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Browser Object Model (BOM)

JavaScript

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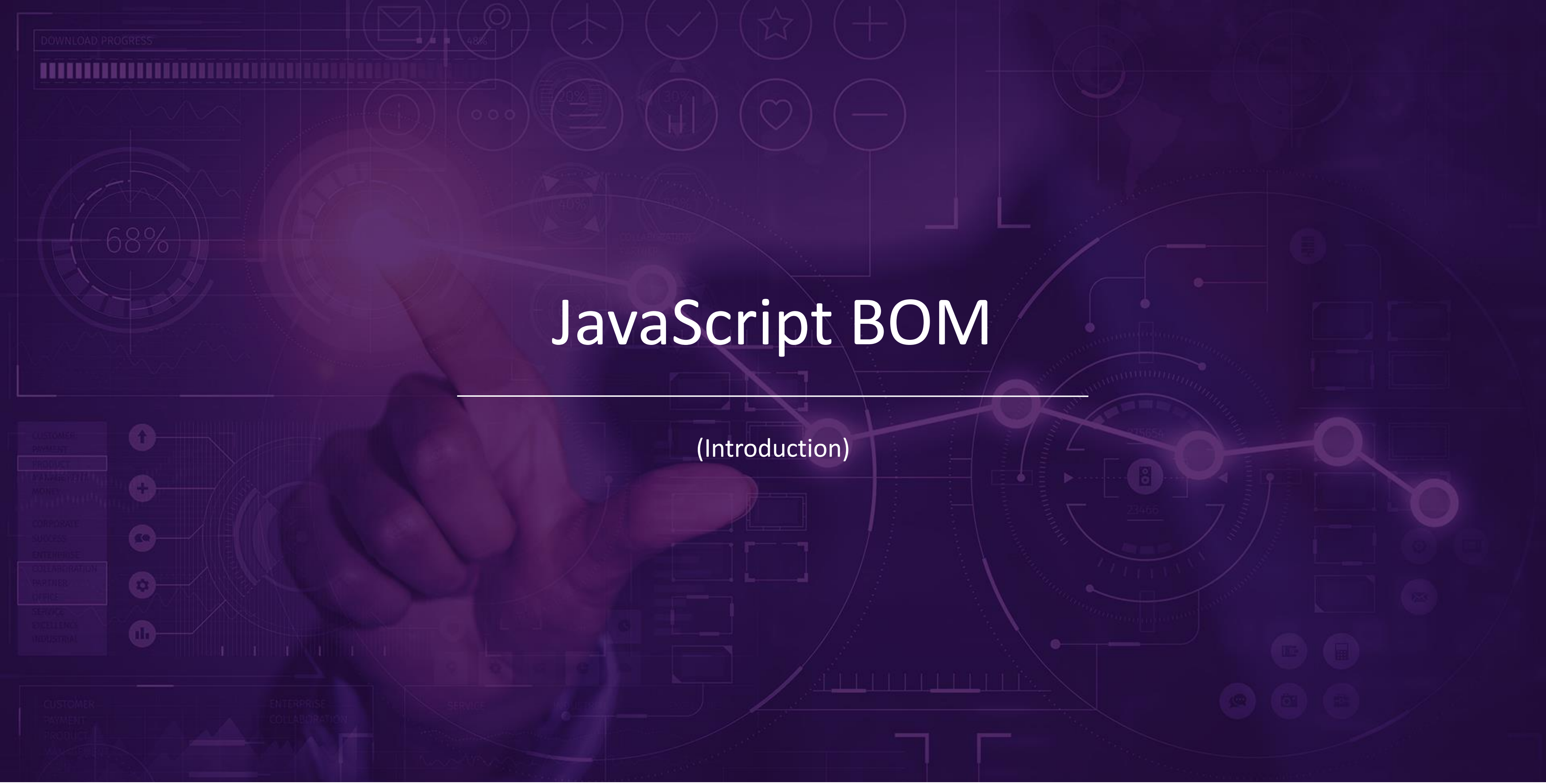


JavaScript BOM

(Introduction)

BOM

- The Browser Object Model (BOM) is used to interact with the browser.
- These BOM provides access to the various characteristics of a browser (Browser window itself, Screen characteristics, Browser history etc…)
- The default object of browser is window means we can call all the functions of window by specifying window or directly.
- If a document contain frames (<iframe> tags), the browser creates one window object for the HTML document, and one additional window object for each frame.

