

# Introduction to Javascript

Lecture number:

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# Scripting?

- Scripting is a way to instruct a computer software, in how to control a computer hardware or a machine.
- Computer software are made through programming, and software can be controlled using scripting.
- Just like programming languages, scripting languages do have a valid syntax and they need a compiler.

# Where are scripts used?

- Scripting maybe used in:
  - Controlling Robots (eg: LEGO kits)
  - Controlling 3D design software(Maya,3d Studio)
  - Controlling operating systems (Windows Batch scripting)
  - Controlling websites (Javascript, VBScript)

# Web Scripting

- Web scripting languages add to the dynamics of websites.
- They are used to add interactivity to web applications.
- You come across web scripts daily while browsing the internet, for-example the chatrooms, Discussion forums, Email services, etc are all web scripts

# Types of web-scripts

- There are two kinds of web-scripts:
  - i. Client side scripts
  - ii. Server side scripts

# Client side scripts

- Client side scripts run on the user/client's machine, they may or may not interact with a server, and are ideal for quick response.
- Used for pre-submission form checking like checking if the user has entered a valid email address or phone number etc.
- Example: Javascript, VBScript, etc

# Server side scripts

- Server side scripts run on-line on the server.
- All data must be uploaded to the server in-order for server side scripts to manage it.
- The Server resources are utilized in the process and the execution is independent of the client's machine.
- Server side scripts are useful for storing user accounts, sessions, and other secure data.
- **Examples: PhP** (Personal home page tool, open source general-purpose server-side scripting language originally designed for Web development to produce dynamic Web pages.), **ASP**(active server pages, 1<sup>st</sup> server side script engine for dynamically generated webpages), **ASP.net, etc.**

# Introduction to Javascript

- Developed by Brendan Eich of Netscape under the name 'Mocha', later renamed to 'Livescript'.
- With the advent of 'Java', netscape renamed Livescript to Javascript as a marketing strategy, creating an artificial similarity between Java and Javascript.
- Javascript is just a spin-off of java, they've got nothing in common other than the fact that both try to follow the C++ syntax.



# Introduction to Javascript (2)

- Javascript was originally a client-side scripting language.
- It suffered a hibernation period when webmasters started using server side scripting.
- With the advent of **AJAX** (asynchronous javascript ,a group of interrelated web development techniques used on the client-side to create asynchronous web applications.), javascript returned to the spotlight, as AJAX is a server-side port of javascript.
- Javascript's compiler is embedded in almost all modern web-browsers so we don't need any external software to run javascript applications.

# Introduction to javascript (3)

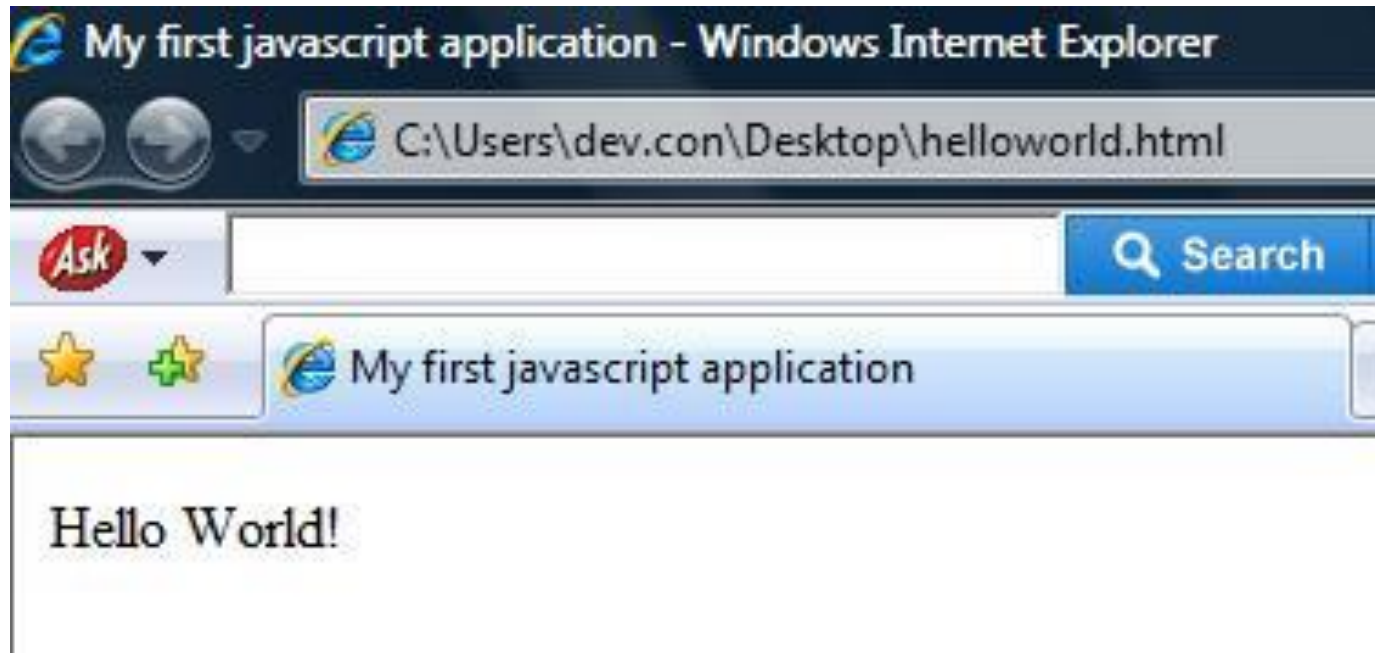
- We may use javascript in our websites by including the code in the `<script>` tag.
- The scripting language is specified using the “language” attribute.
- Example:  
`<script language=“javascript”>`  
    ....all the scripting....  
`</script>`

