📅 Month 1 – Day 2

Focus: Pandas + Dataset Exploration

✅ Day 2 Tasks

1. Learn Pandas Basics

Do these in Colab or Jupyter:

- Import pandas
- Read CSV file
- View dataset using:
    - `head()`
    - `tail()`
    - `info()`
    - `describe()`

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2. Understand Dataset Structure

- Check number of rows and columns
- Print column names
- Identify data types (int, float, object, bool)

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3. Column Selection & Filtering

Practice:

- Select one column
- Select multiple columns
- Filter rows using conditions

Example practice:

- Employees older than 30
- PaymentTier > 1

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4. Sorting Data

- Sort by Age
- Sort by Experience
- Ascending and descending

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5. Basic Aggregations

Practice:

- `mean()`
- `sum()`
- `count()`
- `groupby()`

Example:

- Average age by gender
- Count employees by city

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6. Handling Missing Data

- Drop missing rows
- Fill missing values
- Compare before vs after

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7. Mini EDA

Write in notebook markdown:

- What is this dataset about?
- Which columns are important?
- Which columns are useless?
- Any surprising pattern?

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8. Write Notes

In `notes.md`:

- What is Pandas?
- Why data manipulation is important?
- What confused you today?

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9. Update GitHub

Upload:

- Notebook
- Python file
- Notes

Commit message:

```
Month 1 Day 2: Pandas basics and dataset exploration
```

✅ PART 2 — PRACTICE QUESTIONS (You ANSWER with Code)

These are **questions you solve in notebook**.

🧠 Level 1 — Basic Pandas Questions

1️⃣ Dataset Overview

1. How many rows and columns are in the dataset?
2. What are the data types of each column?
3. Which columns are categorical and which are numerical?

2️⃣ Basic Statistics

4. What is the average age of employees?
5. What is the minimum and maximum age?
6. What is the average ExperienceInCurrentDomain?

3️⃣ Filtering

7. Show employees older than 35.
8. Show employees with PaymentTier = 3.

9. Show female employees who left the company.

4️⃣ Sorting

10. Sort employees by Age (descending).
11. Sort employees by ExperienceInCurrentDomain and Age.

⚙️ Level 2 — Business-Oriented Questions

5️⃣ GroupBy Analysis

12. Average age by gender.
13. Count employees in each city.
14. Average PaymentTier by Education.
15. Attrition count by city.

6️⃣ Attrition Analysis

16. What percentage of employees left the company?
17. Which gender has higher attrition?
18. Which education level has highest attrition?
19. Does PaymentTier affect leaving?

7️⃣ Experience Insights

20. Average experience of employees who left vs stayed.

21. Does low experience correlate with leaving?

🔥 Level 3 — Thinking Questions (Write in Markdown)

22. Which features are most important for predicting attrition?

23. Which features look useless?

24. What biases might exist in this dataset?

25. What business decisions can HR make?