ORAL QUESTIONS

Assignment No. : 1

1. What is Tomcat?

A- It is an open-source Java servlet container that implements many Java Enterprise Specs such as the Websites API, Java-Server Pages and last but not least, the Java Servlet. The complete name of Tomcat is "Apache Tomcat" it was developed in an open, participatory environment and released in 1998 for the very first time. It began as the reference implementation for the very first Java-Server Pages and the Java Servlet.

2. What is the tomcat default port?

A- 8080 By default, Tomcat starts up on HTTP connector 8080. If another application on the install machine is already using port 8080 (for example, if you have another instance of Tomcat on the machine), then change the default startup port by modifying the conf/server.

3. What is the servlet container life cycle?

A- The web container maintains the life cycle of a servlet instance. Let's see the life cycle of the servlet:1 Servlet class is loaded. 2 Servlet instance is created. 3 init method is invoked. 4 service method is invoked. 5 destroy method is invoked.

4. What services are provided by Tomcat?

A- Tomcat is widely used by web developers when working on web application development. From a high-level perspective, apache tomcat is responsible to provide a run-time environment for the servlets. It provides an environment in which one could run their java code

5. Explain directory structure of tomcat.

A-http://www0.cs.ucl.ac.uk/staff/P.Rounce/myhtml/elecTran_technical_manual/c1452.html

Assignment No. : 2

1. What is the difference between HTML and HTML5?

A-

Features	Html	Html5
definition	A hypertext markup language (HTML) is the	HTML5 is a new version of HTML with new

	primary language for developing web pages.	functionalities with markup language with Internet technologies.
Multimedia support	Language in **HTML** does not have support for video and audio.	**HTML5** supports both video and audio.
Storage	The HTML browser uses cache memory as temporary storage.	HTML5 has the storage options like:**application cache, SQL database,** and **web storage**.
Browser compatibility	HTML is compatible with almost all browsers because it has been present for a long time, and the browser made modifications to support all the features.	In HTML5, we have many new tags, elements, and some tags that have been **removed/modified**, so only some browsers are fully compatible with **HTML5**.
Graphics support	In HTML, vector graphics are possible with tools Like**Silver light, Adobe Flash, VML,** etc.	In HTML5, vector graphics are supported by default.
Threading	In HTML, the browser interface and JavaScript running in the same thread.	The HTML5 has the JavaScript Web Worker API, which allows the browser interface to run in multiple threads.
Storage	Uses cookies to store data.	Uses local storage instead of cookies
Vector and Graphics	Vector graphics are possible with the help of technologies like **VML, Silverlight, Flash,etc**.	Vector graphics is an integral part of **HTML5, SVG** and **canvas**.
Shapes	It is not possible to create shapes	We can draw shapes like **circles, rectangles,**

	like **circles, rectangles, triangles**.	**triangles**.
Doc type	Doctype declaration in html is too long <! DOCTYPE HTML PUBLIC "- // W3C // DTD HTML 4.01 // EN" "http://www.w3.org/TR/html4/strict.dtd">	The DOCTYPE declaration in html5 is very simple "<! DOCTYPE html>
Character Encoding	Character encoding in HTML is too long. <! DOCTYPE HTML PUBLIC "- // W3C // DTD HTML 4.0 Transitional // EN">	Character encoding declaration is simple <meta charset = "UTF-8">
Multimedia support	Audio and video are not the part of HTML4.	Audio and video are essential parts of HTML5,like: **<Audio>, <Video>**.
Vector Graphics	In HTML4, vector graphics are possible with the help of techniques like VML, Silver light and Flash.	Vector graphics are an integral part of **HTML5, SVG**, and **canvas**.
	Html5 uses cookies.	It supplies local storage in place of cookies.
Shapes	It is not possible to draw shapes like circles, rectangles, triangles.	Using html5, you can draw shapes like **circles, rectangles, triangles**.
Browser Support	Works with all older browsers	A new browser supports this.

2. What is the difference between html elements and tags?

A- Technically, an HTML element is the collection of start tag, its attributes, an end tag and everything in between. On the other hand an HTML tag (either opening or closing) is used to mark the start or end of an element.However, in common usage the terms HTML element and HTML tag are interchangeable i.e. a tag is an element is a tag. For simplicity's sake of this

website, the terms "tag" and "element" are used to mean the same thing — as it will define something on your web page.

