DOCENTE	Shadi Lahham
Corso	Web Developer
Unità Formativa	Programmazione - Javascript e Typescript
Argomento	Specificato nel titolo della slide successiva

HTML CSS JS

Introduction

Shadi Lahham - Web development

Structure

Web page Structure

Content
Text, Media

HTML
Structure

CSS
Presentation

Javascript
Logic/Interactivity

Boilerplates

HTML Boilerplate

```
<!doctype html>
<html lang="en">
<head>
  <meta charset="utf-8">
  <title>Website Title</title>
  <meta name="description" content="My new wonderful website">
  <meta name="author" content="Mister X">
  <link rel="stylesheet" href="./css/styles.css?v=1.0">
</head>

<body>
  <div>My Website</div>
  <!-- end of the body -->
  <script src="./js/scripts.js"></script>
</body>
</html>
```

The Doctype

The first thing on an HTML page is the doctype, which tells the browser which version of the markup language the page is using.

For XHTML 1.0 Strict:

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
   "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
```

For HTML4 Transitional:

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
   "http://www.w3.org/TR/html4/loose.dtd">
```

For modern HTML5:

```
<!doctype html>
```

The html Element

```
<!doctype html>
<html lang="en">

</html>
```

Represents top-level element of an HTML document
Also referred to as the root element

All elements must be descendants of <html>

The head Element - character encoding

UTF-8 is a character encoding capable of encoding all possible characters, or code points, defined by Unicode. The encoding is variable-length and uses 8-bit code units.

XHTML and HTML4:

```
<meta http-equiv="Content-Type" content="text/html; charset=utf-8">
```

HTML5:

```
<meta charset="utf-8">
```

Metadata - Wikipedia

The head Element

```
<head>
  <meta charset="utf-8">
  <title>Website Title</title>
  <meta name="description" content="My new wonderful website">
  <meta name="author" content="Mister X">
  <link rel="stylesheet" href="./css/styles.css?v=1.0">
</head>
```

Quick Exercise:

What is this for?

`?v=1.0`

How does the browser cache work?

The body Element

```
<body>
  <div>My Website</div>
  <!-- end of the body -->
  <script src="./js/scripts.js"></script>
</body>
```

XHTML and older:

```
<script src="./js/scripts.js" type="text/javascript"></script>
```

HTML5:

```
<script src="./js/scripts.js"></script>
```

The <script> element

- used to define a client-side script - JavaScript
- either contains Javascript code or points to an external script file via the src attribute

HTML Boilerplate - Complete picture

```
<!doctype html>
<html lang="en">
<head>
  <meta charset="utf-8">
  <title>Website Title</title>
  <meta name="description" content="My new wonderful website">
  <meta name="author" content="Mister X">
  <link rel="stylesheet" href="./css/styles.css?v=1.0">
</head>

<body>
  <div>My Website</div>
  <!-- end of the body -->
  <script src="./js/scripts.js"></script>
</body>
</html>
```

URL

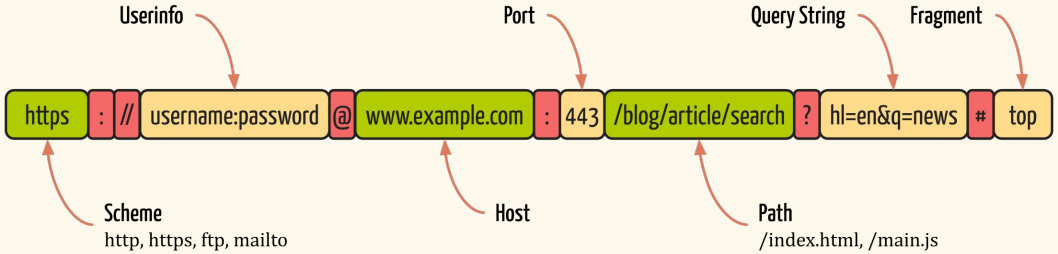
Uniform Resource Locator

Components of a URL

Uniform Resource Locator: an address for locating a unique resource on the net like a file or an app

The components of a URL

Main components
Some of the components shown here are simplified and some are optional



URL example

`https://www.example.com:8080/path/to/resource?key=value#section`

- **scheme** (e.g., http, https)
- **host** (e.g., www.example.com)
- **port** (optional, e.g., :80, :443)
- **path** (optional, e.g., /path/to/resource)
- **query string** (optional, e.g., ?key=value)
- **fragment** (optional, e.g., #section)

