Document Object Model

Agenda

Document Object Model

HTML DOM structure

JS HTML DOM basics

JS programming simplification

Document Object Model

The Document Object Model (DOM)
is the data representation of the
objects that comprise the structure
and content of a document on the
web. DOM represents an HTML or
XML document in memory.

DOM featuress

HTML, XML documents

Cross-platform, language-neutral programming interface (API)

Document node -> object

Access and update the document content dynamically

W3C Recommendation

Introduction to DOM

The DOM: What's the Document Object Model?

- https://www.youtube.com/watch?v=80Mr2Z6Qikc&list=PLck2iFB-00xk_sAMTE3_bGxvWrkZl6Td9&index=12&t=0s

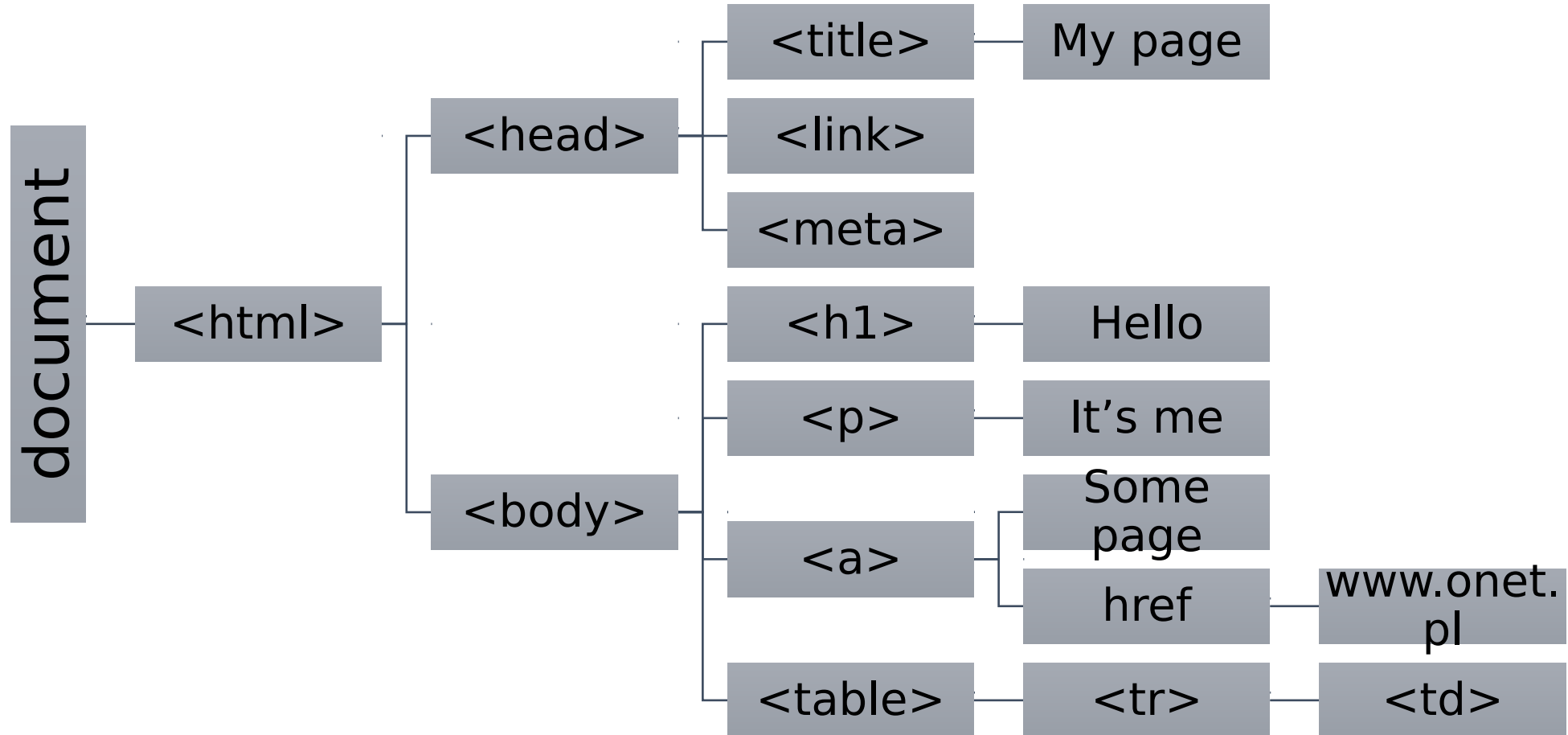**What is an API?**

- https://www.youtube.com/watch?v=s7wmiS2mSXY&list=PLck2iFB-00xk_sAMTE3_bGxvWrkZl6Td9&index=13&t=0s

An Introduction to the DOM (Document Object Model) in JavaScript

- https://www.youtube.com/watch?v=l-0nPnSvbX8&list=PLck2iFB-00xk_sAMTE3_bGxvWrkZl6Td9&index=11&t=0s

HTML DOM tree of objects

HTML DOM

Defines:

HTML elements as objects

Properties of all HTML elements

Methods to access all HTML elements

Events for all HTML elements

Introduction to the DOM

JavaScript HTML DOM

Finding elements in DOM structure

Method / Selector	Description
document.getElementById(*id*)	Find an element by element id
document.getElementsByTagName(*name*)	Find elements by tag name
document.getElementsByClassName(*name*)	Find elements by class name

Finding existing elements

```html
<html>
<head>
    <title>Finding elements</title>
</head>
<body>
    <h1>Finding elements in DOM</h1>
    <p id="main">Find an element by element id</p>
    <p class="important">Find elements by class name</p>
    <p class="important">Find elements by tag name</p>
</body>
</html>
```

Creating new elements and attributes

Method	Description
document.createElement(*newElementName*)	Create new HTML element
document.createTextNode(text)	Create new element text
newElement.appendChild(textNode)	Add text to element
newElement.setAttribute(*name,value*)	Add element attribute
otherElement.appendChild(*newElement*)	Add new element as a child of other DOM element

Example of new element creation

```
<script>

    // create new element
    var e = document.createElement("p");
    var t = document.createTextNode("Paragraph is created.");
    e.appendChild(t);
    e.setAttribute("id", "myparagraph");

    // add new element as a child of other element
    document.getElementById("someElement").appendChild(e);

</script>
```

Changing element content

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

Changing element content example

Element

```
document.getElementById("abc").
innerHTML = "New text";
```

Attribute

```
document.getElementById("abc").
attributeName = "New text";
```

JS programming simplification

jQuery – cross-platform JavaScript library

Write less, do more

HTML DOM manipulation

Ajax (asynchronous JavaScript and XML)

Tutorials

jQuery Learning Center

jQuery Tutorial (w3schools)

Adding jQuery to web page

```
<head>
  <script
   src="https://ajax.googleapis.com/ajax/
       libs/jquery/3.4.1/jquery.min.js">
  </script>
</head>
```

Adding jQuery to HTML

```
<script>

// general use

$(document).ready(function(){

  // jQuery methods ...

});

</script>
```

```
<script>

// example of use

$(document).ready(function(){
  $("button").click(function(){
    alert("Hello World!");
  });
});

</script>
```

JQuery basic syntax

$(selector).action()

Selector

- By element name   `$("h1")`

- By element id   `$("#student")`

- By element class   `$(".studentdata")`

JQuery example

```
$("h1").hide();



$("#student").val("Adam");



$(".studentdata").focus( function(){
   $(this).css("color", "red");
});
```