

JavaScript Workshop

String, Math and Date Objects

The String object

- The String object represents a variable that contains a series of characters. To create a string variable can be done in 2 ways.

Creating a String object directly:

```
var string1 = new String("Hi there!");  
var string2 = new String(12345);
```

Letting JavaScript do the object conversion behind the scenes:

```
var string1 = "Hi there!";  
var string2 = "12345";
```

Note: Technically speaking, the objects themselves behave the same, but would not be equal if compared.

String length property

- The String object has a length property that returns the total number of characters in the string.

```
var myName = "Frank";  
document.write("myName is " + myName.length + " characters long");
```

- The String object has many methods (30 to be exact), but we will cover the most commonly used such as:

```
charAt(), indexOf(), lastIndexOf(), substr(), substring(), toLowerCase(),  
toUpperCase(), replace(), and search()
```

String methods

- `charAt()` - returns the character from the index position

```
var myString = "Frank".charAt(3); // returns "n"
```

- `indexOf()` - returns the character position of the substring

```
var myString = "King Kong".indexOf("g"); // returns 3
```

- `lastIndexOf()` - returns the last character position of the substring

```
var myString = "King Kong".lastIndexOf("g"); // returns 8
```

String methods cont.

- `substr()` - returns the substring specified with the start and length

```
var myString = "Frank Stepanski".substr(9, 3); // returns "pan"
```

- `substring()` - returns the substring with the start and end position

```
var myString = "Frank Stepanski".substring(9, 11); // returns "pan"
```

- `toLowerCase()` and `toUpperCase()` - returns the string with case converted to lowercase or uppercase

```
var myString = "Frank Stepanski".toLowerCase();
```

```
var myString = "Frank Stepanski".toUpperCase();
```

String methods cont.

- `replace()` - searches for a string for occurrences of a substring

```
var myString = "The meeting will next Monday, 15th of January";  
var myNewString = myString.replace("Monday", "Tuesday");
```

- `search()` - returns the character position of the substring specified

```
var myString = "King Kong".search("Kong"); // returns 5
```

- The `search()` method works the same as `indexOf()`, but normally used with regular expressions for more complex searches.

Using loops with String methods

- Looping through each character of a string:

```
function string_parse(field) {  
  
    var characters = "";  
  
        for (var i = 0; i < field.value.length; i++) {  
  
            characters += field.value.substr(i, 1) + "\n";  
  
        }  
  
        alert(characters);  
    }
```

Math object

- The Math object provides mathematical and number methods. The most commonly used are `floor()`, `round()` and `random()`. The Math object does not get instantiated like other JavaScript objects, instead the Math object is used directly.
- The `floor()` method removes any numbers after the decimal point, and returns an integer. It also rounds the number down.
- The `round()` method rounds the number with a decimal to the closest number higher (.5 and up goes to the next highest).
- The `random()` method returns a floating-point number in the range between 0 and 1, where 0 is included and 1 is not.

Creating a random number

- Creates a random number between 1 and 6:

```
var myDice = (Math.floor(Math.random() * 6) + 1);
```

By multiplying the random number (0 to 0.9999999) by 6, we get a number between 0 and just under 6. Then by adding 1, we get a number between 1 and just under 7. By using `floor()` to always round it down to the next lowest whole number, we can ensure that we'll end up with a number between 1 and 6.

If the `round()` method was used instead of `floor()`, then there would be instances when the value would be 7, since `round()` rounds up and `floor()` just removes the decimal.

Date object

- The Date object refers to the date and time in JavaScript.

Creating a Date object:

```
var dateNow = new Date();
```

Getting Date values:

```
var yearNow = dateNow.getFullYear();
```

```
var monthNow = dateNow.getMonth();
```

```
var dayNow = dateNow.getDay();
```

- JavaScript Workshop website:
<http://www.javascriptworkshop.com>
- Any questions?
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- Recommended reading:
[JavaScript: A Beginner's Guide, Second Edition](#)