

Introduction to HTML, CSS and JavaScript

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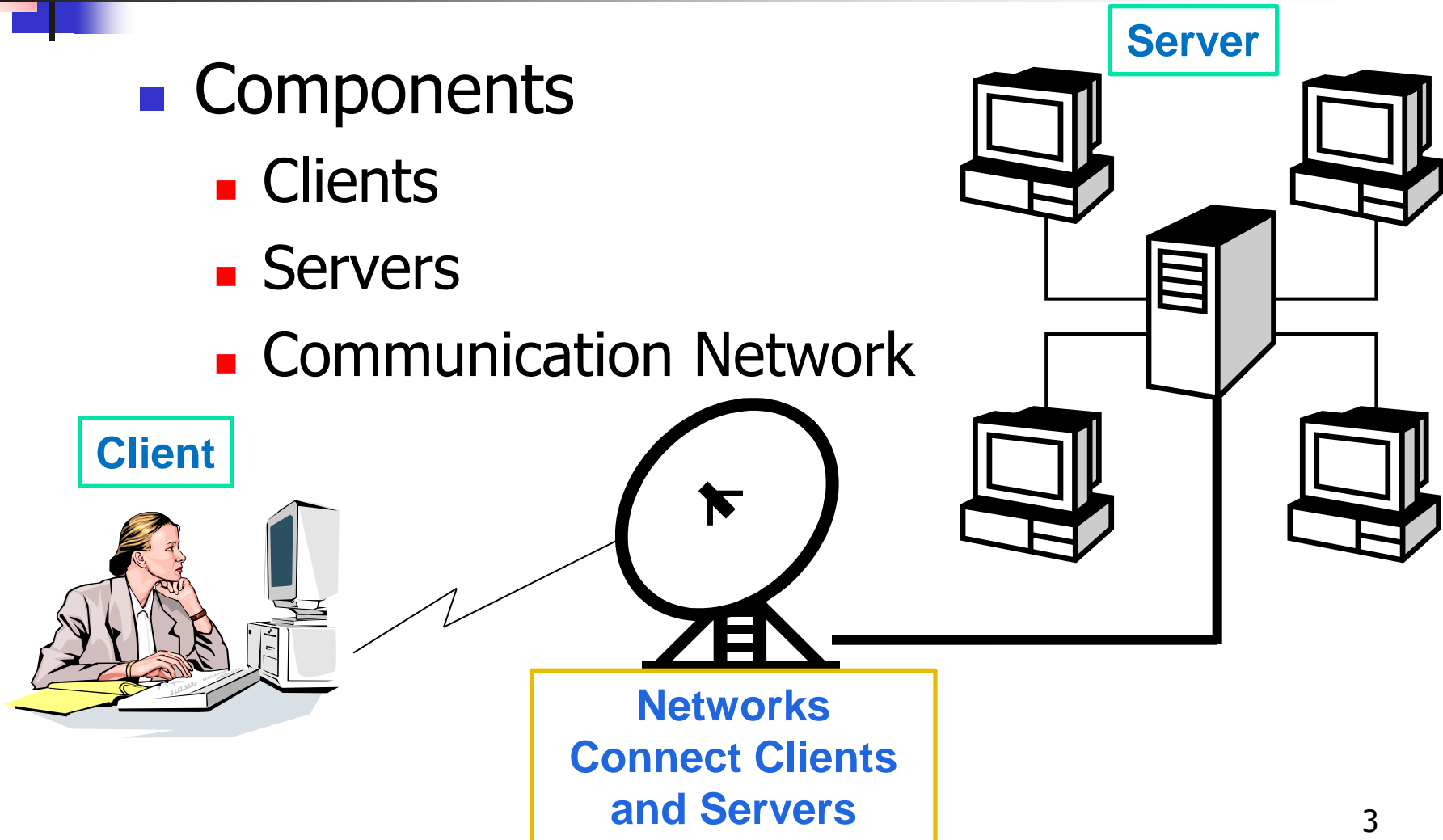
Overview

- Web Architecture
- MERN Stack
- Principles of Good Web Design
- HTML Fundamentals
- CSS Fundamentals
- JavaScript Fundamentals
 - Javascript vs. Java
- Your Task



