

Comp 125 - Visual Information Processing

Spring Semester 2018 - week 3 - monday

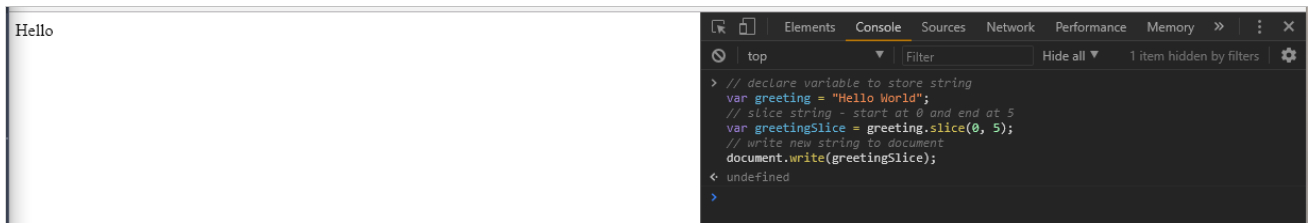
Dr Nick Hayward

JS Basics - data types - string manipulation

- 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

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



JavaScript - slice a string

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

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

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

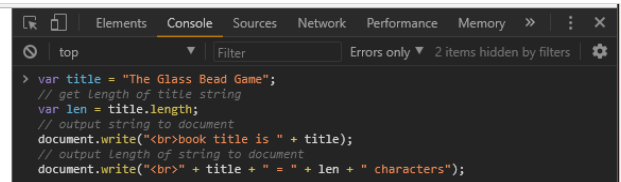
```
var name = "Yvaine";  
// get length of name string  
var len = name.length;  
// output string to document  
document.write("<br>name is " + name);  
// output length of string to document  
document.write("<br>" + name + " is " + len + " characters...");
```

JavaScript - length of a string - single word

JS Basics - example string manipulation - length of a phrase

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

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

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

name is Yvaine
first character in the name is Y
third character in the name is a

```
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("<br>name is " + name);  
// output first character  
document.write("<br>first character in the name is " + first);  
// output third character  
document.write("<br>third character in the name is " + third);
```

JavaScript - length of a string - phrase

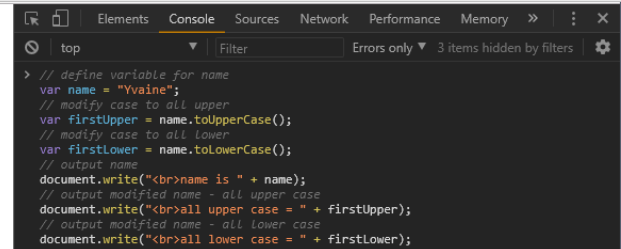
JS Basics - example string manipulation - modify case

- 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

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

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



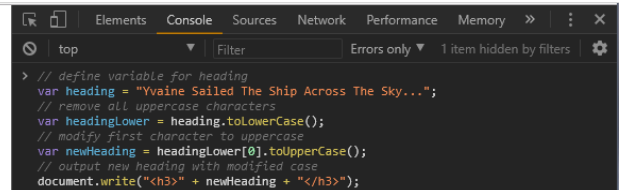
```
> // define variable for name  
var name = "Yvaine";  
// modify case to all upper  
var firstUpper = name.toUpperCase();  
// modify case to all lower  
var firstLower = name.toLowerCase();  
// output name  
document.write("<br>name is " + name);  
// output modified name - all upper case  
document.write("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

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...

```
Elements Console Sources Network Performance Memory »  
top Filter Errors only 2 items hidden by filters  
> // 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