

**WEB TECHNOLOGIES LAB ORAL QUESTION-ANSWER****UNIT-I****Web Development Process, Front End Tools**

<https://www.javatpoint.com/html-interview-questions>

**1. What is HTML?**

HTML stands for Hyper Text Markup Language. It is a language of World Wide Web. It is a standard text formatting language which is used to create and display pages on the Web. [More details...](#)

**2. What are Tags?**

HTML tags are composed of three things: opening tag, content and ending tag. Some tags are unclosed tags.

HTML documents are made of two things:

- content, and
- tags

Content is placed between tags to display data on the web page. [More details...](#)

**3. Do all HTML tags have end tag?**

No. There are some HTML tags that don't need a closing tag. For example: <image> tag, <br> tag.

**4. What is the difference between HTML elements and tags?**

HTML elements communicate to the browser to render text. When the elements are surrounded by brackets <>, they form HTML tags. Most of the time, tags come in pair and surround content.

**5. How to insert a copyright symbol on a browser page?**

can insert a copyright symbol by using &copy; or &#169; in an HTML file.

**6. How do you keep list elements straight in an HTML file?**

You can keep the list elements straight by using indents.

**7. Does a hyperlink only apply to text?**

No, you can use hyperlinks on text and images both. [More details...](#)

**8. What is a style sheet?**

A style sheet is used to build a consistent, transportable, and well designed style template. You can add these templates on several different web pages.

**9. Can you create a multi colored text on a web page?**

Yes. To create a multicolor text on a web page you can use <font color ="color"> </font> for the specific

texts you want to color.

#### 10. Is it possible to change the color of the bullet?

The color of the bullet is always the color of the first text of the list. So, if you want to change the color of the bullet, you must change the color of the text.

#### 11. What is a marquee?

Marquee is used to put the scrolling text on a web page. You should put the text which you want to scroll within the `<marquee>.....</marquee>` tag. [More details...](#)

#### 12. How many tags can be used to separate section of texts?

There are three tags used to separate the texts. i.e. usually `<br>` tag is used to separate line of texts. Other tags are `<p>` tag and `<blockquote>` tag.

#### 13. How to make a picture a background image of a web page?

To make a picture a background image on a web page, you should put the following tag code after the `</head>` tag.

1. `<body background = "image.gif">`

Here, replace the "image.gif" with the name of your image file which you want to display on your web page.

#### 14. What is the use of iframe tag?

An iframe is used to display a web page within a web page.

**Syntax:** `<iframe src="URL"></iframe>`

**Example:** `<iframe src="demo_iframe.html" width="200px" height="200px"></iframe>`

**Target to a link:** `<iframe src="http://www.javatpoint.com" name="iframe_a"></iframe>`

#### 15. What are the different new form element types in HTML 5?

- Color
- Date
- Datetime-local
- Email
- Time
- Url
- Range
- Telephone
- Number
- Search

#### 16. Is there any need to change the web browsers to support HTML5?

No. Almost all browsers (updated versions) support HTML 5. For example: Chrome, Firefox, Opera, Safari, IE

<https://career.guru99.com/xml-interview-questions/>

### 17. What is XML?

XML is called Extensible Markup Language which is designed to carry or transport and store data. XML tags are not as predefined as HTML, but we can define our own user tags for simplicity. It mainly concentrates on storing of data, not on displaying of data.

### 18. What are the features of XML?

- Very easy to learn and implement
- XML files are text files, and no editor is required
- Minimal and a limited number of syntax rules in XML
- It is extensible, and it specifies that structural rules of tags

### 19. What are the differences between HTML and XML?

#### HTML

Markup language used to display data  
Case Insensitive  
Designing web pages  
Predefined Tags  
Does not Preserve white spaces  
Static

#### XML

Markup language used to store data  
Case sensitive  
Used to transport and store data  
Custom Tags  
Preserve white spaces  
Dynamic

### 20. What is XML DOM Document?

XML Document object represents the whole XML document, and it is the root of a document tree. It gives access to entire XML document – Nodes and Elements, and it has its own properties.

### 21. What is an attribute?

An attribute provides more or additional information about an element than otherwise.

### 22. What are the advantages of XML DOM Document?

- XML structure is traversable, and it can be randomly accessed by traversing the tree.
- XML structure is modifiable, and values can be added, changed and removed

### 23. What are the basic rules while writing XML?

- All XML should have a root element
- All tags should be closed
- XML tags are case sensitive
- All tags should be nested properly
- Tag names cannot contain spaces
- Attribute value should appear within quotes
- White space is preserved

### 24. What is XML Element?

An XML document contains XML Elements, and it starts from an element's start tag to end tag. It can contain:

- Other elements within main element

- An Attribute
- text

**25. What is CDATA?**

CDATA is unparsed character data that cannot be parsed by the XML parser. Character < and > are illegal in XML elements. CDATA section starts with <![CDATA[" and end with "]]>".

**26. How comment can be represented in XML?**

Comment can be represented as <!-- comments --> as like HTML. This comment symbol is applicable for single or multiple lines.

