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HTML

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HTML language

- HyperText Markup Language
- A language that allows you to define the layout of a document
  - How it should be displayed on a browser screen
- Not a programming language

HTML file

- An HTML page is a text file enriched with code and commands called **tags**
- The source file has the extension (.htm or .html)
- You can write HTML code with any text editor

HTML Code

- There are several WYSIWYG editors
- The source code must be saved on the web server
- It is sent to the client using the HTTP protocol

HTML source

- The HTML code is interpreted by the browser and displayed on the screen as
  - Formatted text
  - Images
  - Animations
  - Multimedia
- The source is visible to users but they cannot modify it on the server

Notion of tag

- A keyword framed by < et >
- For most tags, there is a start tag and an end tag processed by /.
  - `<html> … </html>`
- Some tags do not have closing tags
  - `<br>` ou `<br />`

Tags attributes

- To specify the effect of a tag, one or more attributes are added
- For most tags, there are one or more attributes
- Attributes are reserved words
  - Each attribute is separated by a space,
- Each attribute is assigned a value:

```
<tag_name att_1="val_1" att_2="val=2" … att_n="val_n">
<font size=2> my text </font>
<a href=« http://www.ensia.edu.dz/ »> ENSIA </a>
```

Notes

- Some attributes do not have values
  - Exp: `<hr noshade> <input type="checkbox" checked>`
- Each tag has its own attributes
- Some attributes are common to several tags:
  - `color, align` …
- Some tags have no attributes
  - `<br />, <b>` …

Attribute values

- Some values must belong to a finite set
  - `aligh="left"`
- Some values must obey a specific syntax
  - `color ="#FF0080"`
- Others are free
  - `name= "2CP"`

Special values: colours

- By name : `white, black, blue, green, red` …
- By RGB code : `#RRGGBB`
  - RR, GG, BB are hexadecimal values between 00 and FF

Special values : file names

- Related
  - The file must be available on the same web server as the file containing the HTML code
  - On the same directory → use the file name directly
    - `"image.jpg »`
  - On the child directory
    - `"Images/image.gif"`
  - On a parent directory
    - `"../page.html"`
  - Conbined
    - `"../folder/page.html"`

Special values : file names

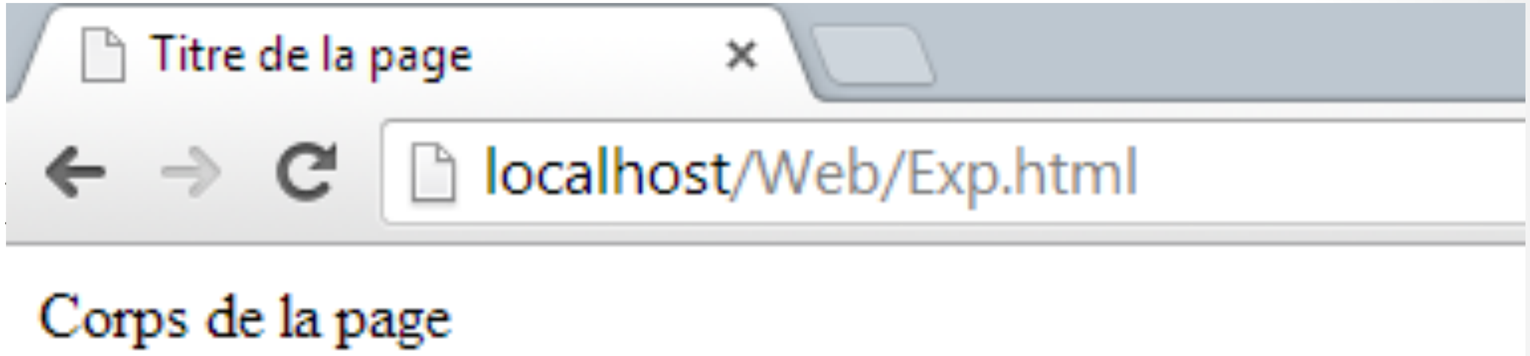
- Absolute
  - Whether the file is on the same web server or on another
  - The full address of the file is given (the URL)
    - `http://www.site.org/folder/.../file.ext`
  - Be careful when writing (case sensitive)

Particular values: Size

- Absolute
  - We give a positive or zero (*integer*) value *n* and it will correspond to *n* pixels.
- Relative
  - A positive or zero (*integer*) value is given followed by the *%* symbol (*n%*) and this will correspond to *n%* of the available space.

