



Unit Test _____

Subject _____

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Date _____

Class _____

Branch _____

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Name _____

Roll No. _____

म.वि.प्र.सं.प्रिं.प्रेस

Q. List Pros & Cons of AJAX.

→ • Advantages:

1. Reduces server traffic & increases the speed.
2. It is responsive, and time taken is also less.
3. It is used in Form validation.
4. Bandwidth usage can be reduced.
5. Asynchronous calls can be made, this reduces the data arrival time.

• Disadvantages:-

1. Open-source
2. It has browser compatibility issues.
3. Active X request is created only in internet explorer & newly created web browser.
4. It is impossible to bookmark AJAX update page contents.

Q. Compare & contrast traditional web application architecture & AJAX based web application archit.

Traditional Web. App. Archit.	AJAX based Web. App. Architect.
1. At the <u>client side</u> the browser has only one component that is - user interface.	At client side the browser ^{client} has user interface & AJAX engine due to which client gets quick response from server.
2. It is less responsive.	It is more responsive.
3. Users cannot get rich user interface experience.	Users get rich user interface experience.
4. Difficult to navigate.	Easier to navigate.
5. Building a web application is simple.	The designing time is more while designing the AJAX based web application. ^{development}
6. Higher Bandwidth.	Lower Bandwidth.

Q. What is JQuery? Explain with example. Write a note on advantages of JQuery.

- • JQuery is a lightweight, "write less, do more", javascript library.
- The purpose of JQuery is to make it much easier to use Javascript ^{your} on ^{the} website.
- JQuery takes a lot of common tasks that requires many lines of javascript code, JQuery wraps them into methods that you can call with single line of code.
- JQuery also simplifies a lot of complicated thing from JS, like AJAX calls & DOM manipulation.

You can download Jquery from : jquery.com

```
<head>
```

```
<script src="jquery-3.6.0.min.js"></script>
```

```
</head>
```

If you don't want to download and host jquery, you can include it from CDN.

```
<head>
```

```
<script src="https://ajax.googleapis.com/ajax/libs/jquery/3.6.0/jquery.min.js"></script>
```

```
</head>
```

Basic syntax : `$(selector).action()`

- A \$ sign used to define or access jquery
- A \$(selector) to "query (or find)" HTML elements.
- A jquery action() is to be performed on the elements(s).

Eg. `$.this.hide()` - hides current element

`$(".p").hide()` - hides all `<p>` elements.

`$(".test").hide()` - hides all elements with class = "test"

- Advantages of jquery :-

1. It works almost on all platforms. This is called as **cross-platform compatibility**.
2. It is very **lightweight** about 19 KB in size.
3. It has large and **advanced set of functionalities**.
4. It supports **AJAX technology**.
5. It has wide range of **plugins available** for various specific needs.
6. It is easier to learn Jquery as it uses **familiar CSS syntax**.
7. It offers event handling to capture wide variety of events such button clicks, mouse move & so on.

Q. List & explain any five selectors in jQuery.

Selector	Example	Description
1. *	<code>\$ ("*")</code>	All elements are selected
2. #id	<code>\$ ("#roll-no")</code>	The element with id="roll-no" is selected.
3. .class	<code>\$ ("name")</code>	All elements with class "name" are selected
4. .class,.class	<code>\$ ("name", "surname")</code>	It will select all elements with class "name" or "surname".
5. element	<code>\$ ("p")</code>	It will select all p elements.
6. :header	<code>\$ (" :header")</code>	All header elements get selected.

for selecting the href tag we can select "a"

for selecting the even rows or the rows from the tr:even

for selecting 3 list "ui:li:3" (go through more selector from the ppt)

म.वि.प्र.सं.प्रेस

Q. What is Javascript? What is inline, embedded & external Javascript? Explain with advantages & drawbacks.

→ Javascript is most popular programming language of the Web.

• Javascript has three parts:

1. Core: It includes operator, expression, statements and subprograms.

2. Client-side: It is a collection of objects using which one can have control over the browser and user-browser interaction is possible.