3. What is marquee?

A- The marquee is a ==non-standard HTML tag== which was ==used to create a scrolling text or an image==. It was used to make the text/image ==scroll horizontally across or vertically down== the web page. HTML marquee Tag

4. What is the use of span tag? Give an example?

A- The <span> tag is an ==inline container used to mark up a part of a text==, or a ==part of a document==. The <span> tag is ==easily styled by CSS== or manipulated with JavaScript ==using the class or id attribute==.

5. What is the use of 'required 'attribute in HTML5?

A- The required attribute is a ==boolean attribute==. When present, it specifies that ==the element must be filled out before submitting the form==.

6. What is External stylesheet? What are the advantages and disadvantages?

A- In css external style sheet is ==an isolated file==, where you can ==declare all the styles where you want to use on your website==. In external style sheet we used to apply the styles for each element at once. In this you can ==modify the look of an entire website by changing one file.==

Example: <head>

==<link rel="stylesheet" type="text/css" href="wikistyle.css">==

</head>

The file should be saved ==with a .css extension==.

Advantages

1) The style of a few documents can be controlled from the site by utilizing them.

2) Multiple HTML elements can have numerous documents, where classes can be made.

3) To assemble styles in complex circumstances, selector and grouping strategies are utilized.

Disadvantages

1) The additional download is expected to import documents having style information.

2) To render the documents, the outer template ought to be stacked.

3) Not practical for small style definitions.

7. What is CSS selector?

A- A CSS selector ==selects the HTML element(s) you want to style==.

We can divide CSS selectors into five categories:

==Simple selectors== (select elements based on name, id, class)

==Combinator selectors== (select elements based on a specific relationship between them)

==Pseudo-class selectors== (select elements based on a certain state)

==Pseudo-elements selectors== (select and style a part of an element)

==Attribute selectors== (select elements based on an attribute or attribute value)

8. What are the components of CSS style?

A- ==Selector:== class name, id name or element name that is target ==Attribute==: name of the attribute you want to style for example border, color, background, position etc. ==Value of Property==: value that will be assigned to attribute.

p is selector, following style rules will be applied to all paragraph.

==color is attribute== ==and value is red==

==position is another attribute with value relative==

==text-align is last attribute with value left==

9. What are browser safe color?

A- Browser-safe colors are expressed as ==amounts of RED, GREENand BLUEin hexadecimal code (HEX)== and always in this order. In the accompanying chart, ==the HEX color codes are compared with RGB values and percentages of each color.==

Example:color red

FF0000
R: 255
G: 000
B: 000

Assignment No. : 3

1. Explain difference between HTML and XML?

XML (Extensible Markup Language)	HTML (Hypertext Markup Language)
It stores and transports data.	It displays data.
It uses user-defined tags.	It uses predefined tags.
It contains structural data.	It doesn't contain any structural data.
It can distinguish uppercase and lowercase letters (case sensitive).	It can't distinguish uppercase and lowercase letters (case insensitive).
It maintains spacing, tabs, newlines, and any other whitespace formatting.	It doesn't maintain whitespace.
It needs to have an end-tag.	It doesn't need an end-tag.
It needs structure or nesting.	It doesn't need structure.

A-

2. What is XML DOM?

A- All XML elements can be accessed through the XML DOM.

The XML DOM is:

A standard object model for XML

A standard programming interface for XML

Platform- and language-independent

A W3C standard

3. Explain difference between CDATA and PCDATA?

A- CDATA means unparsed character data whereas PCDATA means parsed character data.

4. What is mean by simple element and complex element?

A-

Element	Component
An element is always gets returned by a component.	A component can be functional or a class that optionally takes input and returns an element.
The element does not have any methods.	Each component has its life cycle methods.
A React element is an object representation of a DOM node.	A component encapsulates a DOM tree.
Elements are immutable i,e once created cannot be changed.	The state in a component is mutable.
An element can be created using React.createElement( ) with type property.	A component can be declared in different ways like it can be an element class with render() method or can be defined as a function.
We cannot use React Hooks with elements as elements are immutable.	React hooks can be used with only functional components
Elements are light, stateless and hence it is faster.	It is comparatively slower than elements.

5. What is XPATH?

A- XPath is a major element in the XSLT standard.

XPath can be used to navigate through elements and attributes in an XML document.

