



Al-Mustaqbal University
College of Sciences
Intelligent Medical System Department



جامعة المستقبل
AL MUSTAQBAL UNIVERSITY

كلية العلوم
قسم الانظمة الطبية الذكية

Lecture(6)

Introduction to Strings

Subject: Computer Programming

Class: One

**Lecturer: Dr. Maytham N.
Meqdad, Programmer. Noor H. Obaid**



Introduction to Strings

1. What is a String? (Definition)

In Java, a String is an "Object" that represents a sequence of characters (such as names, phrases, or numbers). It is always enclosed in double quotes " ".

2. Basic Code: Definition and Merging (Basics)

This code shows how to create a text and how to merge two texts together.

```
public class string1 {
    public static void main(String[] args) {
        // Create a string variable
        String firstName = "Ali";
        String lastName = "Ahmed";

        // Join strings using the '+' operator (Concatenation)
        String fullName = firstName + " " + lastName;

        // Print the result to the console
        System.out.println("Full Name: " + fullName);
        // Output: Full Name: Ali Ahmed
    }
}
Output:
Ali Ahmed
```

3. Important Text Methods

```
public class string2 {
    public static void main(String[] args) {
        // TODO Auto-generated method stub
        String text = "Java Programming";

        // 1. Get the length of the string
        int size = text.length();
        System.out.println("Length: " + size); // Output: 16

        // 2. Convert to Upper and Lower case
        System.out.println(text.toUpperCase()); // JAVA PROGRAMMING
        System.out.println(text.toLowerCase()); // java programming

        // 3. Check if the string starts with a specific word
        boolean start = text.startsWith("Java"); // true

        // 4. Replace a word with another word
        String newText = text.replace("Java", "Python");
        System.out.println(newText); // Python Programming
    }
}
```



Output: Length: 16
JAVA PROGRAMMING
java programming
Python Programming

4. String Comparison

Golden rule: Never use `==` to compare strings in Java, always use `.equals()`.

```
public class string3 {
    public static void main(String[] args) {
        // TODO Auto-generated method stub
        String s1 = "Apple";
        String s2 = "apple";

        // Check if content is exactly the same (Case Sensitive)
        System.out.println(s1.equals(s2)); // false

        // Check content and ignore if it's capital or small
        System.out.println(s1.equalsIgnoreCase(s2)); // true
    }
}
```

Output:

false

true

5. Character Access

In programming, we always start counting from zero (0).

```
public class string4 {

    public static void main(String[] args) {
        // TODO Auto-generated method stub

        String word = "Hello";

        // Get the first character (Index 0)
        char firstLetter = word.charAt(0);

        // Get the last character
        char lastLetter = word.charAt(word.length() - 1);

        System.out.println("First: " + firstLetter); // H
    }
}
```



```
        System.out.println("Last: " + lastLetter);    // o
    }
}
```

Output:

First: H

Last: o

6. Handling long texts (StringBuilder)

If you want to reverse or modify a text a lot, we use StringBuilder because it is faster and better for memory.

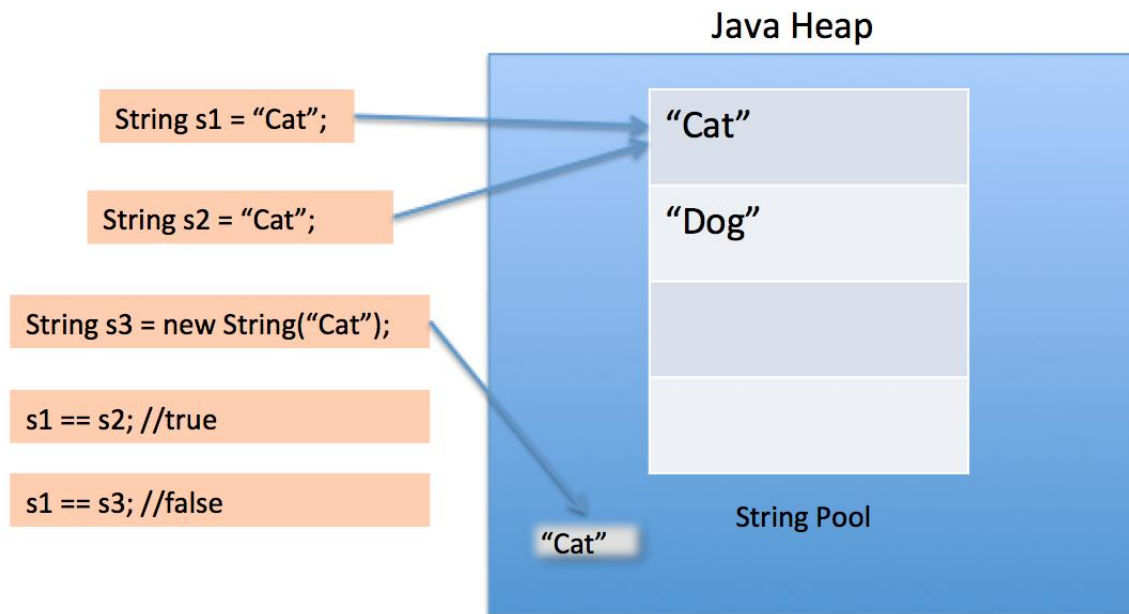
```
public class string5 {
    public static void main(String[] args) {
        // TODO Auto-generated method stub
        String original = "Java";

        // Create a StringBuilder object
        StringBuilder sb = new StringBuilder(original);

        // Reverse the string
        sb.reverse();

        // Print the reversed string
        System.out.println("Reversed: " + sb.toString()); // avaJ
    }
}
```

Output:
avaJ



(Summary) :

1.Length: `length()` tells you the number of characters.

2.Comparison: Use `equals()`, not `==`.

3.Index: The first character is always 0.

4.Case: Use `toUpperCase()` to make the text capitalized.

5.Modification: The original text (String) does not change; each modification produces new text.



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