Resources

Inline, embedded & external

Inline CSS

```
<body>
  <p style="color:red;text-align:center;">Hello</p>
  <p style="color:orange;text-align:center;">Nice to meet you</p>
</body>
```

- no separation of concerns
- no reusability since it applies to a single element only
- limited caching, larger HTML file and slower load times
- no selectors or media queries
- hard to read and maintain code

Never use inline CSS

Embedded CSS

```
<head>
  <style>
  p {
    color: red;
    text-align: center;
  }
  </style>
</head>
```

- no separation of concerns
- limited reusability; single HTML file only
- limited caching, larger HTML file and slower load times
- hard to read and maintain code

Never use embedded CSS

External CSS

index.html

```
<head>
  <link rel="stylesheet" href="./css/style.css">
</head>
```

style.css

```
p {
  color: red;
}
```

- good separation of concerns
- reusable and modular
- browser caching benefits and faster load times
- easy to maintain and collaborate

Always use an external CSS

Inline Javascript

```
<body>
  <button onclick="console.log('Hello, world!')">Click Me</button>
</body>
```

- no separation of concerns
- no reusability since it applies to a single element only
- limited caching, larger HTML file and slower load times
- hard to read and maintain code

Never use inline Javascript

Embedded Javascript

```
<head>
  <script>
    console.log('Hello, World!');
  </script>
</head>
```

- no separation of concerns
- limited reusability; single HTML file only
- limited caching, larger HTML file and slower load times
- hard to read and maintain code

Never use embedded Javascript

External Javascript

index.html

```
<body>
  <!-- end of the body -->
  <script src="./js/main.js"></script>
</body>
```

main.js

```
console.log('Hello, World!');
```

- good separation of concerns
- reusable and modular
- can manage script load order and dependencies
- browser caching benefits and faster load times
- easy to maintain and collaborate

Always use an external Javascript

Structure & loading

speed optimization

File and folder structure

```html
<body>
  <!-- end of the body -->
  <script src="./js/main.js"></script>
</body>
```

```
.
├── css
│   └── style.css
├── js
│   └── main.js
├── index.html
```

```html
<body>
  <!-- end of the body -->
  <script src="./myScripts/file.js"></script>
</body>
```

```
.
├── css
│   └── style.css
├── myScripts
│   └── file.js
├── index.html
```

Local vs remote Javascript

Remote:

```
<link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/normalize.css">
```

Local:

```
<link rel="stylesheet" href="./css/styles.css">
```

Remote:

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

Local:

```
<script src="./js/main.js"></script>
```

Script placement

```
<!doctype html>
<html lang="en">
<head>
  <script src="./js/earlyLoadingScript.js"></script>
</head>

<body>
  <h1>Introduction</h1>
  <p>Welcome to our service ... </p>
  <!-- end of the body -->
  <script src="./js/postDOMScript.js"></script>
</body>

</html>
```

note: the <script> element blocks the browser from proceeding with reading the remaining HTML content until the JavaScript code has been loaded and executed

Async & defer

```
<script defer src="./js/first.js"></script>
<script defer src="./js/second.js"></script>
```

defer attribute:

