

# Web Development and Programming<sup>1</sup>

0107571

Interactivity with JavaScript (AJAX and JSON)

Dr. Naeem Odat



College of Engineering  
Department of Communication and Computer Engineering

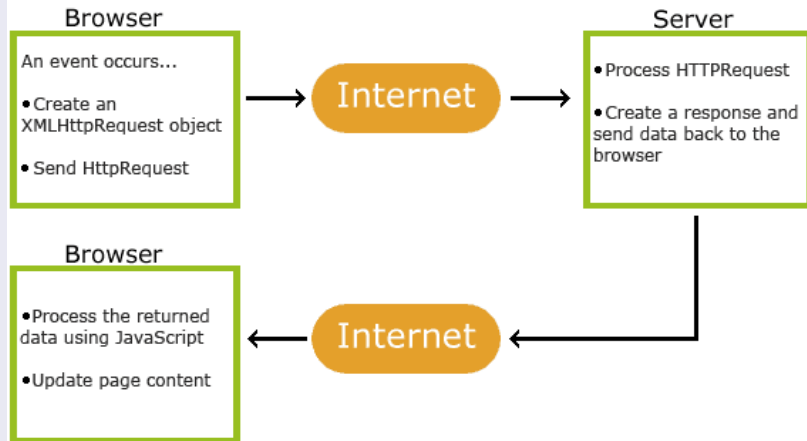
---

<sup>1</sup>Michael Mendez. *The Missing Link: An Introduction to Web Development and Programming*. Open SUNY Textbooks 2014.

## Introduction to Ajax

- AJAX = **A**synchronous **J**avaScript **A**nd **X**ML.
- AJAX is not a programming language.
- AJAX just uses a combination of:
  - A browser built-in XMLHttpRequest object (to request data from a web server)
  - JavaScript and HTML DOM (to display or use the data)

## How Ajax works



## How Ajax works

- 1 An event occurs in a web page (the page is loaded, a button is clicked)
- 2 An XMLHttpRequest object is created by JavaScript
- 3 The XMLHttpRequest object sends a request to a web server
- 4 The server processes the request
- 5 The server sends a response back to the web page
- 6 The response is read by JavaScript
- 7 Proper action (like page update) is performed by JavaScript

## Demo

ajax.html

## Quiz

- ① One of the differences between a GET request and POST is that a GET request passes query parameters as part of the URL whereas POST request passes them as part of the body of the request.

- True
- False

- ② Given the following JavaScript code snippet:

```
var name = "";  
// Making an Ajax call here, i.e., sendGetRequest  
$ajaxUtils.sendGetRequest("someURL", function (request) {  
    name = "TTU";  
});  
document.querySelector("#content").innerHTML = name;
```

What will be the contents of the element with the 'id' value of 'content' after the execution of this JavaScript code?

- It will be empty
- TTU
- Whatever the server returns plus the word TTU

## JSON

- Stands for: **JavaScript Object Notation**
- Lightweight data-interchange format.
- Easy for humans to read and write.
- Easy for machines to parse and generate.

## JSON Syntax Rules

- Subset of JavaScript object literals but:
  - Property names must be in double quotes.
  - String values must be in double quotes.

## Example

```
{  
  "firstName": "Naeem",  
  "lastName": "Odat",  
  "taughtCourse": 2  
}
```

## Conversion between JSON string and JavaScript object

- To convert from JSON string to object:  
`var obj=JSON.parse(jsonString);`
- To convert from JavaScript object to JSON string:  
`var str=JSON.stringify(obj);`

## Demo

json.html



## Quiz

❶ Another name for Object Literal is JSON.

- True
- False

❷ Identify invalid JSON string below:

```
'{  
  "courseName": "InternetProgramming",  
  "numberOfStudents": 6  
'  
'{  
  "courseName": "InternetProgramming",  
  "studentsLoveCourse": true  
'  
'{  
  'courseName': "InternetProgramming",  
  'numberOfStudents': 6  
'  
'{  
  "courseName": {"name": "InternetProgramming"},  
  "numberOfStudents": 6  
'
```

## Dynamic loading of a webpage

- Using Ajax a template of the webpage content is requested from the server.
- The data (in JSON format) that should be filled in the template is requested from the server.
- An appropriate JavaScript code will work on both to put each item in its place.

## Demo

`dynamicloading.html`