Web Architecture

- Components
 - Clients
 - Servers
 - Communication Network



Web Architecture

Clients (Browser)

- Internet Explorer
- Firefox
- Mozilla
- Netscape

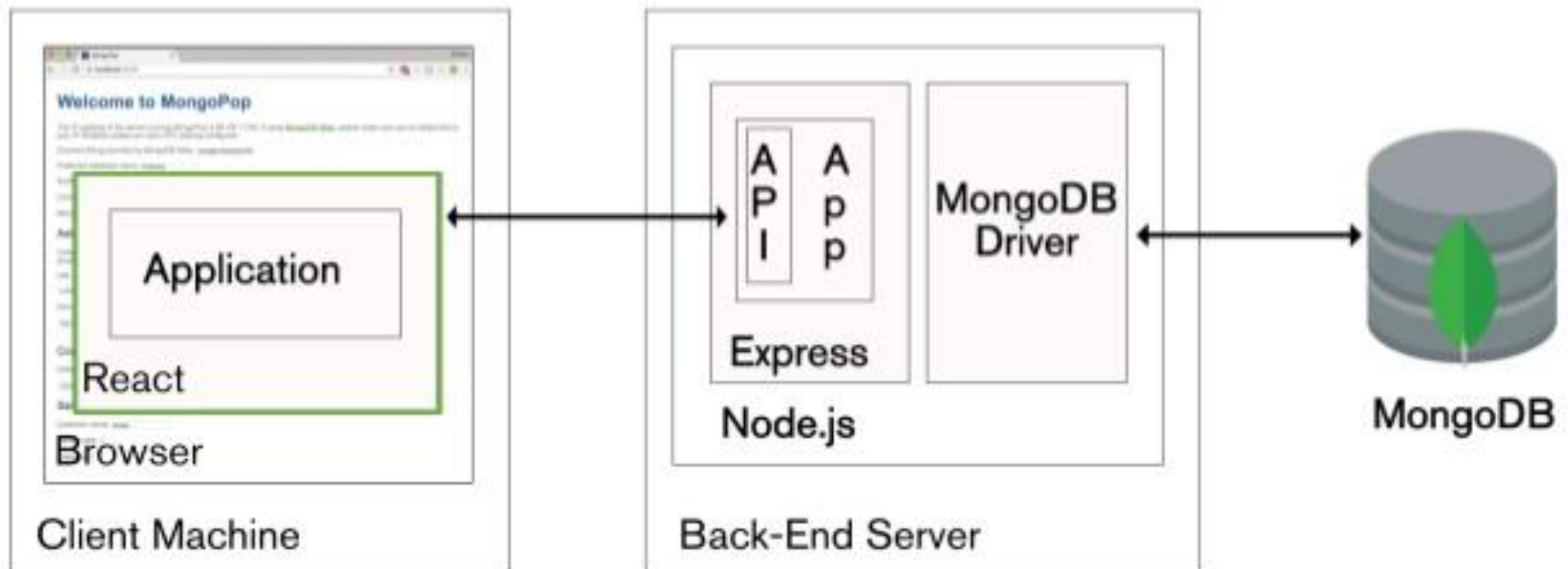
Servers

- Apache
- Microsoft
- Netscape
- Oracle



MERN Stack

The MERN Stack





Principles of Good Web Design

- Visitor-centric, clear purpose
- Displays quickly
- Browser compatible
- Intuitive navigation
- Spelling, grammar, writing
- Secure (eCommerce)
- Attractive design, easy to read
- No technical problems (broken links, buggy scripts)



HTML Fundamentals

- HTML Structure
< HTML >

Header

<HEAD>

</HEAD>

Body

<BODY>

</BODY>

< / HTML >



HTML Fundamentals

- Basic Tags and Elements:
 - Example of an element:
`<name attr1="attrval">content</name>`
 - Empty-elements: no end tag
 - `
` ``
 - Text display:
 - ``, ``, ``
 - Structure:
 - `<h1>`, `<h2>`, `<h3>`
 - `<p>`
 - ``, ``, `<blockquote>`



