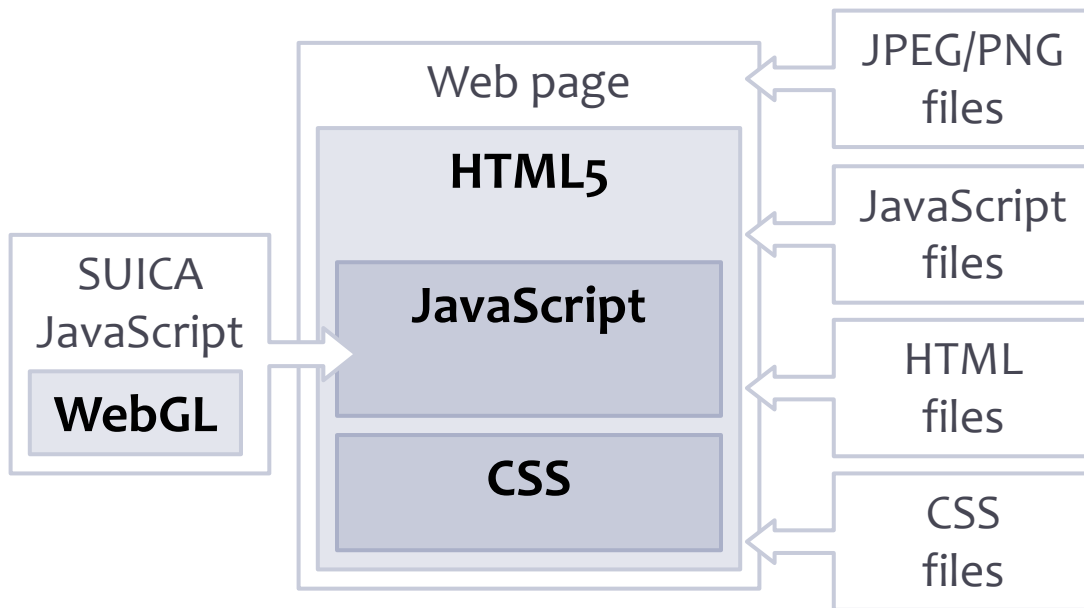**ICT in SES**

HTML5

Lesson №2

Used technologies

Technologies used in the course

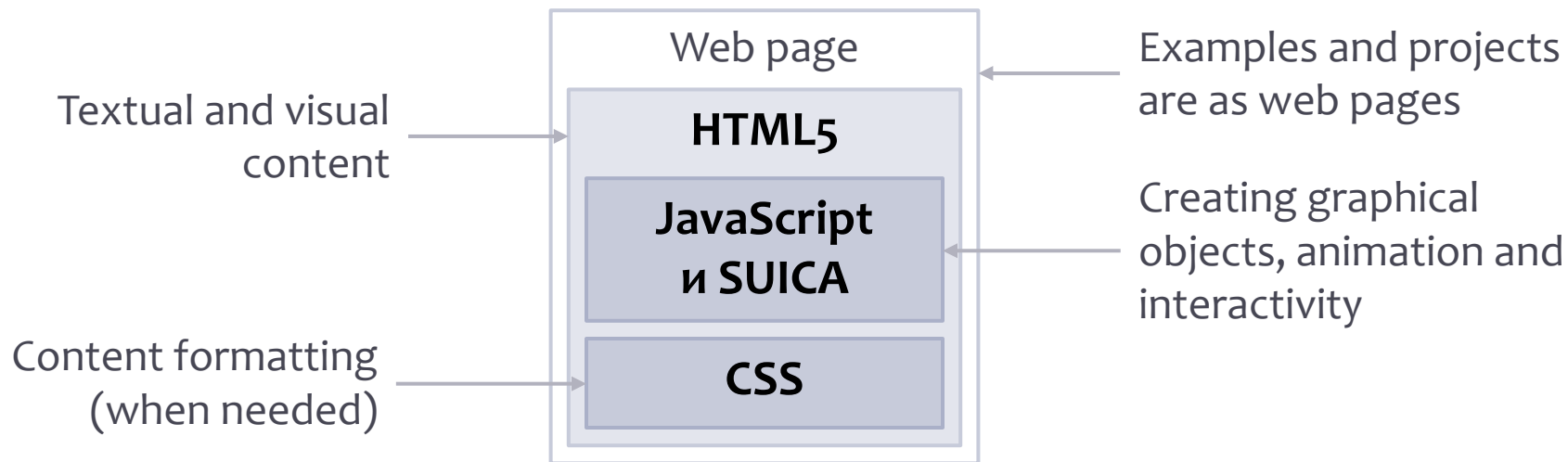## Different, but complementing

Architecture

Application of SUICA

- Programming where JavaScript is

Textual and visual content →

Web page

HTML5
JavaScript и SUICA
CSS

Content formatting (when needed) →

← Examples and projects are as web pages

← Creating graphical objects, animation and interactivity

Software

Software used in the course

Traditional text editor
(Notepad++ & Notepad)