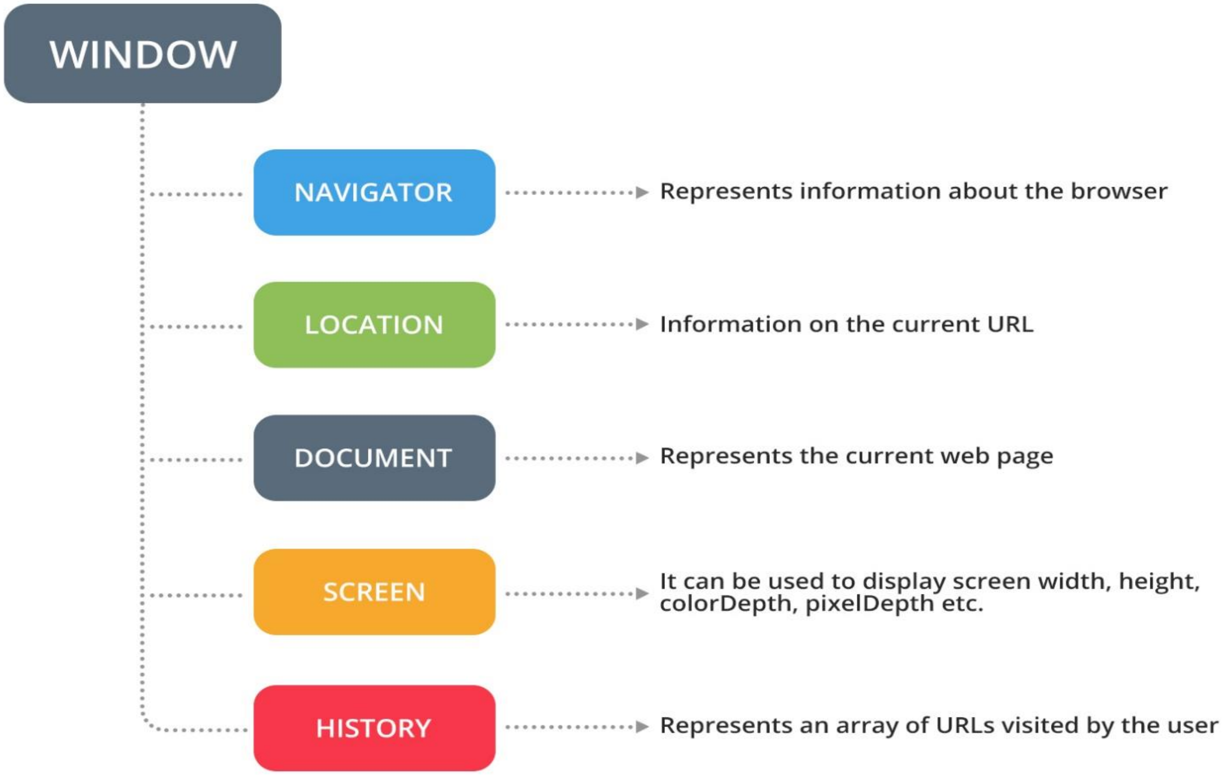
Example :

```
window.alert("Hello World");
```

DOM and BOM - Differences

Document Object Model (DOM)	Browser Object Model (BOM)
• DOM, the document object model, which represents the contents of the web page. We can manipulate it using JavaScript. • All the objects are arranged as tree structure. There are various APIs provided to access and manipulate the document. • W3C Recommendation. Goes beyond HTML, supports XML and XHTML as well. Functionality wise DOM is different.	• The BOM operates one level above the web page which includes browser attributes (ex: Location) and the page becomes a child of Browser. • All global JavaScript objects, functions and variables automatically become members of the window object. • Using BOM, we can modify, move the window or can change the text in status bar, read the current URL, go back or forward of the current page

BOM – Object Hierarchy



Represents information about the browser

Information on the current URL

Represents the current web page

It can be used to display screen width, height, colorDepth, pixelDepth etc.

