

- Python — python is an interpreted language and can be executed as soon as written,
 - python can be treated in procedural way, object-oriented way or a functional way.
 - recent major version is python 3
 - python uses new line to execute command no semicolon or other parenthesis needed
 - python uses indentation, white space, to define scope; such as scope of loops, functions, classes etc. like java uses curly braces

- writing python directly in Command Line → very small lines of code can directly be executed in command line

C:\Windows\System32\cmd.exe
 E:\Technology\Python>python
 Python 3.6.4 (v3.6.4:d48eceb, Dec 19 2017, 06:04:45) [MSC v.1900 32 bit (Intel)] on win32
 Type "help", "copyright", "credits" or "license" for more information.
 >>> print('Hello World')
 Hello World
 >>> 33+44
 77
 >>> exit()

enter python editor window just by typing 'python' or 'py'

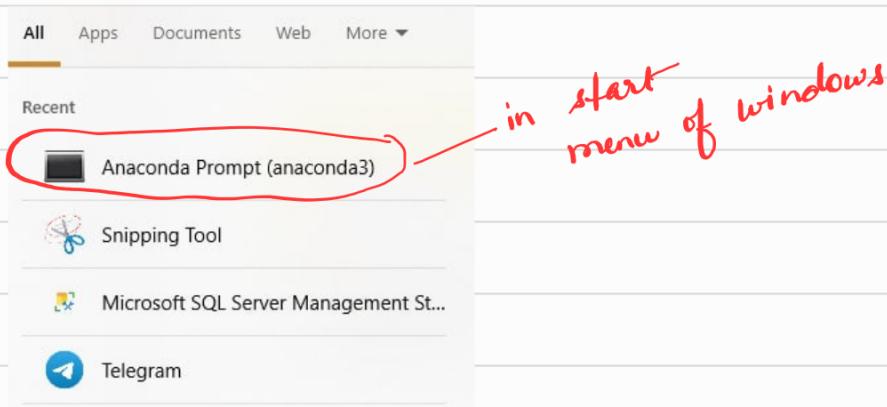
} code execution.
 — exit window using exit()

- Python Identifiers →

- use only alphanumeric characters and underscores
- never start with a number,
- use underscores to separate two words
- keywords cannot be identifiers.

- IDE that we will be using for python is — Jupyter, there are others like pycharm, spyder etc but Jupyter is most popular especially for Data Science

- To use jupyter we can use Anaconda distributions network ,
 - 1st install Anaconda installer — Anaconda is actually a bundle of python, R and other languages, it also includes tools in it just like
- After installing just search for Anaconda in start menu ,
- open Anaconda Command interface,
- type “jupyter notebook” and it will open Jupyter web interface



(base) C:\Users\ravie>jupyter notebook

to launch jupyter

The screenshot shows the Jupyter Notebook web interface running at `localhost:8888/tree`. The title bar says 'jupyter'. Below the title bar, there are tabs for 'Files', 'Running', and 'Clusters'. A message 'Select items to perform actions on them.' is displayed above a file list. The file list shows the following entries:

	Name	Last Modified	File size
<input type="checkbox"/>	3D Objects	22 days ago	
<input type="checkbox"/>	Contacts	22 days ago	
<input type="checkbox"/>	Desktop	4 hours ago	
<input type="checkbox"/>	Documents	22 days ago	
<input type="checkbox"/>	Downloads	an hour ago	
<input type="checkbox"/>	Dropbox	a year ago	

A handwritten note in red ink to the right of the interface says 'jupyter interface' with an arrow pointing towards the title bar.

- we can simply launch python by going to new and selecting python3

The screenshot shows the Jupyter Notebook interface at the URL localhost:8888/tree. The top navigation bar includes links like 'The Saga of Berubar...', 'PRS | Bill Track | The...', 'Programming Lang...', 'Tata Consultancy Se...', 'Software Studies', 'Data Structure And...', 'Puzzle 18 | (Torch a...', 'raml-spec/raml-10...', and 'Other'. Below the navigation bar is a search bar with the text 'jupyter'. The main area has tabs for 'Files', 'Running', and 'Clusters'. A sidebar on the left lists items such as '0', '3D Objects', 'anaconda3', 'AnypointStudio', and 'Apple'. On the right, there's a 'New' button with a dropdown menu showing 'Notebook' (selected), 'Python 3 (ipykernel)', 'Text File', 'Folder', and 'Terminal'. The 'Python 3 (ipykernel)' option is highlighted with a red box.

- Python 3 editor provides option to write code or markdown (section used to present text, images, files etc.)

The screenshot shows a Jupyter Notebook titled 'MasteringPythonZeroToHero.ipynb' at the URL localhost:8888/notebooks/MasteringPythonZeroToHero.ipynb#. The top menu bar includes 'File', 'Edit', 'View', 'Insert', 'Cell', 'Kernel', 'Widgets', and 'Help'. A dropdown menu is open over the 'Cell' menu, with the 'Code' option highlighted with a red box. Handwritten red text next to it says: 'from this dropdown we can select "Code / Markdown / heading / raw NB convert"'. The notebook contains a heading 'This is Python Tutorial' and a markdown cell with the text 'This is our first program in python: It is just started here'. Below is a code cell with the Python command `print("Hello World")`, which outputs 'Hello World'. A handwritten note next to it says: 'Code cell (press "shift + enter" for output or directly use run button)'. Another code cell below contains the LaTeX expression $a = b + c$, with a handwritten note: 'Latex expression, it will appear if in Code Cell we will write'. Handwritten blue text next to it says: 'In []: \$ a = b + c \$'. The bottom right corner of the screen shows a Python logo icon and the text 'Python 3'.

- we can switch between code and markdown cell by using keyboard shortcuts
 - $\text{esc} + \text{m}$ → markdown
 - $\text{esc} + \text{y}$ → Code
- other keyboard shortcuts can be found in "Help" section

- O/p file can be exported in multiple format. — File / download as
- IPython shell → its Command shell for interactive programming as discussed above.

1:59:16 — Variables and Operators →

- Variables are reference to the object
- Python is dynamically typed — Content assigned to variable decides the type of variable.

$x = 2,$
 $y = 5,$

$a, b = 4, 5.0$ ↗ # multiple assignment

- 2:02:44 — delete a variable → **del x** (variable name)

- **Numpy** — Mathematical and statistical calculations
- **Pandas** — Data processing and analysis
- **Matplotlib** — Creating beautiful visualization.
and Seaborn

— Doing Arithmetic operation using python →

Solving multi-step problems using variables

Let's try solving the following word problem using Python:

A grocery store sells a bag of ice for \$1.25, and makes 20% profit. If it sells 500 bags of ice, how much total profit does it make?

We can list out the information provided, and gradually convert the word problem into a mathematical expression which can be evaluated using Python.

Cost of ice bag (\$) = 1.25

Profit margin = 20% = .2

Profit per bag (\$) = profit margin * cost of ice bag = .2 * 1.25

No. of bags = 500

Total profit = no. of bags * profit per bag = 500 * (.2 * 1.25)

— How to open local python files in Jupyter notebook → open Anaconda prompt — navigate to your folder and open Jupyter notebook there.
OR

Search for anaconda in windows, do right click and open folder location, in location do a right click on Anaconda prompt and in shortcut change the start in location.

