

The AJAX

Module Name: **Programming with Java & HTML**

Module Code: **CST 06102**

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Contents

1. Explain the concepts of AJAX
2. Techniques to use AJAX in developing rich client presentations

Introduction to AJAX

AJAX stands for asynchronous Javascript and XML.

- AJAX is not a programming language or technology, but it is a combination of multiple web-related technologies like HTML, XHTML, CSS, JavaScript, DOM, XML, XSLT and XMLHttpRequest object.

Introduction to AJAX

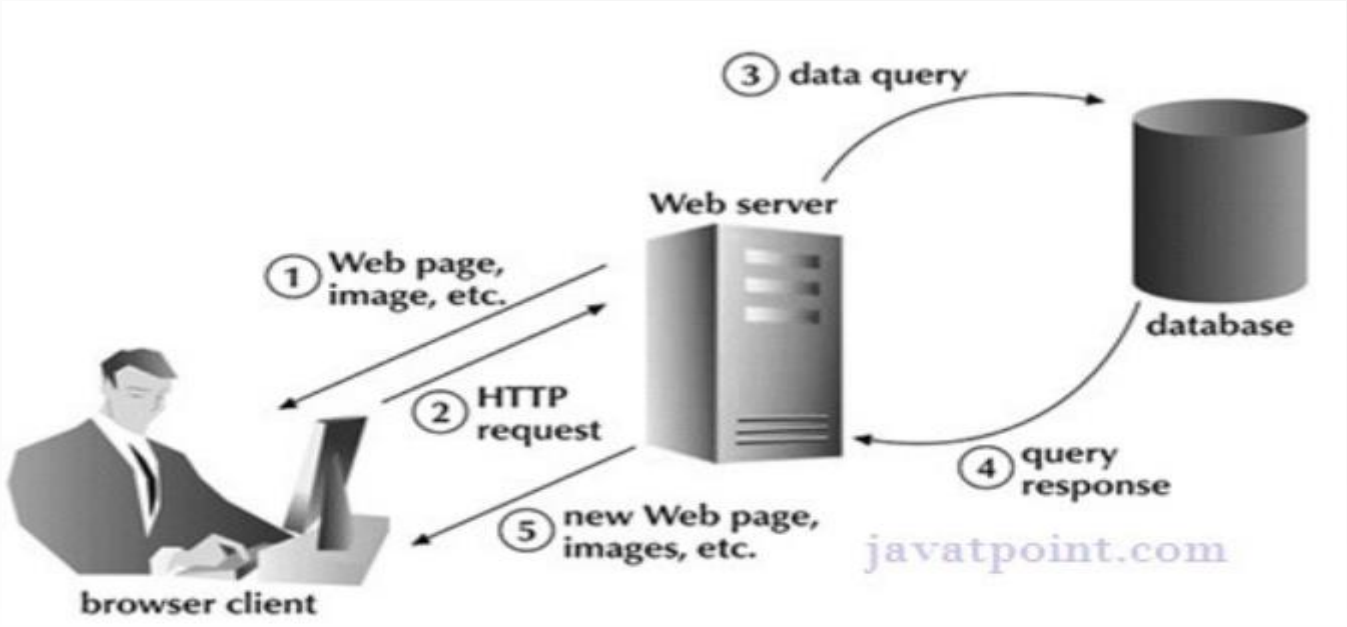
In the AJAX applications, the exchange of data between a web browser and the server is asynchronous means AJAX applications submit requests to the web server without pausing the execution of the application and can also process the requested data whenever it is returned.

For example, Facebook uses the AJAX model so whenever we like any post the count of the like button increase instead of refreshing the whole page.

Synchronous vs. Asynchronous

Synchronous (Classic Web-Application Model)