Represents an array of URLs visited by the user

BOM - Window

(Basic BOM Window APIs)

BOM – Window Size

There are two properties to determine the size of window:

Property	Description
`window.innerHeight`	The browser's client area height including scrollbars
`window.innerWidth`	The browser's client area width including scrollbars

```
<script>
var w = window.innerWidth;
var h = window.innerHeight
var x = document.getElementById("ex");
x.innerHTML = “Width: " + w + “<br>” + " Height: " + h;
</script>
```

BOM – Window Methods

Method to open a new window with some parameters

Method	Description
`window.alert()`	Displays alert box with OK button.
`window.confirm()`	Displays a confirmation dialog box with OK and cancel button.
`window.prompt()`	Displays a prompt dialog box to get user input
`window.close()`	Closes the window
`window.moveTo()`	Move the current window
`window.resizeTo()`	Resize the current window

BOM – Window.open() Method

Method & Description

`window.open(URL, name, specs, replace)`

URL:

- Specifies the URL of the page to open.

Name:

- Specifies the target attribute or the name of the window.
- Values supported (ex: blank)

Specs:

- Comma separated values, loads of options
- Example – Height

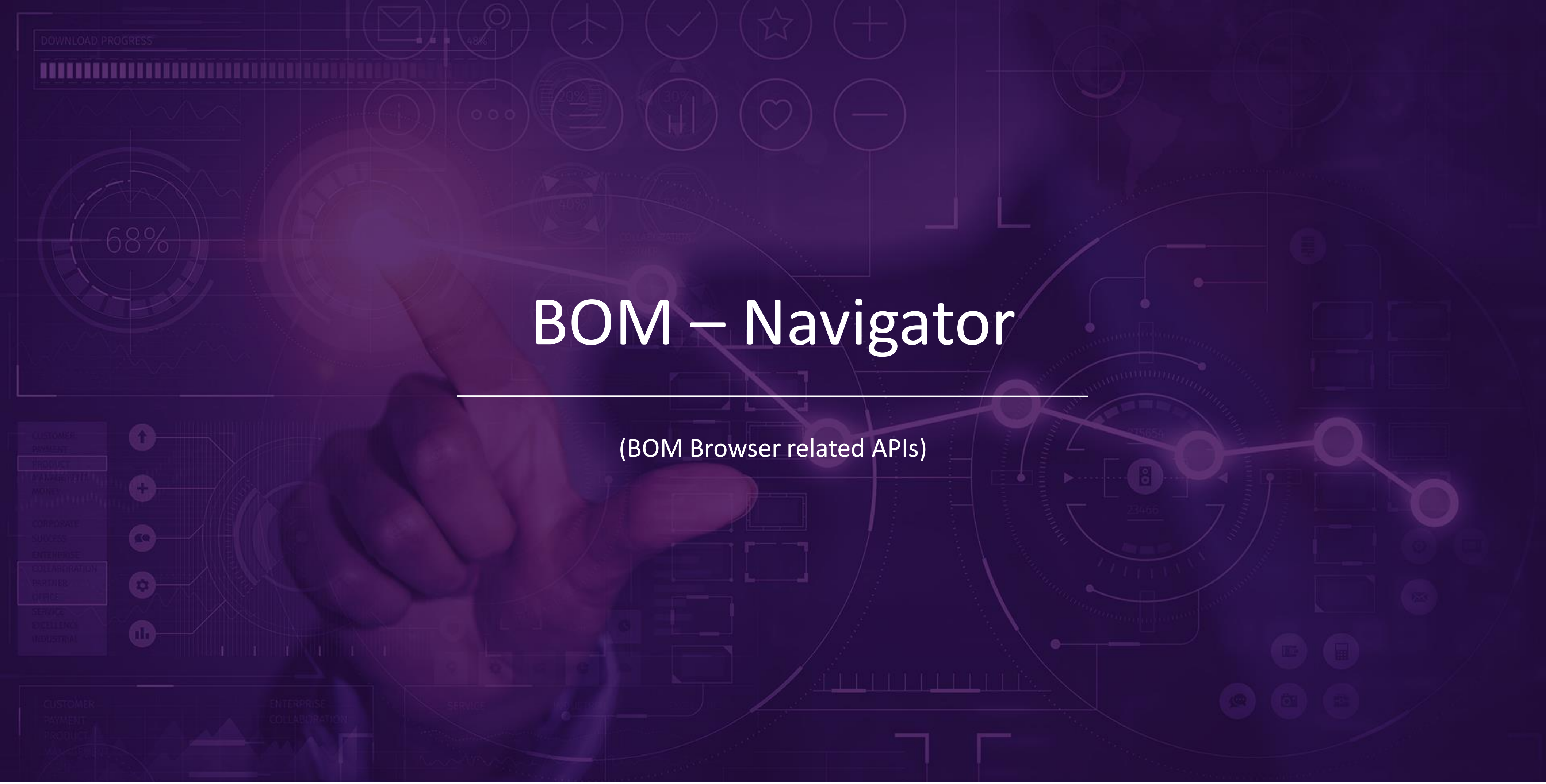
Replace:

