BLACK
—IN
DATA—

Python for Data Analysts

Module 1

A short intro to analytics

A bird's eye view of the world of data

Raw Data → Data Engineering → Analytics

Machine Learning → Artificial Intelligence

Visualization → Business Intelligence

Data Science

From the book, "Here's your meal: Data". A gentle Introduction to world of data. by Ugochukwu Onyeka

Analytics is where it all happens

- Analytics is the most important process in data science value chain. Without analytics, both humans and computers cannot make sense of data.

- Various analytical tools have limitations:
  a) Excel: Spreadsheet. Not suitable for analytics for machine learning. Also pales in performance when there is large data.

  b) Power BI: Visualization tool. Same limitations as Excel

  c) Tableau: Same problems as Power BI

Aren't there other tools?

- Other tools for analytics exist. Many of them are drag and drop but these products are very expensive.

- They are provided using the SaaS business model.

- Open source to the rescue. There are a lot of open source (free-to-use) tools and these are usually programming languages.

Why do we use programming languages in analytics?

- Cost effectiveness.

- General availability.

- Transferability of skills

Why Python?

- Low entry barrier

- Presence of libraries

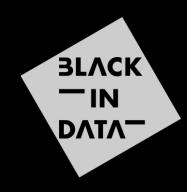|	A	B	C
1	Name	Salary ($)	
2	Brenda	10,000.00	
3	James	15,000.00	
4	Rita	20,000.00	
5	Mike	25,000.00	
6		=SUM(B2:B5)	
7			

```
Sub TestSumMultipleRanges()
    Dim rngA As Range
    Dim rngB as Range
'assign the range of cells
    Set rngA = Range("D2:D10")
    Set rngB = Range("E2:E10")
'use the range in the formula
Range("E11") = WorksheetFunction.SUM(rngA, rngB)
  'release the range object
  Set rngA = Nothing
  Set rngB = Nothing
End Sub
```

Image credits: https://www.automateexcel.com/vba/sum-function/

What is programming?

- The act of processing data through a computer by giving the computer a list of steps to follow.

- The computer never does anything without programming. The User Interface of an app e.g. Excel might mask what is going on under the hood, but programming is inevitable.
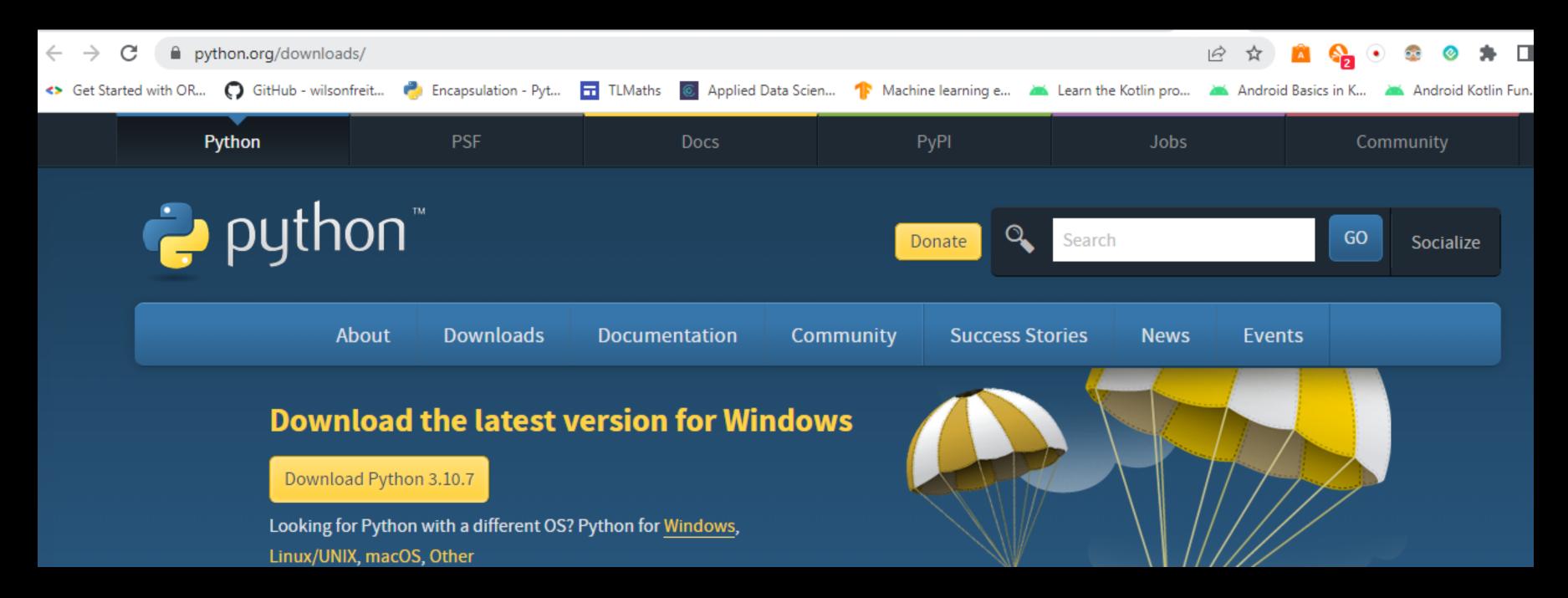
Is programming hard?

