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public class StringOperations {
    public static void main(String[] args) {
        String str = "Hello, world!";

        // find length of the string
        int length = str.length();
        System.out.println("Length of the string: " + length);

        // find the character at a given index
        char ch = str.charAt(7);
        System.out.println("Character at index 7: " + ch);

        // find a substring within the string
        String substring = str.substring(7, 12);
        System.out.println("Substring from index 7 to 11: " + substring);

        // find the index of a given character within the string
        int index = str.indexOf('o');
        System.out.println("Index of 'o': " + index);

        // check if the string starts with a given prefix
        boolean startsWith = str.startsWith("Hello");
        System.out.println("Starts with 'Hello': " + startsWith);

        // check if the string ends with a given suffix
        boolean endsWith = str.endsWith("!");
        System.out.println("Ends with '!': " + endsWith);

        // check if the string is empty
        boolean isEmpty = str.isEmpty();
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        System.out.println("Is empty: " + isEmpty);

        // check if the string is equal to another string
        boolean isEqual = str.equals("Hello, world!");
        System.out.println("Is equal to 'Hello, world!': " + isEqual);

        // check if the string is equal to another string (ignoring case)
        boolean isEqualIgnoreCase = str.equalsIgnoreCase("HELLO, WORLD!");
        System.out.println("Is equal to 'HELLO, WORLD!': " + isEqualIgnoreCase);

        // concatenate two strings
        String str2 = " Goodbye, world!";
        String concat = str.concat(str2);
        System.out.println("Concatenated string: " + concat);
    }
}
```

```
Output:

Length of the string: 13
Character at index 7: w
Substring from index 7 to 11: world
Index of 'o': 4
Starts with 'Hello': true
Ends with '!': true
Is empty: false
Is equal to 'Hello, world!': true
Is equal to 'HELLO, WORLD!': true
Concatenated string: Hello, world! Goodbye, world
```