



# HTML5 and CSS3 – The Future of the Web Programming



AL-FARABI KAZAKH NATIONAL UNIVERSITY



# HTML

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- Introduction
- HTML syntax
- Differences HTML/XHTML
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- More information



## INTRODUCTION





## Introduction

- Wikipedia:

*HyperText Markup Language (HTML) is the predominant markup language for web pages. HTML elements are the basic building-blocks of webpages.*



## Introduction

*HTML is written in the form of HTML elements consisting of tags, enclosed in angle brackets (like `<html>`), within the web page content. HTML tags most commonly come in pairs like `<h1>` and `</h1>`, although some tags, known as empty elements, are unpaired, for example `<img>`. The first tag in a pair is the start tag, the second tag is the end tag (they are also called opening tags and closing tags). In between these tags web designers can add text, tags, comments and other types of text-based content.*



## Introduction

- HTML stands for Hyper Text Markup Language
- HTML is not a programming language, it is a markup language
- A markup language is a set of markup tags
- HTML uses markup tags to describe web pages

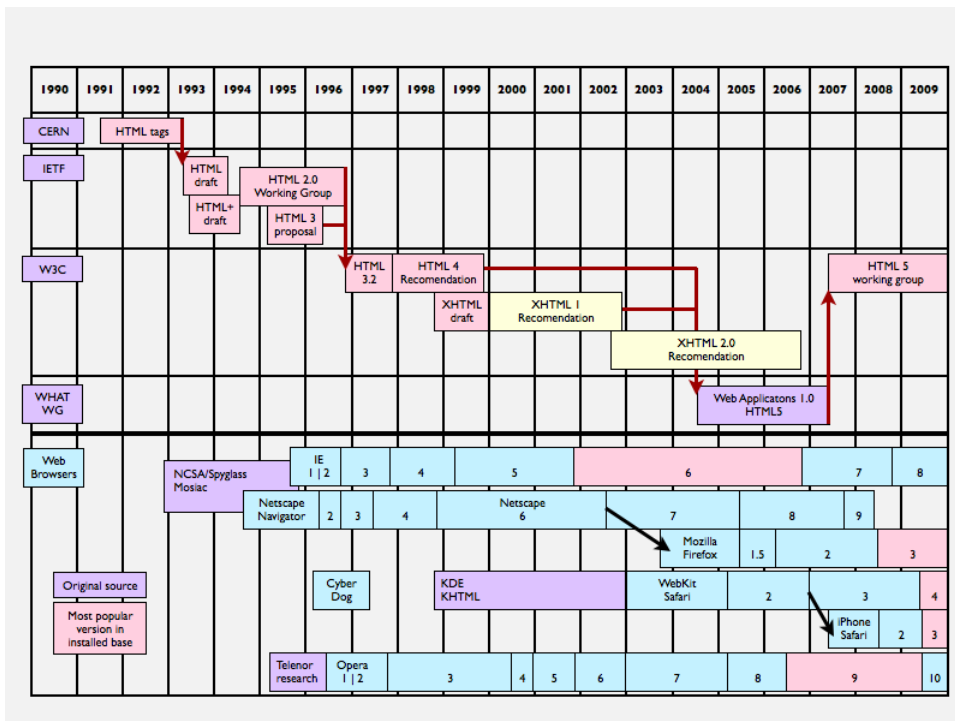


## Introduction

- Standard defined by the W3C:
  - HTML 4.01
  - HTML 5 (en desarrollo)
  - XHTML 1.0
  - XHTML 1.1
  - XHTML 2 (cancelled)

(December 2011)





## Introduction

- HTML 1 → HTML 4.01:
  - Based on **Standard Generalized Markup Language** (SGML)
- XHTML 1:
  - Based on **eXtensible Markup Language** (XML)



## Introduction

- Old HTML (until 4.01):
  - Defines the visual presentation of the web page:
  - Font face and font size
  - Colors
  - Size of elements
  - Some special effects
  - ...





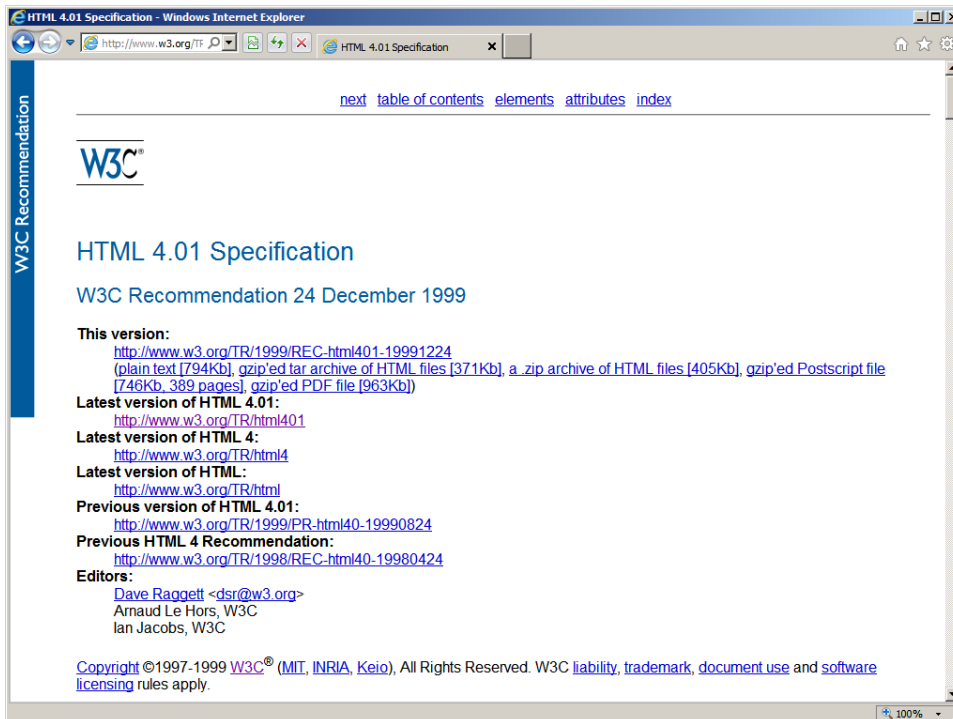
## Introduction

- New HTML (XHTML 1, HTML5):
  - Visual presentation → CSS



## HTML SYNTAX





## HTML5 & CSS3



## HTML syntax

- HTML tags are keywords surrounded by angle brackets like `<html>`
- HTML tags normally come in pairs like `<b>` and `</b>`
- The first tag in a pair is the start tag, the second tag is the end tag
- Start and end tags are also called opening tags and closing tags

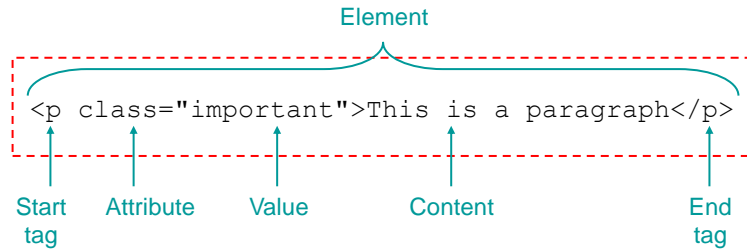




HTML5 & CSS3



# HTML syntax



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# HTML syntax

```
<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01//EN"
  "http://www.w3.org/TR/html4/strict.dtd">
<html>
<head>
<title>The title of the web page</title>
</head>
<body>
<p>A paragraph of text</p>
</body>
</html>
```





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### HTML syntax

- Versions HTML 4.01:

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

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

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

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### HTML syntax

- Tag:

- Individual: <...>
- Pair: <...> ... </...>

- Attributes:

- 
- <input type="radio"  
checked="checked">

- Upper and lower-case:

