

# **Comp 125 - Visual Information Processing**

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Spring Semester 2019 - Week 2 - Friday

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# JS Basics - data types - string manipulation

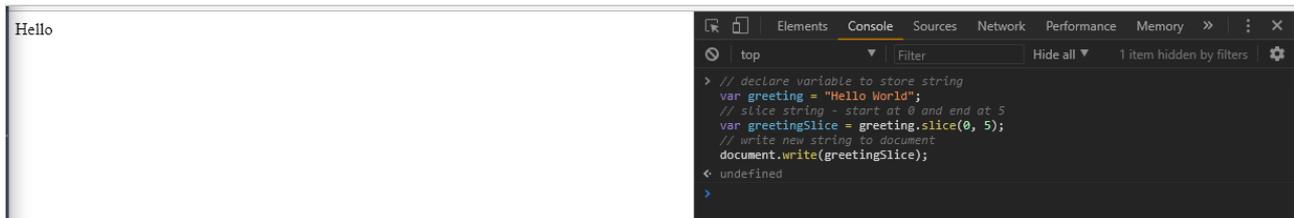
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- manipulate numbers - e.g. perform mathematical calculations...
- also directly manipulate other data types
  - e.g. **strings** and **booleans**
- perform various operations to modify a string, e.g.
- `slice()`
  - get characters from range in string, e.g. start, middle or end
  - `length`
  - get the number of characters in a string
  - might also need to get a single character from a string
  - e.g. the first, third, and sixth characters...
- further details on JavaScript strings,
  - [W3Schools Strings](#)
  - [MDN Strings reference](#)

# JS Basics - example string manipulation - slice

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Manipulate strings with existing functions - e.g. `slice()`



The screenshot shows a browser window with the text "Hello" displayed. The developer console is open, showing the following JavaScript code:

```
> // declare variable to store string
var greeting = "Hello World";
// slice string - start at 0 and end at 5
var greetingSlice = greeting.slice(0, 5);
// write new string to document
document.write(greetingSlice);
< undefined
>
```

Below the console, the text JavaScript - slice a string is displayed.

# JS Basics - example string manipulation - length of a single word

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Use `length` property to get number of characters in a string of a single word...



The screenshot shows a browser's developer console with the following content:

```
name is Yvaine  
Yvaine is 6 characters...
```

```
> var name = "Yvaine";  
// get length of name string  
var len = name.length;  
// output string to document  
document.write("<br>name is " + name);  
// output length of string to document  
document.write("<br>" + name + " is " + len + " characters...");
```

JavaScript - length of a string - single word

# JS Basics - example string manipulation - length of a phrase

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Use `length` property to get number of characters in a string of a phrase...

```
book title is The Glass Bead Game  
The Glass Bead Game = 19 characters
```

```
var title = "The Glass Bead Game";  
// get length of title string  
var len = title.length;  
// output string to document  
document.write("<br>book title is " + title);  
// output length of string to document  
document.write("<br>" + title + " = " + len + " characters");
```

JavaScript - length of a string - phrase

## JS Basics - example string manipulation - get a single character from a string

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Index position defined for each character in a string, e.g.

```
y|v|a|i|n|e  
0|1|2|3|4|5
```

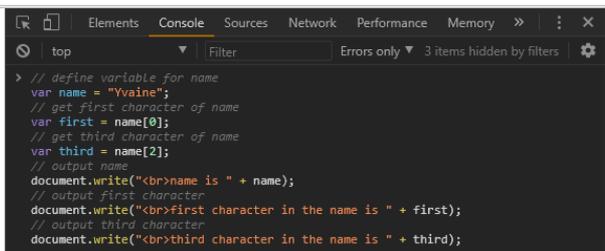
Then, we can get a single character using this index position, e.g.

```
var name = "Yvaine";  
var first = name[0];  
var third = name[2];
```

# JS Basics - example string manipulation - get a single character from a string

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Get the first and third character from the defined string value...

