

Web Technology



DOM, Manipulation and Event Handling

Department of Computer Science and Engineering
Shiv Nadar University

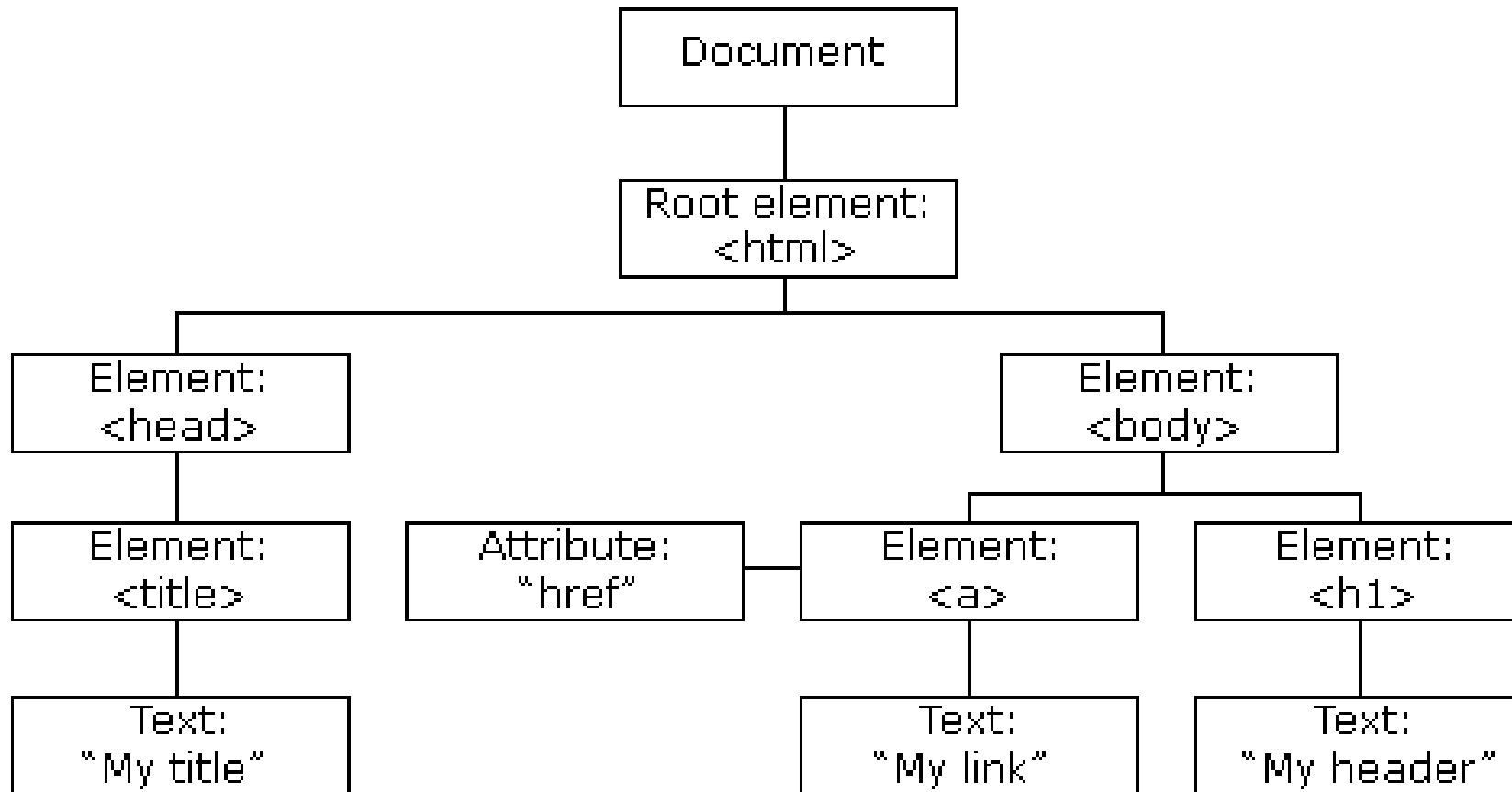
Last Class Summary

- **Keywords Updated**
- **Form Validation Introduction**
- **HTML Form Validation**
- **Introduction DOM**
- **Javascript Form Validation**
- **Best Practices**

Keywords - 48

var	let	const	typeof	if	else
switch	for	do	while	in	of
continue	break	null	true	false	function
return	new	delete	this		

Introduction to Document Object Model (DOM)



DOM

- **DOM – Standard for Accessing Documents**

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- **Three Parts**
 - **Core DOM**
 - **XML DOM**
 - **HTML DOM**

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 - **Methods**

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 - **Properties**
 - **Methods**
- **Events for HTML**
- **Javascripts**

DOM - DHTML

- **Add new HTML elements, attributes, and CSS styles**
- **Change HTML elements, attributes, and CSS styles**
- **Remove existing HTML elements, attributes, and CSS styles**
- **React to HTML events**
- **Create new HTML events**
- **Remove existing HTML events**