- <HTML>, <Html>, <html>



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### HTML syntax

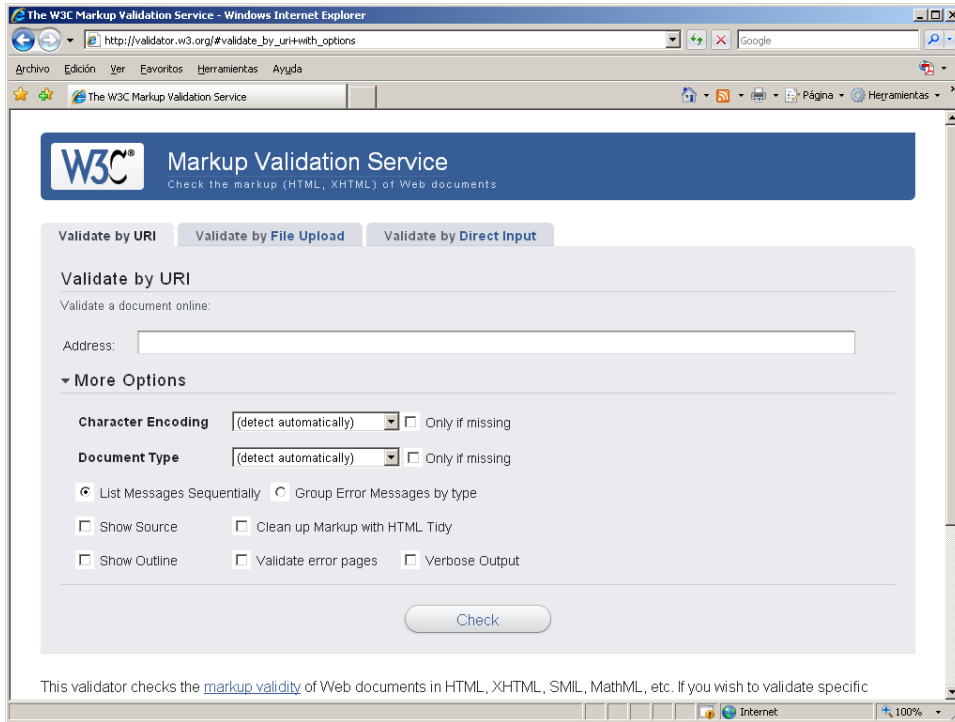
- `<!-- Comentario -->`
- New lines and blank spaces are ignored:
  - `<br />`
  - `&nbsp;`

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### HTML syntax

- How can we know if a web page is correctly written? → Validation
- W3C: <http://validator.w3.org/>



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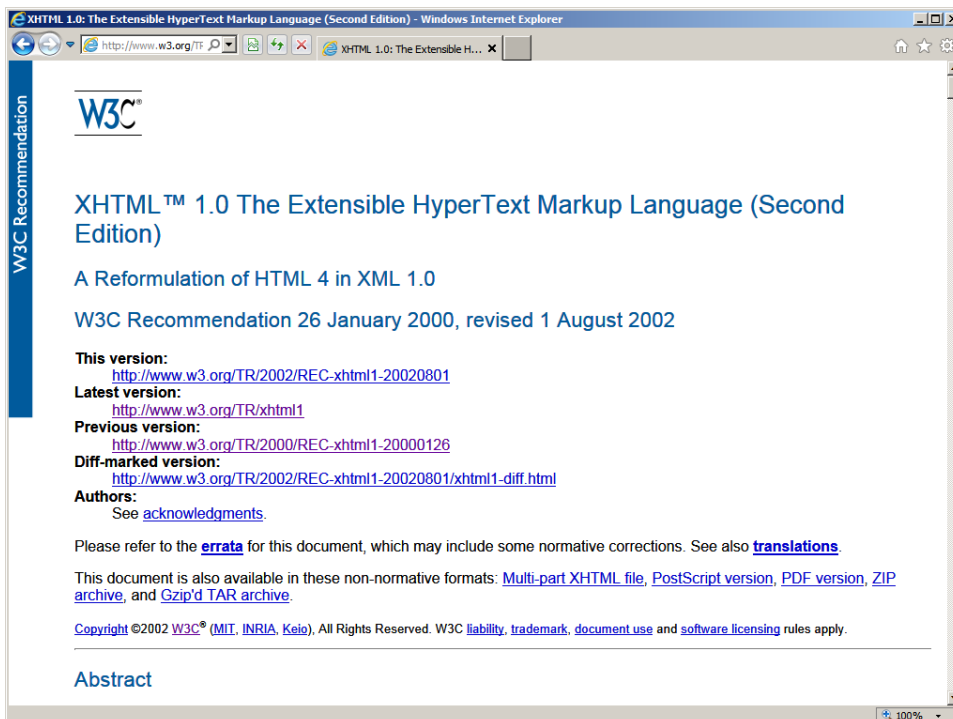


## DIFFERENCES HTML/XHTML



## Differences HTML/XHTML

- eXtensible HyperText Markup Language
- XHTML is based on XML
  - Syntax is more strict → XHTML is a stricter and cleaner version of HTML
- XHTML is almost identical to HTML 4.01





## Differences HTML/XHTML

- An XHTML document must have only one root element
- Case-sensitive for element and attribute names → Everything in lower-case
  - This is wrong:  
`< table WIDTH="100%">`
  - This is correct:  
`< table width="100%">`



## Differences HTML/XHTML

- All elements be closed, either by a separate closing tag or using self closing syntax (e.g. `<br />`)
  - This is wrong:  
`< p>This is a paragraph`  
`< p>This is another paragraph`
  - This is correct:  
`< p>This is a paragraph</p>`  
`< p>This is another paragraph</p>`



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### Differences HTML/XHTML

- Attribute values must be quoted (single or double quotes)
  - This is wrong:  
`<table width=100%>`
  - This is correct:  
`<table width="100%">`

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### Differences HTML/XHTML

- Attribute minimization is not allowed
  - This is wrong:  
`<input checked>`  
`<input readonly>`  
`<input disabled>`  
`<option selected>`
  - This is correct:  
`<input checked="checked" />`  
`<input readonly="readonly" />`  
`<input disabled="disabled" />`  
`<option selected="selected" />`



## Differences HTML/XHTML

- Three versions:
  - XHTML Strict
  - XHTML Transitional
  - XHTML Frameset

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

W3C QA - Recommended list of DTDs you can use in your Web document - Windows Internet Explorer

http://www.w3.org/QA/2002/04/valid-dtd-list.html

W3C QA - Recommended list of DTDs you can use in y...

**W3C QUALITY Assurance Recommended list of DTDs**

[QA Home] Documents Tools Feedback Search

**Recommended DTDs to use in your Web document.**

When authoring document is HTML or XHTML, it is important to [Add a Doctype declaration](#). The declaration must be exact (both in spelling and in case) to have the desired effect, which makes it sometimes difficult. To ease the work, below is a list of recommended declarations that you can use in your Web documents.

**Warning**

The list is **informative** and does not try to be exhaustive (there are many other proper declarations you could use), but it has most of the declarations commonly used on the Web at the moment.

**Template**

Use the following markup as a template to create a new XHTML 1.0 document using a proper DOCTYPE. See the [list](#) below if you wish to use another document type.

```
<?xml version="1.0" encoding="utf-8"?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
<html xmlns="http://www.w3.org/1999/xhtml" xml:lang="en" lang="en">
<head>
<title>An XHTML 1.0 Strict standard template</title>
<meta http-equiv="content-type"
content="text/html;charset=utf-8" />
<meta http-equiv="Content-Style-Type" content="text/css" />
</head>
<body>
<p> Your HTML content here .</p>
</body>
```





```
<?xml version="1.0" encoding="utf-8"?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
    "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
<html xmlns="http://www.w3.org/1999/xhtml" xml:lang="en"
    lang="en">
<head>
  <title>An XHTML 1.0 Strict standard template</title>
  <meta http-equiv="content-type"
    content="text/html; charset=utf-8" />
  <meta http-equiv="Content-Style-Type" content="text/css" />
</head>
<body>
  <p>... Your HTML content here ...</p>
</body>
</html>
```

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## TAGS



## Tags (1)

- Tags that define the structure of the document: `<html>`, `<head>`, `<body>`
- Tags that can be used in the `<head>` section: `<title>`, `<base>`, `<meta>`, `<style>`, `<link>`