Web page

**HTML5
JavaScript
SUICA
CSS**

Web browser supporting
HTML5 and WebGL
(Chrome, Firefox, Opera
or Internet Explorer)

Mini web server
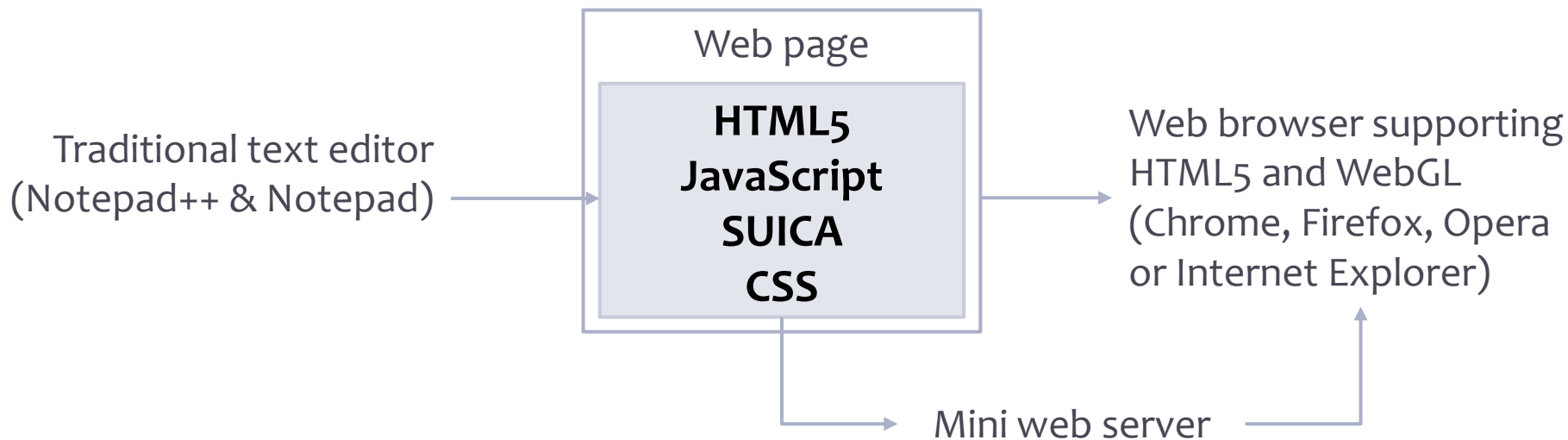
Access to software

Само безплатен софтуер

- Notepad++ [http://notepad-plus-plus.org]
- Chrome [http://www.google.com/chrome]
- Firefox [http://www.mozilla.org/en-US/firefox/new]
- Opera [http://www.opera.com]
- QuickPHP [http://www.zachsaw.com]
- You may use other software of your choice

Browser requirements

WebGL support

- Modern browsers support WebGL
- Some tablet or smartphone browsers do not

WebGL & JavaScript turned on

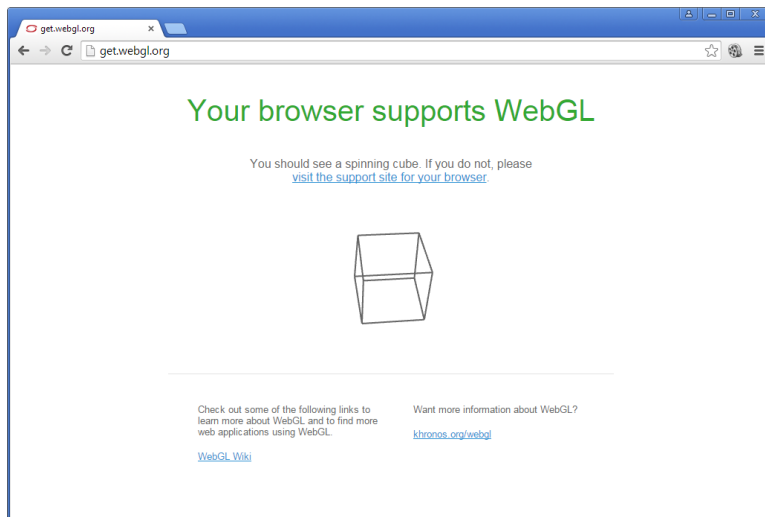- Some browsers have them tuned off by default