**27. What are XML Namespaces?**

XML namespaces are used to avoid element name conflicts, and it can be avoided by using prefix before the name.

**28. What is XSL?**

XSL is a language used with XML for expressing style sheets as like CSS. It describes how to display an XML document for a given type.

[https://www.tutorialspoint.com/css/css\\_interview\\_questions.htm](https://www.tutorialspoint.com/css/css_interview_questions.htm)

**29. What is CSS?****30. What are advantages of using CSS?****31. What are the components of a CSS Style?****32. What is type selector?****33. What is universal selector?****34. What is Descendant Selector?****35. What is class selector?****36. Can you make a class selector particular to an element type?****37. What is id selector?****38. Can you make a id selector particular to an element type?****39. What is a child selector?****40. What is an attribute selector?****41. How to select all paragraph elements with a lang attribute**

<https://career.guru99.com/top-19-json-interview-questions/>

**42. Mention what is JSON?**

JSON is a simple data exchange format. JSON means JavaScript Object Notation; it is language and platform independent.

**43. Explain what is JSON objects?**

An object can be defined as an unordered set of name/value pairs. An object in JSON starts with {left brace} and finish or ends with {right brace}. Every name is followed by: (colon) and the name/value pairs are parted by, (comma).

**44. Explain how to transform JSON text to a JavaScript object?**

One of the common use of JSON is to collect JSON data from a web server as a file or HTTP request, and convert the JSON data to a JavaScript, and then it avails the data in a web page.

**45. Why must one use JSON over XML?**

- It is faster and lighter than XML as on the wire data format
- XML data is typeless while JSON objects are typed
- JSON types: Number, Array, Boolean, String
- XML data are all string
- Data is readily available as JSON object is in your JavaScript

**46. Mention what is the file extension of JSON?**

File extension of JSON is .json

**47. Mention which function is used to convert a JSON text into an object?**

To convert JSON text into an object “eval” function is used.

**48. Mention what are the data types supported by JSON?**

Number, String, Boolean, Array, Object, Null

**49. Mention what is the role of JSON.stringify?**

JSON.stringify() converts an object into a JSON text and saves that JSON text in a string.

**50. Show how to parse JSON in JQuery?**

```
var json = '{"name": "Guru 99", "Description ": "Learn PHP Interactively with PHP Beginner Tutorials"}';  
obj = $.parseJSON(json);
```

**Unit II****Client Side Technologies**

<https://www.javatpoint.com/javascript-interview-questions>

**1. What is JavaScript?**

**JavaScript** is a *scripting language*. It is different from Java language. It is object-based, lightweight and cross platform. It is widely used for client side validation.

**2. What is the difference between JavaScript and jscript?**

Netscape provided the JavaScript language. Microsoft changed the name and called it JScript to avoid the trademark issue. In other words, you can say JScript is same as JavaScript, but it is provided by Microsoft.

**3. How to write a hello world example of JavaScript?**

A simple example of JavaScript hello world is given below. You need to place it inside the body tag of html.

```
<script type="text/javascript">  
  
document.write("JavaScript Hello World!");  
  
</script>
```

**4. How to use external JavaScript file?**

I am assuming that js file name is message.js, place the following script tag inside the head tag.

```
<script type="text/javascript" src="message.js"></script>
```

**5. Is JavaScript case sensitive language?- Yes.****6. What is DOM? What is the use of document object?**

**DOM** stands for *Document Object Model*. A document object represents the html document. It can be used to access and change the content of html.

**7. What is the use of window object?**

The window object is automatically created by the browser that represents a window of a browser.

It is used to display the popup dialog box such as alert dialog box, confirm dialog box, input dialog box etc.

**8. What is the use of history object?**

The history object of browser can be used to switch to history pages such as back and forward from current page or another page. There are three methods of history object.

1. history.back()
2. history.forward()
3. history.go(number): number may be positive for forward, negative for backward.

**9. How to write comment in JavaScript?**

There are two types of comments in JavaScript.

1. Single Line Comment: It is represented by // (double forward slash)
2. Multi Line Comment: It is represented by slash with asterisk symbol as /\* write comment here \*/

### **10. How to create function in JavaScript?**

To create function in JavaScript, follow the following syntax.

```
function function_name(){  
  
    //function body  
  
}
```

### **11. What are the JavaScript data types?**

There are two types of data types in JavaScript:

1. Primitive Data Types
2. Non-primitive Data Types

### **12. How to create objects in JavaScript?**

There are 3 ways to create object in JavaScript.

1. By object literal
2. By creating instance of Object
3. By Object Constructor

Let's see a simple code to create object using object literal.

```
emp={id:102,name:"Rahul Kumar",salary:50000}
```

### **13. How to create array in JavaScript?**

There are 3 ways to create array in JavaScript.

1. By array literal
2. By creating instance of Array
3. By using an Array constructor

### **14. Difference between Client side JavaScript and Server side JavaScript?**

**Client side JavaScript** comprises the basic language and predefined objects which are relevant to running java script in a browser. The client side JavaScript is embedded directly by in the HTML pages. This script is interpreted by the browser at run time.