# A basic “Hello World” application

- Write down the following code in the body of an HTML document and save it as .html file, check the output by running the html document in a web-browser(ignore the text after ‘//’ its for reference).

```
<html>
<title>My first javascript application</title>
<head></head>
<body>
<script language="javascript">
document.write("Hello world!");
</script>
</body>
```

# “Hello world” Output



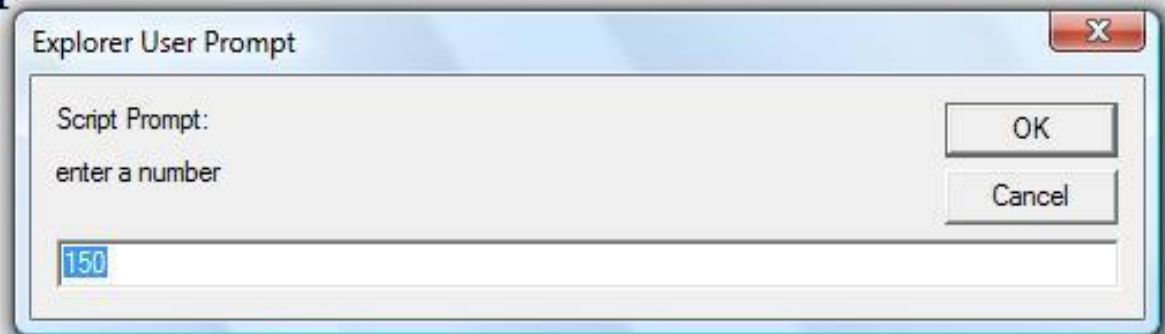
# A javascript input script

Let us consider another script:

```
<html>
<title>windows Prompt javascript application</title>
<head></head>
<body>
<h1>A prompt script</h1>
<script language="javascript">
window.prompt("enter a number",150);
</script>
```

# A javascript input script : Output

## A prompt script



# A javascript input script : Explanation

- Notice that this script takes some input from the user.
- 'Window' is a JavaScript object.
- Objects have member functions or methods, prompt is a method which takes some inputs called arguments.
- The default value in the table is specified by the second argument to the prompt function(150 in this case).

# The windows alert function

- Used to display a message to the user, about an event.
- Consists of a custom message and an OK button.
- Example:

---

```
<html>
<title>windows alert javascript application</title>
<head></head>
<body>
<h1>An alert script</h1>
<script language="javascript">
window.alert("This is an alert message!");
</script>
```



# window alert: Output



# Javascript Variables

- A variable is a piece of computer memory for temporarily holding some data.
- The data can be a name, a telephone number, a temperature, etc.
- In almost all programming languages, variables must reserve a memory space before data can be written to them, this process is called declaring a variable.

# Javascript Variables

- In javascript, we declare a variable using the 'var' keyword.
- We assign a value to it using the assignment operator '='.
- The variable must have a name (also called 'identifier').
- Example: `var variable_name="Some value to the variable";`

# Javascript Variables(3)

- We can assign value to the variable in the code, or we can take the value from the user.
- As already discussed, we use the prompt function to take a value from the user, and store it in a variable for later reuse.

