Day 6 – Arrays and String Handling in Java

Objective:

To understand the concept of arrays and strings in Java and learn how to store, access, and manipulate multiple data elements efficiently.

Content:

Today, I studied **arrays** and **string handling** in Java. Arrays are used to store multiple values of the same data type, while strings are used to handle text data. Both are essential for organizing and processing information in programs.

1. Arrays in Java

An array is a collection of elements of the same type, stored in contiguous memory locations. It allows easy access and iteration using indices.

Example:

```
int[] numbers = {10, 20, 30, 40, 50};
for (int i = 0; i < numbers.length; i++) {
    System.out.println("Element " + i + ": " + numbers[i]);
}
```

Key Points:

- Arrays have a **fixed size** once declared.

- Elements are accessed using an **index (starting from 0)**.

- The **length** property gives the number of elements.

- Supports **single**, **multi-dimensional**, and **jagged** arrays.

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2. Strings in Java

A string represents a sequence of characters.
Unlike other languages, Java strings are **objects** of the `String` class.

Declaration:

```
String name = "Husanpreet";
```

Common String Methods:

Method	Description	Example
`length()`	Returns number of characters	`name.length()`
`toUpperCase()`	Converts to uppercase	`name.toUpperCase()`
`toLowerCase()`	Converts to lowercase	`name.toLowerCase()`
`concat()`	Joins two strings	`name.concat(" Singh")`
`equals()`	Compares two strings	`name.equals("Husanpreet")`
`charAt()`	Returns character at index	`name.charAt(2)`

Example:

```
String str1 = "Java";
String str2 = "Programming";
System.out.println(str1 + " " + str2);
System.out.println("Length: " + str1.length());
```

Learning Outcome:

Understood how to declare and use arrays to store multiple data values.
Learned various operations on strings such as concatenation, comparison, and case conversion.

Gained the ability to manipulate and display data efficiently using arrays and string methods in Java.