HTML5 support

- Modern browsers support HTML5

WebGL check

Check WebGL support

- Go to WebGL [http://get.webgl.org]
- You should see a spinning cube

HTML5

HTML

What is HTML

- Acronym for HyperText Markup Language
- Language for describing web page content
- Uses marked-up (tagged) text
- Tags do not show up in the web page

History of HTML

Versions

- 1991 – HTML
- 1995 – HTML2
- 1997 – HTML3 и HTML4
- 2014 – HTML5

What is new in HTML5

New elements

- For 2D and 3D graphics
- For multimedia
- For semantic marking

Removed elements

- Some elements are removed from HTML5, as they have better alternatives

HTML

Document and elements

HTML document

- Text document with HTML elements (tags)

HTML elements

- Marked by tags in sharp parentheses
- Beginning is marked by <tag>, end – by </tag>
- Element contents is between <tag> and </tag>
- Empty element without content
- Elements can be nested

Attributes

Parameters to HTML elements

- Short attributes, only names <tag attribute>…</tag>
- Full attributes with values <tag attribute="…">…</tag>
- One element may have several attributes
  <tag attr$_1$ attr$_2$="…" attr$_3$="…" attr$_4$ attr$_5$>…</tag>

Purpose of attributes

- Define details about the elements
- May contain CSS formatting or JavaScript code

<!DOCTYPE>

Document type

- At the very beginning of the document, not part of HTML
- Defines that the following text is HTML
- HTML is not the only markup language

```
<!DOCTYPE html>
  :
```

TRY IT

<html>

Basic element

- Marks the beginning and end of HTML
- Content and programming code in inside
- Could be skipped

```
<!DOCTYPE html>
<html>
  :
</html>
```

TRY IT

HTML comment

Additional texts

- Do not show up in the web page
- Could be anywhere when a tag can be

```
<!DOCTYPE html>
<html>
    <!-- This is comment -->
</html>
```

TRY IT

Element <head>

<head>

Head element

- Nested as a first element inside <html>

- Contain general properties of the web page

```
<html>
   <head>
      :
   </head>
</html>
```