# Javascript Variables: Example

- Consider the following code:

```
<script language="javascript">
```

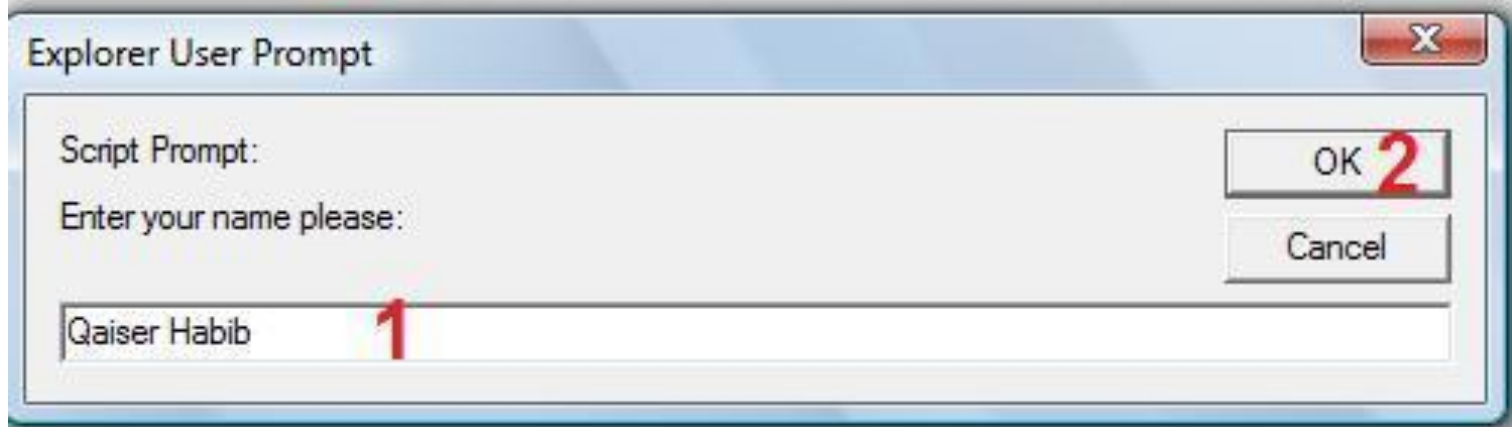
```
var var1=window.prompt("Enter your name:");
```

```
document.write(var1);
```

```
</script>
```

# Variable Example: Output

Qaiser Habib **3**



## Variable Example 2

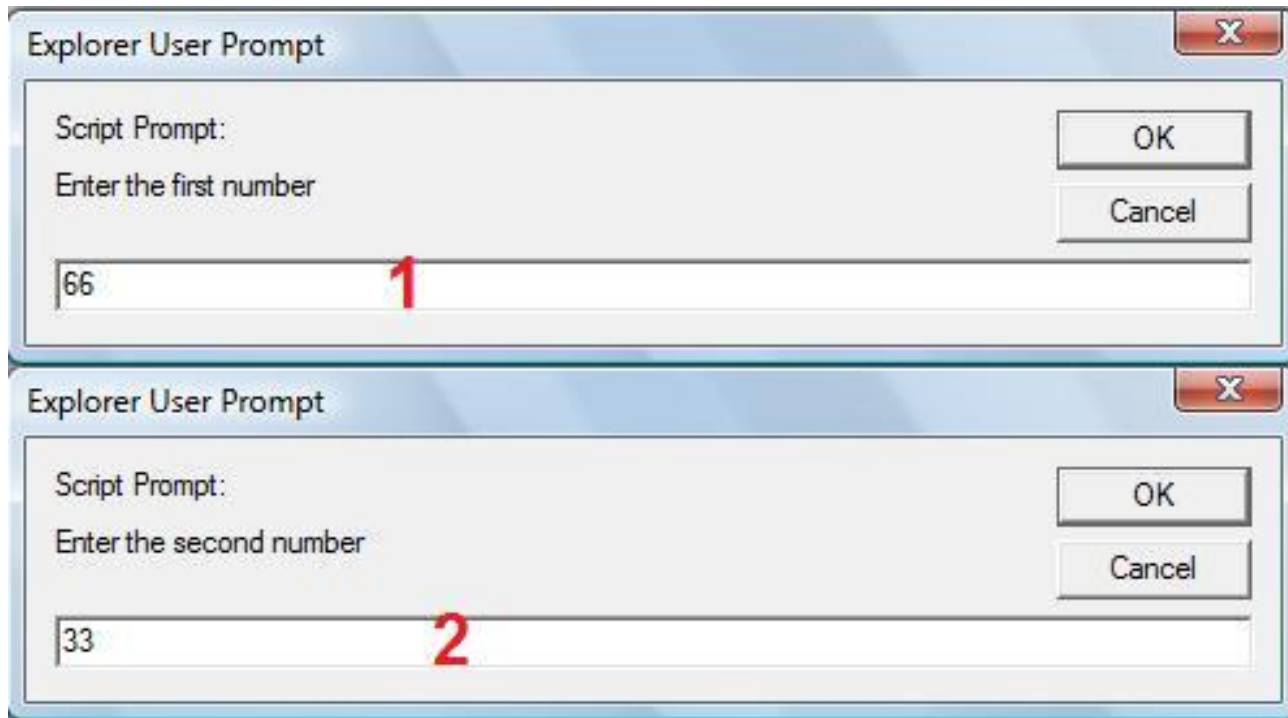
- Let us make a simple adder script, which takes two numbers from the user and displays their sum.
- All the data stored in a variable is a string by default, we need to convert it to our required data-type before we can do any operations.
- Here we need it to be an integer number so we use the 'parseInt' function which converts a string to an integer.