3. Server-side: It is a collection of objects using which one can access the database on the server.

• Types of Javascript:

I) Inline Javascript:

In Inline Javascript, javascript code is placed directly within certain HTML element.

eg. `<!DOCTYPE html>`

`<html>`

`<body>`

`more info `

`<input type="button" value="click me" onclick="alert('GM');">`

`</body>`

`</html>`

- Advantages :

It can save the web browser round trip to the server. This is because it no longer requires to download external file from server side

- Disadvantages :

Maintenance is complex activity for this type of Javascript, because it requires to scan through almost every line of HTML, looking for inline Javascript

2] Embedded Javascript :

In it, Javascript code is placed within a `<script>` element.

eg. `<!DOCTYPE html>`

`<html>`

`<head>`

`<script type="text/javascript">`

`alert('Good Morning');`

`</script>`

`</head>`

`</html>`

- Advantages :

- If your Javascript code is small in length, then embedded Javascript is good for you.

- Writing Javascript code in Embedded Javascript requires less line compare to inline Javascript

- Disadvantages :

It is difficult to maintain.

3. External Javascript :

The Javascript code is written in separate file, having the file extension .js

eg. myscript.js

```
document.write ("Welcome");
```

index.html

```
<!DOCTYPE html>
<html>
<head>
<script type="text/javascript" src="myscript.js">
</script>
</head>
</html>
```

• Advantages :

- It separates HTML & Javascript code
- It makes HTML & Javascript easier to read & maintain.

• Disadvantages :

- The browser has to make extra http request to get the js code.
- The stealer may download the code using the URL of the js file.

Q. Write note on Javascript Error Handling.

→ Javascript is a loosely-typed language. It doesn't give compile time error. So sometimes you'll get a runtime error for accessing an undefined variable or calling undefined function etc.

- Javascript provides error-handling mechanism to catch runtime errors using try-catch block, similar to other languages like Java or C#.
- The process of handling the error without crashing the code is called as exception handling.
- The exception handling is normally done by using try, catch block.
 - try - It lets you test a block of code for errors
 - catch - It lets you handle the error
 - throw - It lets you create custom errors
- Example code for try-catch & throw :-

```
<!DOCTYPE html>
<html>
<body>
<script>
try {
    let msg = prompt("Type India");
    if (msg != 'India') {
        throw new Error("Sorry! You didn't type India")
    }
} catch (e) {
    alert(e.message);
}
</script>
</body>
</html>
```

Q. Explain Javascript objects in detail.

- • In Javascript object is a collection of properties. These properties are nothing but the members of the classes from Java or C++.
- A Javascript object is an entity which is having state & behaviour.
- Objects can have constructors, properties & methods associated with them & are used very much like objects in other object oriented language.
- Javascript is an object based language. Everything is an object in Javascript.
- For creating an object "new" keyword is used which is followed by class name and followed by ()
- Syntax :

var Objectname = new Object()

- The property of the object can be accessed by using dot operator

Syntax :

Objectname.property)

- The method of the object can also be invoked using dot

Syntax :

Objectname.methodname()

~~Example :~~

```
<html>
<body>
<script>
var emp = new object();
emp.id = 14;
emp.name = "Zulfeen Shaikh";
emp.salary = 50000;
document.write(emp.id + " " + emp.name + " " + emp.salary);
</script>
</body>
</html>
```

Q. Explain Event Handling in Javascript.

- ~~Event~~ is an activity that detect a change in the environment. For example mouse clicks, pressing a particular key of keyboard. represent the events.
- A Javascript event is an action that detected by Javascript. we say that an event is triggered and it can be caught by Javascript functions, which then do something in response.
 - When Javascript code is included in HTML, js react over these events to allow execution. This process of reacting ^{over} the events is called as Event Handling.
 - Thus, js handles the HTML events via Event Handler.
 - Various Events types are :-

onClick Event

Purpose: Triggered when an element is clicked.

Common Use Cases: Buttons, links, or interactive elements.

Example:

html

```
<button onclick="alert('Button clicked!')>Click Me</button>
```

Mouse event are used to capture interaction made by user using mouse.

onKeyDown

Triggered when a key is pressed down.

Fires before the character is displayed.

Example:

html

```
<input type="text" onkeydown="console.log('Key Down:', event.key)">
```

2. Keyboard Event :

Keyboard events are the events that occur when user interacts using keyboard.

3. Frame Event

onChange Event (Textbox, Textarea)

Purpose: Fires when the value of an input or textarea changes and loses focus.

The frame

Common Use Cases: Update data after user finishes typing and moves to another field.

Example:

4. Form Event

```
html <input type="text" onchange="alert('Value changed!')"> <textarea>
```

```
onchange="alert('Textarea content changed!')</textarea>
```

The events are triggered by form allow us to do some timely processing in response to user input.

onBlur Event

Purpose: Triggered when an element loses focus (i.e., the user clicks away from the element).

