

# **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 features

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

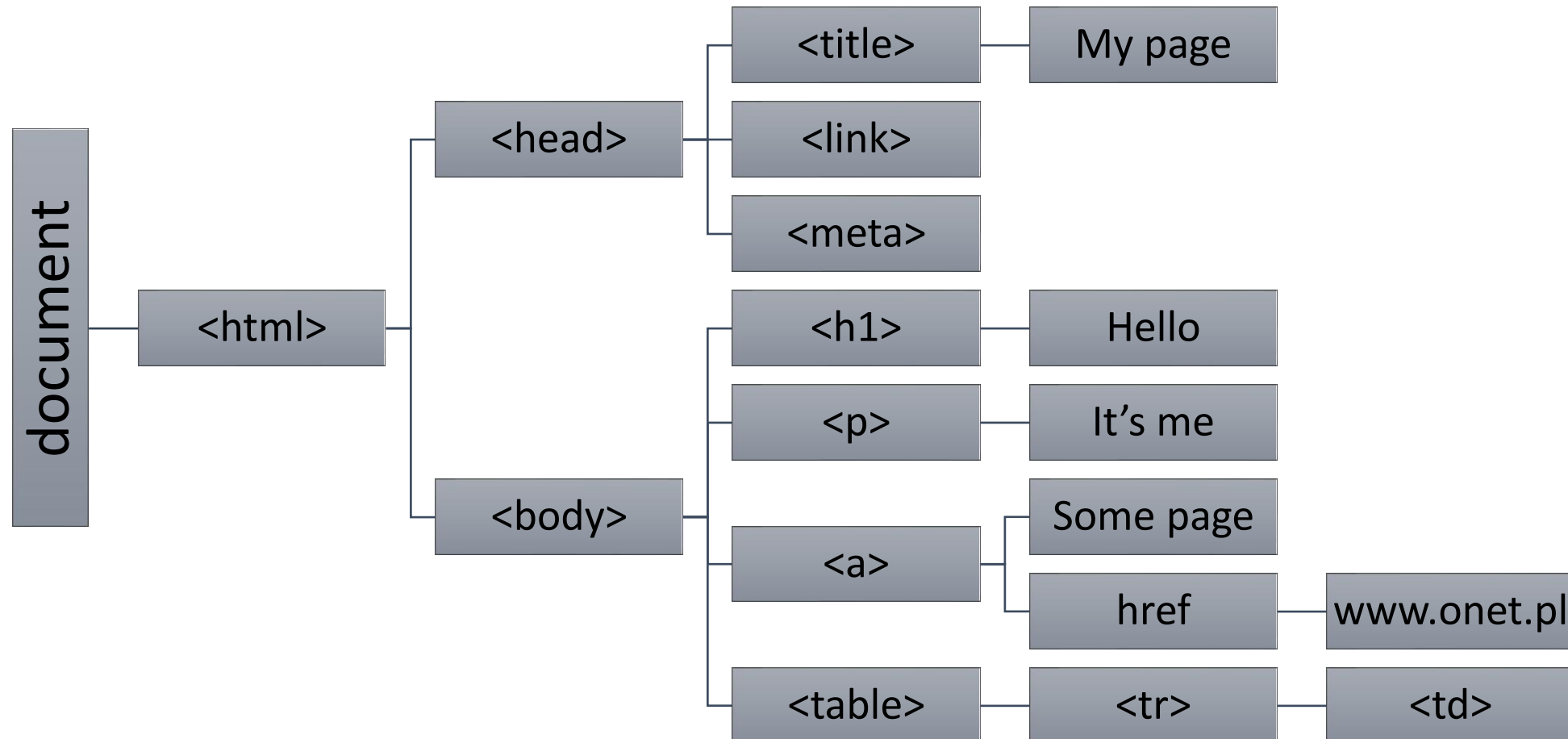
## What is an API?

- [https://www.youtube.com/watch?v=s7wmiS2mSXY&list=PLck2iFB-00xk\\_sAMTE3\\_bGxvWrkZl6Td9&index=13&t=0s](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](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. <b>getElementById</b> ( <i>id</i> )	Find <b>an element</b> by element id
document. <b>getElementsByName</b> ( <i>name</i> )	Find <b>elements</b> by tag name
document. <b>getElementsByClassName</b> ( <i>name</i> )	Find <b>elements</b> by class name



# Finding existing elements

```
<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( <i>newElementName</i> )	Create new HTML element
document.createTextNode(text)	Create new element text
newElement.appendChild(textNode)	Add text to element
newElement.setAttribute( <i>name,value</i> )	Add element attribute
otherElement.appendChild( <i>newElement</i> )	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
<i>element.innerHTML = new html content</i>	Change the inner HTML of an element
<i>element.attribute = new value</i>	Change the attribute value of an HTML element
<i>element.style.property = new style</i>	Change the style of an HTML element
Method	Description
<i>element.setAttribute(attribute, value)</i>	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");  
});
```