**Ajax Interview Questions and Answers**

AJAX (Asynchronous JavaScript and XML)

using a combination of  XHTML (or HTML) and CSS for marking up and styling information. (XML is commonly used, although any format will work, including preformatted HTML, plain text, JSON and even EBML).

Ajax applications are mostly executed on the user's computer; they can perform a number of tasks without their performance being limited by the network. This permits the development of interactive applications, in particular reactive and rich graphic user interfaces.

The Document Object Model manipulated through JavaScript to dynamically display and interact with the information presented

\* standards-based presentation using XHTML and CSS;  
\* dynamic display and interaction using the Document Object Model;  
\* data interchange and manipulation using XML and XSLT; \* asynchronous data retrieval using XMLHttpRequest;  
\* and JavaScript binding everything together.

#### What is AJAX and what problem does it solve?

Ajax: It is a short for Asynchronous JavaScript and XML. It solves the problem of unnecessary data transfers and allows asynchronous processing and avoids unnecessary processing to be done by server.

Ajax is a set of client side technologies that allows asynchronous communication between client and web server. In synchronous communication, complete round trip happens with each request/response action event when small data of the page to be refreshed. Ajax has solved this problem of posting entire information every time through asynchronous communication.

XmlHttpRequest is the basic fundamental behind Ajax. This allows browser to communicate with server without making post backs.

##### ***What are the benefits of AJAX over Java applet?***

* AJAX applications are loaded in seconds, where as Applets takes longer time. The reason is, Applet applications are tend to load large libraries.
* AJAX provides standard look and feel for web applications, where as Applets provides GUI based look and feel.
* AJAX features can increase from a conventional web application, where as Applets uses complete programming process right from the scratch.
* Java version changes enable incompatibilities between Applet and java environments used by the browser, where as in AJAX incompatibilities are not the constraints

#### What is the disadvantage of AJAX?

* Search engines would not be able to index an AJAX application.
* The server information can not be accessed within AJAX.
* AJAX is not well integrated with any browser.
* ActiveX requests are enabled only in IE 5 and IE6
* Data of all requests is URL-encoded, which increases the size of the request.

##### ***How is encoding handled in AJAX?***

AJAX encoding can be done in two ways:

encodeActionURL() method is used for full page refresh  
encodeResourceURL() method is used for partial page refresh.

##### ***Why is AJAX a comfortable fit with JAVA?***

AJAX is a comfortable fit because, using Java Enterprise Edition the following tasks can be performed:

* AJAX client pages can be generated to server incoming AJAX requests
* Server side state is managed for AJAX clients
* AJAX clients can be connected to enterprise resources

##### ***What is synchronous request in AJAX?***

Synchronous AJAX is a process that makes a java script to halt or stop the processing an application until a result is sent by a server. The browser is frozen, while the request is processed. The response time is 99.99% quick and fast enough. In case of intrusion for a request or transfer of the file, the browser freezes may be for two minutes until the time is out for the request. The advantages of using synchronous AJAX are, simple to code and can be used in the events ‘onunload’ and ‘onbeforeunload’

##### ***When should I use a Java applet instead of AJAX?***

Scenarios to use Java applet instead of AJAX:

* When there is a need for custom data streaming
* Need for graphic manipulation
* Threading related functionality
* Complex and advanced GUI manipulations.
* Applets provide features like custom data streaming, graphic manipulation, threading, and advanced GUIs which AJAX cannot.
* However, with the help of DHTML, the functionalities of AJAX can be extended further.
* AJAX requires that the browser be DHTML and AJAX capable.
* AJAX-based functionality does need to take browser differences into consideration due to which using a JavaScript library such as Dojo which abstracts browser differences is recommended.
* AJAX/DHTML works well for applications where the latest browsers are used.

##### ***How Ajax is different?***

AJAX allows for asynchronous processing of events. This is different from the traditional sequential events that a users is used to, instead, a user can fire multiple events, each of which process executes independent of each other, enhancing the user experience. In traditional web applications, every time a user triggered an event, the request was sent to the server and the complete page was rendered again as a result of that. AJAX allows for partial page rendering which enable a user to trigger multiple events through different portions of the same web page.

##### ***Is the server or the client in control in AJAX?***

##### AJAX techniques can be implemented by server only, client or, or even mix of both. It depends on what technology and architecture one chooses. When providing complete control to the server, the server ensures that the client pages are in sync with the server. Whereas, one could use javascript and apply AJAX at the client level through it. The most common approach is to use a mix of server side and client side control.

With AJAX the control can be more centralized in a server-side component or a mix of client-side and server-side controllers.

* Centralized server-side controller  
  In this type of architecture, the controller ensures that the data on the client and the server are synchronized.
* Client and server-side controllers  
  In this type of architecture the presentation related control, event processing, page manipulation, and rendering of model data is done through Javascript on the client side.   
  The server-side is responsible for business logic and pushing updated model data to the client.   
  Both methods are viable depending on the kind of task. However, the centralized server side controller is preferred as in the other case (Client and server-side controllers) the server might not have the knowledge of the state of the client page.

##### ***Are there Usability Issues with AJAX?***

Usability Issues:

a. User Exceptions  
b. Response time  
c. Design Issues   
d. Accessibility

#### Explain limitations of Ajax.

* Back functionality cannot work because the dynamic pages don’t register themselves to the browsers history engine. Hence the need of Iframe becomes essential.
* The page cannot be bookmarked if implemented using Ajax.
* If java script is disabled , Ajax will not work
* Because different components of the pages are loaded at different times, response time may be slow.
* Because different components of the pages are loaded at different times it may create confusion for the user.