TRY IT

<title>

Page title

- Nested as element inside <head>
- Defines page title, usually shown as tab caption

```
<html>
   <head>
      <title>Example 0205</title>
   </head>
</html>
```
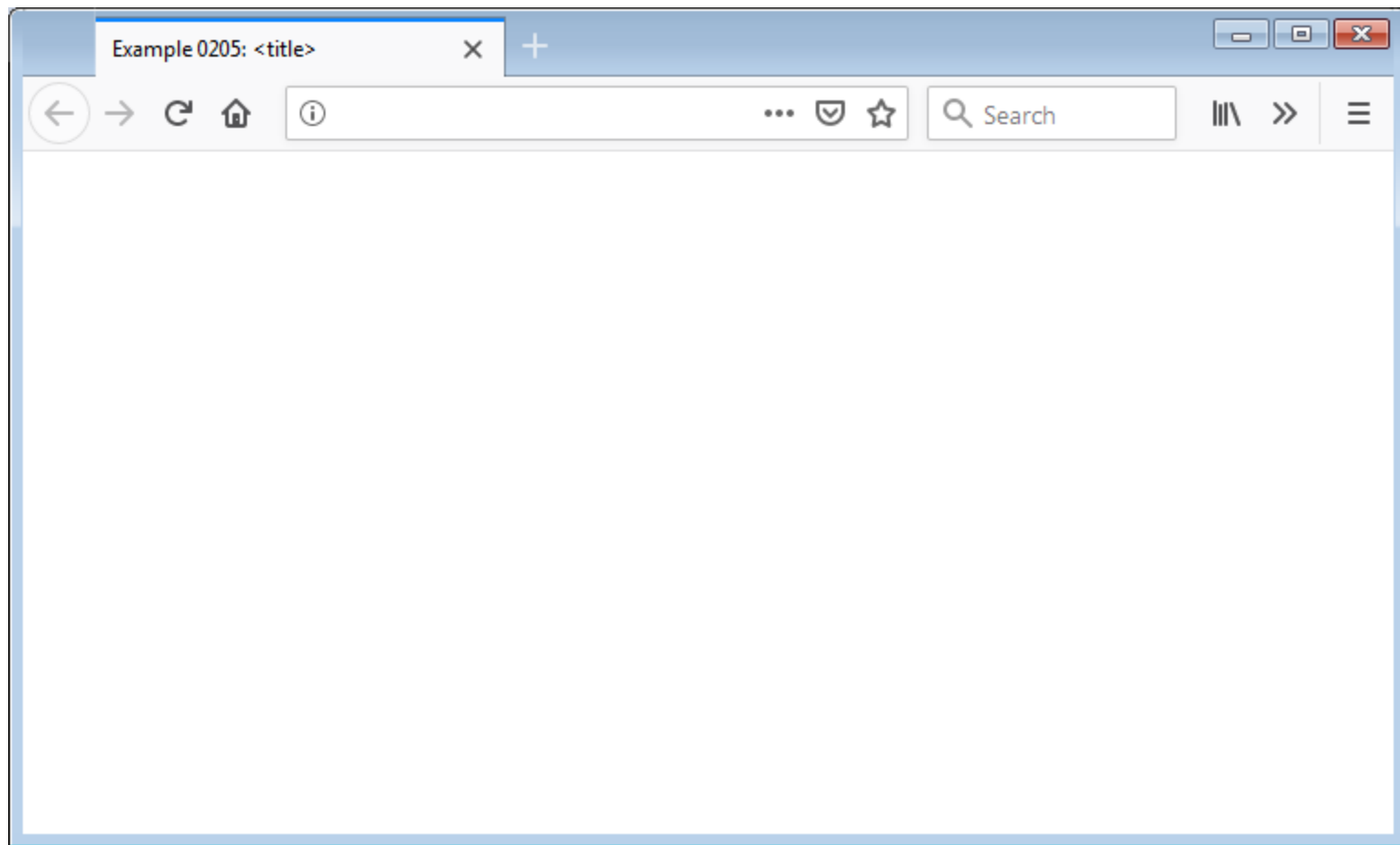
TRY IT

\<meta\>

Web page metadata

- Nested in \<head\>, not show on the screen
- Optional, but recommended element

Attributes name and content

- Always paired as type-value
- Attribute name is author, description, keywords and so on
- Attribute content is the value

