Internship Weekly Report – Week 1

🔹 Title Page

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- **Domain:** Data Science
- **Week Number:** Week 1

🔹 Task Description

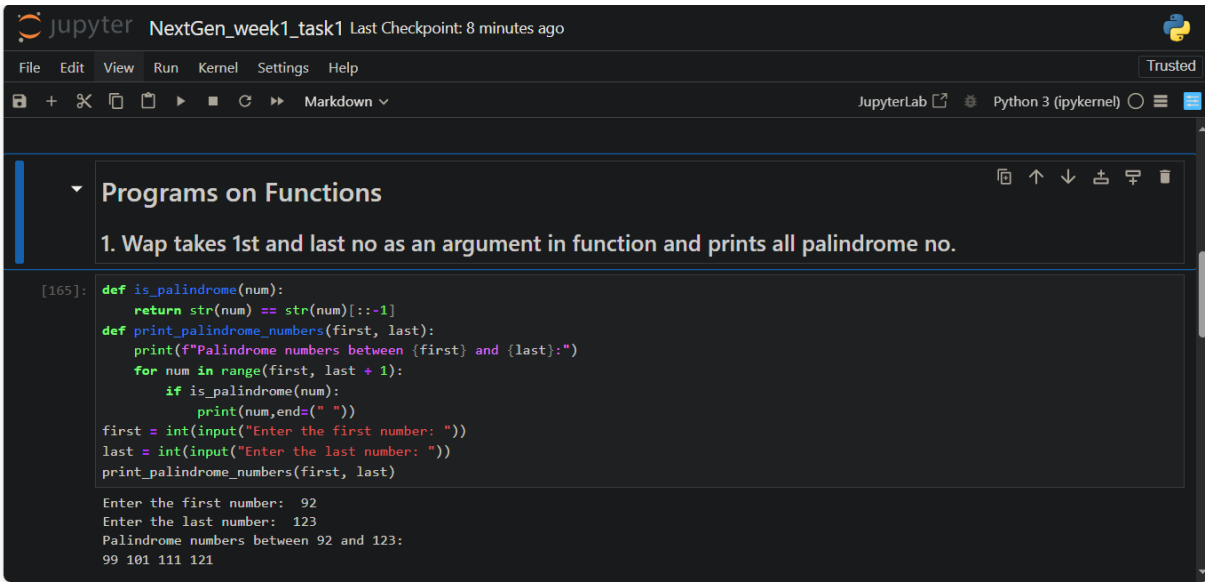
Objective:
To get started with Python programming and develop a foundational understanding through basic syntax, control structures, functions, and data structures.

Tasks Completed:

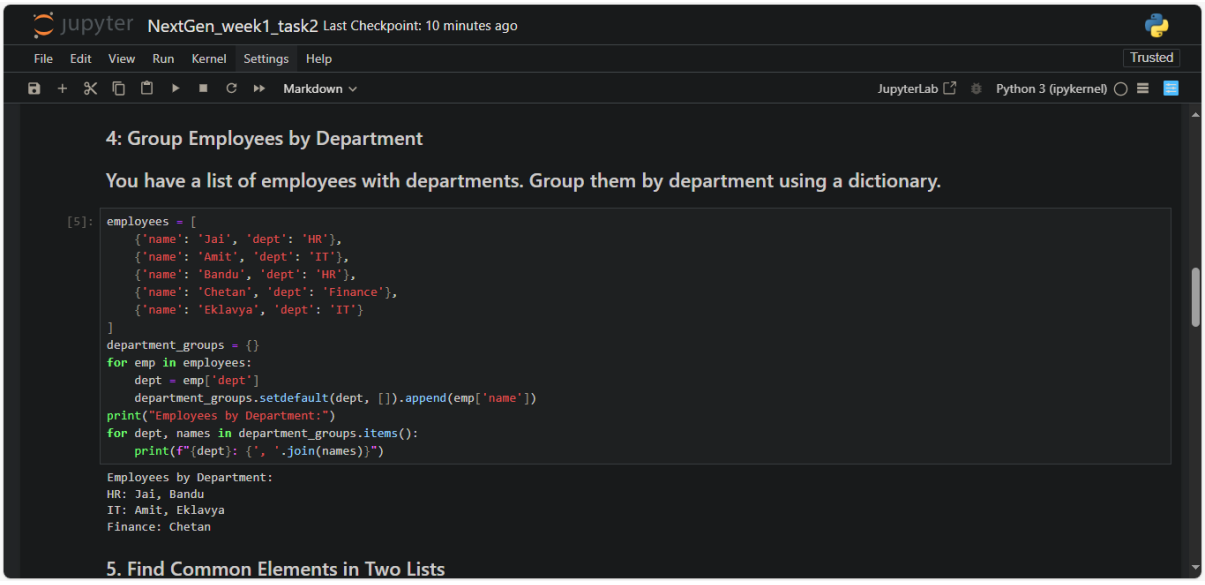
1. **Python Basics Practice:**
    - Data types (integers, strings, lists, dictionaries).
    - Conditional statements (if, elif, else).
    - Loops (for, while) for iteration.
    - Functions: User-defined functions and function arguments.
2. **Data Manipulation Tasks:**
    - Worked with lists and dictionaries to store and process structured data.
    - Implemented tasks like counting word frequency, grouping data, filtering values, and performing lookups.
3. **Notebook 1 – Basic Programming:**
    - Wrote programs to print palindromes, Armstrong numbers, and calculate power using functions.
    - Practiced number analysis (sum/count of digits, etc.).
4. **Notebook 2 – Data Manipulation:**
    - Created mini applications using lists and dictionaries.
    - Examples: Contact book, student marks analysis, employee grouping.

◈ Code Snippets / Design Screenshots

Example: Palindrome Number Function



Example: Data Grouping with Dictionary



◈ Challenges Faced

- Initially struggled with proper indentation in Python loops and conditionals.
- Faced confusion distinguishing between mutable and immutable data types (e.g., lists vs tuples).
- Minor issues using Google Colab and Jupyter for the first time, especially with markdown formatting and cell execution.

How They Were Resolved:

- Referred to W3Schools and official Python documentation for syntax and examples.
- Practiced writing short programs to reinforce understanding.
- Learned by debugging and reviewing error messages.

◈ Learning Outcome

- Gained hands-on experience with core Python concepts.
- Learned how to manipulate and process basic data structures.
- Strengthened logical thinking and debugging skills.
- Understood the difference between writing a script and designing small problem-solving applications.

◈ Next Steps

For **Week 2**, the focus will be on:

- Learning data handling using **Pandas** and **NumPy**.
- Performing operations like filtering, grouping, and sorting on datasets.
- Working with real-world CSV/Excel files.