from color import *
```

Packages & Modules

- **Packages** are **namespaces** which contain **multiple packages** and **modules** themselves. They are simply **directories**.

- We create a directory **drawing**

  Include modules in it:

  color, line, rectangle, square, circle

- To use line module from drawing package

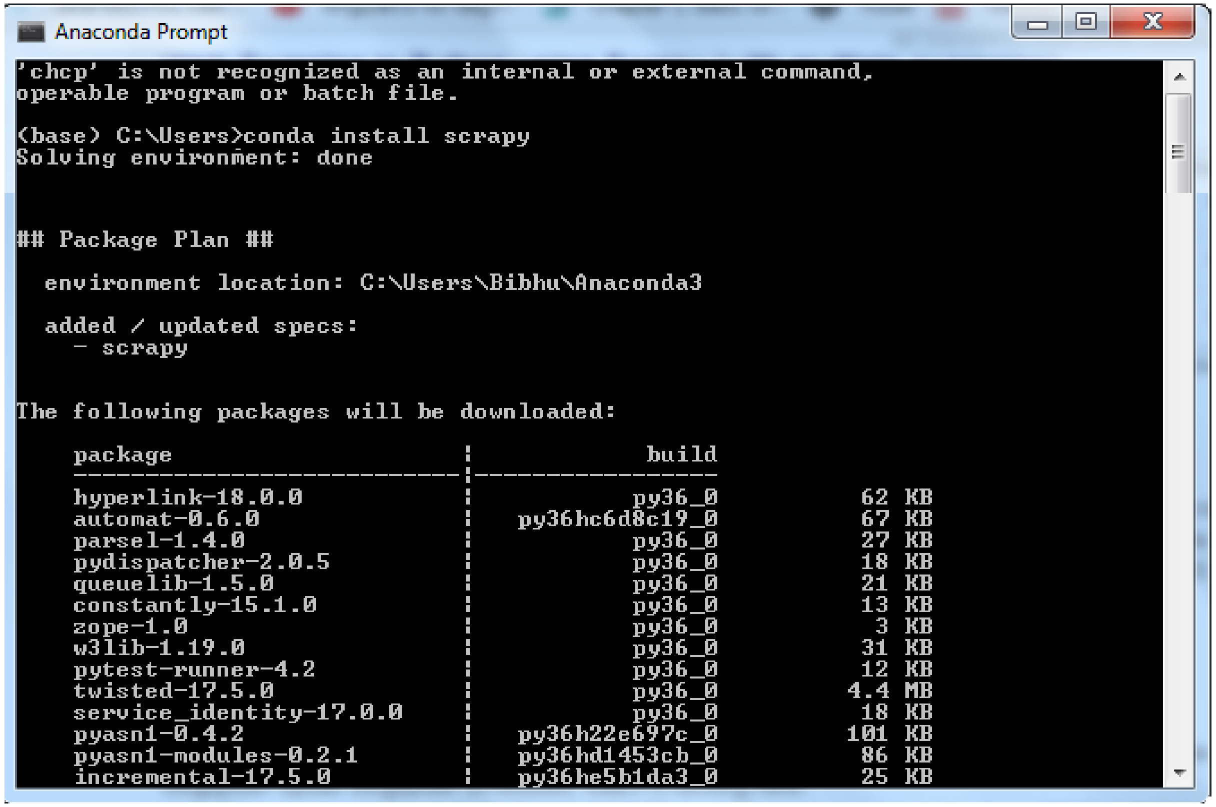
```
import drawing.line
from drawing import circle


import matplotlib.pyplot as plt
from matplotlib import pyplot as plt2
```

Packages & Modules

Install a New Package

conda install packg_name OR **pip install** packg_name



```
'chcp' is not recognized as an internal or external command,
operable program or batch file.

(base) C:\Users>conda install scrapy
Solving environment: done


## Package Plan ##

  environment location: C:\Users\Bibhu\Anaconda3

  added / updated specs:
    - scrapy


The following packages will be downloaded:

    package                    |            build
    ---------------------------|-----------------
    hyperlink-18.0.0           |           py36_0          62 KB
    automat-0.6.0              |   py36hc6d8c19_0          67 KB
    parsel-1.4.0               |           py36_0          27 KB
    pydispatcher-2.0.5         |           py36_0          18 KB
    queuelib-1.5.0             |           py36_0          21 KB
    constantly-15.1.0          |           py36_0          13 KB
    zope-1.0                   |           py36_0           3 KB
    w3lib-1.19.0               |           py36_0          31 KB
    pytest-runner-4.2          |           py36_0          12 KB
    twisted-17.5.0             |           py36_0         4.4 MB
    service_identity-17.0.0    |           py36_0          18 KB
    pyasn1-0.4.2               |   py36h22e697c_0         101 KB
    pyasn1-modules-0.2.1       |   py36hd1453cb_0          86 KB
    incremental-17.5.0         |   py36he5b1da3_0          25 KB
```

Numpy Arrays

- Can hold Same Datatype values only
- Contains very powerful and versatile set of methods

e.g.
```
import numpy as np
    a = np.array([1,2,3,4,5,6])
    a.min()
            a.mean()
    len(a)
            np.append(a, 55)
```

Slicing Numpy Arrays

- When we slice a list it creates new list
- When we slice a Numpy Array it doesnt create a new array, saving memory

e.g

a = numpy.array([1,2,3,4,5])

b = a[2:]

$\Rightarrow$ **b** is like a **view** pointing to **original array**

$\Rightarrow$ changes to **b** reflect in **a** and **vice versa**

c = a.copy() => creates a new array c