Attribute charset

- File encoding
- Encoding utf-8 пsupports non-Latin characters

```
<head>
   <meta charset="utf-8">
   <meta name="description" content="Example file">
   <meta name="keywords" content="HTML5,SUICA">
   <meta name="author" content="SUICA">

   <title>Example 0206</title>
</head>
```
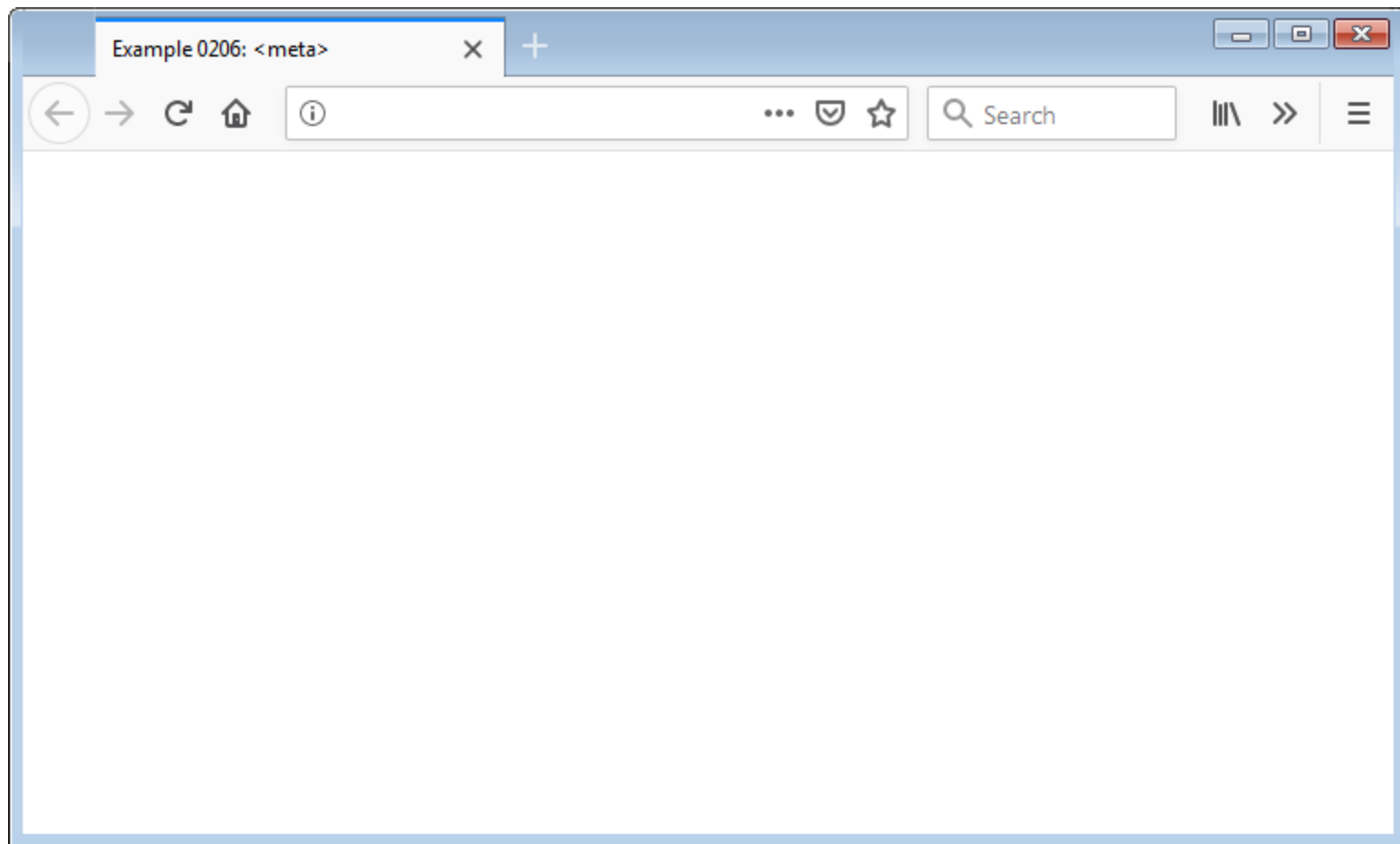
TRY IT

Element <body>

\<body>

Basic element

- Nested as a second element in \<html>, right after \<head>
- Contains the page content

```
<html>
   <head>...</head>
   <body>
      Lorem ipsum dolor sit.
   </body>
</html>
```