##### List out differences between AJAX and JavaScript.

JavaScript is a client-side script, used to control a web page at the client side once it has downloaded. The validations in case of JavaScript will be handled particularly on client’s browser and no server side requests will be handled. AJAX allows JavaScript to communicate with the remote script and receive the response from the server, without the need to reload the entire page. JavaScript is the base on which Ajax works.

Ajax is Asynchronous Java Script and XML. Here on sending request to the server, one needn’t wait for the response. Other operations on the page can be carried out. Hence, Asynchronous. On the other hand, Java script sends an HTTPRequest to the server and waits for the XML response.

E.g. populating State field. Using JavaScript we need to use the “Onchnage” event where as using ajax, the request is just sent to populate the state list. Other operations can be carried out on the page.

Ajax is a part of Java Script programming. Java Script is used to manage and control a web page once downloaded. Ajax does not need to wait for the whole page to download.

##### Describe how to create AJAX objects.

var myObj = new ajaxObject('http://www.abc.com');

##### Define JSON.

JSON stands for JavaScript Object Notation. It is a human readable format for data transfer over network. It is used mainly in AJAX where it is used instead of xml. It is light in weight, thus making the transfer faster.

JSON is JavaScript Object Notation. JSON is a safe and reliable data interchange format in JavaScript. This format is easy for humans to read and machines to understand.

##### Explain in brief abo XMLHttpRequest object.

XMLHttpRequest is an object used for data transfer with server and client’s browser. This object allows the data transfer without reloading the page. The data transfer takes place in plain text xml or JSON format. This object allows to parses the xml format. It is recognized by all the browsers

xmlOBJ = new XMLHttpRequest ()

##### Describe the formats and protocols used by AJAX. –

The protocol used for making a request to the server is XmlHttpRequest. This object is created by client browser. The data transfer takes place in plain text xml or JSON format. This object allows to parses the xml format and the JSON format is loaded as plain text and parsed by JavaScript. It is recognized by all the browsers

#### Describe the formats and protocols used by AJAX.

**Answer**

* Ajax uses HTTP’s GET or POST. AJAX also uses XMLHttpRequest protocol for requesting to the web server.
* AJAX uses JSON format to communicate between client and server. UED or URL encoded data formats can also be used.

##### **What are the security issues with AJAX?**

The Ajax calls are sent in plain text format, this might lead to insecure database access. The data gets stored on the clients browser, thus making the data available to anyone. It also allows monitoring browsing sessions by inserting scripts.

AJAX function calls are sent in plain text to server. These calls may easily reveal database details, variable names etc

User’s browsing session can be monitored my maliciously inserting scripts

Ajax may encourage developers to use multiple server side pages thereby introducing multiple entry points for attackers

* A JavaScript can not access the local file system without the user's permission.
* An AJAX interaction can only be made with the servers-side component from which the page was loaded.
* A proxy pattern could be used for AJAX interactions with external services.
* The application model should not be exposed as some user might be able to reverse engineer the application.
* HTTPS can be used to secure the connection when confidential information is being exchanged.

##### Describe how to handle concurrent AJAX requests.

JavaScipt closures can be used for handling concurrent requests. A function can be written to handle such requests. Once processing of code is over, URL and the call back function to call can be passed as parameters. These parameters are passed to the AJAXInteraction(url, callback) object. Closures insure that the proper callback function associated with a specific AJAX interaction is called.

##### When should AJAX NOT be used?

AJAX should not be used for critical data and transactions to avoid security breaches and to avoid situations where the page doesn’t work as expected because javascript is not supported or is blocked

##### How do you know that an AJAX request has completed?

readyState allows determining the request status. If the value is 4, it means that the request has been completed and response is then sent to the browser.

#### How do I handle the back and forward buttons?

In order to store changes in the browsers web history (enabling back and forward buttons) Iframes can be used. Iframes allow am HTML document to be embedded in another HTML document.

RSH (Really Simple History) framework can also be used. RSH framework explains the management of bookmarks and history for Ajax applications.

**What are the difference between AJAX and Javascript?**

The differences between AJAX and JavaScript are as follows:

|  |  |
| --- | --- |
| AJAX | Javascript |
| AJAX sends request to the server and does not wait for the response. It performs other operations on the page during that time | JavaScript make a request to the server and waits for response |
| AJAX does not require the page to refresh for downloading the whole page | JavaScript manages and controls a Web page after being downloaded |
| AJAX minimizes the overload on the server since the script needs to request once | JavaScript posts a request that updates the script every time |

**How can you test the Ajax code?**

JSUnit is the client side javascript code used as part of JUnit. JSUnit has been used for Ajax code.

**What are all the different data types that JSON supports?**

JSON supports following data types:

* String
* Number
* Boolean
* Array
* Object
* Null

**What are the goals of Ajax?**

The basic goals of ASP.NET Ajax are:

* Reduced web server hits
* Reduced Network load
* Interactive user interface
* Platform and architecture neutrality
* Support for both synchronous and asynchronous communication
* Provide a server- and client-side framework

**How many types of ready states in Ajax?**

There are four ready states in Ajax:

* Initialization
* Request
* Process
* Ready

**Which request is better, Get or Post?**

AJAX requests should use an HTTP GET request where the data does not change for a given URL requested.

An HTTP POST should be used when state is updated on the server. This is highly recommended for a consistent web application architecture.

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