NETWORK LAB VIVA QUESTIONS

1 What is JDBC? Describe a general JDBC Architecture.

**A:** JDBC stands for Java Database Connectivity, which is a standard Java API for database-independent connectivity between the Java programming language and a wide range of databases.

**JDBC Architecture.**

General JDBC Architecture consists of two layers: **JDBC API** (This provides the application-to-JDBC Manager connection) and **JDBC Driver API** (This supports the JDBC Manager-to-Driver Connection).

2 What are JDBC driver types?

**A:** There are four types of JDBC drivers:

1. JDBC-ODBC Bridge plus ODBC driver, also called Type 1: calls native code of the locally available ODBC driver.
2. Native-API, partly Java driver, also called Type 2: calls database vendor native library on a client side. This code then talks to database over network.
3. JDBC-Net, pure Java driver, also called Type 3 : the pure-java driver that talks with the server-side middleware that then talks to database.
4. Native-protocol, pure Java driver, also called Type 4: the pure-java driver that uses database native protocol.

3 What is Servlet? What is the use of Servlet?

A servlet is a Java technology-based Web component, managed by a container called servlet container or servlet engine, that generates dynamic content and interacts with web clients via a request\/response paradigm.

**use of servlet?**

Uses of servlet includes:

* Processing and storing data submitted by an HTML form.
* Providing dynamic content.
* A Servlet can handle multiple request concurrently and be used to develop high performance system
* Managing state information on top of the stateless HTTP.

4 What is an abstract class? What is the difference between an Interface and an Abstract class?

Abstract class must be extended/ subclassed (to be useful). It serves as a template. A class that is abstract may not be instantiated (ie. you may not call its constructor), abstract class may contain static data.

Any class with an abstract method is automatically abstract itself, and must be declared as such. A class may be declared abstract even if it has no abstract methods. This prevents it from being instantiated.

difference between an Interface and an Abstract class?

An abstract class can have instance methods that implement a default behavior. An Interface can only declare constants and instance methods, but cannot implement default behavior and all methods are implicitly abstract.

An interface has all public members and no implementation. An abstract class is a class which may have the usual flavors of class members (private, protected, etc.), but has some abstract methods.

5 What is the difference between error and an exception?

An error is an irrecoverable condition occurring at runtime. Such as OutOfMemory error.

These JVM errors and you can not repair them at runtime. While exceptions are conditions that occur because of bad input etc. Example: FileNotFoundException will be thrown if the specified file does not exist. Or a NullPointerException will take place if you try using a null reference.

In most of the cases it is possible to recover from an exception (probably by giving user a feedback for entering proper values etc.).

6 What is the difference between an Applet and an Application?

1. Applets can be embedded in HTML pages and downloaded over the Internet whereas Applications have no special support in HTML for embedding or downloading.

2. Applets can only be executed inside a java compatible container, such as a browser or appletviewer whereas Applications are executed at command line by java.exe or jview.exe.

3. Applets execute under strict security limitations that disallow certain operations(sandbox model security) whereas Applications have no inherent security restrictions.

4. Applets don't have the main() method as in applications. Instead they operate on an entirely different mechanism where they are initialized by init(),started by start(),stopped by stop() or destroyed by destroy().

7 What is an ID selector and class? What is the difference between an ID selector

and class?

An ID selector is a name assigned to a specific style. In turn, it can be associated with one HTML element with the assigned ID. Within CSS, ID selectors are defined with the # character followed by the selector name. The name can contain characters a-z, A-Z, digits 0-9, period, hyphen, escaped characters, and so forth.

The following snippet shows the CSS example1 defined followed by the use of an HTML element's ID attribute, which pairs it with the CSS selector.

#example1: {background: blue;}

<p id="selector">...</p>

Class

A class is a style (i.e., a group of CSS attributes) that can be applied to one or more HTML elements. This means it can apply to instances of the same element or instances of different elements to which the same style can be attached. Classes are defined in CSS using a period followed by the class name. It is applied to an HTML element via the class attribute and the class name.

The following snippet shows a class defined, and then it being applied to an HTML DIV element.

.classexample {font-family: Helvetica; font-size: 20; background: black;}

<div class="classexample">....</div>

Also, you could define a style for all elements with a defined class. This is demonstrated with the following code that selects all P elements with the column class specified.

p.column {font-color: black;}

**Difference between an ID selector and CLASS?**

An ID selector identifies and sets style to only one occurrence of an element, while CLASS can be attached to any number of elements.

8 What is TCP/IP protocol model? Explain the functions of each layer.

9 What do you mean by broadcasting? What are the advantages of broadcast network?

10 Explain the steps involved in socket communication.

11 List the protocols used in application layer.

DNS, Telnet, FTP, HTTP.

12 Compare the transport layer protocols.

13 What do you mean by MAC?

14 What is TELNET ?

15 Explain sliding window protocol with example, what are the uses of sliding window protocol?

16 What is the difference between web server and application server?

A web server responsibility is to handler HTTP requests from client browsers and respond with HTML response. A web server understands HTTP language and runs on HTTP protocol.  
Apache Web Server is kind of a web server and then we have specific containers that can execute servlets and JSPs known as servlet container, for example Tomcat.  
Application Servers provide additional features such as Enterprise JavaBeans support, JMS Messaging support, Transaction Management etc. So we can say that Application server is a web server with additional functionalities to help developers with enterprise applications.