Structure of an HTML page

```
<html>
  <head>
    <title>
  </head>
  <body>
      Body of
  </body>
</html>
```



Titre de la page

localhost/Web/Exp.html

Corps de la page

Remarks

- Tags can be written in upper or lower case (the HTML interpreter is not case sensitive)
- Manual formatting: line breaks, spaces ..., are always ignored.
- Images, sounds, videos, ... are inserted from external files and are not part of the HTML source.

Header

- The majority of the elements do not appear.
- Some are linked to the
- Some are information for search engines
- Some are used to carry out processing on the client machine (languages, checks, etc.)

Header elements : title

- The title :
  - It will appear on the title bar of the browser.
  - It is inserted between the `<title>` and `</title>` tags

Header elements : Meta

```
<META name="META_name" content="value"
lang="lang_code">
```

```
<META http-equiv="META_name" content="value">
```

- Name : `Author Title Keywords Description Date Generator ProgId` …
- http-equiv : `Content-type Content-Language expires` …
- The value of `content` depends on the value of `name` or `http-equiv`

Exemples de meta

- The attribute `lang` (not for all `meta`) will have the value of the language code : `en, ar-dz, fr` …

```
<META name="keywords" content="html; web
development; php" lang="en">

<meta name="description" content="website for
students …" lang="fr">

<meta http-equiv="Content-Type"
Content="text/html; charset="windows-1252">

<meta http-equiv="refresh"
content="2;URL=http://www.usthb.dz/" />
```

The body

- Defined by the `<body>` tag
- Everything (or almost everything) that is put in this section will be displayed on the page
- $\Rightarrow$ Contains all the elements to be displayed: texts, images, ...

Comments

- There are also comment tags
- Can be inserted anywhere on the page but will not be displayed by the browser.
- < ! – –   ... the comment ... – – >
- Can be on one or more lines.
- No nesting of comments

Text formatting (1)

- To set the font, size and/or colour of a text by putting it between <font> and </font>. As follows:
  - `<font face=“police_name” color=“color” size=“nb”> … The text … </font>`
- One, two or all attributes can be defined for this tag.

Text formatting (2)

- `Face`: one or more font names can be assigned
- `Color`: Follows the syntax of the colour
- `Size`: defines the size of the character and can take values from 1 to 7.
  - 1 is 8pts, 3 is 12pts and 7 is 36pts.

Text formatting (3)

- Bold: `<B> … </B>` ou `<Strong> … </Strong>`
- Italic: `<I> … </I>` ou `<Em> … </Em>`
- Underlined: `<U> … </U>`
- Exponent: `<SUP> … </SUP>`
- Index: `<SUB> … </SUB>`

Text formatting (4)

- Care must be taken when closing tags: "stack" order
- In case of conflict between tags, the closest tag will be applied

Special formatting

- Titles level : tag `<H1>` to `<H6>.`
- Code : `<code> … </code>`
- keybord : `<kbd> … </kbd>`
- Variable : `<var> … </var>`
- Citation : `<cite> … </cite>`
- Definition : `<dfn> … </dfn>`
- Example : `<samp> … </samp>`

Paragraphs / separators

- A paragraph is defined by `<P>`
- The closing tag `</p>` is optional.
- Line break `<BR>`
  - Does not have a closing tag
- Display a horizontal line `<HR>`
  - Does not have a closing tag
  - Use with `align` and `width` (absolute or relative value)

Lists (1)