- XPath stands for ==XML Path Language==

- XPath uses "==path like==" syntax ==to identify and navigate nodes in an XML document==

- XPath contains over ==200 built-in functions==

- XPath is a major element in ==the XSLT standard==

- XPath is a ==W3C recommendation==

6. Explain XSL and XSLT?

A-

S.No.	XQuery	XSLT
1.	XQuery is program driven language.	XSLT is document-driven language.
2.	It is not written in XML.	It is written in XML.
3.	It is easy to learn.	It is difficult to learn.
4.	It is declarative.	It is functional.
5.	It is used only for simple transformations.	It is language that was designed to access tree structures.
6.	It is not used to retrieve results in tree structure.	It is used to retrieve results in tree structure.
7.	It is good to access XML database.	It is used to transform XML documents.
8.	It is shorter, faster and more elegant for huge data jobs.	It may be difficult to maintain unless you carefully designed your stylesheet.

Assignment No. : 4

1. Name some Java Script features.

A-

==Object-Centered Script Language==

==Client edge Technology==

==Validation of User's Input==

==Else and If Statement==

==Interpreter Centered==

==Ability to perform In Built Function==

==Case Sensitive format==

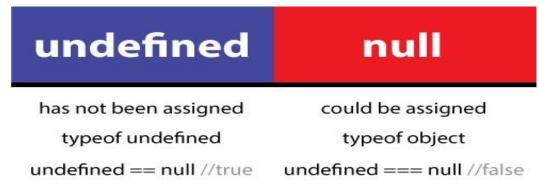==Light Weight and delicate==

==Statements Looping==

==Handling Events==

2. How to define anonymous function?

A- Anonymous Function is a function that ==does not have any name associated with it==. Normally we ==use the function keyword before the function name to define a function in JavaScript,== however, in anonymous functions in JavaScript, we ==use only the function keyword without the function name.== An anonymous function can also ==have multiple arguments, but only one expression.==

3. What is callback?

A- "I will call back later!". A callback is a function passed ==as an argument to another function== .This ==technique allows a function to call another function==. A callback function ==can run after another function has finished==

4. What is the difference between undefined and not-defined in JavaScript?

A-

5. What is 'closure' in JavaScript?

A- A closure is the combination of a function bundled together (enclosed) with references to its surrounding state (the lexical environment). In other words, a closure gives you access to an outer function's scope from an inner function. In JavaScript, closures are created every time a function is created, at function creation time.

6. What are JavaScript data types?

A-

Data Type	Description
String	String is a textual content wrapped inside ' ' or " " or ` ` (tick sign). **Example:** 'Hello World!', "This is a string", etc.
Number	Number is a numeric value. **Example:** 100, 4521983, etc.
BigInt	BigInt is a numeric value in the arbitrary precision format. **Example:** 453889879865131n, 200n, etc.
Boolean	Boolean is a logical data type that has only two values, true or false.
Null	A null value denotes an absense of value. **Example:** var str = null;
Undefined	undefined is the default value of a variable that has not been assigned any value.

Data Type	Description
	Example: In the variable declaration, var str;, there is no value assigned to str. So, the type of str can be check using typeof(str) which will return undefined.

7. What are all the types of Pop up boxes available in JavaScript?

A- There are 3 types of pop up boxes available in JavaScript. These are −

1. Alert − The Window.alert() method displays an alert dialog with the optional specified content and an OK button.

For example, if you execute the following script, it'll open an alert box with the content: "This is an alert" with a confirmation button.

2. Confirm − The Window.confirm() method displays a modal dialog with an optional message and two buttons: OK and Cancel.

For example, if you execute the following script, it'll open a confirmation box with the content: "Please confirm this action" with a confirmation button and cancellation button. This returns a boolean depending on the input provided by the user.

3. Prompt − The Window.prompt() displays a dialog with an optional message prompting the user to input some text.

For example, if you execute the following script, it'll open a propmt box with the content: "Please enter your name" with a confirmation button and cancellation button. This returns a String provided by the user.

Assignment No. : 5

1. What is JSP?

- A- It stands for **Java Server Pages**.

- It is a server side technology.

- It is used for creating web application.

- It is used to create dynamic web content.

- In this JSP tags are used to insert JAVA code into HTML pages.

- It is an advanced version of Servlet Technology.

- It is a Web based technology helps us to create dynamic and platform independent web pages.

- In this, Java code can be inserted in HTML/ XML pages or both.

