7. JavaScript Data Types

String, Number, Boolean, Array, Object, Null, Undefined.

7.1. JavaScript Has Dynamic Types

JavaScript has dynamic types. This means that the same variable can be used as different types:

Example

```
var x;               // Now x is undefined
var x = 5;           // Now x is a Number
var x = "John";      // Now x is a String
```

7.2. JavaScript Strings

A string is a variable which stores a series of characters like "John Doe".

A string can be any text inside quotes. You can use single or double quotes:

Example

```
var carname="Volvo XC60";
var carname='Volvo XC60';
```

You can use quotes inside a string, as long as they don't match the quotes surrounding the string:

Example

```
var answer="It's alright";
var answer="He is called 'Johnny'";
var answer='He is called "Johnny"';
```

You will learn a lot more about strings in the advanced section of this tutorial.

7.3. JavaScript Numbers

JavaScript has only one type of numbers. Numbers can be written with, or without decimals:

Example

```
var x1=34.00;      //Written with decimals
var x2=34;         //Written without decimals
```

Extra large or extra small numbers can be written with scientific (exponential) notation:

Example

```
var y=123e5;      // 12300000
var z=123e-5;     // 0.00123
```

You will learn a lot more about numbers in the advanced section of this tutorial.

7.4. JavaScript Booleans

Booleans can only have two values: true or false.

```
var x=true;
var y=false;
```

Booleans are often used in conditional testing. You will learn more about conditional testing in a later chapter of this tutorial.

7.5. JavaScript Arrays

The following code creates an Array called cars:

```
var cars=new Array();
cars[0]="Saab";
cars[1]="Volvo";
cars[2]="BMW";
```

or (condensed array):

```
var cars=new Array("Saab","Volvo","BMW");
```

or (literal array):

Example

```
var cars=["Saab","Volvo","BMW"];
```

Array indexes are zero-based, which means the first item is [0], second is [1], and so on.

You will learn a lot more about arrays in later chapters of this tutorial.

7.6. JavaScript Objects

An object is delimited by curly braces. Inside the braces the object's properties are defined as name and value pairs (name : value). The properties are separated by commas:

```
var person={firstname:"John", lastname:"Doe", id:5566};
```

The object (person) in the example above has 3 properties: firstname, lastname, and id.

Spaces and line breaks are not important. Your declaration can span multiple lines:

```
var person={
firstname : "John",
lastname  : "Doe",
id        :  5566
};
```

You can address the object properties in two ways:

Example

```
name=person.lastname;
name=person["lastname"];
```

You will learn a lot more about objects in later chapters of this tutorial.

7.7. Undefined and Null

Undefined is the value of a variable with no value.

Variables can be emptied by setting the value to **null**;

Example

```
cars=null;
person=null;
```

7.8. Declaring Variable Types

When you declare a new variable, you can declare its type using the "new" keyword:

```
var carname=new String;
var x=      new Number;
var y=      new Boolean;
var cars=   new Array;
var person= new Object;
```

JavaScript variables are all objects. When you declare a variable you create a new object.