- Automatically numbered lists: are inserted using `<OL>` and `</OL>`.
- `<ol>` marks the beginning of the list
- `</ol>` marks the end of the list
- Each item in the list must be preceded by the `<LI>` tag.
- To change the numbering scheme ➔ use `type` attribute on `<ol>`
  - "I" or "i"
  - "A" or "a"
  - "1"
- To change the number of the first item ➔ use `start` attrbute

Lists (2)

- Unumbred lists: are inserted using : `<UL>` and `</UL>`
  - `<UL>` marks the beginning of the list
  - `</UL>` marks the end of the list
- Each item in the list must be preceded by the `<LI>` tag.

Lists (3)

- Another type of list can be inserted ➔ Definition lists.
- We use `<DL>` and `</DL>` to mark the beginning and end of the list.
- Each element (a title) must be framed by `<DT>` and `</DT>`.
- The definition of the element must be framed by `<DD>` and `</DD>`.

Links

- There are two types of links (also called references) that can be defined on a text or image:
  - Internal: They designate a specific point, marked by a tag, in the body of the document itself.
  - External: Simply specify another HTML page, a multimedia document or access to a service such as e-mail or FTP.

Internal links

- We need to fix a target on the document.
- A label is defined at this location (an anchor)

```
<a name= "my_label">...</a>
```

- The link (reference) is defined:

```
<a href="#my_label">...</a>.
```

External links

```
<A HREF="file">...</A>
```

- The `href` value obeys the file syntax.
- As it can go to another service if the `HREF` value is :
- `"ftp://url"` : goes to an ftp server specified by the url.
- `"mailto:adr_email"` : opens the mail application to send an email to the address defined by adr_email.
- `wss://link` … : opens a full-duplex communication channels over a single TCP connection.

Image insertion

- We use tage `<img>`
- The image is not part of the HTML code. It is imported from an external file.
- Mandatory attribute `src` : its value obeys the file syntax.
- Extensions : .gif .jpg .jpeg .png
- The image will be displayed at its actual size.

Inserting a table

- Tables are very important in the layout of a web page.
- A table is a set of rows and columns
- An element in a given row i and a given column j is called a cell
- We use `<TABLE>` and `</TABLE>` tag

Tables

- An HTML table is organised in rows (a sequence of several lines).
- Each row contains a set of cells
- Be sure to insert the same number of cells in each row.

Year	Staff	Evolution
2020	18000	12%
2021	20000	10%
2022	21000	5%
2023	21500	2.5%

Rows and cells in a table

- Row (Table Row) -- Tags `<TR>` and `</TR>`

- Cell (Table Data) -- Tags `<TD>` and `</TD>`
- Special cells -- tags `<TH>` and `</TH>` : colunm title.
- Table title -- tags `<CAPTION>` and `</CAPTION>` : To be inserted after `<TABLE>`.
- `<colgroup>` tag specifies a group of one or more columns in a table for formatting.
  - Must be child of `<table>`
  - To be inserted after `<caption>`
- `<col>` Specifies column properties for each column within a `<colgroup>` element
- `<thead>` `<tbody>` `<tfoot>` Groups the header, body and footer content in a table

Table properties

- Alignment of the table : we frame the table with the tags `<DIV>` and `</DIV>` using the attribute `Align`.
- Also using the `Align` of `<table>`.
- Width and Height → attributes `width` and `height` : in absolute (pixels) or relative (%).
- Border → attribute border : in pixels for the border thickness.

Merging of cells (1)

- Adjacent cells can be merged horizontally or vertically.
- We use attributes in the `<TD>` tag
- Horizontal merge → attribute `colspan`: its value is an integer n > 1 which corresponds to the number of merged cells.
- The other n-1 cells in the same row should be deleted.

- Vertical merge → attribute `rowspan`: its value is an integer n > 1 corresponding to the number of merged cells.
- One cell in the next n-1 rows must be deleted.