**Server side JavaScript** also resembles like client side java script. It has relevant java script which is to run in a server. The server side JavaScript are deployed only after compilation.

**15. In which location cookies are stored on the hard disk?**

The storage of cookies on the hard disk depends on OS and the browser.

The Netscape navigator on Windows uses cookies.txt file that contains all the cookies. The path is :  
c:\Program Files\Netscape\Users\username\cookies.txt

The Internet Explorer stores the cookies on a file username@website.txt. The path is:  
c:\Windows\Cookies\username@Website.txt.

<https://www.codeproject.com/Articles/618484/Latest-jQuery-interview-questions-and-answers>

**16. What is jQuery?**

Ans: jQuery is **fast, lightweight and feature-rich** client side JavaScript Library/Framework which helps in to traverse HTML DOM, make animations, add Ajax interaction, manipulate the page content, change the style and provide cool UI effect. It is one of the most popular client side library and as per a survey it runs on every second website.

**17. Why do we use jQuery?**

Ans: Due to following advantages.

- Easy to use and learn.
- Easily expandable.
- Cross-browser support (IE 6.0+, FF 1.5+, Safari 2.0+, Opera 9.0+)
- Easy to use for DOM manipulation and traversal.
- Large pool of built in methods.
- AJAX Capabilities.
- Methods for changing or applying CSS, creating animations.
- Event detection and handling.
- Tons of plug-ins for all kind of needs.

**18. How JavaScript and jQuery are different?**

Ans: JavaScript is a language While jQuery is a library built in the JavaScript language that helps to use the JavaScript language.

**19. Is jQuery replacement of Java Script?**

Ans: **No.** jQuery is not a replacement of JavaScript. jQuery is a different library which is written on top of JavaScript. jQuery is a lightweight JavaScript library that emphasizes interaction between JavaScript and HTML.

**20. Is jQuery a W3C standard?**

Ans: No. jQuery is not a W3C standard.



**21. What is the basic need to start with jQuery?**

Ans: To start with jQuery, one need to make reference of it's library. The latest version of jQuery can be downloaded from [jQuery.com](http://jQuery.com).

**22. Which is the starting point of code execution in jQuery?**

Ans: The starting point of jQuery code execution is `$(document).ready()` function which is executed when DOM is loaded.

**Unit III****Server Side Technologies**

<https://www.javatpoint.com/servletinterview>

**1. How many objects of a servlet is created?**

Only one object at the time of first request by servlet or web container.

**2. What is the life-cycle of a servlet?**

1. Servlet is loaded
2. servlet is instantiated
3. servlet is initialized
4. service the request
5. servlet is destroyed

**3. What are the life-cycle methods for a servlet?**

Method	Description
public void init(ServletConfig config)	It is invoked only once when first request comes for the servlet. It is used to initialize the servlet.
public void service(ServletRequest request, ServletResponse response) throws ServletException, IOException	It is invoked at each request. The service() method is used to service the request.
public void destroy()	It is invoked only once when servlet is unloaded.

**4. Who is responsible to create the object of servlet?**

The web container or servlet container.

**5. When servlet object is created?**

At the time of first request.

**6. What is difference between Get and Post method?**

Get	Post
1) Limited amount of data can be sent because data is sent in header.	Large amount of data can be sent because data is sent in body.
2) Not Secured because data is exposed in URL bar.	Secured because data is not exposed in URL bar.
3) Can be bookmarked	Cannot be bookmarked
4) Idempotent	Non-Idempotent
5) It is more efficient and used than Post	It is less efficient and used

**7. What is difference between PrintWriter and ServletOutputStream?**

PrintWriter is a character-stream class where as ServletOutputStream is a byte-stream class. The PrintWriter class can be used to write only character-based information whereas ServletOutputStream class

can be used to write primitive values as well as character-based information.

#### 8. What is difference between GenericServlet and HttpServlet?

The GenericServlet is protocol independent whereas HttpServlet is HTTP protocol specific. HttpServlet provides additional functionalities such as state management etc.

#### 9. What is Session Tracking?

**Session** simply means a particular interval of time.

Session Tracking is a way to maintain state of an user. Http protocol is a stateless protocol. Each time user requests to the server, server treats the request as the new request. So we need to maintain the state of an user to recognize to particular user.

#### 10. What are Cookies?

A cookie is a small piece of information that is persisted between the multiple client requests. A cookie has a name, a single value, and optional attributes such as a comment, path and domain qualifiers, a maximum age, and a version number.

#### 11. What is difference between Cookies and HttpSession?

Cookie works at client side whereas HttpSession works at server side.

<https://www.javatpoint.com/jspinterview>

#### 12. What is JSP?

Java Server Pages technology (JSP) is used to create dynamic web page. It is an extension to the servlet technology. A JSP page is internally converted into servlet.

#### 13. What are the life-cycle methods for a jsp?

Method	Description
public void jspInit()	It is invoked only once, same as init method of servlet.
public void _jspService(ServletRequest request, ServletResponse response) throws ServletException, IOException	It is invoked at each request, same as service() method of servlet.
public void jspDestroy()	It is invoked only once, same as destroy() method of servlet.