## Tags (2)

- Tags that define text blocks: `<address>`, `<blockquote>`, `<div>`, `<h1>...<h6>`, `<p>`, `<pre>`, `<xmp>`
- Tags that define lists: `<dir>`, `<dl>`, `<dt>`, `<dd>`, `<menu>`, `<ol>`, `<ul>`, `<li>`



## Tags (3)

- Tags that define text format: `<b>`, `<basefont>`, `<big>`, `<cite>`, `<code>`, `<em>`, `<font>`, `<i>`, `<kbd>`, `<small>`, `<span>`, `<strike>`, `<strong>`, `<sub>`, `<sup>`, `<tt>`, `<u>`, `<var>`
- Tags that define anchors and links: `<a>`



## Tags (4)

- Tags that define images and image maps: `<img>`, `<area>`, `<map>`
- Tags that define tables: `<table>`, `<caption>`, `<thead>`, `<tbody>`, `<tfoot>`, `<tr>`, `<th>`, `<td>`



## Tags (5)

- **Tags that define forms:** `<form>`,  
`<fieldset>`, `<input>`, `<select>`,  
`<option>`, `<textarea>`, `<label>`,  
`<legend>`, `<isindex>`
- **Tags that define frames:** `<frame>`,  
`<frameset>`, `<noframes>`,  
`<iframe>`



## Tags (6)

- **Tags that define scripts:** `<script>`,  
`<noscript>`
- **Tags that define applets and plug-ins:**  
`<applet>`, `<param>`, `<object>`  
(`<embed>` not standard)
- **Tags that adjust text:** `<br>`, `<center>`,  
`<hr>`



## Metadata (1)

- Data about data
- Section <head>:
  - <meta http-equiv="property" content="content" />
  - <meta name="property" content="content" />

```
<html>
<head>
<meta http-equiv="Refresh"
  content="5;url=http://www.ua.es" />
<meta name="author" content="Programming
  in Internet" />
</head>
<body>
<p>In five seconds, this page must
  change...</p>
</body>
</html>
```



## Metadata (2)

- `<meta name="copyright" content="Company, author, designer" />`
- `<meta name="keywords" content="keywords, separated, by, comas" />`



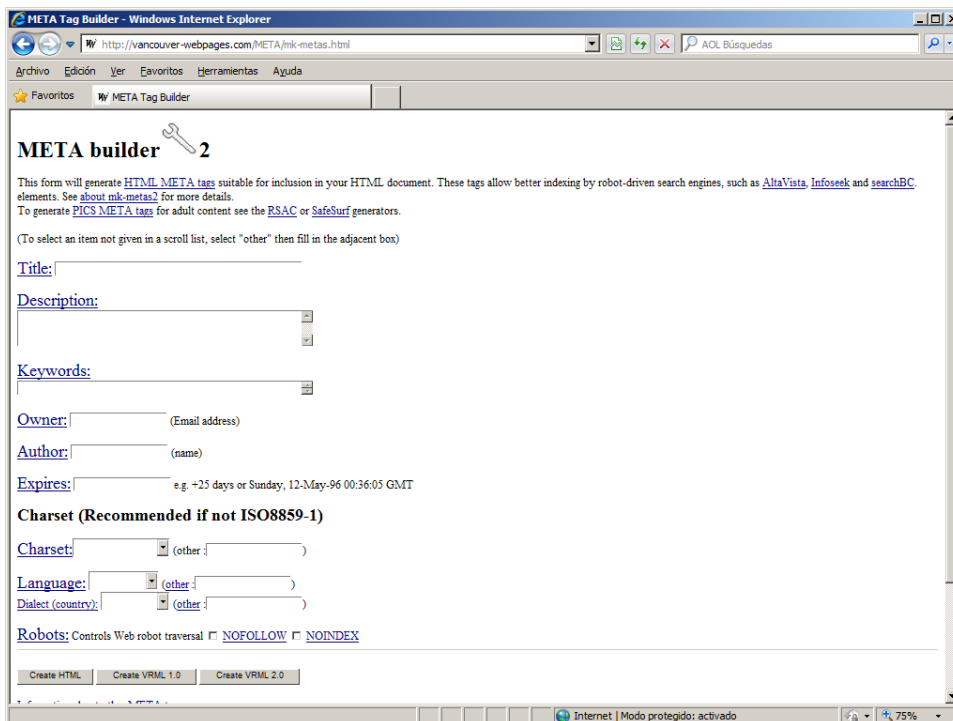
## Metadata (3)

- `<meta name="description" content="Description of the content and the purpose of the website" />`
- `<meta name="author" content="A person or a company" />`
- `<meta name="robots" content="index, follow" />`



## Metadata (4)

- `<meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1" />`
- `<meta http-equiv="Content-Language" content="ES" />`
- `<meta http-equiv="Content-Script-Type" content="JavaScript" />`



**META builder 2**

This form will generate [HTML META tags](#) suitable for inclusion in your HTML document. These tags allow better indexing by robot-driven search engines, such as [AltaVista](#), [Infoseek](#) and [searchBC](#) elements. See [about mik-metas2](#) for more details.  
To generate [PICS META tags](#) for adult content see the [RSAC](#) or [SafeSurf](#) generators.

(To select an item not given in a scroll list, select "other" then fill in the adjacent box)

**Title:** \_\_\_\_\_

**Description:** \_\_\_\_\_

**Keywords:** \_\_\_\_\_

**Owner:** \_\_\_\_\_ (Email address)

**Author:** \_\_\_\_\_ (name)

**Expires:** \_\_\_\_\_ e.g. -25 days or Sunday, 12-May-96 00:36:05 GMT

**Charset (Recommended if not ISO8859-1)**

**Charset:** \_\_\_\_\_ (other: \_\_\_\_\_)

**Language:** \_\_\_\_\_ (other: \_\_\_\_\_)

**Dialect (country):** \_\_\_\_\_ (other: \_\_\_\_\_)

**Robots:** Controls Web robot traversal  NOFOLLOW  NOINDEX

Create HTML   Create VRML 1.0   Create VRML 2.0



## HTML5 & CSS3



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### Text format (1)

- Headings: `<h1>`, ..., `<h6>`
- Physic styles: `<b>`, `<i>`, ...
- Logical styles: `<cite>`, `<code>`,  
`<em>`, `<strong>` ...

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### Text format (2)

- `<font face="" size="">`
  - YOU NEVER MUST USE FONT
  - You must use CSS instead of





## Text format (3)

- **CSS:**
  - **Inline:**

```
style="font-face: ...; font-size: ..."
```
  - **Embedded:**

