Introduction

23 December 2024 07:06

8 years into IT

→ 4+ into Data domain

→ I deal with Data Analysis

→ ML

→ DL (CV, NLP, Gen AI)

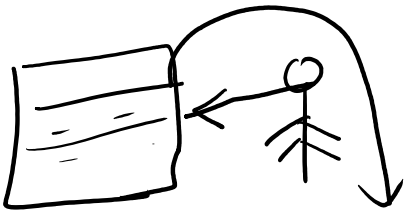
→ I handle 5 members.

Who is Data Analyst } →
Data Engineer }

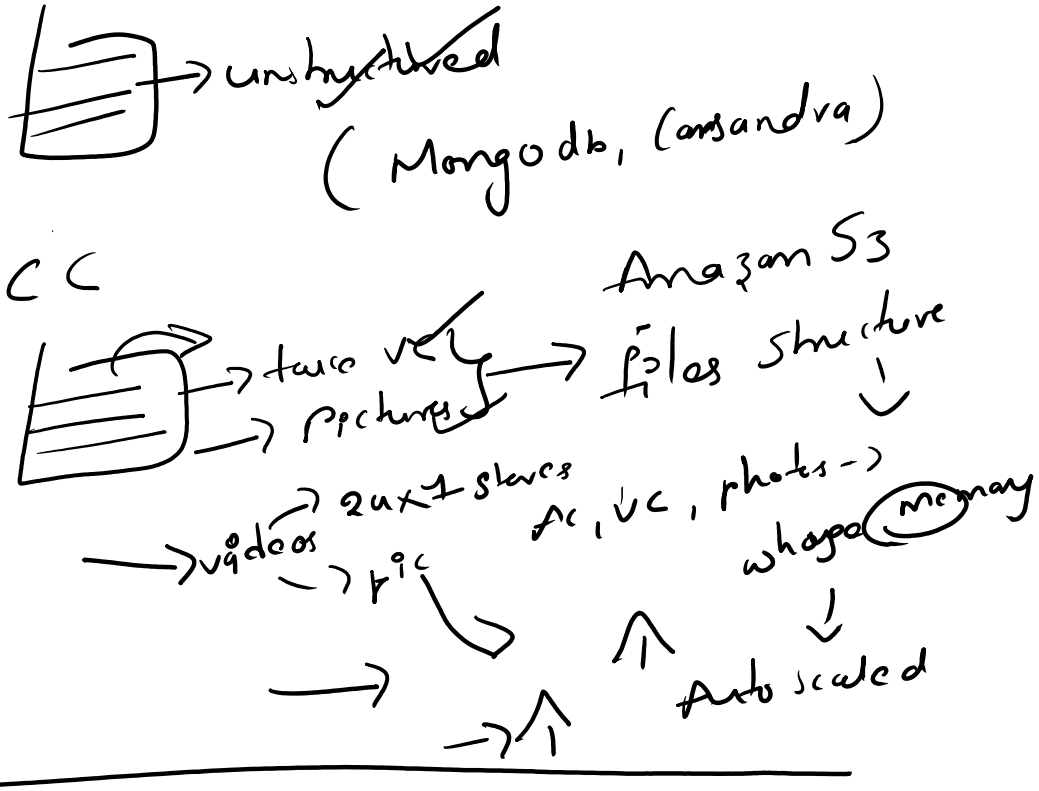
Walmart → offline stores
Amazon → offline stores } → other countries

