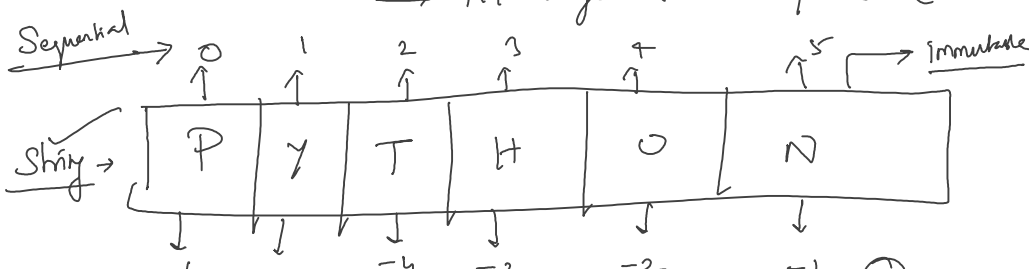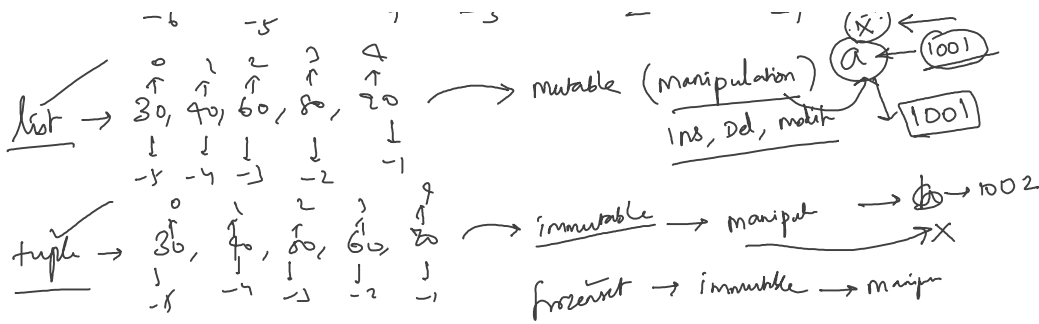# Python Basics

Monday, April 28, 2025   1:59 PM

1. Applications of Python, Python Compile file
2. Version checking
3. Data types
4. Data Structures

Python   Applications

2
→ Web Applications (Instagram, Reddit) → Django
　　　→ Backend Server logic
　　　→ Db operations
　　　→ Authentication
　　　→ API

→ Real-Time Data Processing (Stock Market Dashboards)
　　　→ fetch live data
　　　→ Process or analyze data stores
　　　→ pushing updates to a dashboard

→ chat bots & Messaging Apps (Whatsapp bots, slack som)
　　　→ Listening user messages
　　　→ Process text using NLP
　　　→ Respond → automatically based on user i/p

→ ML & AI applications (Netflix & Spotify)
　　　→ predict /suggestion
　　　→ Recommend System

→ IoT Devices (Smart Home apps)
　　　Reading, Send commands to the device
　　　Sensor
　　　Communicating with cloud services (MQTT messages)

→ Gaming
😊 Automation scripts (Auto email, web scraping)

→ RT image & video Processing (Face detect)

Sequential →
String →

list → $\overset{-6}{\underset{30,}{^0}}$ $\overset{-5}{\underset{40,}{^1}}$ $\underset{60,}{^2}$ $\underset{80,}{^3}$ $\underset{20}{^4}$ → mutable (Manipulation)

$\underset{-5\ -4\ -3\ -2\ -1}{\downarrow\ \downarrow\ \downarrow\ \downarrow\ \downarrow}$

Ins, Del, modif

(a)—(x.) ← (1001)

→ (1001)

tuple → $\overset{0}{30,}$ $\overset{1}{40,}$ $\overset{2}{50,}$ $\overset{3}{60,}$ $\overset{4}{20}$ → immutable → manipul → $\cancel{b}$ → 1002

$\underset{-5\ -4\ -3\ -2\ -1}{\downarrow\ \downarrow\ \downarrow\ \downarrow\ \downarrow}$

→ X

frozenset → immutable → manipu

Non-sequential → unordered elements

We can perform data manipulation without Index

Set → mutable ⎫
                          ⎬ ~~without~~ index
dict → mutable ⎭   not available

→ a = 10;   b = 10

b ——————→ 10
a ——————→

Stack   id(a) | id(b)
              ——————
         Same (or) not

Heap

→ It has some range   Same memory locn

(-5 to 256) → reuse

100000 ——→ id(a) ⎫
              id(b) ⎬ → diff m locn