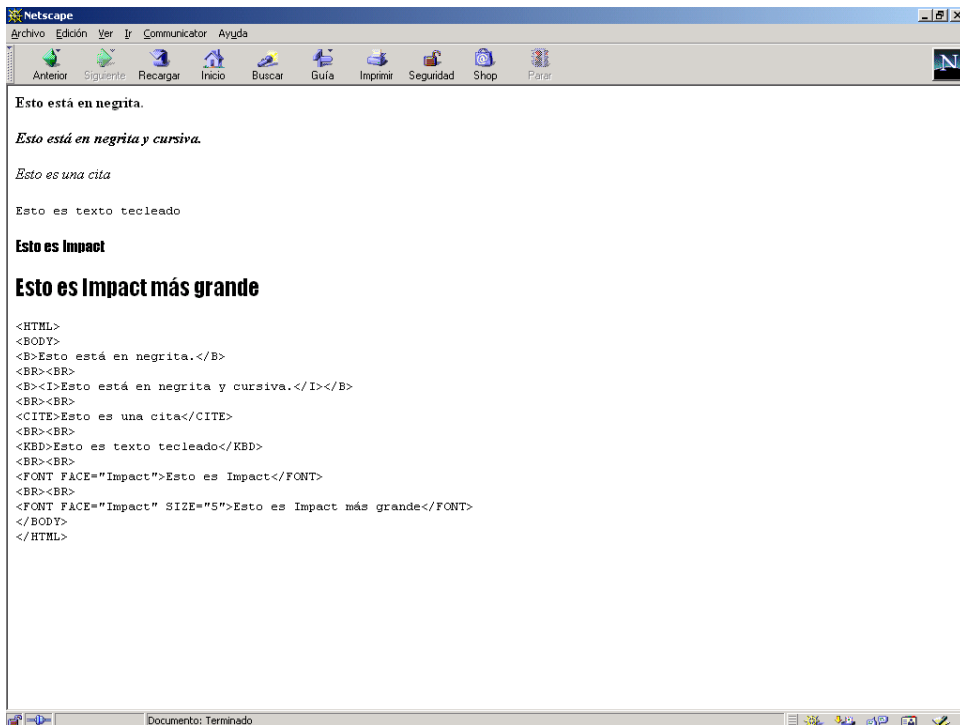
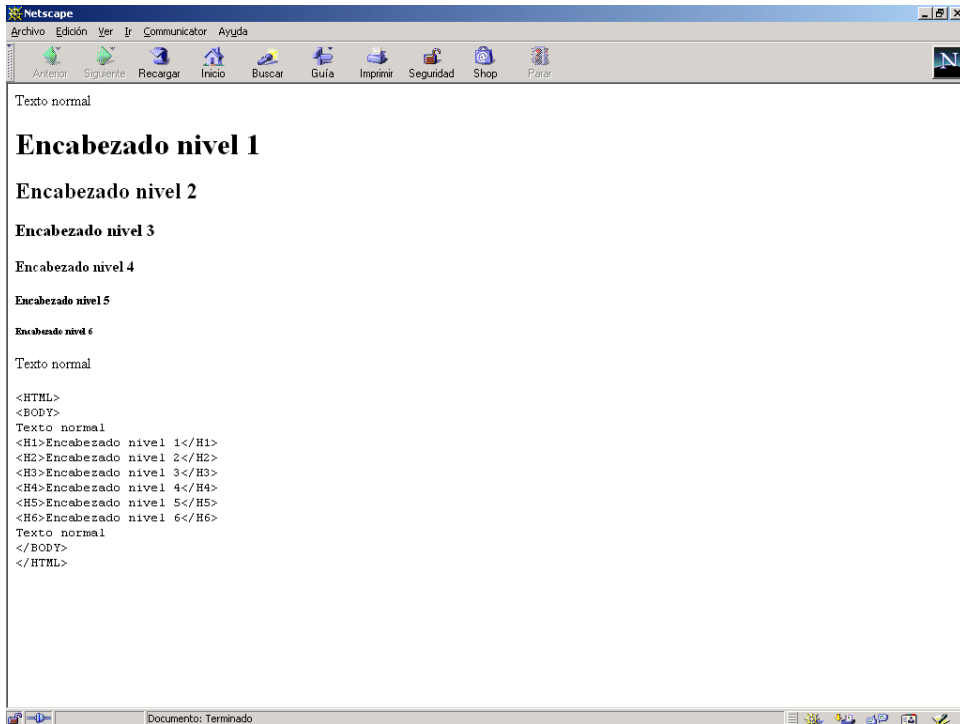
```
<style type="text/css">  
selector {font-face: ...; font-size: ...}  
</style>
```
  - **External file:**

```
selector {font-face: ...; font-size: ...}
```



## Text format (4)

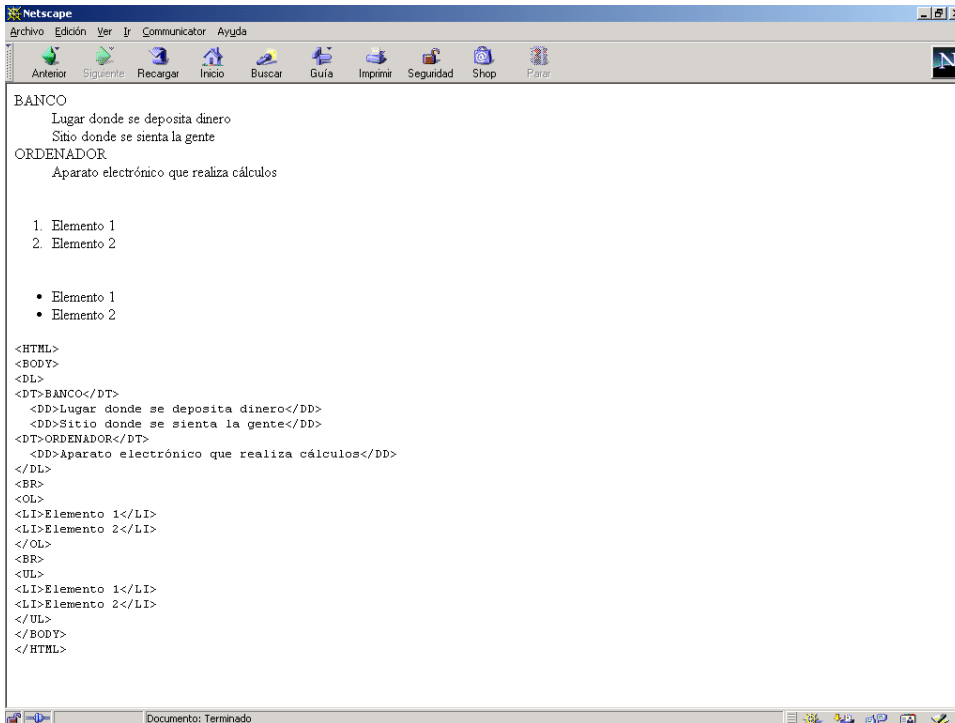
- **Serif font types:**
  - Letra Courier New
  - Letra Georgia
  - Letra Times New Roman
- **Sans-serif font types:**
  - Letra Arial
  - Letra Tahoma
  - Letra Verdana

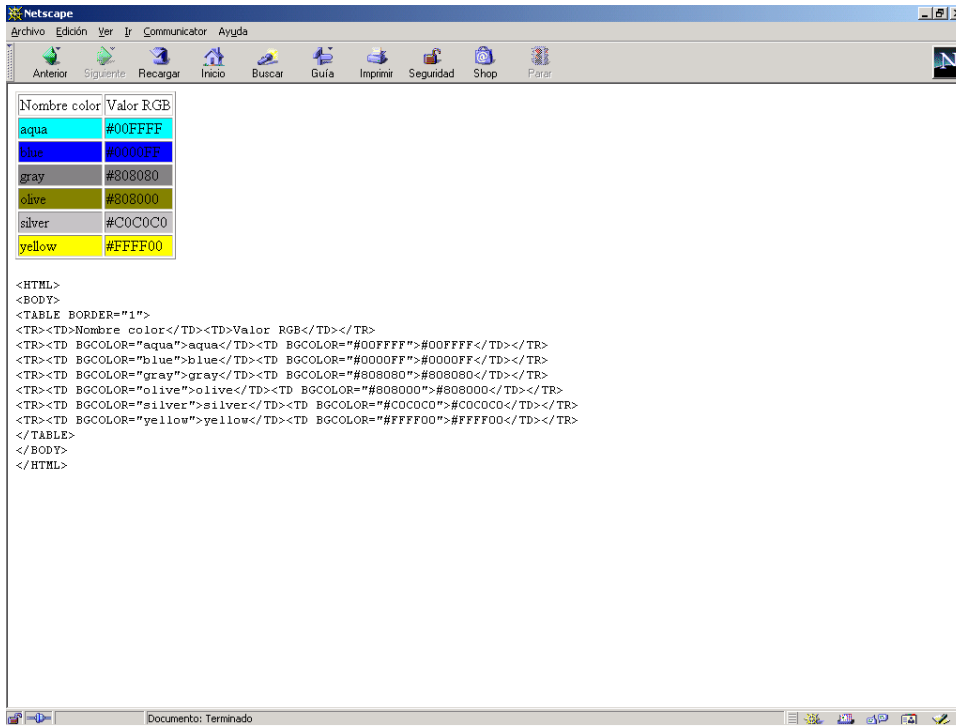




## Lists

- Definition list
  - <dl>, <dt>, <dd>
- Ordered list
  - <ol>, <li>
- Unordered list
  - <ul>, <li>