Lorem ipsum dolor sit.
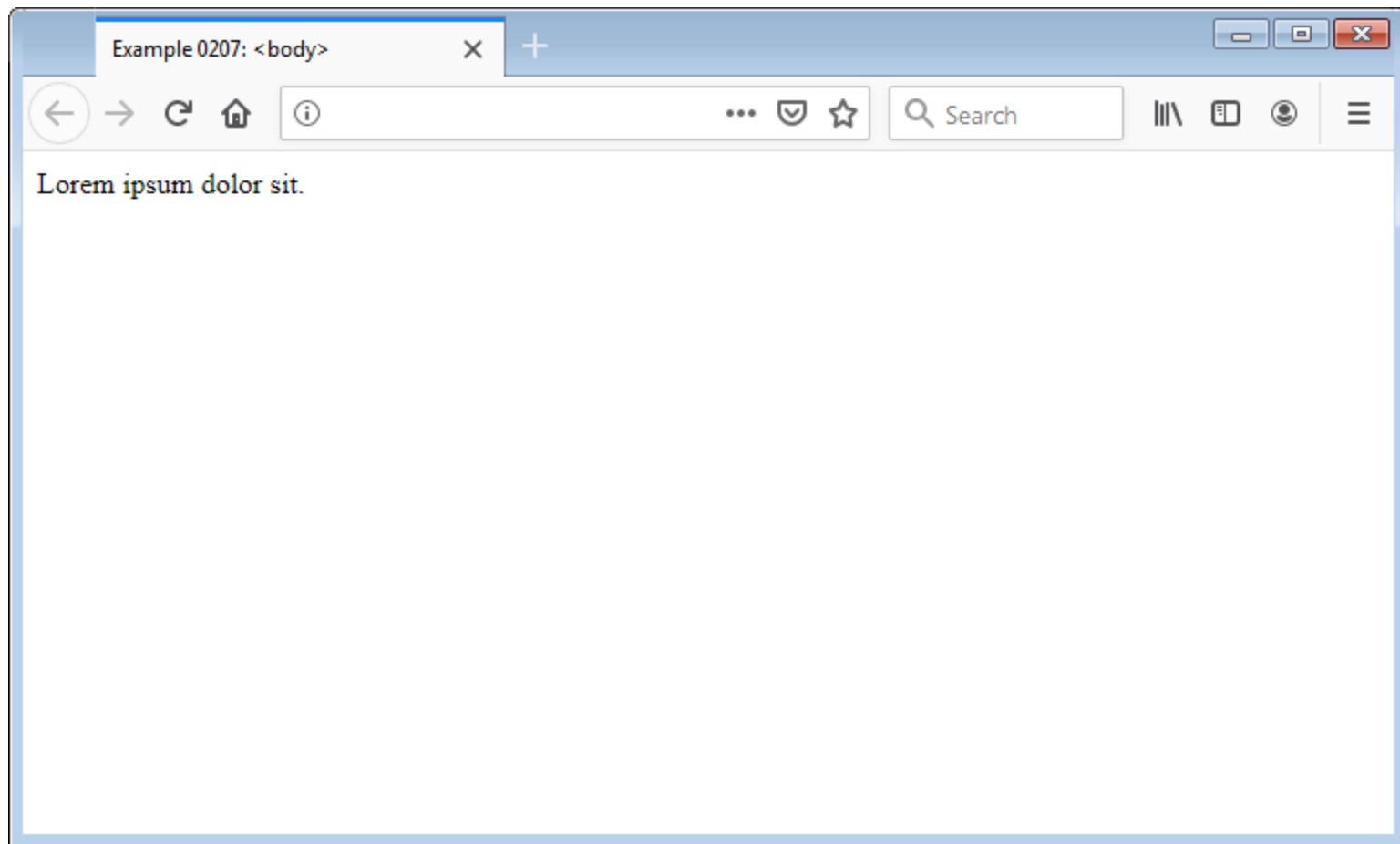
TRY IT

Contents

The contents of <body>

- The text of the page
- Tags for formatting
- Tags for non-textual content
- Tags for semantic elements

General rules

- Spaces and new lines merge into a single space
- Element style is modified by CSS

Text formatting

Formatting tags

Text blocks

- Headers from `<h1>`...`</h1>` to `<h6>`...`</h6>`

- Text paragraph `<p>`...`</p>`

```
<h1>Lorem ipsum dolor sit</h1>
<p>Donec non ipsum malesuada, sollicitudin orci
nec, placerat leo. Curabitur faucibus quam in magna
suscipit, vitae pretium mauris finibus.</p>
```

Lorem ipsum dolor sit

Consectetur adipiscing elit

Donec non ipsum malesuada, sollicitudin orci nec, placerat leo. Curabitur faucibus quam in magna suscipit, vitae pretium mauris finibus. Proin ligula leo, scelerisque et diam ac, efficitur tristique ante.

Aenean suscipit velit non pharetra rhoncus. Praesent nec urna eu nisl mollis vehicula a sed leo. Aenean pretium tincidunt urna, id gravida enim viverra gravida.

Nulla ullamcorper porta eros

Ac interdum justo consectetur a. Vestibulum vel nunc ipsum. Morbi lacinia porta sem quis luctus. Cras pretium, nibh vitae aliquam commodo, mauris purus commodo orci, ac lacinia purus arcu id est. Donec ipsum libero, tincidunt quis magna a, accumsan sagittis odio.