- JSP is first converted into servlet by JSP container before processing the client's request.

2. What is Servlet?

A- Java Servlets are programs that run on a Web or Application server and act as a middle layer between a requests coming from a Web browser or other HTTP client and databases or applications on the HTTP server.

3. What is the purpose of MySQL?

A- MySQL is a fast, easy-to-use RDBMS being used for many small and big businesses. MySQL is developed, marketed and supported by MySQL AB, which is a Swedish company. MySQL is becoming so popular because of many good reasons −

- MySQL is released under an open-source license. So you have nothing to pay to use it.

- MySQL is a very powerful program in its own right. It handles a large subset of the functionality of the most expensive and powerful database packages.

- MySQL uses a standard form of the well-known SQL data language.

- MySQL works on many operating systems and with many languages including PHP, PERL, C, C++, JAVA, etc.

- MySQL works very quickly and works well even with large data sets.

- MySQL is very friendly to PHP, the most appreciated language for web development.

- MySQL supports large databases, up to 50 million rows or more in a table. The default file size limit for a table is 4GB, but you can increase this (if your operating system can handle it) to a theoretical limit of 8 million terabytes (TB).

- MySQL is customizable. The open-source GPL license allows programmers to modify the MySQL software to fit their own specific environments.

4. What is database?

A- A database is an organized collection of structured information, or data, typically stored electronically in a computer system. A database is usually controlled by a database management system (DBMS).

5. What is the syntax of JSP?

A- Syntax available in JSP are following

Declaration Tag :-It is used to declare variables.

Syntax:-

<%! Dec var %>

Example:-

<%! int var=10; %>

Java Scriplets :- It allows us to add any number of JAVA code, variables and expressions.

 Syntax:-

<% java code %>

JSP Expression :- It evaluates and convert the expression to a string.

 Syntax:-

<%= expression %>

 Example:-

<% num1 = num1+num2 %>

JAVA Comments :- It contains the text that is added for information which has to be ignored.

 Syntax:-

<% -- JSP Comments %>

6. How do we connect JSP file to database?

A- First of all Install the XAMPP Server with link available according to your system version
for Linux, Solaris, Windows, and Mac OS X,here: https://sourceforge.net/projects/xampp/

XAMPP Server   package contains Apache Tomcat web server,PHP ,MYSQL and
phpMyAdmin.

Install Netbeans IDE with the link available: https://netbeans.org/downloads/.

Create a Database in MYSQL already embedded in XAMPP server .

Assignment No. : 6

1. What is the use of "echo" in php?

A- PHP echo is a language construct, not a function. Therefore, you don't need to use parenthesis with it. But if you want to use more than one parameter, it is required to use parenthesis.

The syntax of PHP echo is given below:

1. void echo (string $arg1 [, string $...])

PHP echo statement can be used to print the string, multi-line strings, escaping characters, variable, array, etc. Some important points that you must know about the echo statement are:

- o echo is a statement, which is used to display the output.

- o echo can be used with or without parentheses: echo(), and echo.

- o echo does not return any value.

- o We can pass multiple strings separated by a comma (,) in echo.

- o echo is faster than the print statement.

2. How to include a file to a php page?

A- There are two ways to include file in PHP.

1. include
2. require

Both include and require are identical to each other, except failure.

- o **include** only generates a warning, i.e., E_WARNING, and continue the execution of the script.

- o **require** generates a fatal error, i.e., E_COMPILE_ERROR, and stop the execution of the script.

3. Differences between GET and POST methods ?

A-

GET	POST
Only 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.
Get request is not secured because query string appended in the URL bar.	Post request is secured because data is not exposed in the URL bar.
Get request can be bookmarked	Post request cannot be bookmarked.
A Get request is often cacheable.	A Post request can hardly cacheable.
Get request is more efficient and used more than post.	Post request is less efficient and used less than Get.

4. What is the use of 'print' in php?

A- Print

1. Print is also a statement i.e used to display the output. it can be used with parentheses print( ) or without parentheses print.