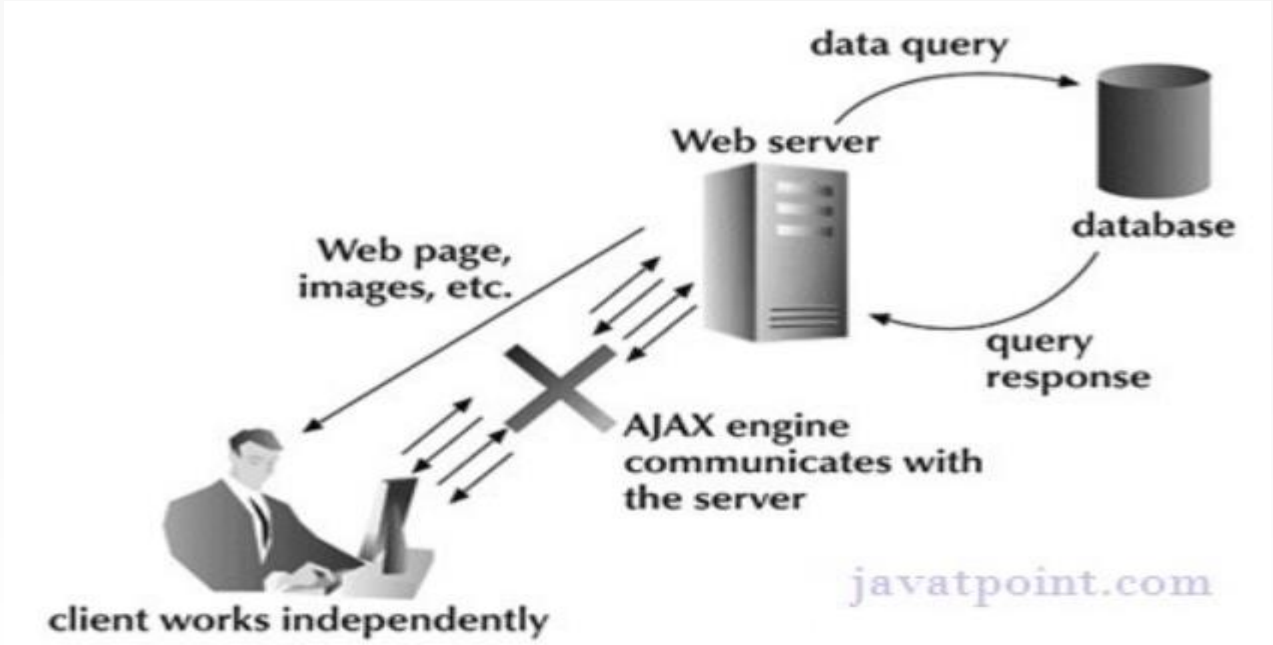
A synchronous request blocks the client until operation completes i.e. browser is unresponsive. In such case, javascript engine of the browser is blocked.



Synchronous vs. Asynchronous

Asynchronous (AJAX Web-Application Model)

An asynchronous request doesn't block the client i.e. browser is responsive. At that time, user can perform another operations also. In such case, javascript engine of the browser is not blocked.



AJAX Technology

AJAX technology include:

- HTML/XHTML and CSS: used for displaying content and style. It is mainly used for presentation.
- DOM: It is used for dynamic display and interaction with data.
- XML or JSON: Used For carrying data to and from server. JSON (Javascript Object Notation) is like XML but short and faster than XML.
- XMLHttpRequest: For asynchronous communication between client and server. For more visit next page.
- JavaScript:

XMLHttpRequest

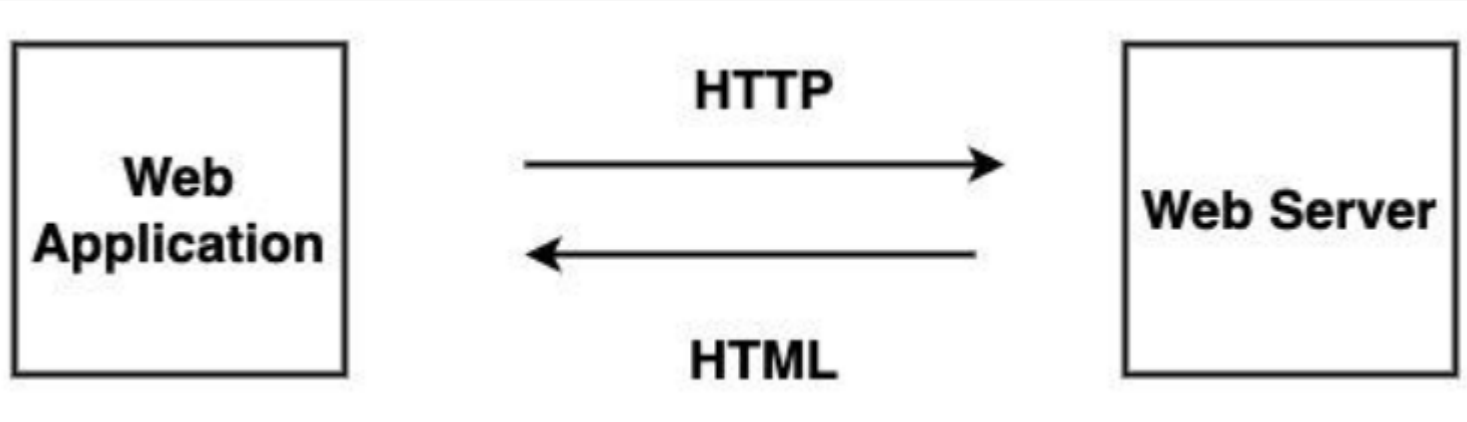
An object of XMLHttpRequest is used for asynchronous communication between client and server.

It performs following operations:

- Sends data from the client in the background
- Receives the data from the server
- Updates the webpage without reloading it.

