

# AI Internship Quick Notes (Python + DSA + SQL + AI)

## ■ Python Basics

- 1 Python dynamically typed hai — variable ka type automatic detect hota hai.
- 2 `=` assignment ke liye use hota hai, `==` comparison ke liye.
- 3 `for` loop fixed range ke liye hota hai, `while` loop condition-based.
- 4 Common data types: int, float, str, list, tuple, set, dict.
- 5 Function: def func\_name(params): return value.

## ■ DSA (Data Structures & Algorithms)

- 1 List: Ordered, mutable, duplicates allowed. Example: [1,2,3]
- 2 Tuple: Ordered, immutable. Example: (1,2,3)
- 3 Set: Unordered, unique items only. Example: {1,2,3}
- 4 Dictionary: Key-Value pairs. Example: {'name':'Ali', 'age':20}
- 5 Sorting arranges data; Searching finds specific data.

## ■ File Handling

- 1 Modes: 'r' (read), 'w' (write), 'a' (append), 'x' (create).
- 2 Use `with open('file.txt', 'r') as f:` for safe file handling.
- 3 Reading: f.read(), f.readline(), Writing: f.write('text').
- 4 FileNotFoundError occurs if file not found in read mode.

## ■ SQL Basics

- 1 SQL = Structured Query Language, used for managing databases.
- 2 SELECT \* FROM table; → sab data dekhne ke liye.
- 3 WHERE condition filter ke liye use hota hai.
- 4 INSERT INTO students VALUES ('Ali', 20);
- 5 DELETE removes data, DROP puri table delete karta hai.
- 6 PRIMARY KEY har record ko unique banata hai.

## ■ AI & Machine Learning Basics

- 1 AI (Artificial Intelligence): Machine ko human-like decision lene ki ability dena.
- 2 Machine Learning: System data se seekhta hai bina explicitly code kiye.
- 3 Dataset: Model ko training ke liye data provide karta hai.
- 4 Supervised Learning → Labeled data; Unsupervised → Unlabeled data.
- 5 Example: Image Recognition, Chatbots, Recommendation Systems.

**Tip:** Monday ke test se pehle ye notes 2 dafa revise kar lo aur W3Schools pe examples run karo. ■