Q. What

is Javascript Promises.

Example:

html

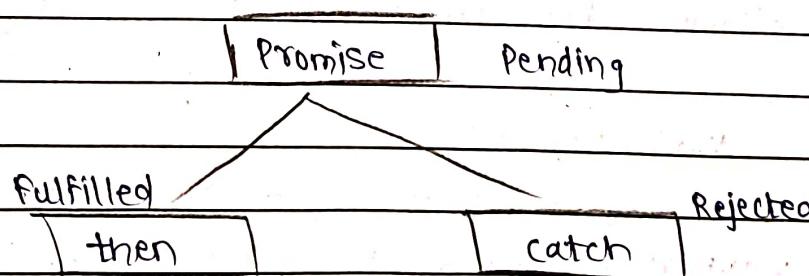
```
<input type="text" onblur="alert('Input field lost focus')">
```

→ In Javascript, the promise is used to handle the asynchronous operation. It is basically used to check if the asynchronous operation is successful or not successful.

- A promise has three state -

1. Pending 2. Fulfilled 3. Rejected.

- A promise starts in a pending state that means the process is not complete. If the operation is successful then the process ends in a fulfilled state. And if an error occurs, then the process ends in a rejected state.



Promise.then() takes two arguments, first one is for success & another one for failure. The syntax is : promiseObject.then(onFulfilled, onRejected);

E.g. mypromise.then(

```
    function(value){ /* code if successful */ },  
    function(error){ /* code if some error */ }  
);
```

Q. What is AJAX? Explain working of AJAX.

→ • AJAX is a asynchronous Javascript & XML.

• With AJAX, You can :-

- Update the page, without reloading the page
- Request data from a server - after page has loaded
- Receive data from a server - after page has loaded.
- Send data to server - in the background.

• Working of AJAX :-

- When user makes a request, the browser creates an XMLHttpRequest and the request is made to the (object for the) server over the internet.
 - The server processes this request and sends the required data to the browser.
 - At the browser side the returned data is processed by using Javascript and web document gets updated accordingly by sending appropriate response.
- Following Fig illustrates the working of AJAX.

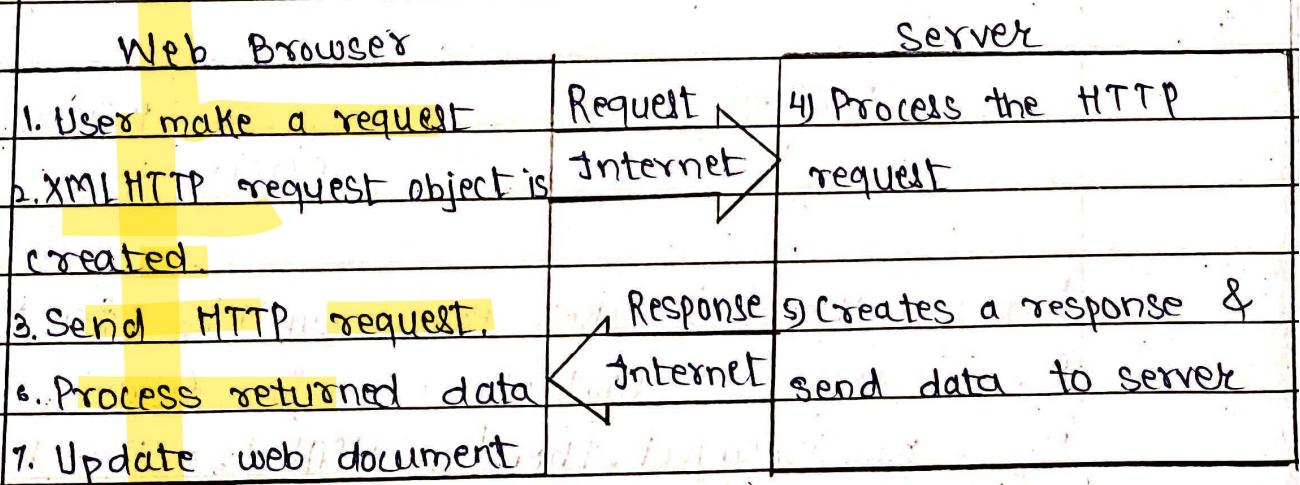


Fig. Working of AJAX.