## HTML5 & CSS3



## Links (1)

- Link to a target in the same document (internal link):
  - Link: `<a href="#name">...</a>`
  - Target: `<a name="name">...</a>`



## Links (2)

- Link to another document (external link):

– `<a href="page.html">...</a>`



## Links (3)

- Link to a target in another document:

– Link:

`<a href="page.html#name">...</a>`

– Target: `<a name="name">...</a>`



## Links (4)

- Be careful with:
  - Upper and lower case
  - Strange characters (use only English alphabet)
  - Physical paths (“file:///c:\myweb\groups.html”)



## Tables (1)

- Don't use tables for layout, only for data
- Tags and structure:

```
<table>...</table>
```

```
<tr>...</tr>
```

```
<th>...</th>
```

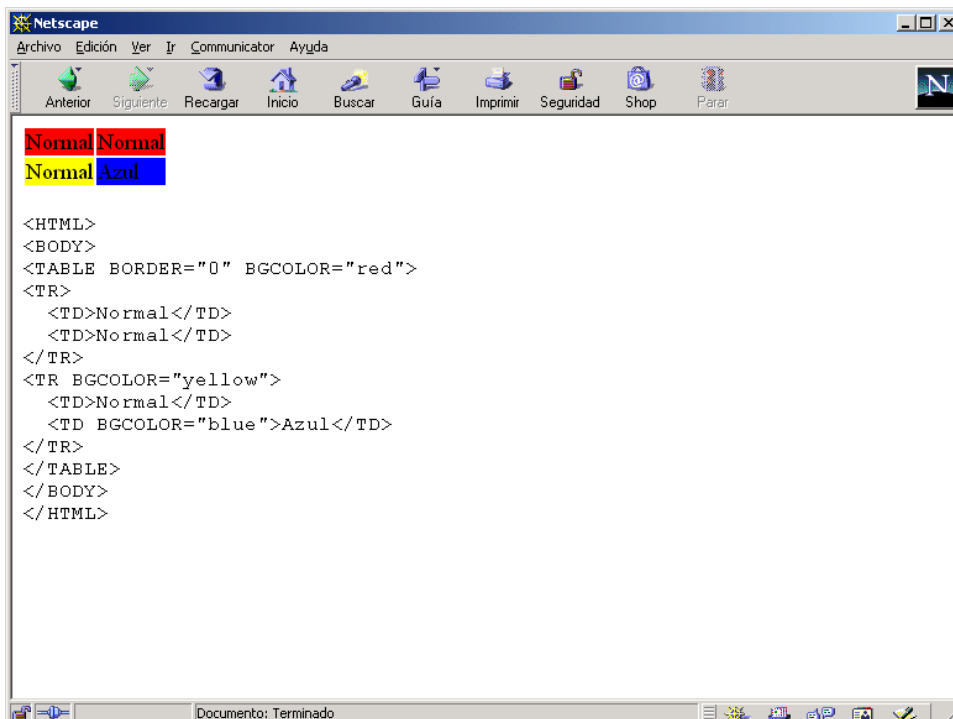
```
<td>...</td>
```

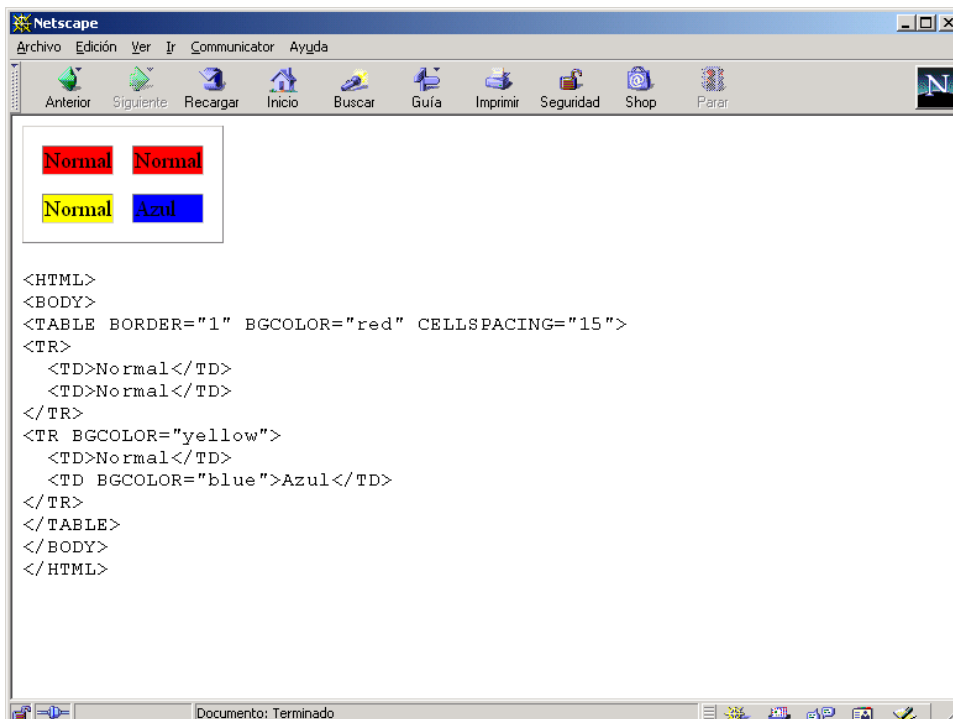
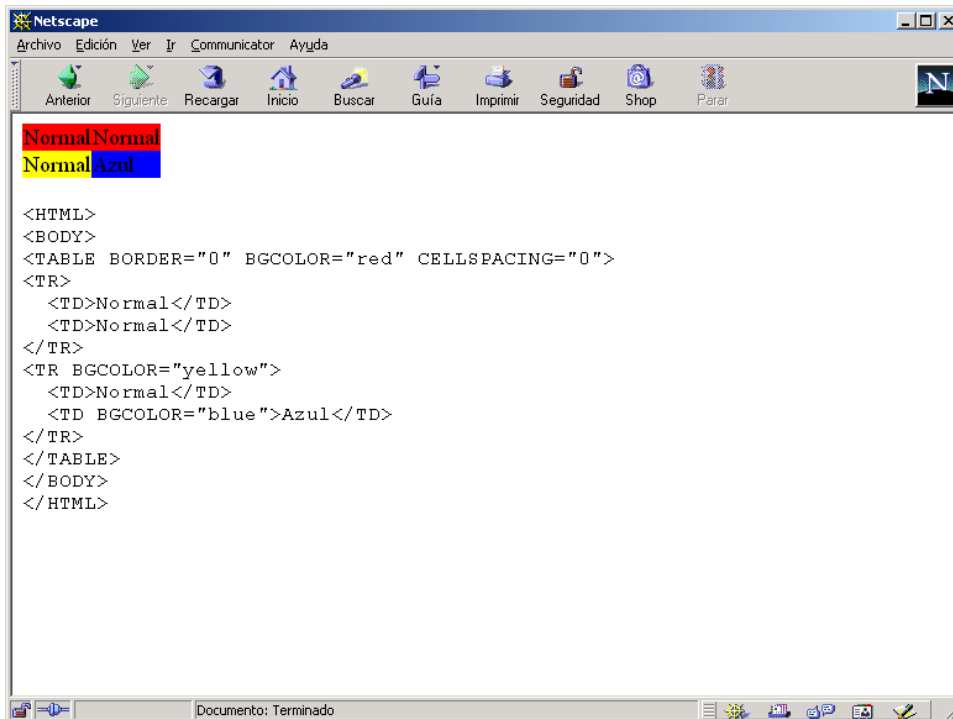




