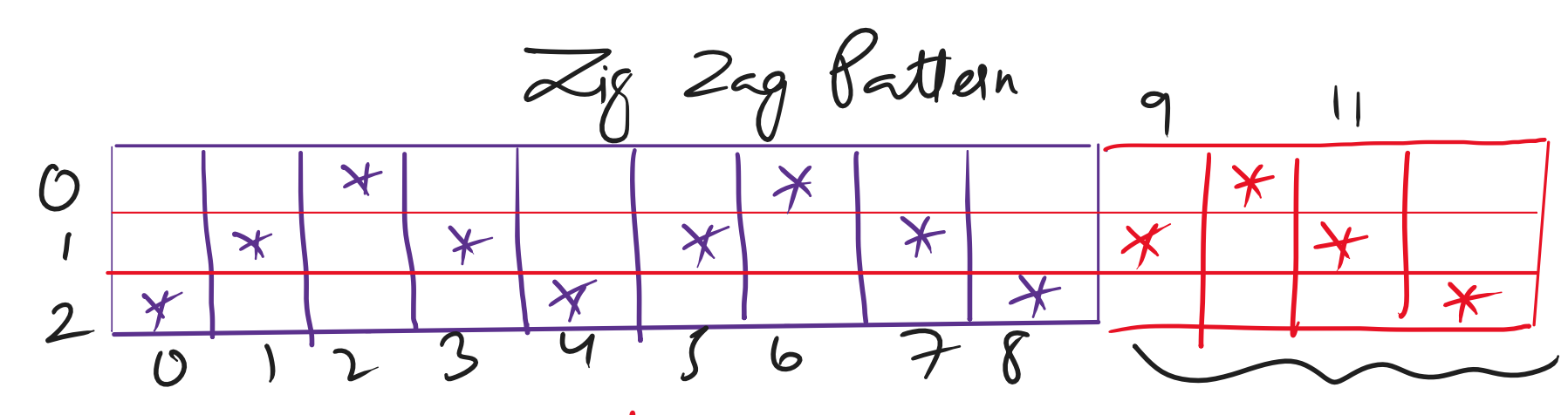
Zig Zag Pattern



row = 3 → constant
col = 9, 13, 17, 21, 25, etc

r0, c % 4 == 2
r1, c % 2 == 1
r2, c % 4 == 0

Data Engineer	AI Engineer	Equivalent to
Data Analyst	ML Architect	SDE → Software Development Engineer
Data Scientist	Cloud Architect / Specialist	SDT → or Trainee

DS libraries + Python + (DSA)

numpy, pandas, (pyspark / hadoop [apache]) → Big Data

matplotlib | seaborn [UI → Power BI / Tableau (Public) (Paid)