17 What is CSS? Is CSS case sensitive?

1. **What is CSS?**1. CSS stands for Cascading Style Sheets and is a simple styling language which allows attaching style to HTML elements. Every element type as well as every occurrence of a specific element within that type can be declared an unique style, e.g. margins, positioning, color or size.
2. . **Is CSS case sensitive?**  
   Cascading Style Sheets (CSS) is not case sensitive. However, font families, URLs to images, and other direct references with the style sheet may be.  
   The trick is that if you write a document using an XML declaration and an XHTML doctype, then the CSS class names will be case sensitive for some browsers.

18 Why would you use a CSS style sheet for an XML document?

19 What is XML? What are the benefits of XML? What is the difference between XML and HTML?

a) Extensible Markup Language (XML) is the universal language for data on the Web

XML is a technology which allows us to create our own markup language.

XML documents are universally accepted as a standard way of representing information in platform and language independent manner.

XML is universal standard for information interchange.

XML documents can be created in any language and can be used in any language.

|  |  |
| --- | --- |
| **HTML** | **XML** |
| HTML is for displaying purpose. | whereas  XML is for data representation. |
| HTML is used to mark up text so it can be displayed to users. | XML is used to mark up data so it can be processed by computers. |
| HTML describes both structure (e.g. <p>, <h2>, <em>) and appearance (e.g. <br>, <font>, <i>) | XML describes only content, or “meaning” |
| HTML uses a fixed, unchangeable set of tags | In XML, you make up your own tags |

**benefits of XML?**

There are many benefits of using XML on the Web :

* **Simplicity**- Information coded in XML is easy to read and understand, plus it can be processed easily by computers.
* **Openness**- XML is a W3C standard, endorsed by software industry market leaders.
* E**xtensibility** - There is no fixed set of tags. New tags can be created as they are needed.
* **Self-description**- In traditional databases, data records require schemas set up by the database administrator. XML documents can be stored without such definitions, because they contain meta data in the form of tags and attributes.
* **Contains machine-readable context information-**Tags, attributes and element structure provide context information that can be used to interpret the meaning of content, opening up new possibilities for highly efficient search engines, intelligent data mining, agents, etc.
* **Separates content  from presentation**- XML tags describe meaning not presentation. The motto of HTML is: "I know how it looks", whereas the motto of XML is: "I know what it means, and you tell me how it should look." The look and feel of an XML document can be controlled by XSL style sheets, allowing the look of a document to be changed without touching the content of the document. Multiple views or presentations of the same content are easily rendered.
* **Supports multilingual documents and Unicode**-This is important for the internationalization of applications.
* **Facilitates the comparison and aggregation of data** - The tree structure of XML documents allows documents to be compared and aggregated efficiently element by element.
* **Can embed multiple data types** - XML documents can contain any possible data type - from multimedia data (image, sound, video) to active components (Java applets, ActiveX).
* **Can embed existing data** - Mapping existing data structures like file systems or relational databases to XML is simple. XML supports multiple data formats and can cover all existing data structures and .
* **Provides a 'one-server view' for distributed data** - XML documents can consist of nested elements that are distributed over multiple remote servers. XML is currently the most sophisticated format for distributed data - the World Wide Web can be seen as one huge XML database.

## Explain External Style Sheet, What are the advantages and disadvantages of external Style Sheets?

## External Style Sheet can be called as a template/document/file which contains style information and can be linked with more than one HTML documents.  - Using this the entire site can be formatted and styles just by editing one file.  - The file is linked with HTML documents via the LINK element inside the HEAD element.  <HEAD> <LINK REL=STYLESHEET HREF="style.css" TYPE="text/css"> </HEAD>

The advantages of External Style Sheets are:   
- Using them, the styles of multiple documents can be controlled from one file.   
- Classes can be created for use on multiple HTML element types in many documents.   
- In complex situations, selector and grouping methods can be used to apply styles.   
The disadvantages of External Style Sheets are:   
- In order to import style information for each document, an extra download is needed.   
- Until the external style sheet is loaded, it may not be possible to render the document.   
- For small number of style definitions, it is not viable.

21What are the four categories of complex types in XML Schema?

22 How many data types does Perl have?

1. Perl has three basic data types − scalars, arrays of scalars, and hashes of scalars, also known as associative arrays.

**Scalar –** Scalars are simple variables. They are preceded by a dollar sign ($). A scalar is either a number, a string, or a reference. A reference is actually an address of a variable.

**Arrays –** Arrays are ordered lists of scalars that you access with a numeric index which starts with 0. They are preceded by an "at" sign (@).

**Hashes −** Hashes are unordered sets of key/value pairs that you access using the keys as subscripts. They are preceded by a percent sign (%).

23 How can you bind an object to RMI registry?

* First, the object has to implement the java.rmi.Remote interface.
* Then use the bind() function to bind a speci\_ed object name to remote object.
* For proper binding to happen, the binding object's name must be given as a URL format.