HTML

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HTML = HyperText Markup Language

- The building block of the World Wide Web.
- Hypertext is text displayed on a computer or other electronic device that contains references to other text that is immediately accessible to the user, usually with a mouse click or keystroke.
- Hypertext can contain tables, lists, forms, images, and other presentation elements.
- An easy-to-use and flexible form for sharing information over the Internet.

With HTML you can...

- Publish documents online with text, images, lists, spreadsheets, and more.
- Access online resources such as images, videos, or other HTML documents through hyperlinks.
- Create forms to collect user input, such as name, email address, comments, etc.
- Include images, videos, sound clips, applications, and other HTML documents directly in the HTML document.
- You can create an offline version of your website that works without the Internet (Progressive Web App)
- You can save the information to the user's web browser and access it later.
- And so on...

HTML-tools

- To get started with HTML coding, all you need is two things: a simple text editor and a web browser.
- Although HTML is plain text, it’s recommended to use a decent editor like Visual Studio Code or an integrated development environment (IDE) like WebStorm instead of Notepad.
  - PyCharm used in the course is practically the same as WebStorm, but it also has Python support.

HTML – creating a document

1. Create a folder to store the webpage(s) and any associated images and style files.
2. Open that folder in the editor.
   - Always open a folder. Avoid opening individual files as it is a path to destruction and ruin.
3. Create a new file in the editor and name it “my-page.html”.
   - Never add spaces to file and folder names.
   - Also avoid Scandinavian and other non-English letters.

```
<!DOCTYPE html>
<html lang="en">
<head>
    <title>A simple HTML document</title>
</head>
<body>
    <p>Hello World!<p>
</body>
</html>
```

HTML – creating a document

- PyCharm automatically adds the basic structure of an HTML document to the file
  - In the VSCode editor, type the exclamation point “!” and press enter to get the basic structure.
- Of course, you can write it yourself using the example on the left

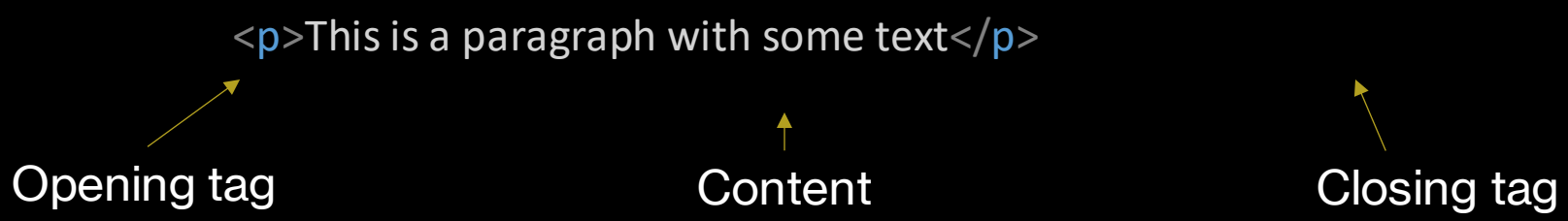
HTML – basic structure

```
<!DOCTYPE html>
<html lang="en">
<head>
    <title>A simple HTML document</title>
</head>
<body>
    <p>Hello World!<p>
</body>
</html>
```

- The first line <! DOCTYPE html> is the document type definition (DTD). It tells the web browser that this file is an HTML5 document.
- In the <head> element you write the elements that provide information about the document. For example, the <title> element specifies the title of the document.
- The <body> element contains the actual content of the document (paragraphs, links, images, tables, and so on) that the web browser displays to the user.

HTML – tags and elements

- HTML consists of HTML elements that consist of tags and content
- Tags consist of a keyword surrounded by angle brackets. E.g. <html>, <head>, <body>, <title>, <p>, and so on.
  - There are a little over 100 tags in HTML 5
  - Most of the time you'll be using only about 15-20 tags



HTML - attributes

- Attributes contain additional information that you don't want to appear in the actual content

```
<a href="page2.html">Link to another page</a>
```

Attribute

- Here *href* is the attribute name and *page2.html* is the attribute value
  - The *href* attribute specifies the URL of the page the link goes to. In this case a document with filename *page2.html*
- Attribute structure:
  - Attribute name followed by =
  - The attribute value wrapped in quotation marks
- An element can have multiple attributes

HTML – empty elements

- Some elements are not supposed to have any content. They are called ‘empty’ elements

```
<img src=“cat.jpg” alt=”picture of a cat”>
```

Attribute

- For example <img> contains two attributes but no content and no closing tag (</img>) because all the necessary information to show the image is in the *src* attribute
  - Note: in some libraries and frameworks like e.g. React, you need to close empty elements. That is done by adding / to the end of the opening tag:

```
<img src=“cat.jpg” alt=”picture of a cat” />
```

HTML – block & inline elements

- There are two main categories of elements in HTML: block-level and inline elements
- Block-level:
  - Appears on a new line following the content that precedes it
  - Following content also appears on a new line
  - Usually structural elements
    - Headings, paragraphs, lists, navigation menus, footers...
- Inline:
  - Contained within block-level elements
  - Are used to mark up only small parts of the content
  - Will not cause new line to appear
  - Usually used with text:
    - Hyperlinks, emphasis, italic...

Special characters

- Some characters like <, >, &, and “ are used in HTML syntax.
- To include the special characters or entities you use character references
  - Character seference starts with an ampersand (&) and ends with a semicolon (;)

Literal character	Character reference equivalent
<	<
>	>
"	"
'	'
&	&

  - You can also use UTF codes to add entities to your document.
    - E.g. hexadecimal encoding of UTF character 😁 is 1F601, so the reference is &#1F601;

Pause and study

- What's in the head? Metadata in HTML
- HTML text fundamentals
- Creating hyperlinks
- Advanced text formatting