# Number Adder: Code

```
<html>
<head></head>
<title>Variable Example</title>
<body>
<script language="javascript">
var num1=window.prompt("Enter the first number");
var num2=window.prompt("Enter the second number");
var sum=parseInt(num1)+parseInt(num2);
document.write("The sum is: "+sum);
</script>
```



# Number Adder: output



The sum is: 99 **3**

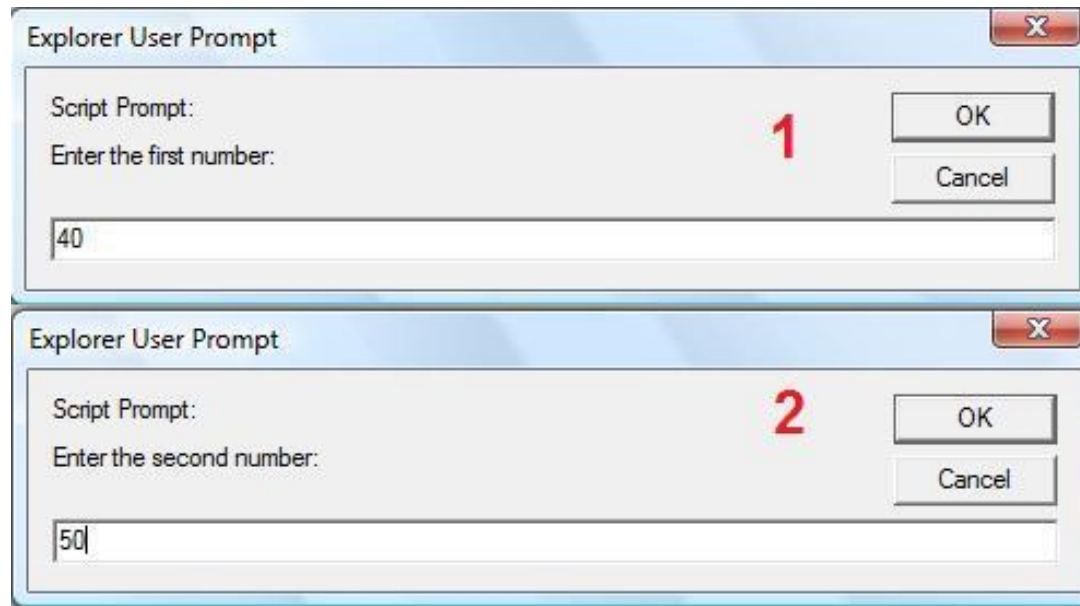
# HTML in Javascript

- We can use the Write method to display HTML in a document, for-example:

```
<script language="javascript">
var num1=parseInt(window.prompt("Enter the first number: "));
var num2=parseInt(window.prompt("Enter the second number: "));
var sum=parseInt(num1+num2);

document.write("<h1>The sum is</h1>" + "<h2><font color='red'>" + sum + "</font></h2>");
</script>
```

# HTML in Javascript Output



**The Sum is**

**3**

**90**