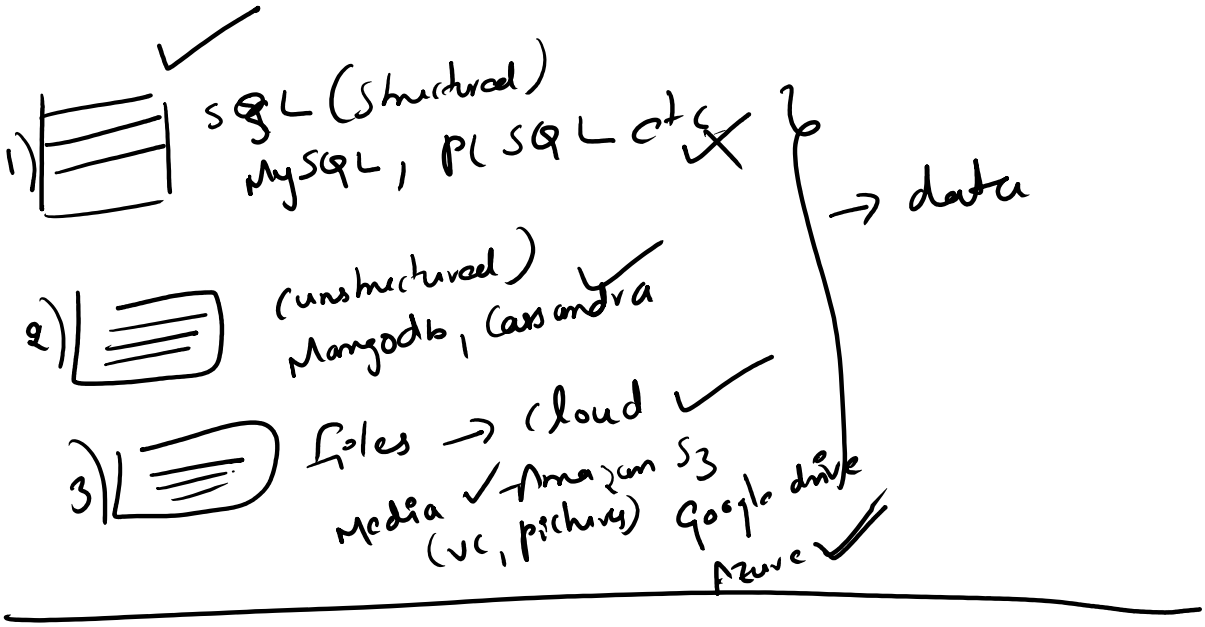
pos → point of sale

→ scan your barcode



→ SQL (structured) → MySQL, PLSQL etc