2. using print can doesn't pass multiple argument

3. print always return 1

4. it is slower than echo

5. What is the difference between Session and Cookie?

Cookies	Sessions
Cookies are stored on the user's computer.	Sessions are stored on the server.
A cookie can store a limited amount of data, a maximum of 4KB.	The session can store an unlimited amount of data.
The cookie does not depend on the Session.	The session depends on the cookie.
The cookie expires according to the time of expiry set for it	The session expires after the user closes the web browser.
Cookie has many security issues as it can be accessed by anyone easily.	The session is secure as it cannot be accessed by anyone easily.
There is no function available to disable a Cookie.	A Session can be disabled by using the session_destroy() function.
The **setcookie()** function should always be used prior to tag.	The **session_start()** function should always appear prior to tag.

A-

6. What are the different errors in PHP?

A- Basically there are four types of errors in PHP, which are as follows:

Parse Error (Syntax Error)

Fatal Error

Warning Error

Notice Error

Further theory-https://www.c-sharpcorner.com/UploadFile/051e29/types-of-error-in-php/#:~:text=Basically%20there%20are%20four%20types%20of%20errors%20in,Fatal%20Error%203%20Warning%20Error%204%20Notice%20Error

7. How to print current date and time?

A- It is performed by using a simple in-built PHP function date (). The Date is an inbuilt function used to format the timestamp

8. What is the difference between sql and Mysql?

A-

Difference Between SQL and MySQL in Tabular Form

Difference	SQL	MySQL
Definition	A query language	A relational database that uses SQL
Operations	Performs operations on data in a database	Stores the existing data in an organized manner in its database
Functions	Writes queries for databases	Stores, modifies, and manages data in a tabular format
Format and Syntax	Remains the same	Keeps updating
Support	No support for its connector	Has MySQL workbench integrated tool
Storage Engine	Supports a single storage engine	Supports multiple and pluggable storage engines
Server and Database	The server remains independent of the database	The server blocks the database during a data backup session

9. Why do we use GROUP BY and ORDER BY function in mysql?

A- GROUP BY and ORDER BY are two important keywords in SQL that we use to organize data.

10. What is JOIN in MySQL? What are the different types of join?

A- A JOIN clause is used to combine rows from two or more tables, based on a related column between them.

Types of join-

- INNER JOIN: Returns records that have matching values in both tables

- LEFT JOIN: Returns all records from the left table, and the matched records from the right table

- RIGHT JOIN: Returns all records from the right table, and the matched records from the left table

- CROSS JOIN: Returns all records from both tables

Assignment No. : 7

1. What is AJAX?

A- Asynchronous JavaScript and XML can be defined as a set of users in building websites and web applications

It combines various programming tools like JavaScript, HTML, DHTML, XML (extensible markup language), CSS (cascading style sheets), DOM (document object model) and Microsoft object

2. What is jQuery?

- o   A- jQuery is a small, fast and lightweight JavaScript library.

- o   jQuery is platform-independent.

- o   jQuery means "write less do more".

- o   jQuery simplifies AJAX call and DOM manipulation

3. How many TRIGGERS allows per table in mysql?

A- You can have only one trigger per table and trigger event and action time.

4. What is difference between COMMIT and ROLLBACK?

A- Once the COMMIT statement has been executed, the transaction can't be rolled back using ROLLBACK. It occurs when the transaction is successfully executed. It removes the modifications that were made by the current transaction. Once ROLLBACK is executed, the database would reach its previous state.

5. What is Ajax?

A- same as 1

6. Whether jQuery HTML work for both HTML and XML documents?

A- No, JQuery HTML doesn't work with XML document. It only works for HTML documents.

7. What is the use of jQuery.ajax method ()?

A- The ajax () method in jQuery is used to perform an AJAX request or asynchronous HTTP request.

8. What are Ajax applications?

A- Writing Callbacks, Making Asynchronous Calls, Login forms, Autocomplete, Chatting applications, Widgets and adds

9. How to control the duration of an Ajax request?

A- AsyncPostBackTimeout property is ==used to control the duration of Ajax request. Deafult value of this property is 90 seconds.==

10. What are the advantages and disadvantages of Ajax?

A- **Pros** −

- Allows applications ==to render without data and fill data as the application== gets it from the server.
- Gives ==platform independence to application developers==
- ==Faster page renders==
- More responsive applications
- No rerenders of whole pages are needed to update only a single area.

Cons−

- Any user whose browser ==does not support JavaScript or XMLHttpRequest==, or has this functionality disabled, will not be able to properly use pages that depend on Ajax.
- ==Multiple server requests need more data consumed at the== client-side.
- Failure of any one request can fail the load of the whole page.
- Browsers with JS disabled will not be able to use pages using ajax.

