30th June 2025 (Monday)

After Sunday's break, the session resumed with arrays and string manipulation in Java. The instructor began by explaining what arrays are and how they allow us to store and manipulate multiple values of the same type efficiently. We discussed single-dimensional and multi-dimensional arrays in detail. Using small exercises, I learned to declare, initialize, and traverse arrays using loops. The instructor then demonstrated how arrays simplify data storage compared to using multiple variables.

I implemented programs such as finding the maximum, minimum, and average from an array of integers. Then, we moved toward 2D arrays and wrote a small matrix addition program, which helped us understand nested looping. We also discussed the internal memory representation of arrays and how Java assigns default values to uninitialized array elements.

The second half of the session focused on String handling. The trainer explained that Strings in Java are immutable objects stored in the string constant pool. I practiced using common String methods such as .length(), .equals(), .substring(), .toUpperCase(), and .concat(). We created programs to count vowels in a sentence, check for palindromes, and reverse strings. The mentor emphasized that string manipulation is frequently used in Android development — for example, when handling user messages or chat input fields.

Before ending the session, we were introduced to StringBuilder and StringBuffer, mutable classes used for dynamic string modification. The instructor also demonstrated how String concatenation efficiency changes with these classes compared to traditional string operations. The two-hour class felt compact yet enriching, strengthening my data handling capabilities, which are crucial when developing chat and message-based apps.