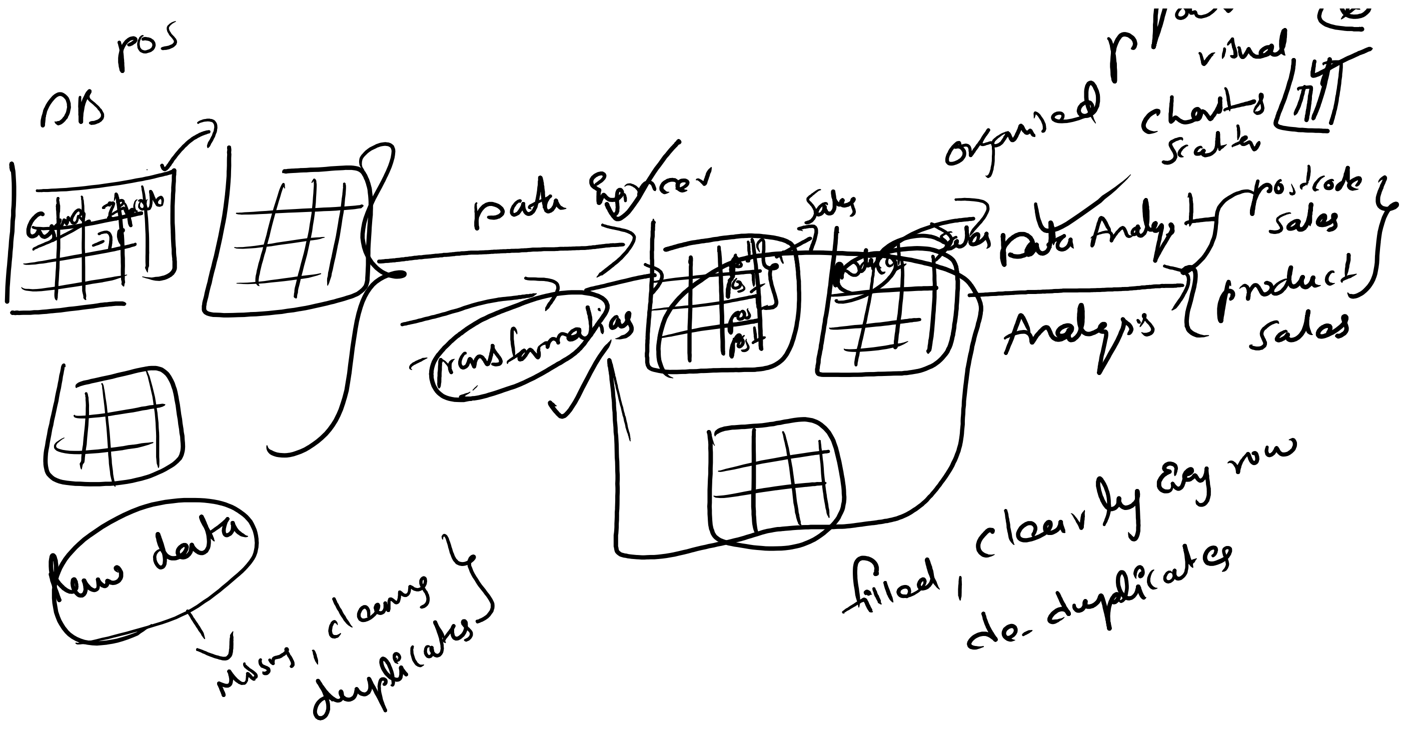
1) Data Analysts

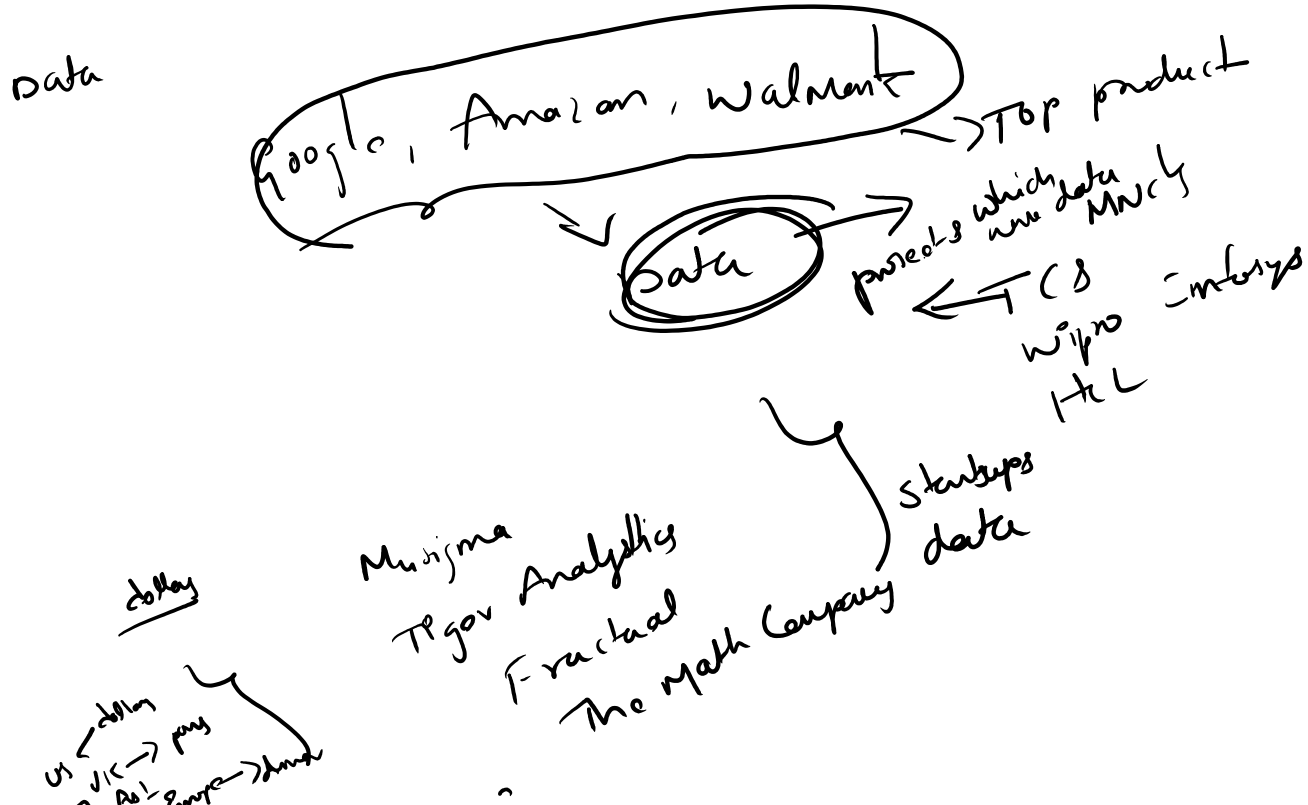
2) Data Engineers