#### 14. What is difference between hide comment and output comment?

The jsp comment is called hide comment whereas html comment is called output comment. If user views the source of the page, the jsp comment will not be shown whereas html comment will be shown.

**15. What are the JSP implicit objects ?**

Object	Type
1) out	JspWriter
2) request	HttpServletRequest
3) response	HttpServletResponse
4) config	ServletConfig
5) session	HttpSession
6) application	ServletContext
7) pageContext	PageContext
8) page	Object
9) exception	Throwable

**16. What is difference between include directive and include action?**

include directive	include action
1) The include directive includes the content at page translation time.	1) The include action includes the content at request time.
2) The include directive includes the original content of the page so page size increases at runtime.	2) The include action doesn't include the original content rather invokes the include() method of Vendor provided class.
3) It's better for static pages.	3) It's better for dynamic pages.

**17. Is JSP technology extensible?**

Yes. JSP technology is extensible through the development of custom actions, or tags, which are encapsulated in tag libraries.

**18. How can I implement a thread-safe JSP page? What are the advantages and Disadvantages of using it?**

You can make your JSPs thread-safe by having them implement the SingleThreadModel interface. This is done by adding the directive `<%@ page isThreadSafe="false" %>` within your JSP page.

**19. How can I prevent the output of my JSP or Servlet pages from being cached by the browser?**

```

<%
response.setHeader("Cache-Control","no-store");

response.setHeader("Pragma","no-cache");

response.setHeader ("Expires", "0"); //prevents caching at the proxy server

%>

```

**Unit IV****Server Side Technologies**

<https://phpinterviewquestions.co.in/>

<http://placement.freshersworld.com/php-interview-questions/33121834>

- **What is PHP?**

PHP is a web language based on scripts that allows developers to dynamically create generated web pages.

- **What does the initials of PHP stand for?**

PHP means PHP: Hypertext Preprocessor.

- **Which programming language does PHP resemble to?**

PHP syntax resembles Perl and C

- **Differences between GET and POST methods ?**

We can send 1024 bytes using GET method but POST method can transfer large amount of data and POST is the secure method than GET method .

- **How to declare an array in php?**

Eg : `var $arr = array('apple', 'grape', 'lemon');`

- **What is use of in\_array() function in php ?**

`in_array` used to checks if a value exists in an array

- **What is use of count() function in php ?**

`count()` is used to count all elements in an array, or something in an object

- **what's the difference between include and require?**

It's how they handle failures. If the file is not found by `require()`, it will cause a fatal error and halt the execution of the script. If the file is not found by `include()`, a warning will be issued, but execution will continue.

- **What is the difference between Session and Cookie?**

The main difference between sessions and cookies is that sessions are stored on the server, and cookies are stored on the user's computers in the text file format. Cookies can't hold multiple variable while session can hold multiple variables..We can set expiry for a cookie,The session only remains active as long as the browser is open.Users do not have access to the data you stored in Session,Since it is stored in the server.Session is mainly used for login/logout purpose while cookies using for user activity tracking

- **How to set cookies in PHP?**

```
Setcookie("sample", "ram", time()+3600);
```

- **How to Retrieve a Cookie Value?**

```
eg : echo $_COOKIE["user"];
```

- **How to create a session? How to set a value in session ? How to Remove data from a session?**

```
Create session : session_start();
```

```
Set value into session : $_SESSION['USER_ID']=1;
```

```
Remove data from a session : unset($_SESSION['USER_ID']);
```

- **what types of loops exist in php?**

for,while,do while and foreach

- **What is the difference between PHP and JavaScript?**

javascript is a client side scripting language, so javascript can make popups and other things happens on someone's PC. While PHP is server side scripting language so it does every stuff with the server.

<https://www.javatpoint.com/ajax-interview-questions>

### **1) What is AJAX?**

AJAX stands for Asynchronous JavaScript and XML. It is a group of related technologies to display data asynchronously. [More details...](#)

### **2) What are the advantages of AJAX?**

- Quick Response
- Bandwidth utilization
- User is not blocked until data is retrieved from the server.

### **3) What are the disadvantages of AJAX?**

- Dependent on JavaScript
- Security issues
- Debugging is difficult

### **4) What are the real web applications of AJAX currently running in the market?**

- Twitter
- Facebook
- Gmail
- Javatpoint
- Youtube etc.

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

- AJAX source code is readable

- Attackers can insert script into the system

**6) What is the difference between synchronous and asynchronous requests?**

Synchronous request blocks the user until response is retrieved whereas asynchronous doesn't block the user.

**7) What are the technologies used by AJAX?**

- HTML/XHTML and CSS
- DOM
- XML
- XMLHttpRequest
- JavaScript

**8) What does XMLHttpRequest?**

- sends data in the background
- receives data
- updates data without reloading the page

**9) What are the properties of XMLHttpRequest?**

The important properties of XMLHttpRequest object are given below.