- Specifies whether the URL creates a new entry or replaces the current entry in the history list.
- True and False values are supported

BOM – Window Screen Methods

The screen object contains information about visitor’s screen

Property	Description
`availHeight()`	Returns the height of the screen
`availWidth()`	Returns the width of the screen
`colorDepth()`	Returns the bit depth of the color palette for displaying image
`height()`	Returns the total height of the screen
`width()`	Returns the total width of the screen
`pixelDepth()`	Returns the color resolution of the screen



BOM – Navigator

(BOM Browser related APIs)

BOM – Navigator Object

The window.navigator provides information about the browser. There is no standard implementation for this, often most of the information is misleading. Don't rely on it, just learn ☺

Property	Description
`appCodeName`	The code name of the browser
`appName`	The name of the browser
`appVersion`	Specifies the version of the browser
`userAgent`	Returns the user agent
`language`	Returns the language of the browser.
`cookieEnabled`	Returns true if cookie is enabled otherwise false
`platform`	Browser platform (OS)

BOM – Navigator Object

```
<script>

document.write("Navigator App Name         : "+ navigator.appName  + "<br>");

document.write("Navigator App Code Name    : "+ navigator.appCodeName + "<br>");

document.write("Navigator App Version      : "+ navigator.appVersion + "<br>");

document.write("Navigator User Agent       : "+ navigator.userAgent + "<br>");

document.write("navigator Language         : "+ navigator.language + "<br>");

document.write("Navigator Platform         : "+ navigator.platform + "<br>");

document.write("Navigator Cookie Enabled : "+ navigator.cookieEnabled + "<br>");

</script>
```

BOM – History

(BOM User history related APIs)

BOM – History Object

- The JavaScript history object represents an array of URL visited by the user.
- The History object is a read-only array of URL.

Method	**Description**
`back()`	Loads the previous URL in the history list
`forward()`	Loads the next URL in the history list
`go()`	Loads specific page in the history list
`length`	Number of elements in the history list

BOM – History Object

```
window.history.forward() ; // Forward
window.history.back(); // Back
window.history.go(-5); // Go back 5 times
window.history.go(2); // Forward two times
window.history.go(window.history.length-1); // Go last item
```

BOM – Location

(BOM User location related APIs)

BOM – Location Object

Location object provides general access properties of the document

Property	Description
`window.location.href`	The full URL of the currently loaded page (ex: http://www.ABC.com)
`window.location.hostname`	Returns the domain name of the web host (ex: www.ABC.com)
`window.location.pathname`	Returns path and filename of the current page
`window.location.protocol`	Returns web protocol used (http or https)
`window.location.hash`	Sets or returns the anchor(#) part of URL (ex: www.ABC.com#print)
`window.location.port`	Sets or returns the port number of a URL (Typically for HTTP 80 is used, it can be configured / changed)

BOM – Location Methods

Location object provides following methods to load / unload new documents

Property	Description
`window.location.assign()`	Loads a new document
`window.location.reload()`	Reloads the current document
`window.location.replace()`	Replace the current document with a new one

BOM – Timing Events

(BOM Timer APIs)

BOM Timing Events

- The window object supports events for setting Time Intervals.
- These Time Intervals are called Timing events.