HTML Fundamentals

- Basic Tags and Elements:
 - Links:
 - `...`
 - Images:
 - `` an empty tag
 - Attributes:
 - Align, text, bgcolor, etc.
 - Tables
 - Forms



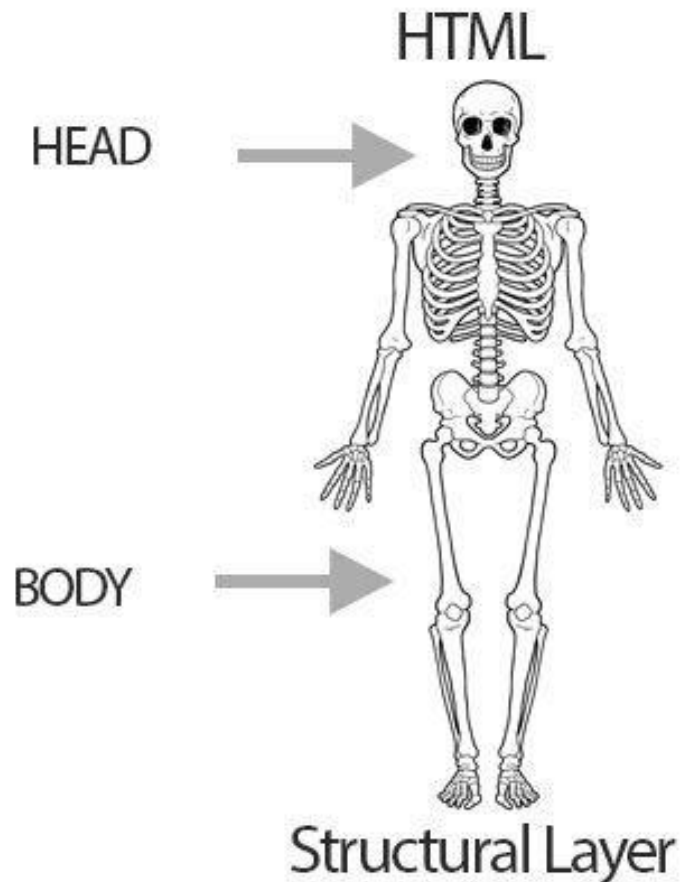
HTML Fundamentals

```
<TABLE BORDER=1 WIDTH="50%" CELLPADDING="6"
  CELLSPACING="2" ALIGN="RIGHT">
  <CAPTION ALIGN="bottom">Class Grades</CAPTION>
  <TR>
    <TH>Student</TH>
    <TH>Grade</TH>
  </TR>
  <TR>
    <TD>Tom</TD>
    <TD>B+</TD>
  </TR>
  <TR>
    <TD>Sue</TD>
    <TD>A-</TD>
  </TR>
</TABLE>
```

Student	Grade
Tom	B-
Sue	A+

Class Grades

CSS Fundamentals



HTML with CSS





CSS Fundamentals

- Simple mechanism for adding style to web page
- Code be embedded into the HTML file
 - HTML tag: `<style type="text/css">CODE</style>`
- Also be in a separate file FILENAME.css
 - HTML tag: `<link rel="stylesheet" href="scs.css" type="text/css">`
- Style types mainly include:
 - Font, Color and Spacing



CSS Fundamentals

- selector {
 /*declaration*/
 property:value
}
- Example code:
 p,h1,h2 {
 margin-top:0px;
 margin-bottom:100px;padding:20px 40px
 0px 40px;
 }



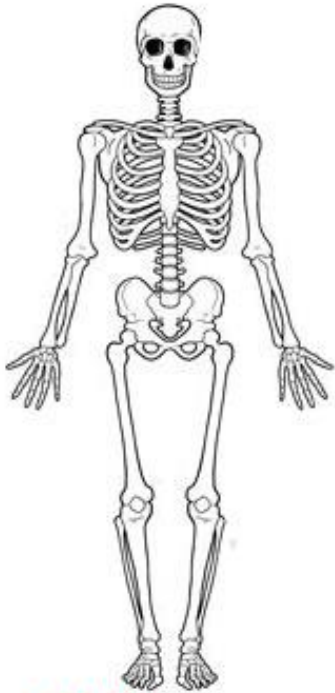
JavaScript Fundamentals

- What is JavaScript?
 - It is designed to add interactivity to HTML pages
 - It is a scripting language (a lightweight programming language)
 - It is an interpreted language (it executes without preliminary compilation)
 - Java and JavaScript are different



