**Day 4 — 24 June 2025 (Tuesday)**

**Topic: Data Structures — Lists, Tuples, Sets, Dictionaries**

We explored Python’s powerful data structures which are heavily used in ML applications for storing and processing data. The trainer explained memory efficiency and speed differences between lists, tuples, sets, and dictionaries. We practiced list slicing, appending, updating dictionary values, converting tuples to lists, and using set operations. The instructor explained how large datasets like email text and labels are stored in lists or dictionaries before converting to numeric form for model training.

Example: storing spam vs ham email labels

emails = ["Offer!!! Win iPhone", "Meeting at 4 PM"]

labels = ["Spam", "Ham"]