Method	**Description**
`setTimeout(function,duration)`	This function calls function after duration milliseconds from now
`setInterval(function,duration)`	This function calls function after every duration milliseconds
`clearTimeout(timeout)`	This function calls clears any timer set by the setTimeout() functions

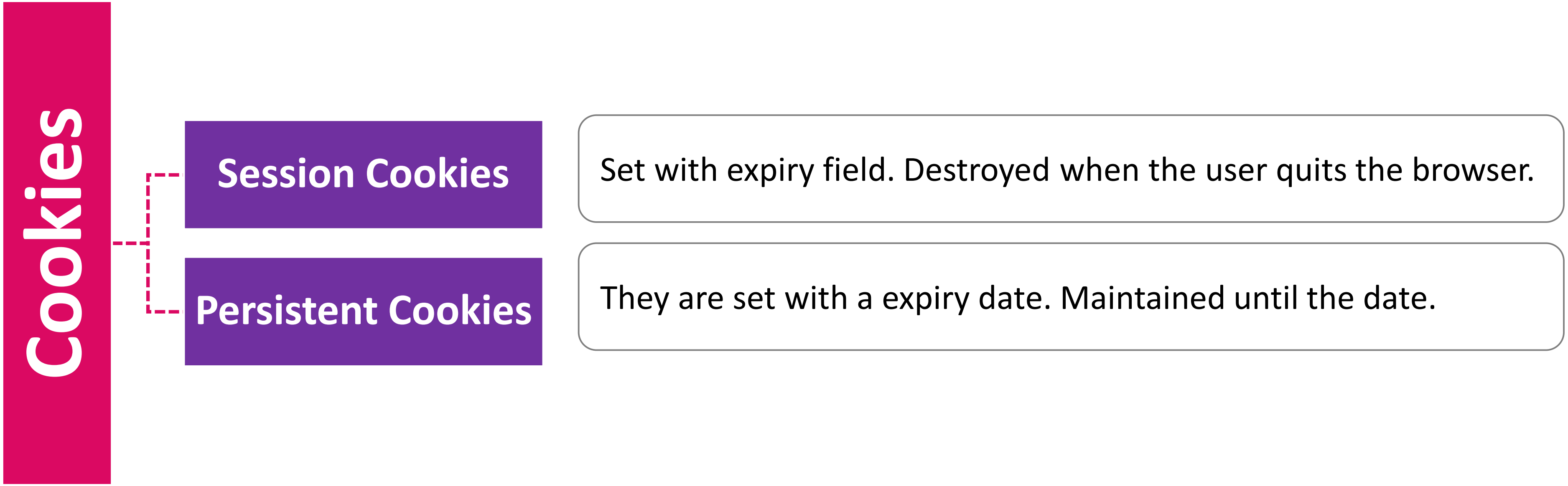
Cookies

(Storing meta information using BOM)

Cookies – What?

- A Cookie is a small piece of text data set by a web server that resides on the client's machine.
- The Cookie is stored on the user's computer, it does not require any server space .
- A website can set and read only its own cookies. Primarily cookies are used for user identity management.
- The `document.cookie` property is used while dealing with cookies

Cookies – Types & Uses



Cookies

Session Cookies

Set with expiry field. Destroyed when the user quits the browser.

Persistent Cookies

They are set with a expiry date. Maintained until the date.

Cookies can be used for: Authentication, Session Tracking, Remember specific information about the user like his name, password, last visited date etc

Cookie Attributes

Token	Description
`username=value`	User identification information
`expires=date`	Set the expiration date in form of UTC (Co-ordinated Universal Time). If you don't set cookies are deleted when the browser get closed (Session cookies).
`domain=domain`	The domain for which the cookie is valid. In case is it not specified, the hostname of the server is used
`path=path`	This specifies the path where the cookie is valid. By default is will be set as "/" directory, for specific sub-domains the path need to be added
`secure`	Setting secure option will make the cookie to be returned only over encrypted HTTPS connection. This way it will protect other scripts accessing the cookie, which will enhance the security.

Setting Cookies - Example

Syntax :

```
name1=value1;name2=value2;name3=value3;
```

Example:

```
document.cookie=“username=WSA;expires=“Mon,18-Mar-2017 09:00:00 UTC”;
path=/;domain=example.com;"
```

Important note:

- The `document.cookie` gives valid value only when the page is hosted from a server (in Chrome).
- Use Bracket for testing cookies and host pages from XAMPP web server.

Cookie Limitations

- Cookies can identify the computer being used , not the individual.
- Cookies cannot access by any other computer except the visitor's computer that created the cookie.
- The total number of cookies a browser can store at one time from one particular site is limited to 20.
- Each cookie is limited to about 4000 characters.

Thank you

WebStack Academy

#83, Farah Towers,
1st Floor, MG Road,
Bangalore – 560001

M: +91-809 555 7332
E: training@webstackacademy.com

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