JavaScript Fundamentals

WEB DESIGNING



HTML (Structure)



CSS (Presentation)



Javascript (functionality)

JavaScript vs. Java

- Interpreted, not compiled
- More relaxed syntax and rules
- Fewer and "looser" data types
- Variables don't need to be declared
- Errors often silent (few exceptions)
- Contained within a web page and integrates with its HTML/CSS content



+



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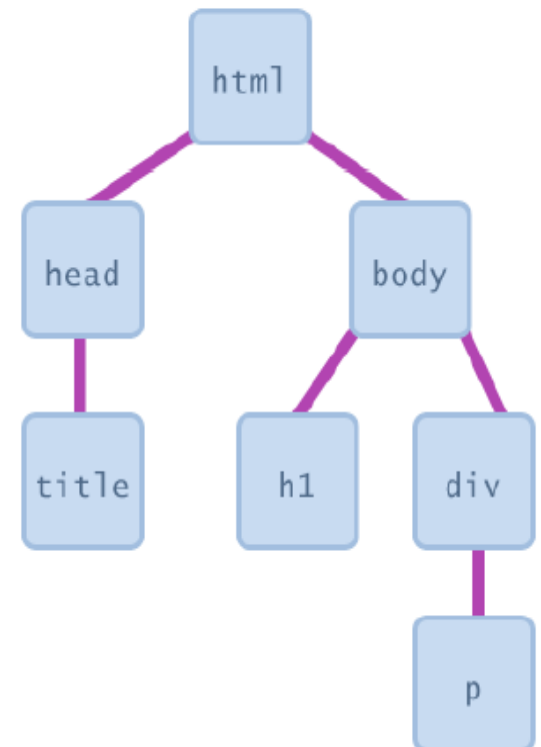
JavaScript Fundamentals

- What can JavaScript do?
 - JS gives HTML designers a programming tool:
 - simple syntax
 - JS can put dynamic text into an HTML page
 - JS can react to events
 - JS can read and write HTML elements
 - JS can be used to validate data
 - JS can be used to detect the visitor's browser
 - JS can be used to create cookies
 - Store and retrieve information on the visitor's computer



JavaScript Fundamentals

- What can JavaScript do?
 - JS can manipulate elements on an HTML page
 - we can examine elements' state
 - e.g. see whether a box is checked
 - we can change state
 - e.g. insert some new text into a div
 - we can change styles
 - e.g. make a paragraph red



JavaScript Fundamentals

HTML

```
<p>  
  Look at this octopus:  
    
  Cute, huh?  
</p>
```

DOM Element Object

Property	Value
tagName	"IMG"
<u>src</u>	"octopus.jpg"
alt	"an octopus"
id	"icon01"

JavaScript

```
var icon = document.getElementById("icon01");  
icon.src = "kitty.gif";
```



JavaScript Fundamentals

- The HTML `<script>` tag is used to insert a JavaScript into an HTML page
 - `<script type="text/javascript">`
 - `document.write("Hello World!")`
 - `</script>`
- You can include JavaScripts in head, body, or simply use external JavaScript file (.js)
 - `<script language="javascript" src="filename.js"></script>`
- Ending statements with a semicolon?
 - Optional; required when you want to put multiple statements on a single line.
- JavaScripts in the body section will be executed while the page loads



JavaScript Fundamentals

- JavaScripts in the head section will be executed when called
- In JavaScript, almost “everything” except primitives is an object.
 - Primitives (Booleans, numbers, strings) can be objects (if defined with the new keyword)
 - Dates are always objects
 - Regular expressions are always objects
 - Arrays are always objects
 - Functions are always objects
 - Objects are always objects



JavaScript Fundamentals

Types

- Number
 - `var foo = 42; // foo is now a number`
- String
 - `var foo = 'bar'; // foo is now a string`
- Boolean
 - `var foo = true; // foo is now a boolean`
 - `(x == y)`
- Array
 - `var cars = ["Saab", "Volvo", "BMW"];`