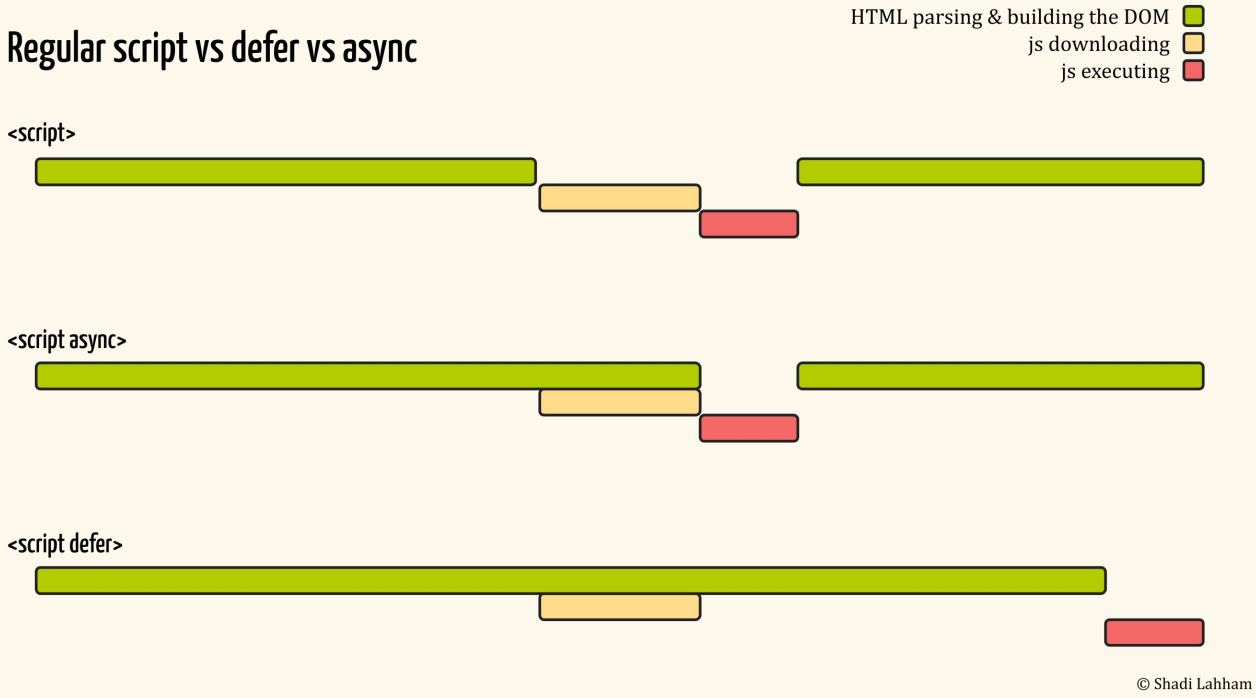
- doesn't block browser
- script loads in background and executes after HTML parsing
- maintains script execution order so **first.js** runs before **second.js**

```
<script async src="./js/big.js"></script>
<script async src="./js/small.js"></script>
```

async attribute:

- doesn't block browser
- script loads asynchronously and executes as soon as it's ready
- no guarantee on script execution order so **small.js** might run before **big.js**

Async & defer



Compatibility

for older browsers

HTML5 Shiv and Polyfills

```
<head>
  <!--[if lt IE 9]>
    <script src="https://cdnjs.cloudflare.com/ajax/libs/html5shiv/3.7.3/html5shiv.js"></script>
  <![endif]-->
</head>
```

Polyfill:
fallback code which makes modern functionality available in older browsers for compatibility
Loading Polyfills is no longer a common practice

Specifically, the HTML5 shiv above is for older browsers that don't understand HTML5
You don't need to use this on modern sites and apps

Polyfill - MDN definition
What is a Polyfill?

Html Element with conditional comments

```
<!doctype html>
<!--[if lt IE 7]>      <html class="no-js lt-ie9 lt-ie8 lt-ie7"> <![endif]-->
<!--[if IE 7]>         <html class="no-js lt-ie9 lt-ie8"> <![endif]-->
<!--[if IE 8]>         <html class="no-js lt-ie9"> <![endif]-->
<!--[if gt IE 8]><!--> <html class="no-js">
</html>
```

You might see the above example in older code for compatibility reasons
You don't need to use this on modern sites and apps

Conditional comment - Wikipedia

Your turn

1.Boilerplate

Quickly Read a few of the following pages

- HTML5 Template
- Basic HTML5 Template
- Basic HTML boilerplate

Using the information in this lesson and the pages above, write your own HTML boilerplate that you think is best. Name it index.html

Remember to test your file on the The W3C Markup Validation Service

Create a folder named **01-boilerplate** with your solution

2.New JS

Build your first Javascript project

- Write your index.html file from scratch
- Add a main.js file that writes your name to the console

Create a folder named **02-new-js** with your solution

Note: all files should be in kebab-case (italiano)

JavaScript Debugging

Console Overview | Tools for Web Developers

3.The cache

Remember the line?

```
<link rel="stylesheet" href="./css/styles.css?v=1.0">
```

- What does `?v=1.0` do?
- How does the browser cache work?

Create a folder named **03-the-cache**

Inside the folder create a **.txt** or **.doc** or **.md** file with your answers

Note: all files should be in kebab-case (italiano)

References

HTML doctype declaration

HTML link

HTML meta

Validate your code:

The W3C Markup Validation Service

Check browser compatibility:

Can I use... Support tables for HTML5, CSS3, etc

References

URL components

URL Syntax

Understanding the Components of a URL

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