EDA → Exploratory Data Analysis → Insights

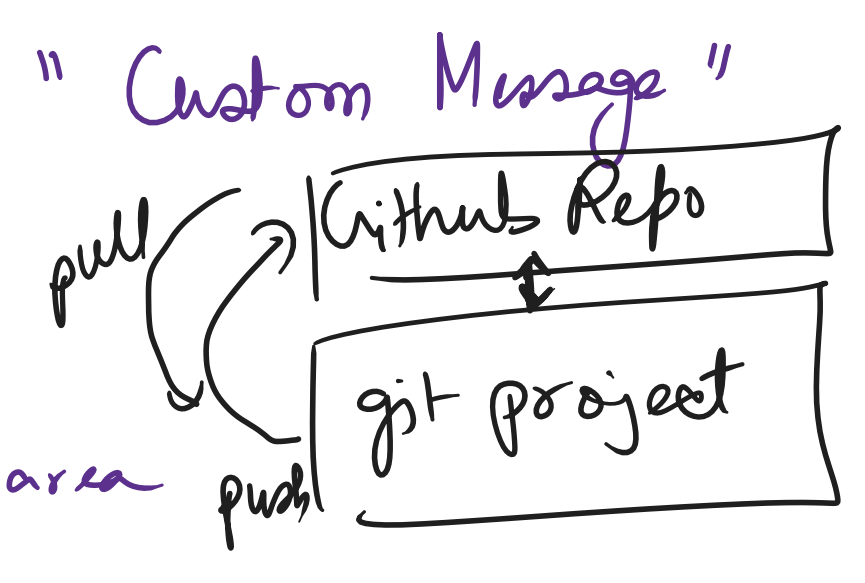
Code 1 + +++ Big Project → Managed

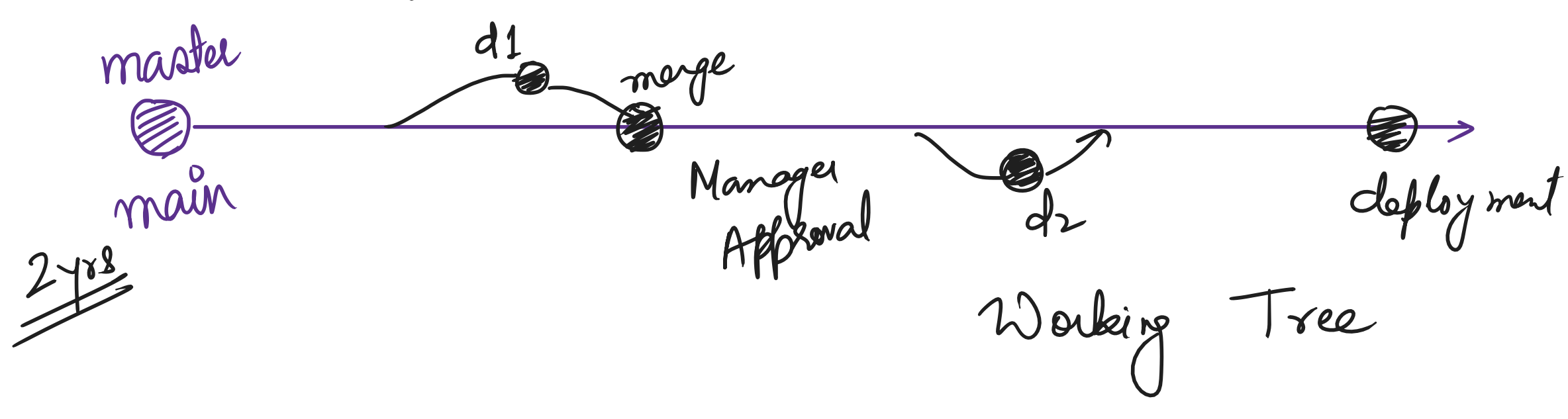
Version Control → Git (GitHub) / Mercurial → Bit Bucket → Git Lab

Developer: Project
Empty Folder:
index.html
login.py
style.css
script.js

Local Area
Untracked / Unstaged

→ empty repository — git init
git add <filename>
git add .
commit changes:
git commit -m " Custom Message "
↳ Checksum
Staging / tracking area

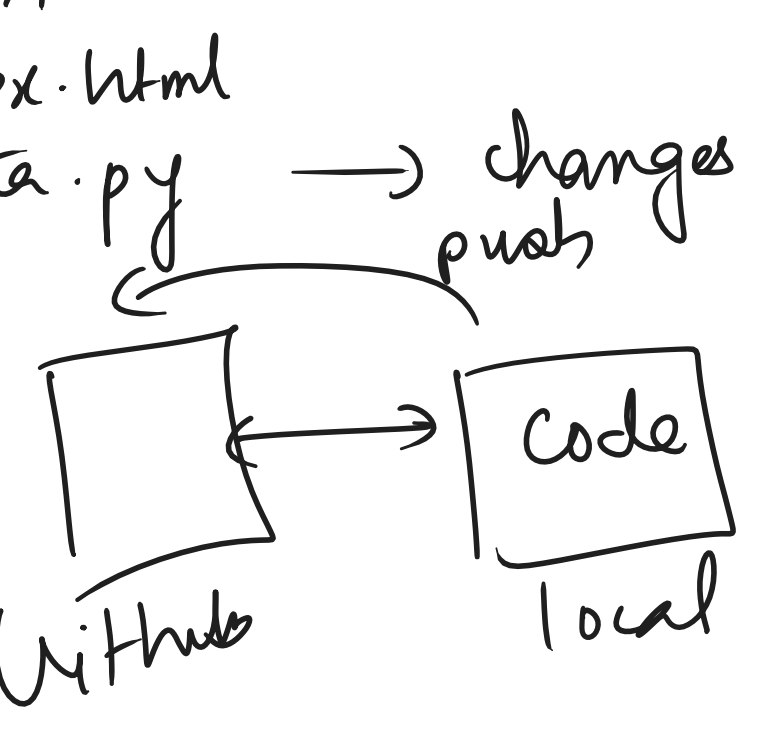




Working Tree

☐ Empty Folder → Repository → git init empty repo.

touch f.txt
touch index.html
touch data.py → changes → push



Encapsulation :→ Wrapping the data inside a block (class) so that they are not accidentally modified. In Python we use d-under __ & s-under _ and in Java we use "Access Modifiers" (private)

In order to access them outside the class, we use special methods:
* getter → retrieve } public
* setter → assign / set

Inheritance :→ Reuse – Something

Super Parent → data (reuse)

Top Down ↓ ↓ ↑ ✗

Sub Child → reuse (data)

Parent ← Child ; Parent ← C1, C2 — Single Level

Parent ↑ Son | Daughter ↑ Grand Parent — L1, L2 — Multi-level

Father, Mother ← Child { (Multiple Inheritance) class ✗ extends ✗
can a class extend multiple classes?

[We use Interface] ⇒ Abstraction (NO)

CRED

	role	place
Mallikarjun →	student	classroom
→	customer	restaurant
→	son	home

implementation ↓ Polymorphism

Hiding – how it is done
Showing – what is being done
↳ functionality implements

☐ → call 44, 54, data → work — Better User

Unnecessary Data Hiding Exp

Polymorphism

RBI → Rate of Int
6.5% → Parent Class Data

Over riding the Parent class data.
[HDFC 8.2% children, IDBI 7.9%, SBI 6.8%]

Poly + Morph
many shape/form

Static | Compile Time | Overloading | Same Class

Dynamic | Run Time | Over Riding | Multiple Classes

no of change parameter
Class A
change return type

{ add (int a, int b) ②
add (int a, int b, int c) ③
add (double a, double b) }

[Java + SQL]