11. Which are the two methods used for cross domain Ajax calls?

A- There are two methods used to transfer data between the two more more security domains:

CROS – ==Cross Origin Resource Sharing and it works with the HTTP web browsers==

JSONP – ==JSON with== Padding which ==works with the HTTP GET and on legacy browsers==

12. What are all the technologies used by Ajax?

A- **Following technologies are used in Ajax.**

- **HTML/XHTML** and **CSS**. These technologies are used for displaying content and style.
- **DOM**. ==It is used for dynamic display and interaction with data.==
- **XML** or **JSON**. ==For carrying data to and from server.==
- **ASP** or **JSP**==. Server side==.

- **XMLHttpRequest**.
- **Javascript**.

13. What is JSON in Ajax?

A- JSON is a format which can be used by AJAX for data exchange. It is a way of encoding that can be efficiently parsed by almost all programming languages. In AJAX, JSON can be used to pass raw data to or from a server-side component

14. What are the difference between AJAX and Javascript?

A-

AJAX	JavaScript
AJAX allows the coder send request data asynchronously in order load new data without changing the web page.	JavaScript is a client side scripting language that allows the creation of dynamic web pages by providing a new level of interactivity.
AJAX supports the server side scripting Language.	JavaScript provides support to the client side scripting language.
AJAX can load the web page after it is been loaded for the first time.	JavaScript cannot load the pages after it is once loaded.
AJAX does not install Trojan in the computer.	JavaScript can install Trojan in the computer.

15. How Ajax objects can be created?

A- Ajax Objects can be created by the following syntax: Var ajax= New ajaxObject ('page path'). Here page path is the URL you want the Object to call. The URL must be of the same domain as the webpage.

Assignment No. : 8

1) What are the components of Struts Framework?

A- Struts framework helps for developing the web based applications. Struts java framework is one of the most popular framework for web based applications.Java servlet, JavaBeans, ResourceBundles and XML etc are the Jakarta commons packages used for accomplishing this purpose. This is an open source implementation of MVC pattern for the development of web based application. The features of this type of framework are,

1. More robust or reliable architecture

2) What's the role of a handler in MVC based applications?

A- MVC handler is responsible for initiating MVC applications.

3) What's the flow of requests in Struts based applications?

A- The flow of requests is as follows: **User interacts with View by clicking any link or by submitting any form**. Upon user's interaction, the request is passed towards the controller. Controller is responsible for passing the request to appropriate action.

4) Which file is used by controller to get mapping information for request routing?

A- Controller uses a configuration file "struts-config.xml file to get all mapping information to decide which action to use for routing of user's request

5) What's the role of Action Class in Struts?

A- It is a convenient class that implements many interfaces such as Action, Validateable, ValidationAware, TextProvider, LocaleProvider and Serializable . So it is mostly used instead of Action.

6) How an actionForm bean is created? And Its uses.

A- **public class StudentForm extends ActionForm {}**

Once it is created, you have to specify a name for the FormBean in the struts configuration file

7) How validation is performed in struts application?

A- Using validator framework

8) What's the purpose of Execute method of action class?

A- Execute method of action class is responsible for **execution of business logic**. If any processing is required on the user's request, it's performed in this method

9) How can we display all validation errors to user on JSP page?

A- Post Your Answer Add New Question **<html:errors/> tag** displays all the errors. <html:errors/> iterates over ActionErrors request attribute.

10) What are the benefits of Struts framework?

A- Since Struts follow MVC framework, Java, JSP and Action classes are highly maintained and easy to understand for developers. The development time is less and this creates an advantage for the application developers. It is easy to maintain the applications due to the MVC framework.

Assignment No. : 9

1. What is AngularJS and what are some of its advantages?

- A- AngularJS is an open-source web application framework. AngularJS is a efficient framework that can create Rich Internet Applications (RIA).

- AngularJS provides developers an options to write client side applications using JavaScript in a clean Model View Controller (MVC) way.

- Applications written in AngularJS are cross-browser compliant. AngularJS automatically handles JavaScript code suitable for each browser.

- AngularJS is open source, completely free, and used by thousands of developers around the world. It is licensed under the Apache license version 2.0.