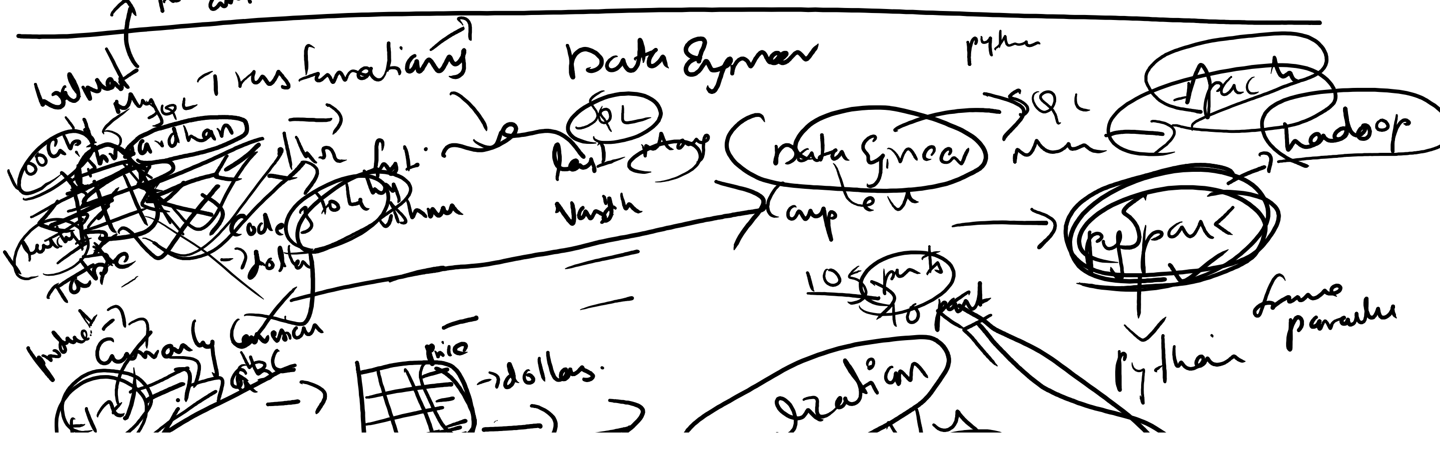
3) product Analyst → create a project
   - -> objective
   - -> Tasks (-> Data Analysts, -> Data Engineer)