- onReadyStateChange
- readyState
- responseText
- responseXML

**10) What are the important methods of XMLHttpRequest?**

- open()
- send()
- setRequestHeader()

**11) What is JSON in AJAX?**

JSON stands for JavaScript Object Notation. It is easy to understand and data exchange is fast than XML. It supports array.

**12) What are the tools for debugging AJAX applications?**

There are two most widely used tools for debugging AJAX applications.

- Firebug for Mozilla Firefox
- Fiddler for IE (Internet Explorer)

**13) What are the types of post back in AJAX?**

There are two types of post back in AJAX.

- Synchronous Postback

- Asynchronous Postback

**14) What are the different ready states of a request in AJAX?**

There are 5 ready states of a request in AJAX.

- 0 means UNOPENED
- 1 means OPENED
- 2 means HEADERS\_RECEIVED
- 3 means LOADING
- 4 means DONE

**15) What are the common AJAX frameworks?**

- Dojo Toolkit
- YUI
- Google Web Toolkit (GWT)
- Spry
- MooTools
- Prototype

**16) What is the difference between JavaScript and AJAX?**

JavaScript makes a request to the server and waits for the response. It consumes more bandwidth as it reloads the page.

AJAX sends a request to the server and doesn't wait for the response. It doesn't reload the page so consumes less bandwidth.



**Unit V****Client and Server Side Frameworks**

<https://www.javatpoint.com/angularjs-interview-questions>

**1) What is AngularJS?**

AngularJS is a JavaScript framework i.e. used to create single web page application. It follows MVC (Model View Controller) pattern. It is open source, cross browser compliant and easy to maintain.

**2) What are the advantages of AngularJS?**

- allows us to create single page application
- follows MVC pattern
- predefined form validations
- supports animation
- open source
- cross browser compliant
- supports two way data binding
- its code are unit testable

**3) What are the disadvantages of AngularJS?**

- **JavaScript Dependent:** If end user disables JavaScript, AngularJS will not work.
- **Not Secured:** It is JavaScript based framework so it is not safe to authenticate user through AngularJS only.

**4) Is AngularJS dependent on JQuery?- No.****5) What IDE's are currently used for the development of AngularJS?**

- Eclipse
- Visual Studio
- WebStorm
- TextMate etc.

**6) What are the features of AngularJS?**

1. MVC
2. Validations
3. Modules
4. Directives
5. Templates
6. Scope
7. Expressions
8. Data Binding
9. Filters
10. Services
11. Routing
12. Dependency Injection
13. Testing

**7) What are directives in AngularJS?**

Directives are the markers on DOM element that is used to specify behavior on that DOM element. All AngularJS directives start with the word "ng". There are many in-built directives in AngularJS such as "ng-app", "ng-model", "ng-controller", "ng-repeat" etc.

Let's see a simple example of AngularJS directive.

1. `<input type="text" id="empName" ng-model="EmpName"/>`

**8) What are controllers in AngularJS?**

Controllers are JavaScript functions that are used to provide data and logic to HTML UI. It acts as an interface between Server and HTML UI.

**9) What are the usage of controllers in AngularJS?**

AngularJS Controllers are used to:

- Set up initial state of the \$scope object, and
- Add behavior to the \$scope object.

**10) What is data binding in AngularJS?**

Data Binding is the automatic synchronization of data between model and view. There are two ways of data binding:

- One way data binding (used in classical template)
- Two way data binding (used in AngularJS template)

**11) What are services in AngularJS?**

Services are objects that can be used to store and share data across the application. AngularJS offers many built-in services such as *\$http* i.e. used to make XMLHttpRequest.

**12) What is scope in AngularJS?**

Scope is an object that represents application model.

Each AngularJS application can have only one root scope but can have multiple child scopes.

**13) What is template in AngularJS?**

A template consists of HTML, CSS and AngularJS directives that are used to render dynamic view.

**14) What are expressions in AngularJS?**

Expressions are the code snippets that resolves to a value. AngularJS expressions are placed inside {{expression}}. For example:

1. `{{1+1}}`

AngularJS supports one-time binding expressions.

**15) What is the use of filter in AngularJS?**

A filter is used to format the value of expression to display the formatted output. AngularJS enables us to write our own filter.

<https://career.guru99.com/top-25-interview-questions-on-node-js/>

**1) What is node.js?**

Node.js is a Server side scripting which is used to build scalable programs. Its multiple advantages over other server side languages, the prominent being non-blocking I/O.

**2) How node.js works?**

Node.js works on a v8 environment, it is a virtual machine that utilizes JavaScript as its scripting language and achieves high output via non-blocking I/O and single threaded event loop.

**3) What do you mean by the term I/O ?**

I/O is the shorthand for input and output, and it will access anything outside of your application. It will be loaded into the machine memory to run the program, once the application is started.