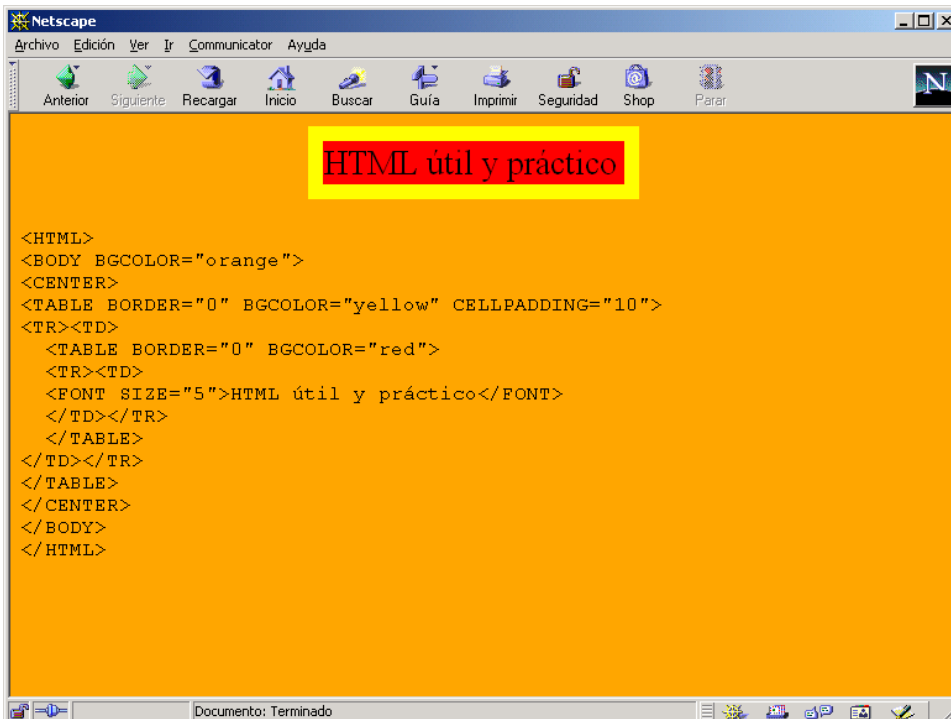
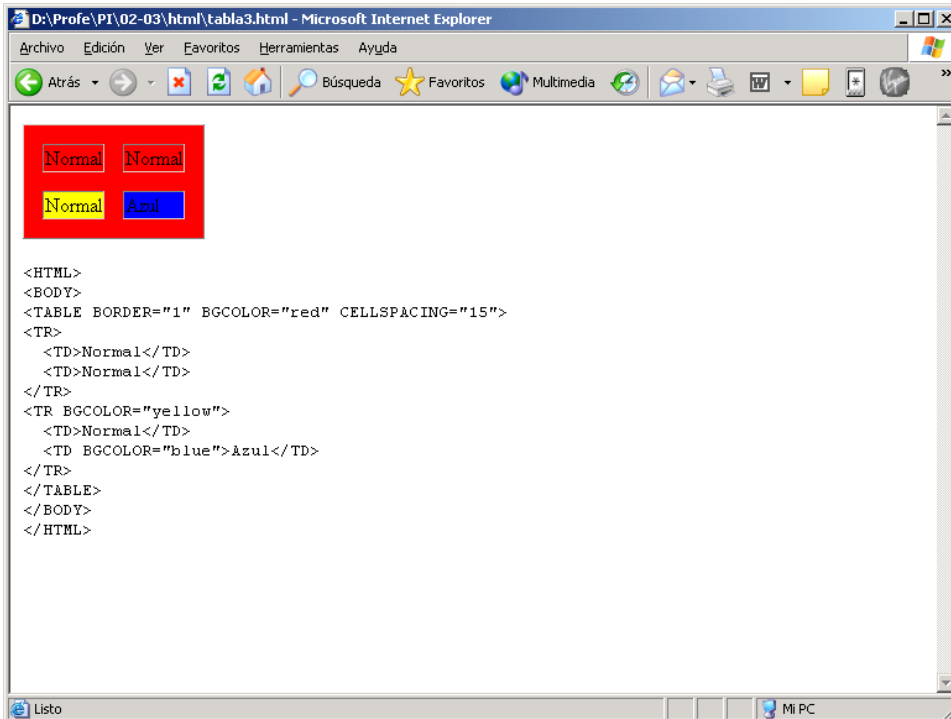
## Tables (2)

- Other tags:
  - <thead>, <tbody>, <tfoot>
  - <caption>













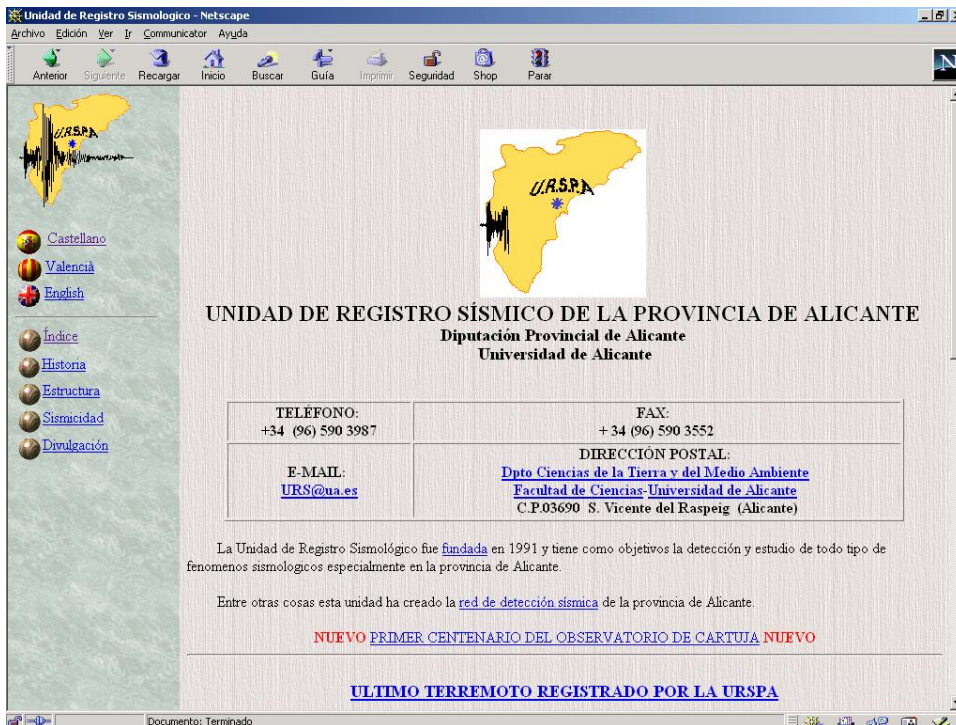
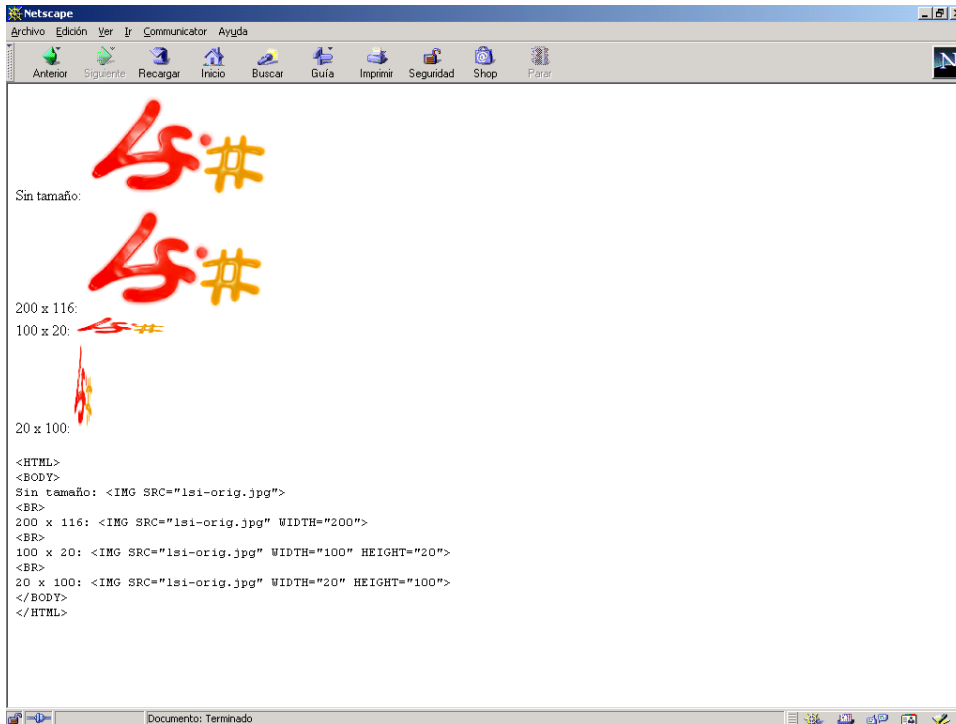
## Images (1)