Forms

- A form is a set of elements for entering information.
- HTML takes care of the description side only, not the processing of the information entered.
- To define a form we use the tags: `<form>` and `</form>`.
  - Used to delimit the elements of the same form.

Form properties (1)

- Among the attributes of `<form>` :
- The name of the form → `Name` : very useful in client-side processing (JavaScript for example).
- The name of the application that will process the form → `Action` : Its value obeys file syntax.
- `Target` : Used in the same way as for the `<a>` for the display of the answer

Form properties (2)

- The method of sending the data → `Method` : 2 possible values
  - `GET` : The data is sent with the URL. Limited number of characters. Data appear on the address bar of the browser.
  - `POST` : The data is sent to a special area on the server. No limits on data.

Elements of the form

- The form is composed of input elements defined by one of the three tags :
  - `<INPUT>`
  - `<TEXTAREA>`
  - `<SELECT>`
- They all have the same attribute: `NAME`. It uniquely identifies them. Mandatory and important attribute.

The elements (fields) : `<input>`

- The value of the `Type` allows to distinguish the elements `<INPUT>` :
  - `TEXT` : Simple text area (Field).
  - `PASSWORD` : Password entry field.
  - `HIDDEN` : Hidden field.
  - `RADIO` : Radio button.
  - `CHECKBOX` : Check box.
  - `FILE` : To select a file to send.
  - `BUTTON` : Control button (single).
  - `SUBMIT` : Send button.
  - `RESET` : Reset button.
  - Others (HTML5): color, email, date, time, datetime-local, number, range, tel, url …

`<input>` – textual (1)

- These are fields of type `Text`, `Password` and `Hidden`.
- `Text` : Simple text input field (zone) allows us to enter text such as: name, first name, ...
- `Password` : Password input field allows each character to appear in * on the screen.
- `Hidden` : Hidden text field. Allows you to transfer data without displaying it on the screen.

<input> – textual (2)

- The fields <INPUT> of Text or Password types may have other optional attributes:
- Value : Default text that will be displayed.
- Size : Field width in number of characters.
- Maxlength : The maximum number of characters.
- The field <INPUT> of Hidden type requires the attribute Value.

<input> – boxes

- Radio : Radio button. Allows a choice in mutual exclusion (having the same name).
- Checkbox : Check box. To select several options at once.
- Have the same attributes :
  - Value.
  - Checked: to select or check by default.

`<input>` – buttons (1)

- `Button` : Simple button, generally useful with client-side scripts (Javascript, ...)
- `Submit` : Starts sending the form data to the application (on the server) defined by `Action`.
- `Reset` : Cancels the form by deleting all data entered and resetting the default values.

<input> – buttons (2)

- Value : Sets the button label (text appearing on the button).
- The Name attribute is not mandatory for Submit and Reset.

`<input>` – files

- `File` : Sends a file from the user machine to the server in the form.Zone textuelle + bouton de parcours
- `Accept` : Defines a filter. Allowed file types.

Multi-line input field

- `<TEXTAREA>` and `</TEXTAREA>`.
- Between the two, we can put the default text.
- In addition to `name`, `<textarea>` has other optional attributes:
- `Rows` : The number of lines that the input field will occupy.
- `Cols` : The number of characters that the area will occupy in width.

Drop-down lists (selection area)

- `<SELECT>` and `</SELECT>` to delimit the list. Marks the beginning and end of the list.
- In addition to `name`, `<Select>` has other optional attributes:
- `Size` : The number of lines that the area will occupy.
- `Multiple` : Attribute without value, to allow multiple choice (Using the CTRL key)

Drop-down list items

- <OPTION> to define an item in the list.
- The Value attribute allows us to associate a value with the selected choice. This value will be sent to the server.
- The Selected attribute (without value) allows you to select the default item.
- The text that will be displayed will be put after <OPTION>

Forms (supplements)

- `<fieldset>` and `</fieldset>` allows you to create blocks within the same form.
- `<Legend>` and `</Legend>` : For the block title.