**4) What does event-driven programming mean?**

In computer programming, event driven programming is a programming paradigm in which the flow of the program is determined by events like messages from other programs or threads. It is an application architecture technique divided into two sections 1) Event Selection 2) Event Handling

**5) Where can we use node.js?**

- a) Web applications ( especially real-time web apps )
- b) Network applications
- c) Distributed systems
- d) General purpose applications

**6) What is the advantage of using node.js?**

- a) It provides an easy way to build scalable network programs
- b) Generally fast
- c) Great concurrency
- d) Asynchronous everything
- e) Almost never blocks

**7) What are the two types of API functions in Node.js ?**

The two types of API functions in Node.js are

- a) Asynchronous, non-blocking functions
- b) Synchronous, blocking functions

**8) What is control flow function?**

A generic piece of code which runs in between several asynchronous function calls is known as control flow function.

**9) Explain the steps how “Control Flow” controls the functions calls?**

- a) Control the order of execution
- b) Collect data
- c) Limit concurrency
- d) Call the next step in program

**10) Why Node.js is single threaded?**

For async processing, Node.js was created explicitly as an experiment. It is believed that more performance and scalability can be achieved by doing async processing on a single thread under typical web loads than the typical thread based implementation.

**11) Does node run on windows?**

Yes – it does. Download the MSI installer from <http://nodejs.org/download/>

**12) Can you access DOM in node?**

No, you cannot access DOM in node.

**13) Using the event loop what are the tasks that should be done asynchronously?**

- a) I/O operations
- b) Heavy computation
- c) Anything requiring blocking

**14) Why node.js is quickly gaining attention from JAVA programmers?**

Node.js is quickly gaining attention as it is a loop based server for JavaScript. Node.js gives user the ability to write the JavaScript on the server, which has access to things like HTTP stack, file I/O, TCP and databases.

**15) What are the two arguments that async.queue takes?**

The two arguments that async.queue takes

- a) Task function
- b) Concurrency value

**16) What is an event loop in Node.js ?**

To process and handle external events and to convert them into callback invocations an event loop is used. So, at I/O calls, node.js can switch from one request to another .

**17) Mention the steps by which you can async in Node.js?**

By following steps you can async Node.js

- a) First class functions
- b) Function composition
- c) Callback Counters
- d) Event loops

**18) What are the pros and cons of Node.js?**

**Pros:** a) If your application does not have any CPU intensive computation, you can build it in Javascript top to bottom, even down to the database level if you use JSON storage object DB like MongoDB.

b) Crawlers receive a full-rendered HTML response, which is far more SEO friendly rather than a single page application or a websockets app run on top of Node.js.

**Cons:** a) Any intensive CPU computation will block node.js responsiveness, so a threaded platform is a better approach.

b) Using relational database with Node.js is considered less favourable

**19) How Node.js overcomes the problem of blocking of I/O operations?**

Node.js solves this problem by putting the event based model at its core, using an event loop instead of threads.

**20) What is the difference between Node.js vs Ajax?**

The difference between Node.js and Ajax is that, Ajax (short for Asynchronous Javascript and XML) is a client side technology, often used for updating the contents of the page without refreshing it. While, Node.js is Server Side Javascript, used for developing server software. Node.js does not execute in the browser but by the server.

**21) What are the Challenges with Node.js ?**

Emphasizing on the technical side, it's a bit of challenge in Node.js to have one process with one thread to scale up on multi core server.

**22) What does it mean “non-blocking” in node.js?**

In node.js “non-blocking” means that its IO is non-blocking. Node uses “libuv” to handle its IO in a platform-agnostic way. On windows, it uses completion ports for unix it uses epoll or kqueue etc. So, it makes a non-blocking request and upon a request, it queues it within the event loop which call the JavaScript ‘callback’ on the main JavaScript thread.

**23) Mention the framework most commonly used in node.js?**

“Express” is the most common framework used in node.js

**Unit VI****Web Services**

<https://www.journaldev.com/9193/web-services-interview-questions-soap-restful>

**What is a Web Service?**

Web Services work on client-server model where client applications can access web services over the network. Web services provide endpoint URLs and expose methods that can be accessed over network through client programs written in java, shell script or any other different technologies. Web services are stateless and doesn't maintain user session like web applications.

**What are the advantages of Web Services?**

Some of the advantages of web services are:

- Interoperability:
- Reusability: One web service can be used by many client applications at the same time.
- Loose Coupling: Web services client code is totally independent with server code, so we have achieved loose coupling in our application.
- Easy to deploy and integrate, just like web applications.
- Multiple service versions can be running at same time.

**What are different types of Web Services?**

1. SOAP Web Services: Runs on SOAP protocol and uses XML technology for sending data.
2. Restful Web Services: It's an architectural style and runs on HTTP/HTTPS protocol almost all the time. REST is a stateless client-server architecture where web services are resources and can be identified by their URIs. Client applications can use HTTP GET/POST methods to invoke Restful web services.

**❑ What is SOAP?**

SOAP stands for Simple Object Access Protocol. SOAP is an XML based industry standard protocol for designing and developing web services. Since it's XML based, it's platform and language independent. So our server can be based on JAVA and client can be on .NET, PHP etc. and vice versa.

