

# HTML (HyperText Markup Language)

## 1. XML, a structured data description language

XML (eXtensible Markup Language) is a universal data description language readable by both humans and machines, used for structured data storage and transfer.

Example:

```
<mail>
  <from>Alice</from>
  <to>Bob</to>
  <subject>Reminder</subject>
  <message>Meeting at 2 PM in office II.</message>
</mail>
```

The tags such as mail, from, to, etc., are called **tags** or **elements**.

HTML documents, which describe the content of web pages, are also written in XML, using various elements with different meanings to present content.

## 2. Basic Structure of an HTML Document

An HTML document consists of three main parts: <html>, <head>, and <body>.

```
<!DOCTYPE html>
<html>
<head>
  <title>Page Title</title>
</head>
<body>
  <h1>Heading 1</h1>
  <p>This is a paragraph</p>
</body>
</html>
```

The head section contains metadata about the page, such as the title (<title>) and the icon (<link rel="icon">).

```
<head>
  <title>Hello World</title>
  <link rel="icon" href="favicon.ico" type="image/x-icon">
</head>
```

## 3. Comments

HTML documents can contain comments, which are not visible to users in the browser, but are visible to developers in the HTML code.

```
<!-- description of ME -->  
<p>University of Miskolc is a higher education institution in Miskolc.  
The institution operates as a true university, with wide-ranging programs  
across eight faculties...</p>
```

## 4. Headings and Paragraphs

Headings are defined using the `<h1>`-`<h6>` elements, while paragraphs are defined using the `<p>` element.

```
<h1>Heading Level 1</h1>  
<p>This is a paragraph.</p>  
  
<h2>Heading Level 2</h2>  
<p>This is a paragraph.</p>  
<p>This is also a paragraph.</p>
```

## 5. Text Formatting and Structuring

Elements like `<br>`, `<hr>`, `<small>`, `<sup>` / `<sub>`, `<span>`, `<div>` help with text formatting and structuring.

```
<p>This is a <small>small text</small>.</p>  
<p>This is a second line <br> with a line break.</p>  
<hr> <!-- this is a horizontal line -->  
<p>Subscript and superscript: P<sub>i</sub> = I<sup>2</sup>R </p>  
  
<!-- text formatting -->  
<p>This is a <span style="font-weight: bold">bold text</span>.</p>  
  
<!-- formatting all child elements -->  
<div style="font-weight: bold">  
  <p>1st paragraph</p>  
  <p>2nd paragraph</p>  
  <p>3rd paragraph</p>  
</div>
```

## 6. Links

Links can point to web pages, email addresses, telephone numbers, etc.

```
<a href="index.html">Internal page link</a>  
<a href="https://www.example.com">External website link</a>
```

```
<a href="mailto:info@example.com">Email link</a>
<a href="tel:0036301234567">Phone number link</a>
```

## 7. Images

Images are inserted using the `<img>` element, with the `src` attribute specifying the path to the image and the `alt` attribute providing an explanatory text.

```

```

## 8. Ordered and Unordered Lists

Ordered lists use the `<ol>` tag, while unordered lists use the `<ul>` elements. List items are marked with `<li>` tags.

```
<!-- ordered list -->
<ol>
  <li>First item</li>
  <li>Second item</li>
</ol>

<!-- unordered list -->
<ul>
  <li>First item</li>
  <li>Second item</li>
</ul>
```

## 9. Tables

To create tables, use the following elements:

- `<table>`: the main table element
- `<tr>`: table row
- `<th>`: table header
- `<td>`: table data cell

```
<table>
  <tr>
    <th>Product</th>
    <th>Price</th>
  </tr>
  <tr>
    <td>Apple</td>
    <td>500 Ft</td>
  </tr>
```

```
<tr>
  <td>Pear</td>
  <td>400 Ft</td>
</tr>
<tr>
  <td colspan="2">Total: 900 Ft</td>
</tr>
</table>
```

## 10. Exercise

Create an introduction page on your favorite topic (music, film, product, etc.) using paragraphs, images, links, tables, and lists.

Feel free to use online resources (e.g. [W3Schools HTML tutorial](#)) as help.

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