DOM – Finding HTML Elements

Method	Description
<code>document.getElementById(<i>id</i>)</code>	Find an element by element id
<code>document.getElementsByTagName(<i>name</i>)</code>	Find elements by tag name
<code>document.getElementsByClassName(<i>name</i>)</code>	Find elements by class name

DOM – Changing HTML Elements

Property	Description
<code>element.innerHTML = <i>new html content</i></code>	Change the inner HTML of an element
<code>element.attribute = <i>new value</i></code>	Change the attribute value of an HTML element
<code>element.style.property = <i>new style</i></code>	Change the style of an HTML element
Method	Description
<code>element.setAttribute(<i>attribute</i>, <i>value</i>)</code>	Change the attribute value of an HTML element

DOM – Tree Traversal

- **Traverse 3 directions**
 - **Upward**
 - **Downward**
 - **Sideways**

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- **`document.querySelector(“element or attribute”);`**
- **`document.querySelectorAll(“element or attribute”);`**

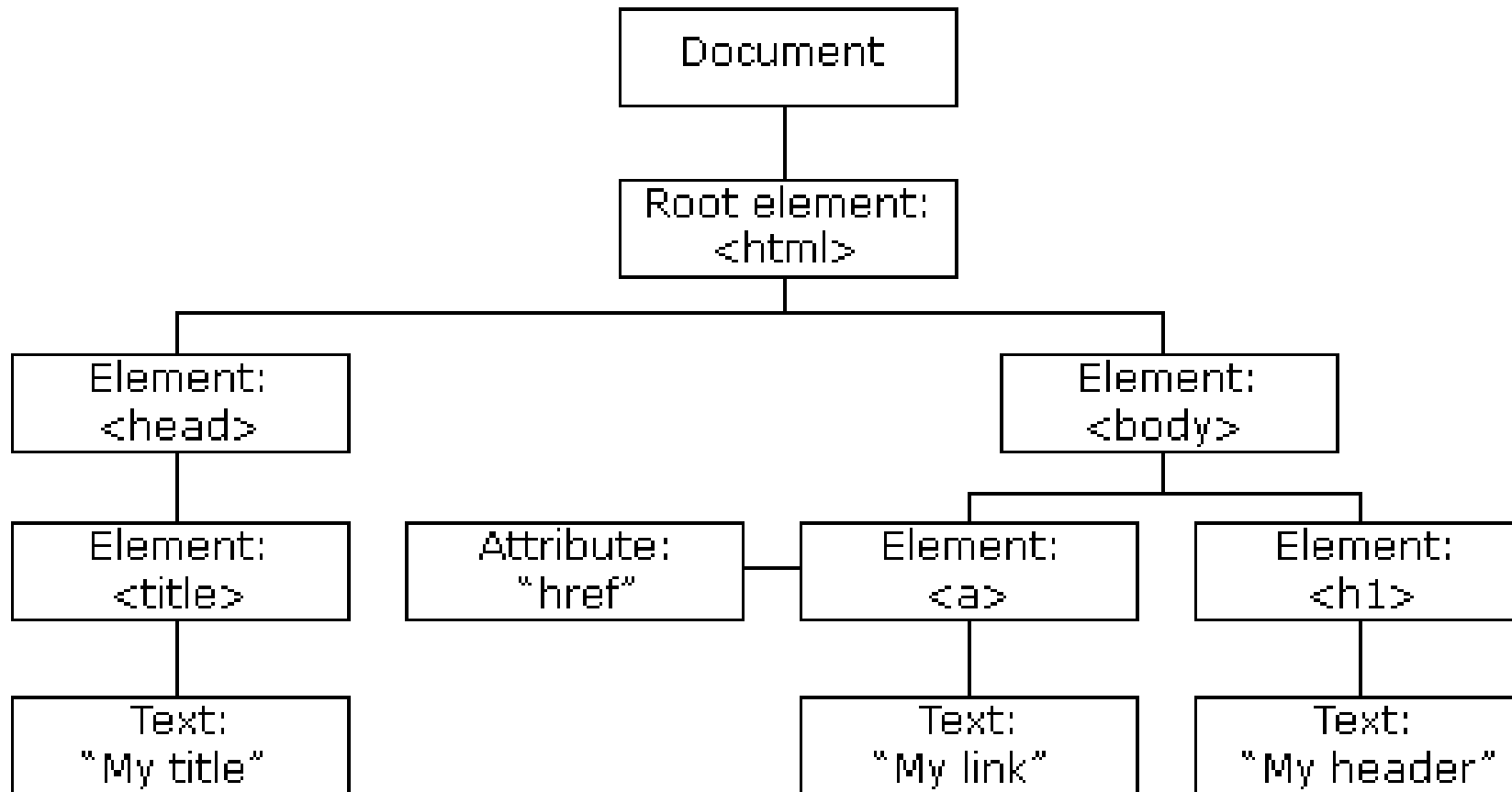
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- **Traverse 3 directions**
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- **document.querySelector(“element or attribute”);**
 - **First element or attribute**
 - **Eg: document.querySelector(“p”);**
- **document.querySelectorAll(“element or attribute”);**