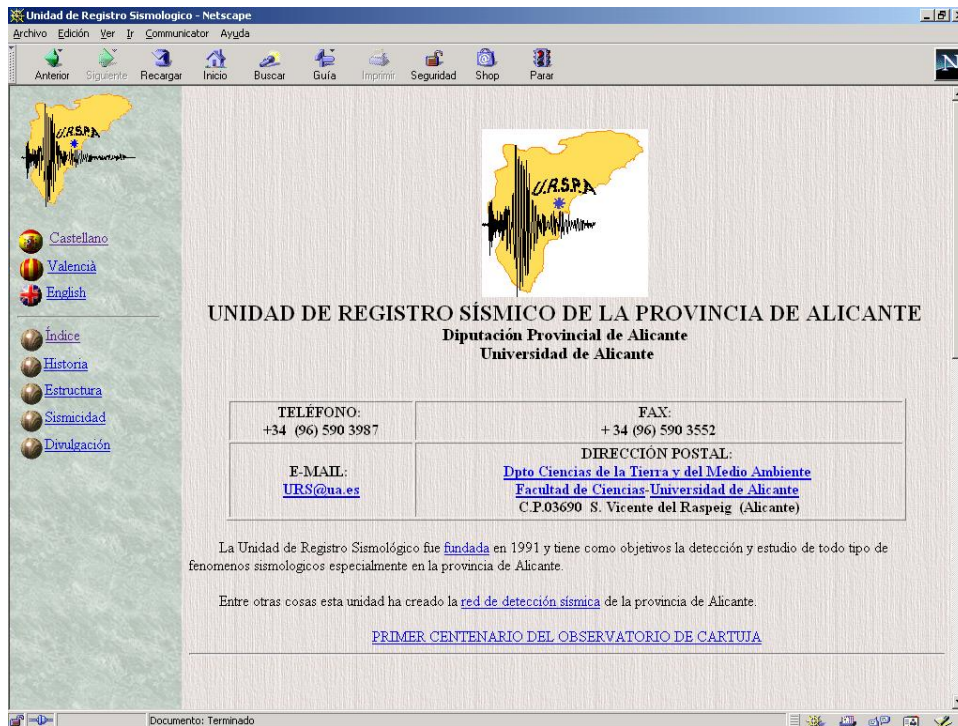
- `<img>`
  - Mandatory attributes:
    - `src`, `alt`
  - Optional attributes:
    - `width`, `height`
    - `longdesc`
    - `border` → Deprecated



## Images (2)

- Types of images:
  - GIF (maximum 256 colors)
  - JPG, (maximum 16M colors)
  - PNG





## HTML5 & CSS3



## Forms (1)

- Send data from Client → Server

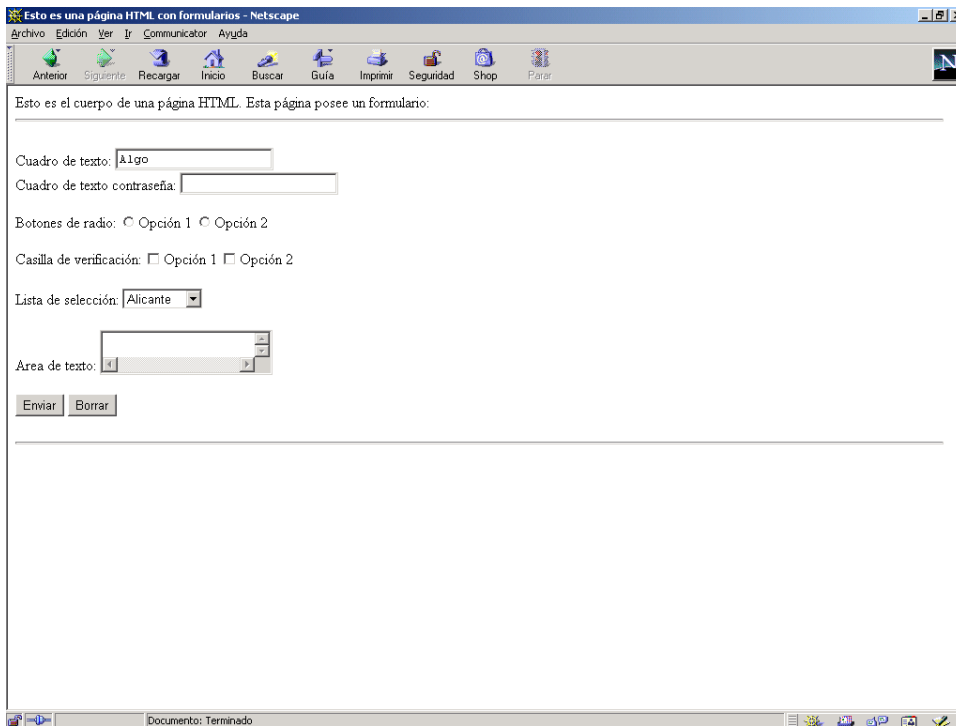
```
<form name="name"
  action="page.html"
  method="methd">
```

Form controls

```
</form>
```

- Methods:

- POST
- GET



## HTML5 & CSS3



## Forms (2)

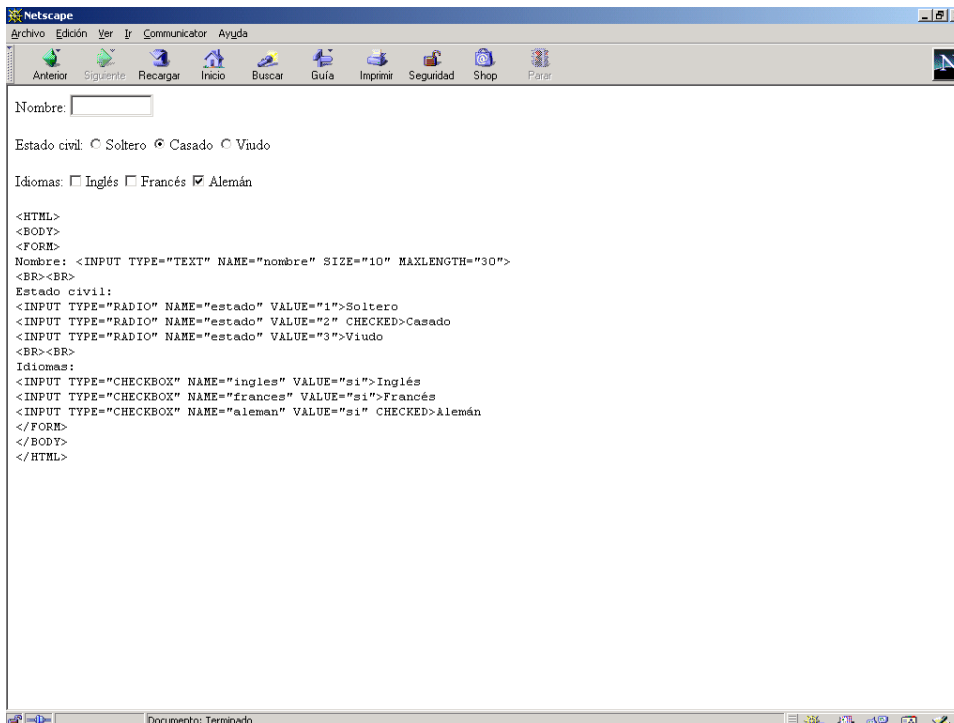
- **Attributes:** name and value
- **Buttons (to send data, to reset form and other actions):**
  - `<input type="submit">`
  - `<input type="reset">`
  - `<input type="button">`, `<button>`
  - `<input type="image">`