- Programming is simple but not easy. Simple in the sense that every act of programming has just a few key underlying concepts.

- In programming, once you get the concepts, what's left is just syntax.
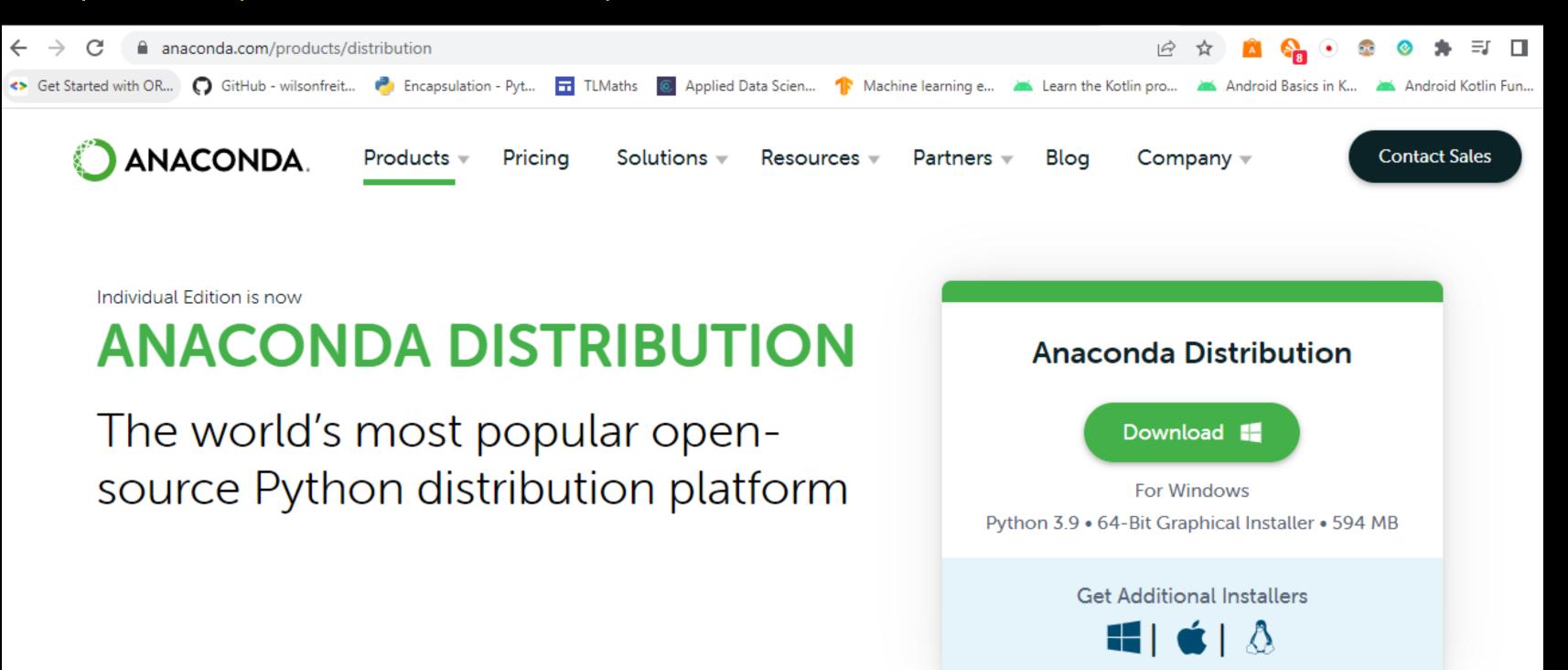
Download and Installation

- Option A (Batteries not included)

Download and Installation

- Option B (Batteries included)

Writing code in Python
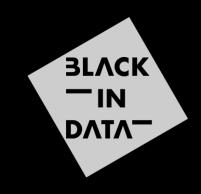
Python installation on your local machine

BLACK IN DATA

PyCharm

jupyter

Visual Studio Code

spyder

ATOM

Writing code in Python

https://github.com/BiD-on-Git