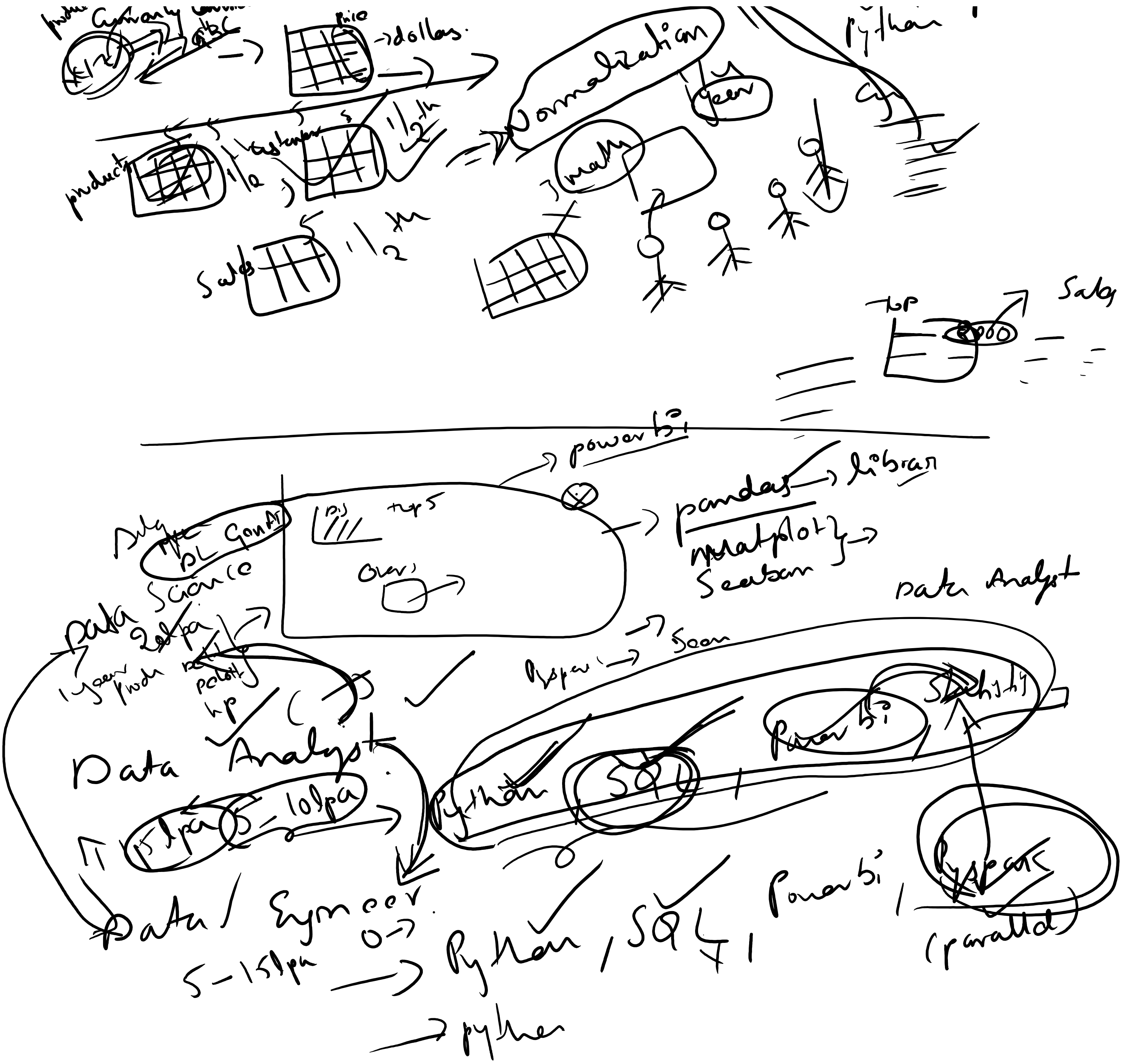
pos

Power bi
visual


pos
DB
data Engineer
transformations
Sales
visual
charts
scatter
organised
Data Analyst
Analysis
postcode sales
product sales
Raw data
Missing, cleaning
duplicates
filled, clean, by Every row
de-duplicates


Data
Google, Amazon, Walmart
Top product
Data
projects which are data MNCs
TCS
wipro infosys
HCL
Startups
data
Musigma
Tiger Analytics
Fractal
The Math Company
dollar


transformations
Data Engineer
python
SQL
Apache
hadoop
data Engineer
pyspark
Python
-> dollars.


Normalization
python
Sales
powerbi
pandas
library
matplotlib
Seaborn
Data Science
Data Analyst
Python
SQL
Power bi
Data Engineer
5-15lpa
(parallel)
python

Agenda

14 December 2024 15:44

1. **What is python and why to choose it**
2. **Launching Google colab and how to use it**
3. **Overview of Python Data types**
4. **Keywords & Identifiers**

What is python and why to choose it

14 December 2024 15:54

Python is a high-level, interpreted, and versatile programming language known for its simplicity and readability.

What is high-level?

Python code: Swapping 2 numbers in High Level

```
a = 5
b = 10

# Swapping numbers
a, b = b, a

print(a, b)
o/p : 10,5
```

Assembly code: Swapping 2 numbers

```
; Low-level: Assembly
section .data
    a dw 5  ; Declare variable a with value 5
    b dw 10 ; Declare variable b with value 10

section .bss

section .text
    global _start

_start:
    ; Load values into registers
    mov ax, [a]  ; Move value of a into AX register
    mov bx, [b]  ; Move value of b into BX register

    ; Swap the values using a temporary register
    mov cx, ax   ; Store value of a (AX) in CX
    mov ax, bx   ; Move value of b (BX) into AX
    mov bx, cx   ; Move value of a (CX) into BX

    ; Store swapped values back into memory
    mov [a], ax  ; Update a with new value from AX
    mov [b], bx  ; Update b with new value from BX

    ; Exit
    mov eax, 60  ; Syscall for exit
    xor edi, edi ; Exit code 0
    syscall
```

Machine Level Code: Swapping 2 numbers

```
10111000 00000101  ; Move 5 to register AX
10111011 00001010  ; Move 10 to register BX
10001101 10000001  ; Move AX to CX
10001100 11000011  ; Move BX to AX
10001101 10000011  ; Move CX to BX
```

What is Interpretation?