<pre>name is Yvaine first character in the name is Y third character in the name is a</pre>	 <pre>&gt; // define variable for name var name = "Yvaine"; // get first character of name var first = name[0]; // get third character of name var third = name[2]; // output name document.write("&lt;br&gt;name is " + name); // output first character document.write("&lt;br&gt;first character in the name is " + first); // output third character document.write("&lt;br&gt;third character in the name is " + third);</pre>
<p><u>JavaScript - length of a string - phrase</u></p>	

## JS Basics - example string manipulation - modify case

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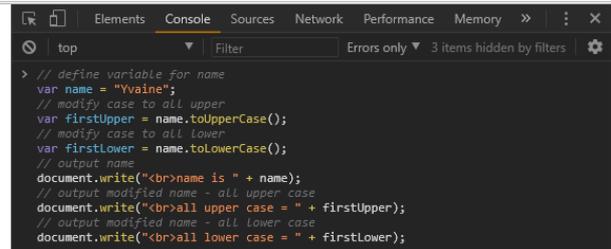
- also use built-in JavaScript functions to modify the case of a string
- this might include a word, phrase, or even a single character
- we may change the case to all uppercase or all lowercase
- `toUpperCase()` - change all characters in a string to uppercase
- `toLowerCase()` - change all characters in a string to lowercase

# JS Basics - example string manipulation - modify case

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modify the case for a string to all uppercase or all lowercase

```
name is Yvaine  
all upper case = YVAINE  
all lower case = yvaine
```



```
> // define variable for name  
var name = "Yvaine";  
// modify case to all upper  
var firstUpper = name.toUpperCase();  
// modify case to all lower  
var firstLower = name.toLowerCase();  
// output name  
document.write("<br>name is " + name);  
// output modified name - all upper case  
document.write("<br>all upper case = " + firstUpper);  
// output modified name - all lower case  
document.write("<br>all lower case = " + firstLower);
```

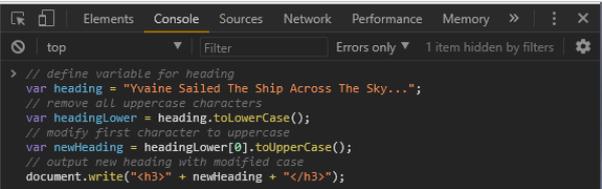
JavaScript - modify case of a string

# JS Basics - example string manipulation - modify case of a single character

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modify the case of a single character in a string...INCORRECT USAGE

```
Y
```



```
> // define variable for heading
var heading = "Yvaine Sailed The Ship Across The Sky...";
// remove all uppercase characters
var headingLower = heading.toLowerCase();
// modify first character to uppercase
var newHeading = headingLower[0].toUpperCase();
// output new heading with modified case
document.write("<h3>" + newHeading + "</h3>");
```

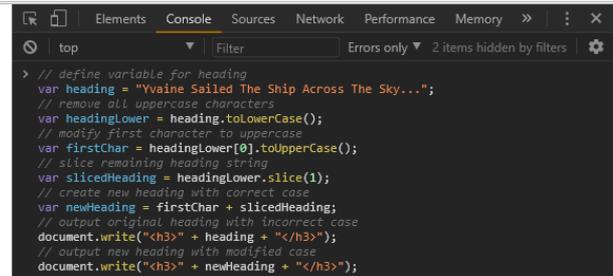
JavaScript - modify case of a single character

# JS Basics - example string manipulation - modify case of a single character

modify the case of a single character in a string...CORRECT USAGE

Yvaine Sailed The Ship Across The Sky...

Yvaine sailed the ship across the sky...



```
> // define variable for heading
var heading = "Yvaine Sailed The Ship Across The Sky...";
// remove all uppercase characters
var headingLower = heading.toLowerCase();
// modify first character to uppercase
var firstChar = headingLower[0].toUpperCase();
// slice remaining heading string
var slicedHeading = headingLower.slice(1);
// create new heading with correct case
var newHeading = firstChar + slicedHeading;
// output original heading with incorrect case
document.write("<h3>" + heading + "</h3>");
// output new heading with modified case
document.write("<h3>" + newHeading + "</h3>");
```

JavaScript - modify case of a single character

**n.b.** there are many ways to create this result using JavaScript...this is only one possible solution