**❑ What are advantages of SOAP Web Services?**

- WSDL document provides contract and technical details of the web services for client applications without exposing the underlying implementation technologies.
- SOAP uses XML data for payload as well as contract, so it can be easily read by any technology.
- SOAP protocol is universally accepted, so it's an industry standard approach with many easily available open source implementations.

**❑ What are disadvantages of SOAP Web Services?**

Some of the disadvantages of SOAP protocol are:

- Only XML can be used, JSON and other lightweight formats are not supported.
- SOAP is based on the contract, so there is a tight coupling between client and server applications.

- SOAP is slow because payload is large for a simple string message, since it uses XML format.
- Anytime there is change in the server side contract, client stub classes need to be generated again.
- Can't be tested easily in browser

### ❑ What is REST Web Services?

REST is the acronym for RePresentational State Transfer. REST is an architectural style for developing applications that can be accessed over the network. REST architectural style was brought in light by Roy Fielding in his doctoral thesis in 2000.

REST is a stateless client-server architecture where web services are resources and can be identified by their URIs. Client applications can use HTTP GET/POST methods to invoke Restful web services. REST doesn't specify any specific protocol to use, but in almost all cases it's used over HTTP/HTTPS. When compared to SOAP web services, these are lightweight and doesn't follow any standard. We can use XML, JSON, text or any other type of data for request and response.

### ❑ What are advantages of REST web services?

Some of the advantages of REST web services are:

- Learning curve is easy since it works on HTTP protocol
- Supports multiple technologies for data transfer such as text, xml, json, image etc.
- No contract defined between server and client, so loosely coupled implementation.
- REST is a lightweight protocol
- REST methods can be tested easily over browser.

### ❑ What are disadvantages of REST web services?

Some of the disadvantages of REST are:

- Since there is no contract defined between service and client, it has to be communicated through other means such as documentation or emails.
- Since it works on HTTP, there can't be asynchronous calls.
- Sessions can't be maintained.

### Compare SOAP and REST web services?

SOAP	REST
SOAP is a standard protocol for creating web services.	REST is an architectural style to create web services.
SOAP is acronym for Simple Object Access Protocol.	REST is acronym for RePresentational State Transfer.
SOAP uses WSDL to expose supported methods and technical details.	REST exposes methods through URIs, there are no technical details.
SOAP web services and client programs are bind with WSDL contract	REST doesn't have any contract defined between server and client
SOAP web services and client are tightly coupled with contract.	REST web services are loosely coupled.
SOAP learning curve is hard, requires us to learn about WSDL generation, client stubs creation etc.	REST learning curve is simple, POJO classes can be generated easily and works on simple HTTP methods.
SOAP supports XML data format only	REST supports any data type such as XML, JSON, image etc.

<https://www.javatpoint.com/ejb-interview-questions>

**1) What is EJB?**

EJB stands for Enterprise Java Bean. It is a server-side component to develop scalable, robust and secured enterprise applications in java. [More details...](#)

**2) What are the types of Enterprise Bean?**

There are 3 types of enterprise bean in java.

1. Session Bean
2. Message Driven Bean
3. Entity Bean

**3) What is session bean?**

Session Bean encapsulates business logic. It can be invoked by local, remote or web service client.

There are 3 types of session bean.

1. Stateless Session Bean
2. Stateful Session Bean
3. Singleton Session Bean

**4) What is stateless session bean?**

Stateless session bean is a business object that doesn't maintain conversational state with the client.

**5) What is stateful session bean?**

Stateful session bean is a business object that maintains conversational state with the client.

**6) What is singleton session bean?**

Singleton session bean is instantiated only once for the application. It exists for the life cycle of the application.

**7) What is Entity Bean?**

Entity Bean is a server side component that represents the persistent data. Since EJB 3.x, it is replaced by JPA.



<https://career.guru99.com/top-14-jsf-interview-questions/>

### 1) Explain what is JSF or Java Server Faces?

**Java Server Faces or JSF :** It is a java based web application framework to make the user interface simple for JEE applications. Instead of traditional request driven MVC framework it uses component based approach.

### 2) Explain what is the JSF architecture?

JSF is designed on the MVC (Model-View-Controller) framework and this allows for applications to be scaled better. A JSF application is same like other Java technology based web application, it runs in a JAVA servlet container and it contains

- JavaBeans components as models consisting data and application-based functionality
- Custom tag library for representing validators and event handlers
- Custom tag library for rendering UI components
- UI components signified as stateful objects on the server
- Server side helper classes
- Event handlers, validators and navigation handlers
- Application configuration resource file for organizing and configuring application resources

### 3) Explain the life cycle of JSF?

- **Restore view phase:** During this phase binding of components to its event handlers and validators are executed and view is saved in the FacesContext object
- **Apply request values phase:** The motive of this phase is to retrieve its current data for each component
- **Process validation phase:** During this phase, local values saved for the component in the tree are compared to the components validation rules registered
- **Update model value phase:** After verifying, that data is genuine or valid in the previous phase, local values of components can be set to related server side object properties
- **Invoke application phase:** Prior to this phase the component values have been transformed, validated and applied to the bean objects, so that you can avail them to run the application's business logic
- **Render response phase:** JSP container renders the page back to the user in this phase

### 4) List out the available implementations of JavaServer faces?

When it comes to JSF there are Reference Implementation (RI) by Sun Microsystems; Apache MyFaces is an open source JavaServer Faces (JSF) implementation and for Oracle there is ADF Faces.