JavaScript Fundamentals

Types

- Undefined

- A variable without a value, has the value undefined
- `var car; // Value is undefined, type is undefined`

- Objects

- `var person = {firstName:"John", lastName:"Doe", age:50, eyeColor:"blue"};`

- Null

- `var person = {firstName:"John", lastName:"Doe", age:50, eyeColor:"blue"};`
- `person = null; // Now value is null, but type is still an object`



JavaScript Fundamentals

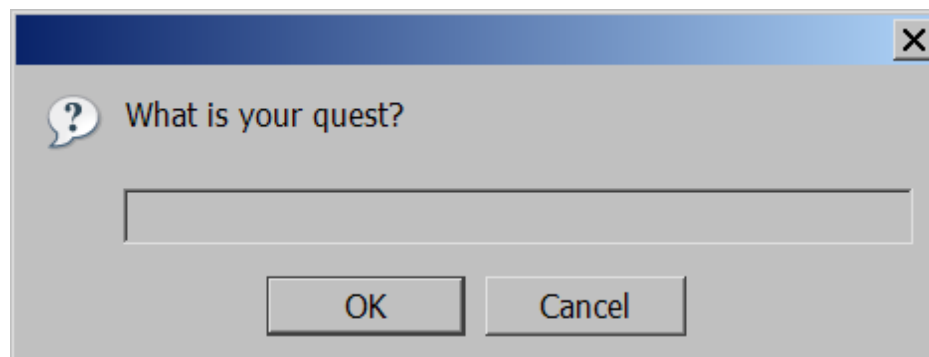
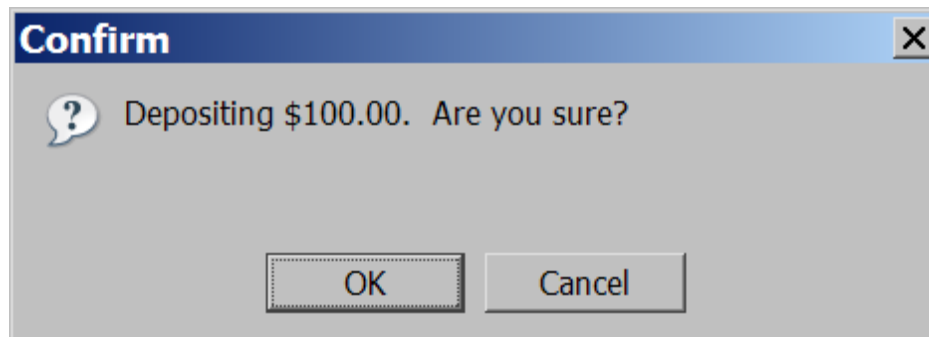
Topics

- code placement
- document.writeln
- document tags
- window.alert
- user input/output
- parseInt and parseFloat
- arithmetic
- arithmetic comparisons
- for loops
- while loops
- do-while loops
- if-else
- variable values in tags
- math library
- switch
- break
- labeled break
- continue
- Booleans

JavaScript Topics

```
alert("message"); // message  
confirm("message"); // returns true or false  
prompt("message"); // returns user input string
```

JS





JavaScript Fundamentals

- JavaScript high order functions
 - Higher order functions are functions that accept function arguments.
- JavaScript Callback
 - JavaScript is synchronous by default and is single threaded.