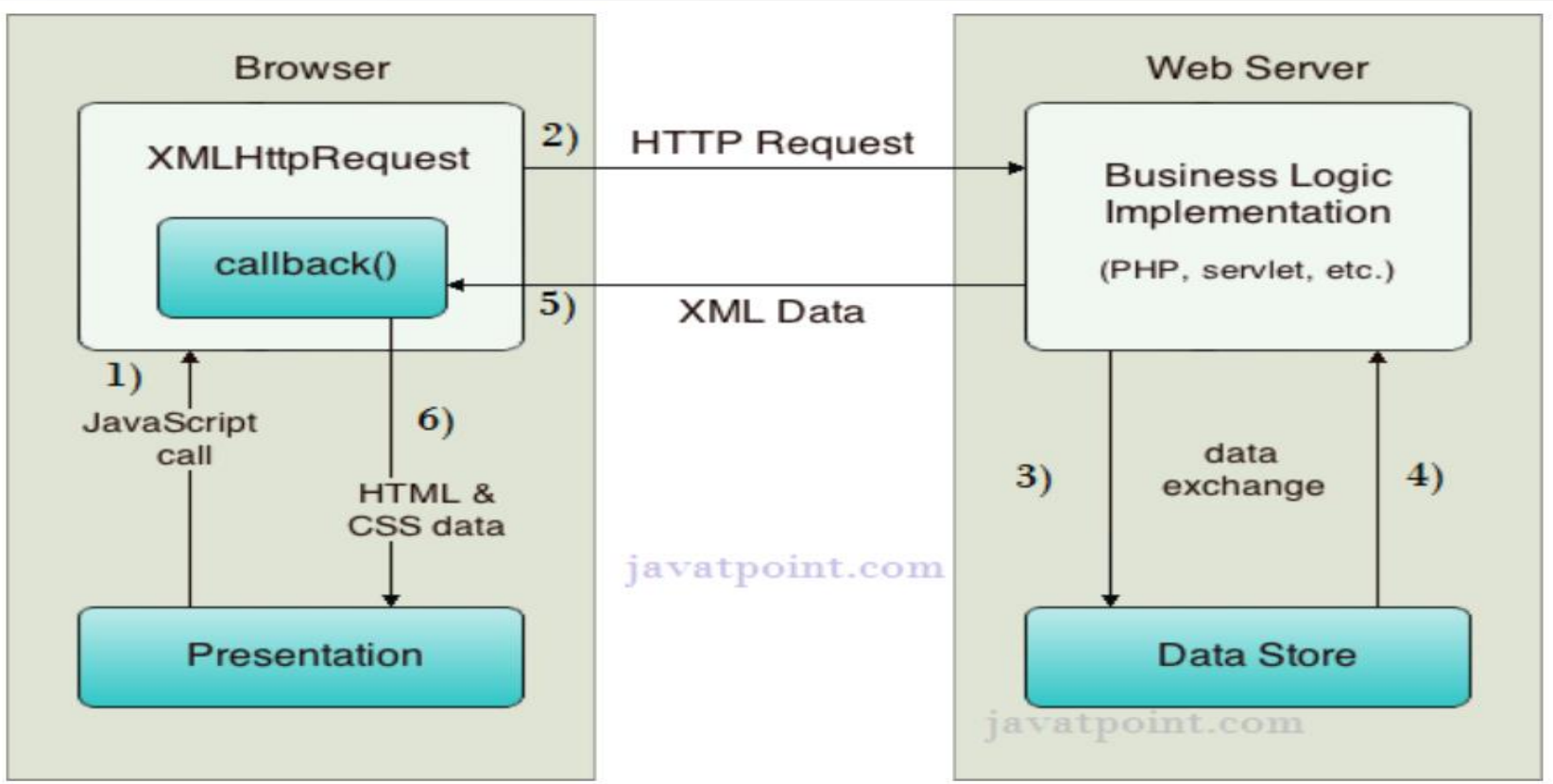
Working of AJAX

Traditional web applications are created by adding loosely web pages through links in a predefined order. Where the user can move from one page to another page to interact with the different portions of the applications. Also, HTTP requests are used to submit the web server in response to the user action. After receiving the request the web server fulfills the request by returning a new webpage which, then displays on the web browser. This process includes lots of pages refreshing and waiting.



Working of AJAX

AJAX communicates with the server using XMLHttpRequest object.



Working of AJAX

As you can see in the above example, XMLHttpRequest object plays a important role.

1. User sends a request from the UI and a javascript call goes to XMLHttpRequest object.
2. HTTP Request is sent to the server by XMLHttpRequest object.
3. Server interacts with the database using JSP, PHP, Servlet, ASP.net etc.
4. Data is retrieved.
5. Server sends XML data or JSON data to the XMLHttpRequest callback function.
6. HTML and CSS data is displayed on the browser.

Ajax Java Example

To create ajax example, you need to use any server-side language e.g. Servlet, JSP, PHP, ASP.Net etc. Here we are using JSP for generating the server-side code.

Steps to create ajax example with jsp

1. load the org.json.jar file
2. create input page to receive any text or number
3. create server side page to process the request
4. provide entry in web.xml file

Thank you!!