2. What is the Model View Controller (MVC)?

A- MVC stands for model-view-controller. Here's what each of those components mean:

- **Model**: The backend that contains all the data logic

- **View**: The frontend or graphical user interface (GUI)

- **Controller**: The brains of the application that controls how data is displayed

3. What is data binding in AngularJS? How does it relate to the MVC architecture?

A- In most templating systems, data binding is unidirectional. When the model and template components are merged together, it creates a view. However, the developer must write code to constantly synchronize the model and the view. AngularJS uses two-way data binding, where any changes to the view will automatically update the model and vice versa. The view is more or less just a projection of the model, which greatly simplifies things from the programmer's perspective.

4. Explain the concept of scope. How does scope inheritance work in AngularJS?

A- Scope is an object that represents the data-model of an AngularJS application—it is the glue between the view and the application controller

5. Explain the difference between a factory and a service in AngularJS.

A- Understanding AngularJS: .factory() VS .service() - MindMajix

6. Explain why there are two "destroy" events associated with the termination of a scope in
AngularJS.

A- The first ==$destroy is an AngularJS== event associated with components like ==controllers or link==
==functions.== The second is actually a ==quite/jQuery== event associated ==with the removal of a node,==
==which may occur without a scope teardown==

7. What is dependency injection and how does it work?

A- Dependency Injection (DI) is a design pattern ==used to implement IoC.== It allows the ==creation of==
==dependent object==s outside of a class and provides those objects to a class through different ways. Using
DI, we move the creation and binding of the dependent objects outside of the class that depends on them.

The Dependency Injection pattern involves 3 types of classes.

1. **Client Class:** The client class (dependent class) is a class which depends on the service
   class

2. **Service Class:** The service class (dependency) is a class that provides service to the
   client class.

3. **Injector Class:** The injector class injects the service class object into the client class.

8. What are directives? Can you explain the functions of the following directives?

A- Directives are ==used by AngularJS== to ==extend the functionality of HTML by adding new attributes with==
==the ng- prefix.== The four directives listed above are some of the more important ones every AngularJS
developer should know by heart.

- ==The ng-app== directive can be placed within a element to make it the root element of an
  AngularJS application.

- ==The ng-model== directive binds the value of HTML controls to application data.

- ==The ng-bind== directive binds the content of an HTML element to application data.

- ==The ng-controller== directive defines the controller object for an application.

9. Explain the role of $routeProvider in AngularJS.

A- The $routeProvider is ==used to **configure roots**== within an ==AngularJS application==. It can be
==used to link a URL with a corresponding HTML page== or ==templat==e, and a controller (if applicable)

Assignment No. : 10

1. What is Bootstrap?

o A- Bootstrap is the most popular HTML, CSS and JavaScript framework for developing a responsive and mobile friendly website.

o It is absolutely free to download and use.

o It is a front-end framework used for easier and faster web development.

o It includes HTML and CSS based design templates for typography, forms, buttons, tables, navigation, modals, image carousels and many others.

o It can also use JavaScript plug-ins.

o It facilitates you to create responsive designs.

2. What are the advantages of bootstrap?

- A- Bootstrap 3, framework consists of Mobile first styles throughout the entire library instead them of in separate files.

- It is supported by all popular browsers.

- With just the knowledge of HTML and CSS, anyone can get started with Bootstrap.

- Bootstrap's responsive CSS adjusts to Desktops, Tablets, and Mobiles

3. Explain why to choose bootstrap for building the websites?

A- Time-Saving, Easy to Use, Responsive Grid System, Customizable, Cross-Browser Compatibility, Establish Consistency, Open-Source

4. What are the key component of bootstrap?

A- List of components:

Jumbotron: It simply put extra attention to particular content or information by making it larger and more eye-catching.

Alerts: It is a popup with a predefined message that appears after a particular action.

Buttons: It is customized buttons that are used to perform an action in the form, dialogue box, etc. They are in multiple states, sizes and have predefined styles.

Button group: It is a group of buttons aligned in a single line and they can be arranged both vertically as well as horizontally.

Badge: It Is a labeling component that is used to add additional information.

Progress Bar: It is used to show the progress of a particular operation with a custom progress bar. They have text labels, stacked bars, and animated backgrounds.

Spinner: The spinner displays the loading state of websites or projects. They are built with HTML, CSS and don't require any JavaScript.

Scrollspy: It keeps updating the navigation bar to the currently active link based on the scroll position in the viewport.

List group: It is used to display an unordered series of content in a proper way.

Card: It provides a customizable, extensible, and flexible content container.