### 5) Mention what does a typical JSF application consist of?

The typical JSF application consist of

- JSF JavaBeans components for managing the application state and its behavior
- Event driven development

- Pages that represent MVC style views, pages reference view roots via the JSF component tree

#### 6) Explain how JSF is different from conventional JSP?

JSP	JSF
<ul style="list-style-type: none"> <li>• JSP is a Java based technology used in order to help developers to create dynamic web pages</li> <li>• JSP must be compiled in JAVA byte-code in respect to function properly</li> <li>• JSP does not support validator and conversion, ajax etc.</li> <li>• JSP is not an interface within the view template. However, JSP are compiled within the server</li> <li>• JSP is not managed or processed by the faces servlet. Instead, JSP are Java Servlets by themselves</li> </ul>	<ul style="list-style-type: none"> <li>• JSF is a web application used to simplify development integration of web based user interfaces</li> <li>• JSF contains multiple core features like managed beans, component system etc. that is based on template, and tag libraries</li> <li>• JSF supports validator and conversion, ajax etc.</li> <li>• Within a view template JSF is an interface</li> <li>• JSF is processed by Faces Servlet</li> </ul>

#### 7) Mention what is the difference between JSF and Struts?

JSF	Struts
<ul style="list-style-type: none"> <li>• JSF is a specification</li> <li>• JSF action methods can be applied in Java objects</li> <li>• JSF has event model which reacts on actions, value changes and phase changes in JSF lifecycle</li> <li>• JSF component tag does not produce HTML- instead they declare a component renderer pair on the server</li> <li>• By mentioning a navigation rule in the faces configuration file, JSF supports navigation</li> <li>• JSF uses dependencies injection</li> </ul>	<ul style="list-style-type: none"> <li>• Struts is an open source framework</li> <li>• Struts actions are restricted to struts API only</li> <li>• There are no such event models in struts</li> <li>• Struts tag generates HTML directly</li> <li>• To define navigation struts uses the notation</li> <li>• There is no dependencies injection in struts</li> </ul>

<https://www.javatpoint.com/spring-interview-questions>

#### 1) What is Spring?

It is a lightweight, loosely coupled and integrated framework for developing enterprise applications in java.

#### 2) What are the advantages of spring framework?

1. Predefined Templates
2. Loose Coupling

3. Easy to test
4. Lightweight
5. Fast Development
6. Powerful Abstraction

### **3) What are the modules of spring framework?**

1. Test
2. Spring Core Container
3. AOP, Aspects and Instrumentation
4. Data Access/Integration
5. Web

<https://career.guru99.com/top-25-bootstrap-interview-questions/>

### **1) Explain what is Bootstrap?**

Bootstrap is a HTML, CSS, and JS framework for building the rich web applications with minimal effort. This framework emphasis more on building mobile web applications.

### **2) Explain why to choose Bootstrap for building the websites?**

There are few reason why we choose Bootstrap for building websites

- Mobile Support: For mobile devices it provides full support in one single file rather than in separate file. It supports the responsive design including adjusting the CSS based on the different types of device, size of the screen etc. It reduces extra effort for developers.
- Easy to learn: Writing application in bootstrap is easy if you know CSS and HTML
- Browser Support: It supports all the popular browsers like Firefox, Opera, Safari, IE etc.

### **3) What are the key components of Bootstrap?**

The key components of Bootstrap are

- CSS : It comes with plenty of CSS files
- Scaffolding : It provides a basic structure with Grid system , link styles and background
- Layout Components : List of layout components
- JavaScript Plugins: It contains many jQuery and JavaScript plugins
- Customize: To get your own version of framework you can customize your components

<http://www.javapedia.net/JNDI>

<https://career.guru99.com/top-25-joomla-interview-questions/>

<https://career.guru99.com/top-40-word-press-interview-questions/>

- **What is JNDI?**

JNDI stands for **Java Naming and Directory Interface**. JNDI allows distributed applications to look up services in an abstract, resource-independent way.

- **What is JNDI Lookup?**

lookup() attempts to find the specified object in the given context. It looks for a single, specific object and either finds it in the current JNDI context or it fails.

- **Explain what is Joomla?**

Joomla is a content management system. It allows you to build online applications and web sites. Joomla is an open source and available freely.

- **List out the benefits of using Joomla?**

Benefits of Joomla is

1. It is an open source software
2. Tons of free components are available in extensions.joomla.org/
3. Permission and user role are inbuilt with Joomla
4. It allows to update your old Joomla from the admin section
5. Templates are available free of cost and can apply with one click

- **What is WordPress?**

Word press is a best Open Source CMS which allows it to be used free of cost. You can use it on any kind of personal or commercial website without have to pay a single penny for it. It is built on PHP/MySQL (which is again Open Source) and licensed under GPL.