# Introduction to Python

Forsk Technologies

## Origins and Use

- First version created in 1990
  - Created by Guido von Rossum
  - Named after Guido's favorite comedy troupe Monty Python's Flying Circus
- Python is
  - Interpreted and interactive
  - Dynamic object-oriented programming
  - Unlike Java or C++, there is no need to compile a program before running it

- Compilation is handled in the background by the Python interpreter
- Excels at handling textual data like Tcl, Perl and Ruby

# Popularity

**Worldwide**, Apr 2018 compared to a year ago:

| Rank | Change | Language | Share | Trend |
|---|---|---|---|---|
| 1 | | Java | 22.62 % | -0.8 % |
| 2 | | Python | 22.05 % | +5.2 % |
| 3 | ↑↑ | Javascript | 8.56 % | +0.2 % |
| 4 | ↓ | PHP | 8.22 % | -1.8 % |
| 5 | ↓ | C# | 7.95 % | -0.7 % |
| 6 | | C | 6.38 % | -1.1 % |
| 7 | ↑ | R | 4.26 % | +0.4 % |
| 8 | ↓ | Objective-C | 3.7 % | -1.0 % |
| 9 | | Swift | 2.92 % | -0.6 % |
| 10 | | Matlab | 2.31 % | -0.4 % |

# Why Python?

- Rich set of libraries (Batteries)

    - PIL, JSON, HTTP etc

- Excellent language to develop server side web applications
    - Frameworks (dJango, Flask  etc.)
- Popular "glue language" that can be used to connect in a direct way to existing libraries written in other languages

# Why Python?

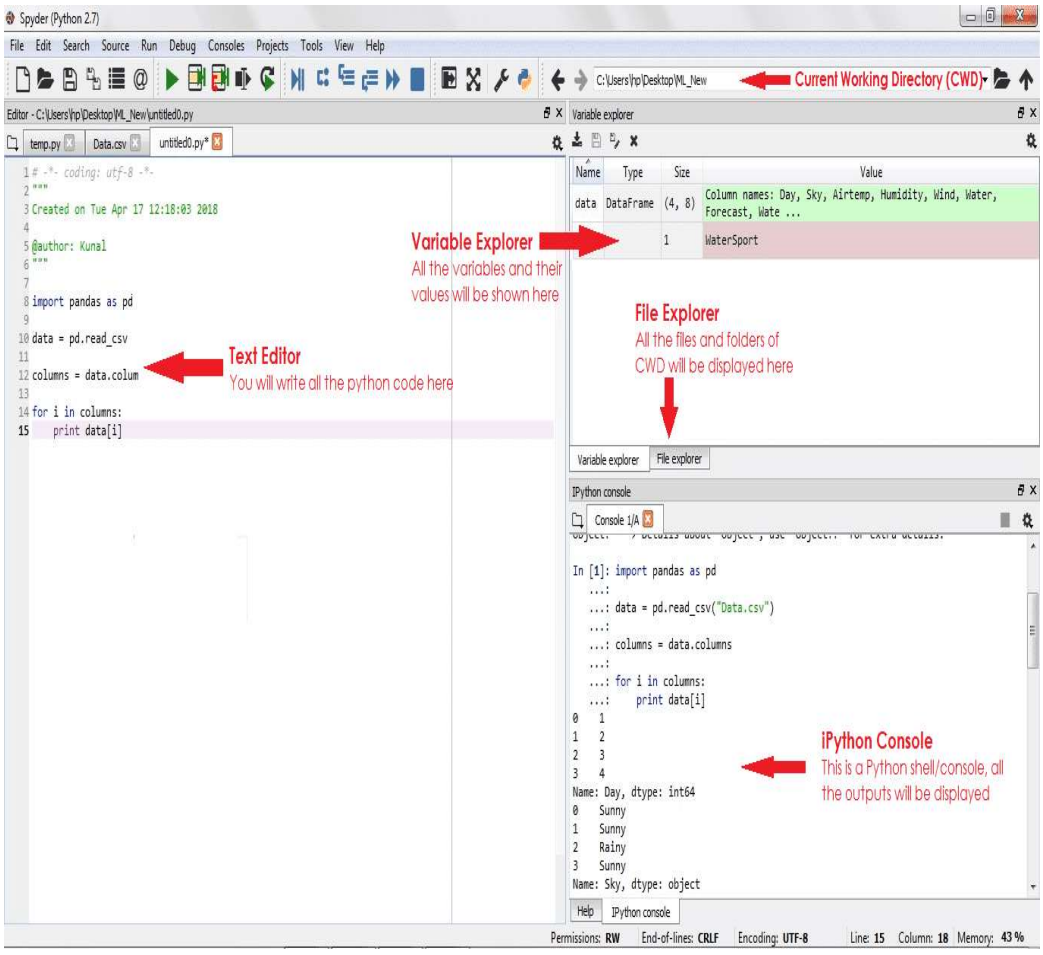
- Used in many real-world applications
    - YouTube, Dropbox, Instagram, Spotify and Unity 3D etc.
- In Google, Python is used as one of the primary programming languages alongside Java and C++
- Most of the Data Scientists use high-level scripting to manipulate the data, such as Python and leverage the scalability of frameworks such as Hadoop to cope with the amount of data

# Installing Anaconda

Leading open data science platform powered by Python

- **Installers available at**
  - https://www.anaconda.com/download/

# Spyder (Python tool of Anaconda)



# Interacting With Spyder

To Execute a piece of code in Spyder:

- Select the lines of code you want to execute from Text Editor
- Press **Shift + Enter** or **Ctrl + Enter** to Execute the selected code in the iPython Console

**Note :-** If the code to be executed contains reading of a file, make sure that the file and code should be at the same location and the path to that location should be set in your CWD (Current Working Directory).

## Code Commenting in Python

- You should comment wherever you can put comments that explain what you're doing
- If you're doing something tricky or unique be sure to explain that, as well
- A good goal is to have 1 comment for every 1-4 lines of code
- You should also document what was intentionally left out, optimized away, tried and discarded, etc - basically, any design decision you make

- The Official and recommended way to comment a Python code is :

```
# This is a Python Comment
# We use '#' to comment a single
line in Python
```

- We can also comment multiple lines in Python code with """ or ''' (Triple Quotes):

```
""" To Comment multiple lines in Python
we use Triple quotes.
Though this is not a proper comment but
can be used as one. You will learn about
it later in the course. """
```