COESIONE ITALIA 21-27 PIEMONTE

Cofinanziato dall'Unione europea

REGIONE PIEMONTE

Web Developer

Programmazione - Javascript e Typescript

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Intervento realizzato da ITS TECNOLOGIE DELL'INFORMAZIONE E DELLA COMUNICAZIONE

Web Development

Introduction

Shadi Lahham - Programmazione web - Frontend - HTML e CSS

Anatomy of a Website

Anatomy of a Website

HTML
Structure

CSS
Presentation

Javascript
Logic

HTML 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

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>
  <!-- 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> tag is used to define a client-side script (JavaScript).
The <script> element either contains scripting statements, or it points to an external script file through 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

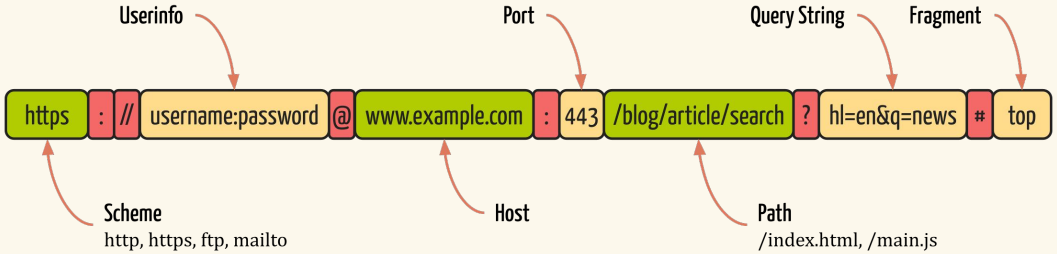
Uniform Resource Locator

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 show here are simplified and some are optional



Resources

Inline, embedded & external

Inline Javascript

```
<!DOCTYPE HTML>
<html>
<body>
  <p>Header...</p>
  <script>
    console.log('Hello, World!');
  </script>
  <p>...Footer</p>
</body>
</html>
```

note: inline javascript shouldn't be used except in very few justified cases

External Javascript

index.html

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

main.js

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

Inline CSS

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

note: inline CSS shouldn't never be used

Embedded CSS

```
<!DOCTYPE html>
<html>
<head>
  <style>
  p {
    color: red;
    text-align: center;
  }
  </style>
</head>
<body>
  <p>Hello CSS!</p>
  <p>Nice to meet you.</p>
</body>
</html>
```

note: embedded CSS shouldn't be used except in very few justified cases

External CSS

index.html

```
<head>
  <meta charset="utf-8">
  <link rel="stylesheet" href="css/style.css">
</head>
```

style.css

```
p {
  color: red;
  text-align: center;
}
```

Structure & loading

speed optimization

File and folder structure

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

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

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

```
.
├── css
│   └── style.css
├── myJavascript
│   └── 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>
```

Tag 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> tag 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:

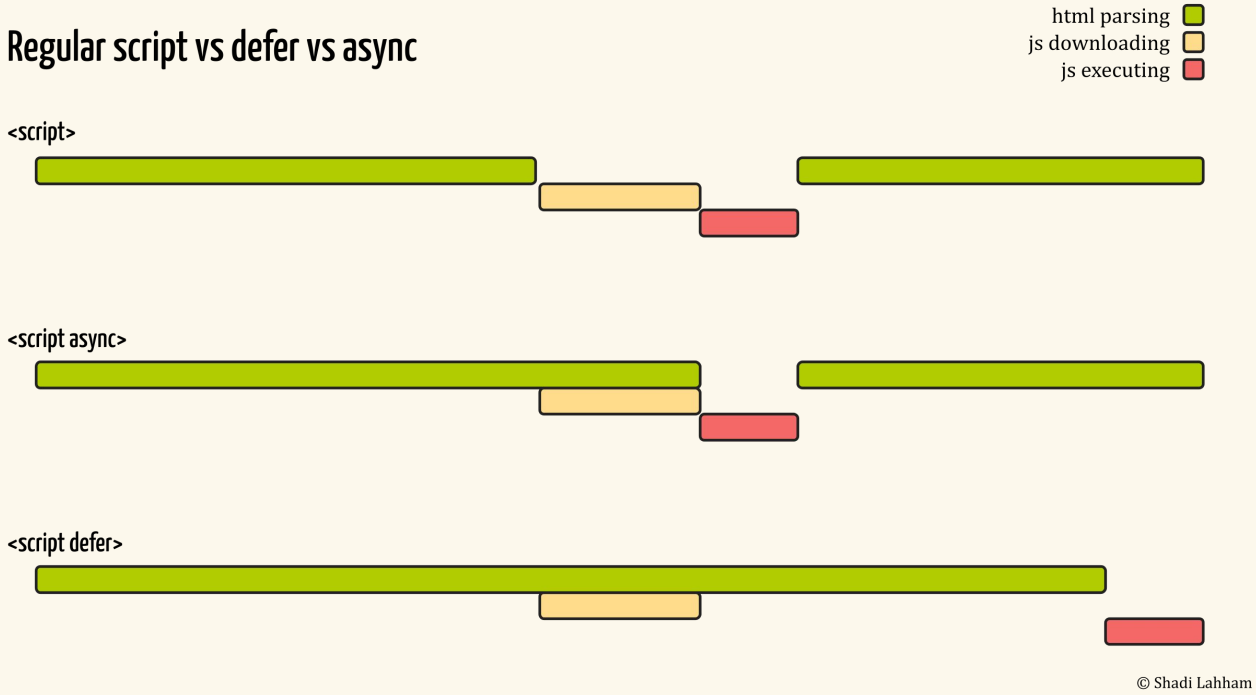
- doesn't block browser
- script loads in background and executes after HTML parsing
- maintains script execution order so **first.js** runs before **second.js**

```
<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


Regular script vs defer vs async
html parsing
js downloading
js executing
<script>
<script async>
<script defer>
© Shadi Lahham

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

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 tag

HTML meta tag

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