



Computer Science Virtual Learning

# HS Computer Science A

April 22nd, 2020



## Lesson: String Operators - Concatenation

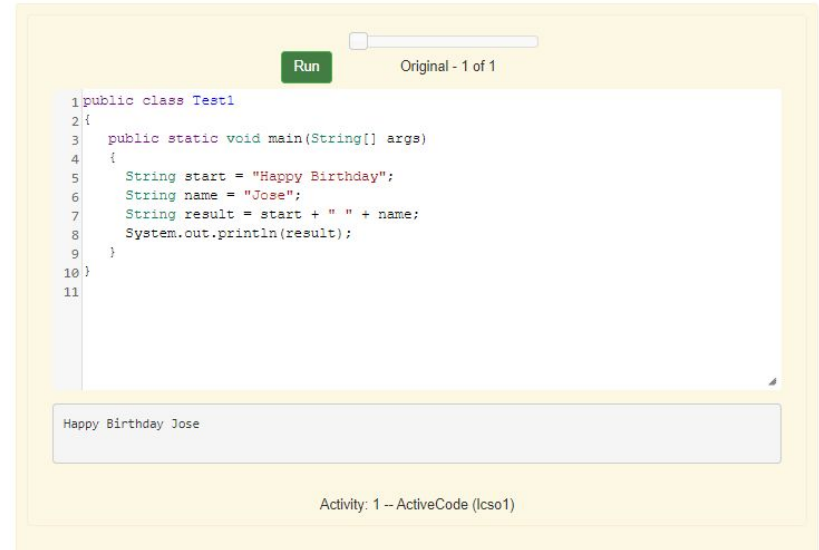
### Objective/Learning Target:

Understanding how to concatenate a string in Java

# What is Concatenation?

Strings can be **appended** to each other which creates a new string using the **+** operator . This is also called **concatenation**.

**\*\*Note:** Note that spaces are not added between strings automatically. If you want a space between two strings then add one.

A screenshot of a code editor window. At the top right, there is a "Run" button and a progress indicator showing "Original - 1 of 1". The code is as follows:

```
1 public class Test1
2 {
3     public static void main(String[] args)
4     {
5         String start = "Happy Birthday";
6         String name = "Jose";
7         String result = start + " " + name;
8         System.out.println(result);
9     }
10 }
11
```

Below the code editor, there is a text box containing the output: "Happy Birthday Jose". At the bottom right of the editor, it says "Activity: 1 -- ActiveCode (lcs01)".

# toString Operator

You can even add other items to a string using the `+` operator. The other item will be converted to a string using the `toString` operator if it is an object and then appended to the current string. All objects inherit a `toString` method that returns a string representation of the object.

What do you think the code to the right will print?

A screenshot of a code editor window with a yellow background. At the top right, there are two buttons: "Run" (green) and "Load History" (dark grey). The code is as follows:

```
1 public class Test2
2 {
3     public static void main(String[] args)
4     {
5         String message = "12" + 4 + 3;
6         System.out.println(message);
7     }
8 }
9
```

At the bottom of the editor, the text "Activity: 2 -- ActiveCode (Icso2)" is displayed.

# toString Operator

Since the same operators are processed from left to right this will print `1243`. First 4 will be turned into a string and appended to 12 and then 3 will be turned into a string and appended to 124. If you want the addition to take place before the numbers are turned into a string what should you do? Try to modify the code above so that it adds 4 + 3 before appending the value to the string.

**\*\*Note:** If you are appending a number to a string it will be converted to a string first before being appended.

A screenshot of a code editor window. At the top right, there is a green "Run" button and a slider control. Below the code editor, a text box displays the output "1243". At the bottom right, the text "Activity: 2 -- ActiveCode (lcso2)" is visible.

```
1 public class Test2
2 {
3     public static void main(String[] args)
4     {
5         String message = "12" + 4 + 3;
6         System.out.println(message);
7     }
8 }
9
```

1243

Activity: 2 -- ActiveCode (lcso2)



# Check Your Understanding

1. Given the following code segment, what is in the string referenced by s1?

```
String s1 = "xy";  
String s2 = s1;  
s1 = s1 + s2 + "z";
```

- a. xyz
- b. xyxyz
- c. xy xy z
- d. xy z
- e. z

2. What does the following code print?

```
System.out.println("13" + 5 + 3);
```

- a. 21
- b. 1353
- c. It will give a run-time error
- d. 138
- e. It will give a compile-time error



## For More Resources and to Check Answers

Go to: <https://runestone.academy/runestone/books/published/apcsareview/Strings/sOperators.html>