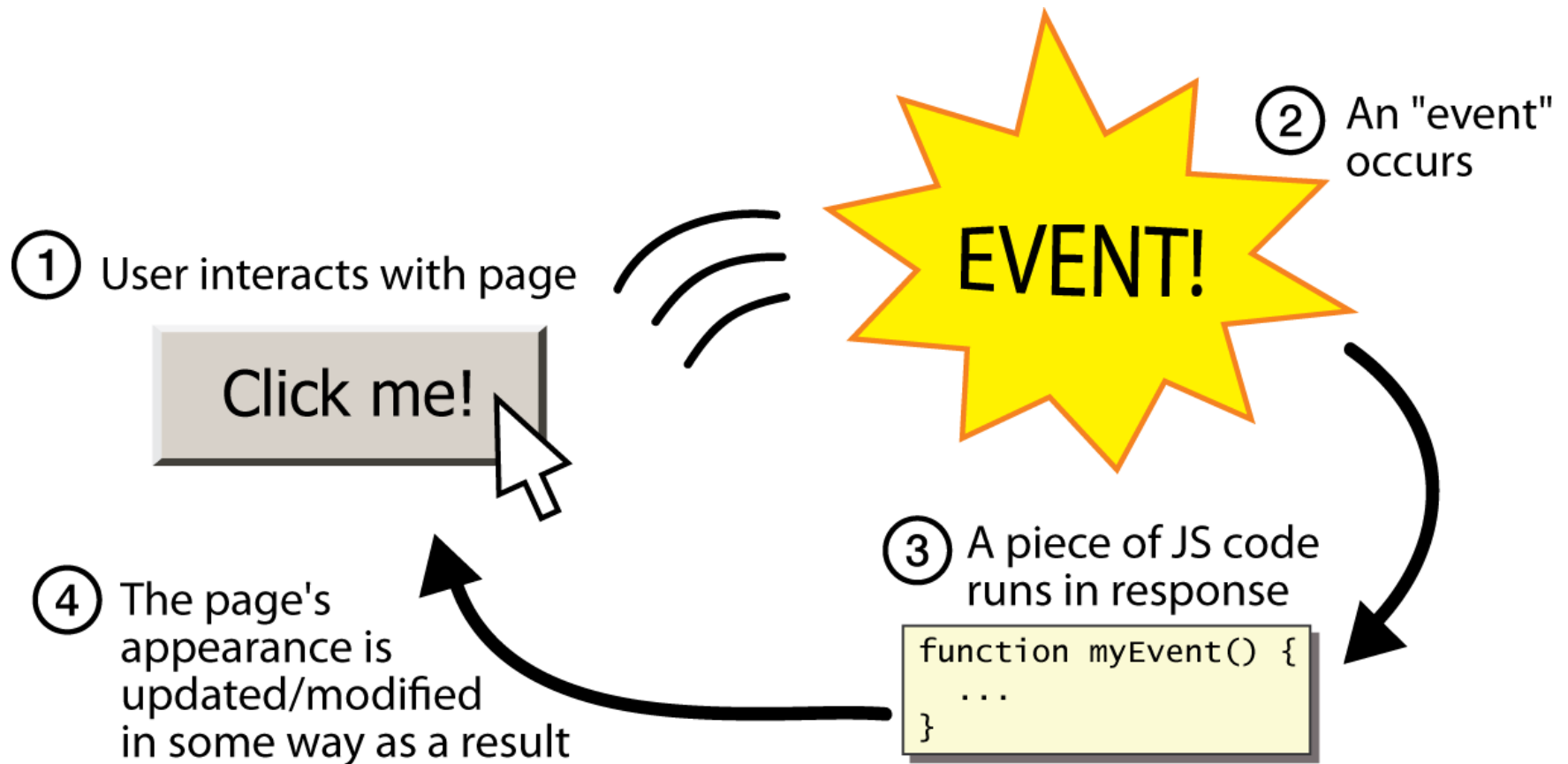


Events

- *Events*

- *onsubmit* - call when submit button is clicked
- *onclick* - call when this button is clicked
- *onreset* - call when the reset button is clicked
- *onload* - call after page loads
- *onmouseover* - call when mouse pointer enters image area
- *onmouseout* - call when mouse pointer leaves image area
- *onfocus* - call when control receives focus
- *onblur* - call when a control loses focus
- *onchange* - call when a control loses focus and the value of its contents has changed
- many more

Events



Your Task

- Implement the search below, where the user can type in the first name for a specified person.
- Once the user pressed the button, an alert message is shown and the relative row is highlighted when a match is found.

Contact List

Firstname	Lastname	Email
Gehad	Ismail	gehad.ismail@guc.edu.eg
Ammar	Yasser	ammamr.abbas@guc.edu.eg
Omar	Sherif	omar.sherif.fathy.selim@gmail.com
Aysha	Alsafty	aysha.alsafty@guc.edu.eg

localhost:33807 says

Find an Exact Match!

OK