DOM – Tree Traversal

- **Traverse 3 directions**
 - **Upward**
 - **Downward**
 - **Sideways**
- **document.querySelector(“element or attribute”);**
 - **First element or attribute**
 - **Eg: document.querySelector(“p”);**
- **document.querySelectorAll(“element or attribute”);**
 - **Selects all elements or attributes**
 - **Returns a NodeList.**
 - **Eg: document.querySelectorAll(“p”);**

Introduction to Document Object Model (DOM)



DOM – Downward Traversal

- **firstElementChild**
- **children**
- **lastElementChild**
- **childNodes, firstChild, lastChild**

DOM – Upward Traversal

- **parentElement**
- **parentNode**

DOM – Upward Traversal

- **nextElementSibling, previousElementSibling**
- **nextSibling, previousSibling**

DOM – Adding and Deleting Elements

Method	Description
<code>document.createElement(<i>element</i>)</code>	Create an HTML element
<code>document.removeChild(<i>element</i>)</code>	Remove an HTML element
<code>document.appendChild(<i>element</i>)</code>	Add an HTML element
<code>document.replaceChild(<i>new</i>, <i>old</i>)</code>	Replace an HTML element
<code>document.write(<i>text</i>)</code>	Write into the HTML output stream

DOM –HTML Event Handling

Method	Description
<code>document.getElementById(<i>id</i>).onclick = function(){<i>code</i>}</code>	Adding event handler code to an onclick event

DOM – Finding HTML Objects

Property	Description	DOM
document.anchors	Returns all <a> elements that have a name attribute	1
document.applets	Deprecated	1
document.baseURI	Returns the absolute base URI of the document	3
document.body	Returns the <body> element	1
document.cookie	Returns the document's cookie	1
document.doctype	Returns the document's doctype	3
document.documentElement	Returns the <html> element	3
document.documentMode	Returns the mode used by the browser	3

DOM – Finding HTML Objects

document.documentURI	Returns the URI of the document	3
document.domain	Returns the domain name of the document server	1
document.domConfig	Obsolete.	3
document.embeds	Returns all <embed> elements	3
document.forms	Returns all <form> elements	1
document.head	Returns the <head> element	3
document.images	Returns all elements	1
document.implementation	Returns the DOM implementation	3
document.inputEncoding	Returns the document's encoding (character set)	3
document.lastModified	Returns the date and time the document was updated	3
document.links	Returns all <area> and <a> elements that have a href attribute	1

DOM – Finding HTML Objects

document.readyState	Returns the (loading) status of the document	3
document.referrer	Returns the URI of the referrer (the linking document)	1
document.scripts	Returns all <script> elements	3
document.strictErrorChecking	Returns if error checking is enforced	3
document.title	Returns the <title> element	1
document.URL	Returns the complete URL of the document	1

DOM – HTML Events

- **Event Listener**
- **Event Handler**

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- **Event Handler**
 - **Javascript – Responds to event**
- **HTML – Events can be given Element attributes**
- **Javascript – Events can be added to element objects**
 - **Syntax: `element.addEventListener(event, function());`**
 - **Syntax: `element.removeEventListener (event, function());`**

DOM – HTML Events

- **Event Listener**
 - **Some events – mouse click, scrolling, key press, load, animations, online, and so on**
- **Event Handler**
 - **Javascript – Responds to event**
- **HTML – Events can be given Element attributes**
- **Javascript – Events can be added to element objects**
 - **Syntax: `element.addEventListener(event, function());`**
 - **Syntax: `element.removeEventListener (event, function());`**
- **List of all possible events**
 - **Source: [HTML DOM Event Object \(w3schools.com\)](https://www.w3schools.com/dom/dom_events.asp)**

Best Practices

- 1. Use HTML tags with the same case (preferably lowercase).**
- 2. Filename to be based on functionality.**
- 3. When opening a tag, have a "tab space" for each line until you close the tag. It helps in the readability of your HTML document.**
- 4. Give a comment describing a web page as the first line of your HTML document.**
- 5. Keep HTML, CSS, and Javascript files separate.**
- 6. Give meaningful names to identifiers.**
- 7. Identifiers should not be too long or too short (min 3 character length).**
- 8. Add comments on the outermost nested control structure.**

Summary

- **DOM**
- **DHTML**
- **DOM – Finding HTML Elements**
- **DOM – Changing HTML Elements**
- **DOM – Tree Traversal**
- **DOM – Adding and Deleting HTML Elements**
- **DOM – HTML Event Handling**
- **DOM – Finding HTML Objects**
- **DOM – HTML Events**
- **Best Practices**

References

1. **Paul J Deitel, Harvey M Deitel, and Abbey Deitel, "Internet and the world wide web: How to program," Pearson, Fifth Edition, 2012.**

THANK YOU

