Day 3 – 25 June 2024 Training Day 3 Report **Date:** 25 June 2024
Topic: Python Data Structures – Lists, Tuples, Sets, and Dictionaries

Summary:
On the third day of the Machine Learning training, we focused on understanding Python's built-in data structures, which are very important for data handling and manipulation. The trainer started the session by explaining lists in Python. Lists are ordered and mutable collections of data items. We learned how to create lists, access elements using indexing, and perform operations like append(), remove(), pop(), and slicing. Practical examples helped us understand how lists are used to store and manage data efficiently.

After that, we studied tuples. Tuples are similar to lists but immutable, meaning their values cannot be changed once defined. We learned about tuple creation, indexing, and the advantages of tuples in scenarios where data should remain constant.

Next, we explored sets — an unordered collection of unique elements. The trainer demonstrated how sets automatically remove duplicates and support operations like union, intersection, and difference. We practiced small programs to perform these set operations.

Finally, we learned about dictionaries in Python, which store data in key-value pairs. The concept of mapping keys to values was explained with examples such as storing student data (name, roll number, marks). We practiced accessing, adding, updating, and deleting dictionary elements.

Key Learnings:
• Understood how to create and use Python lists and perform list operations.
• Learned the difference between mutable (list) and immutable (tuple) data structures.
• Learned about sets and their use in handling unique data.
• Understood dictionaries and how they store data in key-value pairs.
• Practiced programs combining multiple data structures for better understanding.

Conclusion:
Day 3 of training provided a strong understanding of Python data structures. These concepts are essential for data analysis, as they form the foundation for handling large datasets in Machine Learning projects.