## Forms (3)

- Check boxes:
  - `<input type="checkbox">`
- Radio buttons:
  - `<input type="radio">`
- Text boxes:
  - `<input type="text">`





## Forms (4)

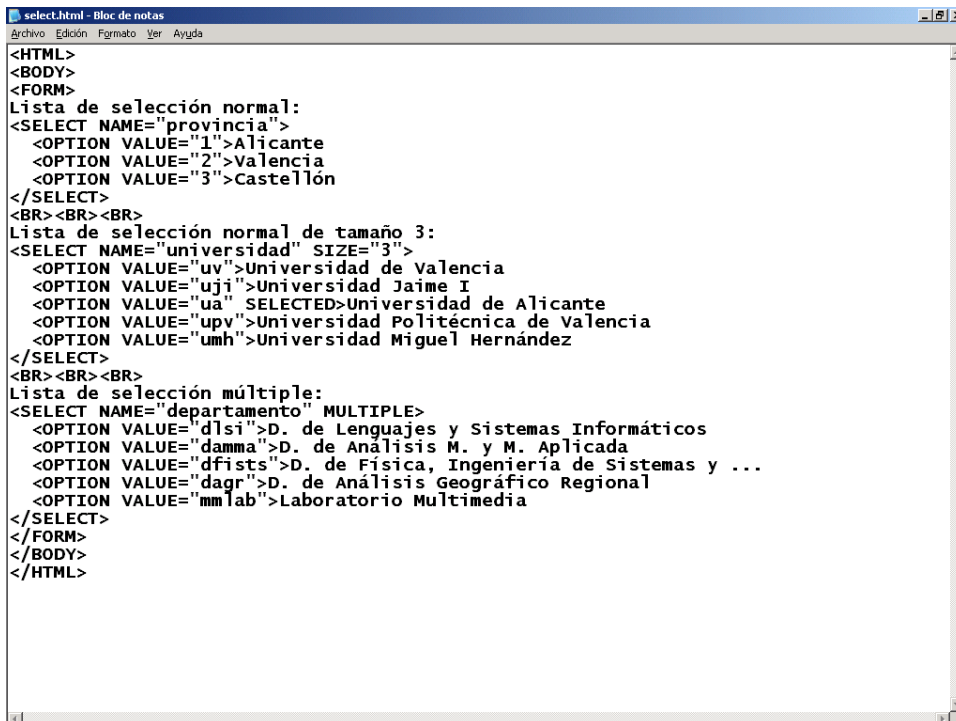
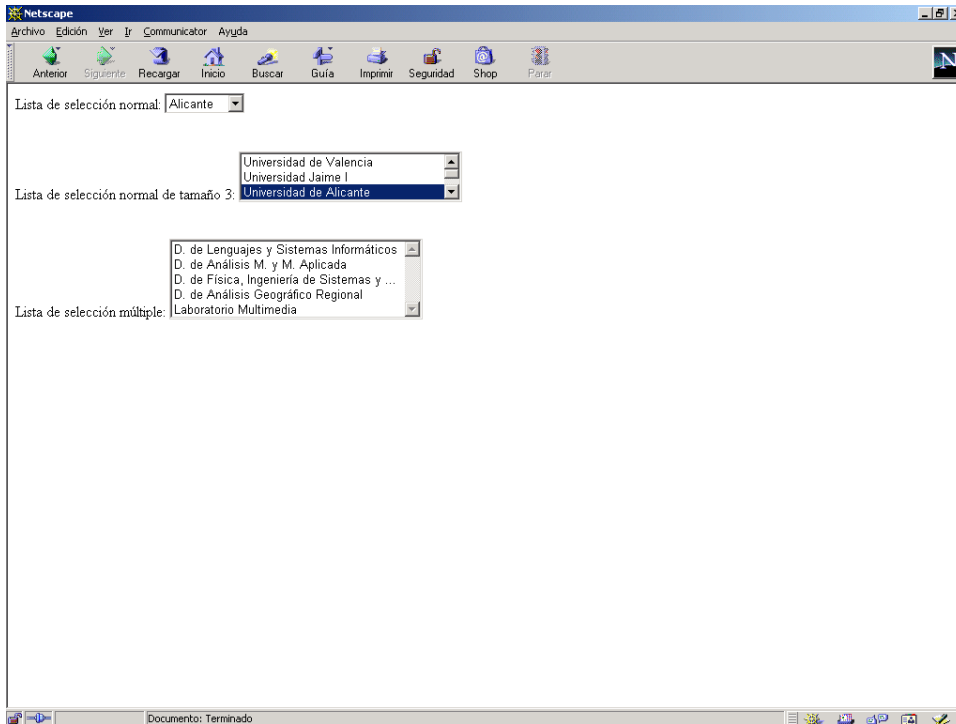
- Password text boxes:
  - `<input type="password">`
- Hidden fields:
  - `<input type="hidden">`
- Sending a file:
  - `<input type="file">`

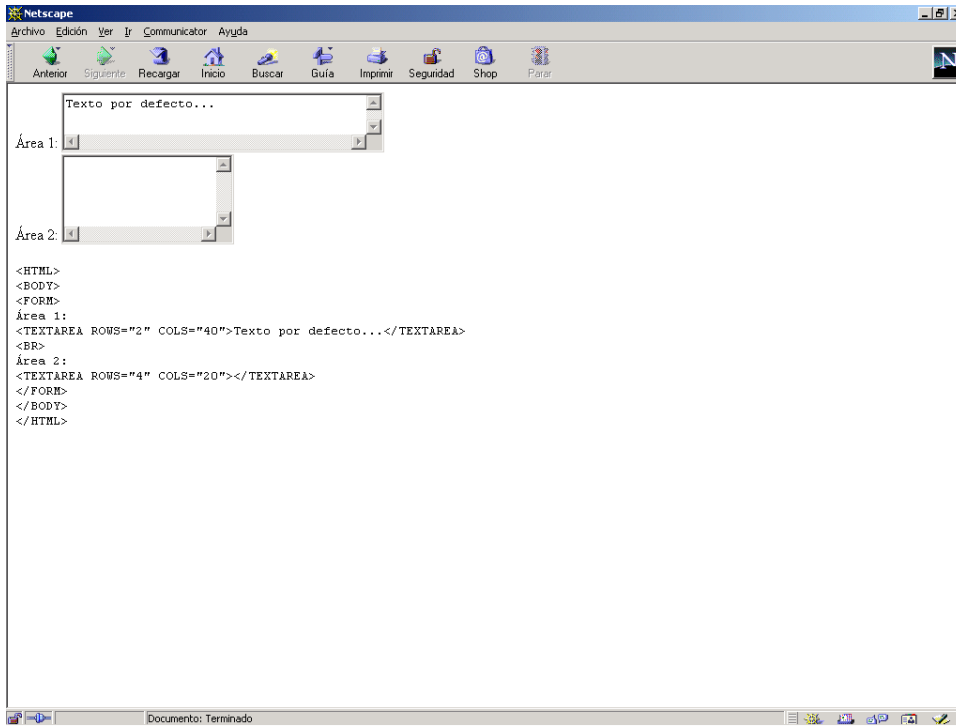


## Forms (5)

- Selection lists:
  - `<select>`, `<option>`, `<optgroup>`
- Text areas:
  - `<textarea>`
- Label of a control:
  - `<label>`
- Group of controls:
  - `<fieldset>`, `<legend>`







## HTML5 & CSS3



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**WEB REFERENCES**

- HTML 4.01
- HTML5
- XML DOM
- JavaScript
- HTML DOM
- jQuery
- SQL
- CSS 1,2,3
- PHP
- XSLT
- XPath
- XSL-FO
- Color Picker
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