Python Interpreter does both compilation and interpretation hiding it from user.

Python source code(.py) ======Compiler=====Byte Code=======PVM========Machine Code

Compilation Interpretation

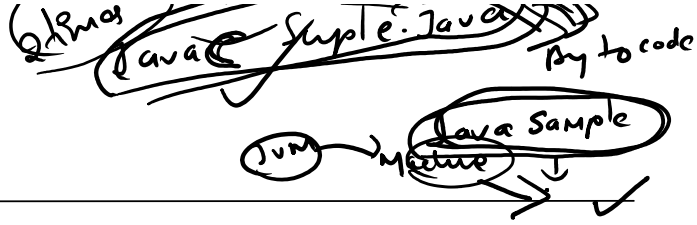
Note: Where in JAVA we have to compile explicitly to generate the byte code and then interpret it through JVM into Machine level code.

To run python we just have to use syntax: python xyz.py

Unlike in JAVA:

To run python we just have to use syntax: python xyz.py

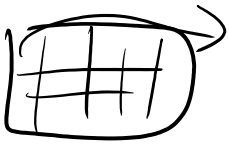
Unlike in JAVA:
Step1- compile using explicit compiler : javac xyz.java generates xyz.class (byte code)
Step2- Interpret using JVM: java xyz (converts xyz byte code to machine code)



Why python is versatile?

Python is used in wide range of applications

a) **Web Development**: Frameworks like Django, Flask, and FastAPI make it easy to build web applications
b) **Data Science and Machine Learning**
Libraries like NumPy, pandas, scikit-learn, Keras, and PyTorch are widely used for data analysis, modeling.
c) **Scripting and Automation**
Python is used in automating repetitive tasks, web and mobile applications automation, web scraping etc(e.g., using Selenium or Beautiful Soup).
d) **Network Programming**
Python supports network programming using PyATS, Pytest etc.
e) **Desktop GUI Applications**
Python frameworks like PyQt, Tkinter allow for building cross-platform desktop applications.



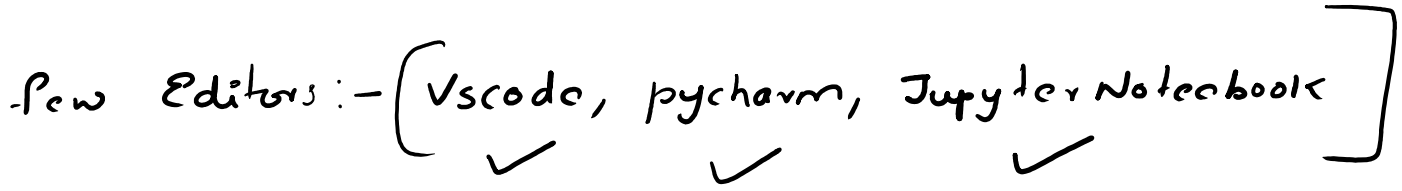
Url: https://www.python.org/
Release Schedule

Launching Google-colab and how to use it

14 December 2024 16:58

Points to be discussed:

1. Creating new notebook
2. Opening an existing notebook from local or google drive
3. Setting up GPU for high computational tasks
4. How to Effectively use colab
   4.1 Text feature
   4.2 Use AI to generate code snippets and Explanation
   4.3 Use Integrated Gemini Feature



Overview of Python Data types

14 December 2024 23:21

Python offers multiple data types

Most important and which are used in industry are:

Int		a=200
Float		a=2.3
Boolean		a=True
String		a="datadreamers.ai"
List		a=[1,2,3,4]
Tuple		a=(1,2,3,4)
Set		a={1,2,3,4}
Dictionary		a={"x":1,"y":2,"z":3}
NoneType		a=None

Keywords & Identifiers

15 December 2024 20:22

Keywords: Keywords has special meaning in python and cannot be altered.

Identifiers: Identifiers used to identify or represent a variable, class, function, object etc.

Conditions to be an Identifier:
. It should start with alphabet or _
. It can be followed by 0 or more characters, digits and _
. Keywords cannot be used as Identifiers