TRY IT

Text formatting

- Bold text `<b>`...`</b>`
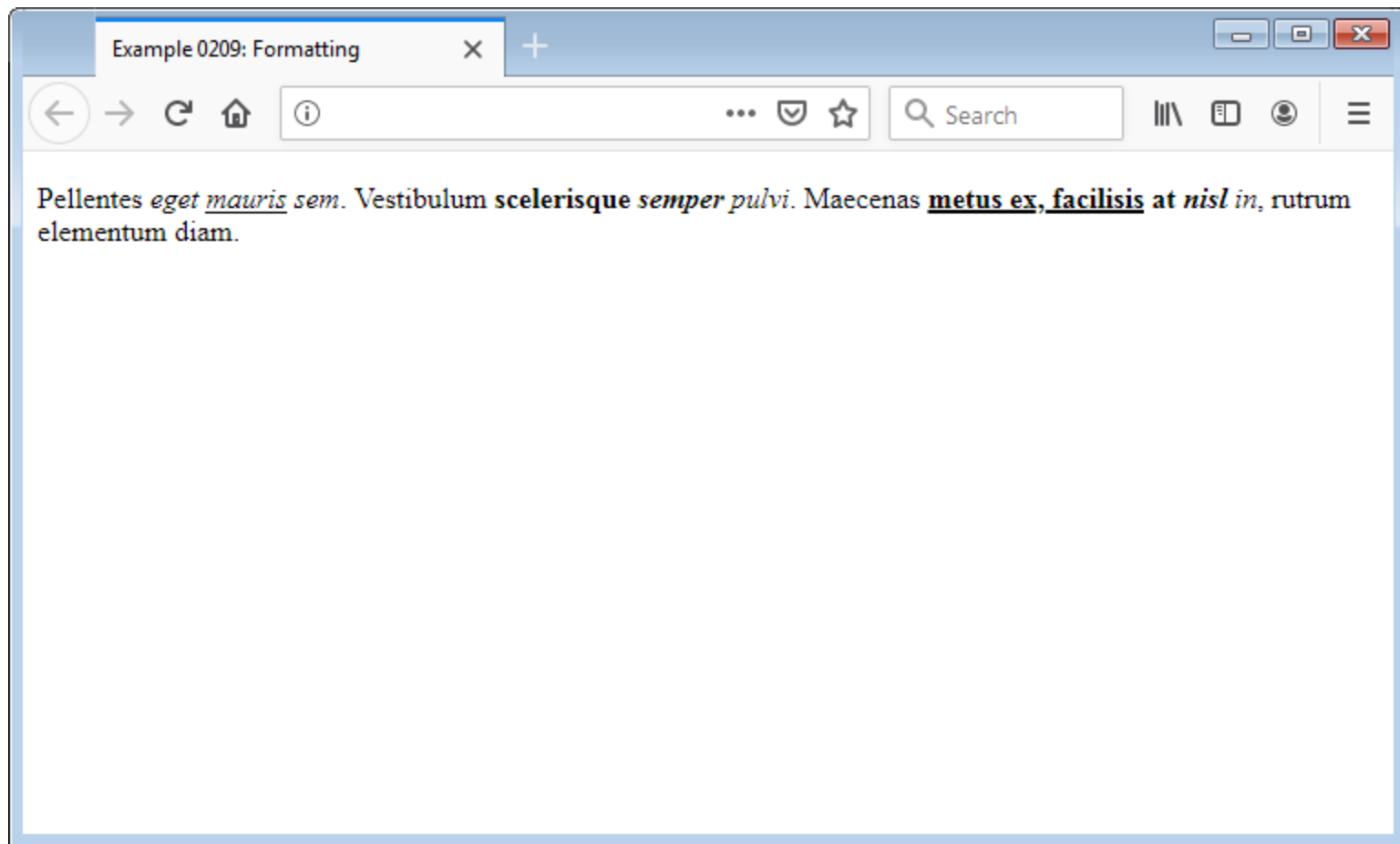- Italics text `<i>`...`</i>`
- Underlined text `<u>`...`</u>`

```
<p>Pellentes <i>eget <u>mauris</u> sem</i>.</p>
```

Nesting

- Tags are completely nested, not cross-nested

```
<p>Pellentes <i>eget <u>mauris</u> sem</i> .</p>
```

Pellentes *eget mauris sem*. Vestibulum **scelerisque** *semper pulvi*. Maecenas **metus ex, facilisis** at *nisl in*, rutrum elementum diam.

TRY IT

Small text

- Small text `<small>…</small>`
- Supscripts `<sup>…</sup>`
- Subscripts `<sub>…</sub>`
- It is possible to nest these tags too

```
A<sub>k</sub>=a<sup>2<sup>n</sup></sup>

<small><small>Nullam a neque a lectus sagittis
ullamcorper.</small></small>
```

Cras sit amet ipsum non erat convallis feugiat: $A_k = a^{2^n} + b_{n+k}$.

Nullam a neque a lectus sagittis ullamcorper.

Nullam a neque a lectus sagittis ullamcorper.

Nullam a neque a lectus sagittis ullamcorper.

Nullam a neque a lectus sagittis ullamcorper.
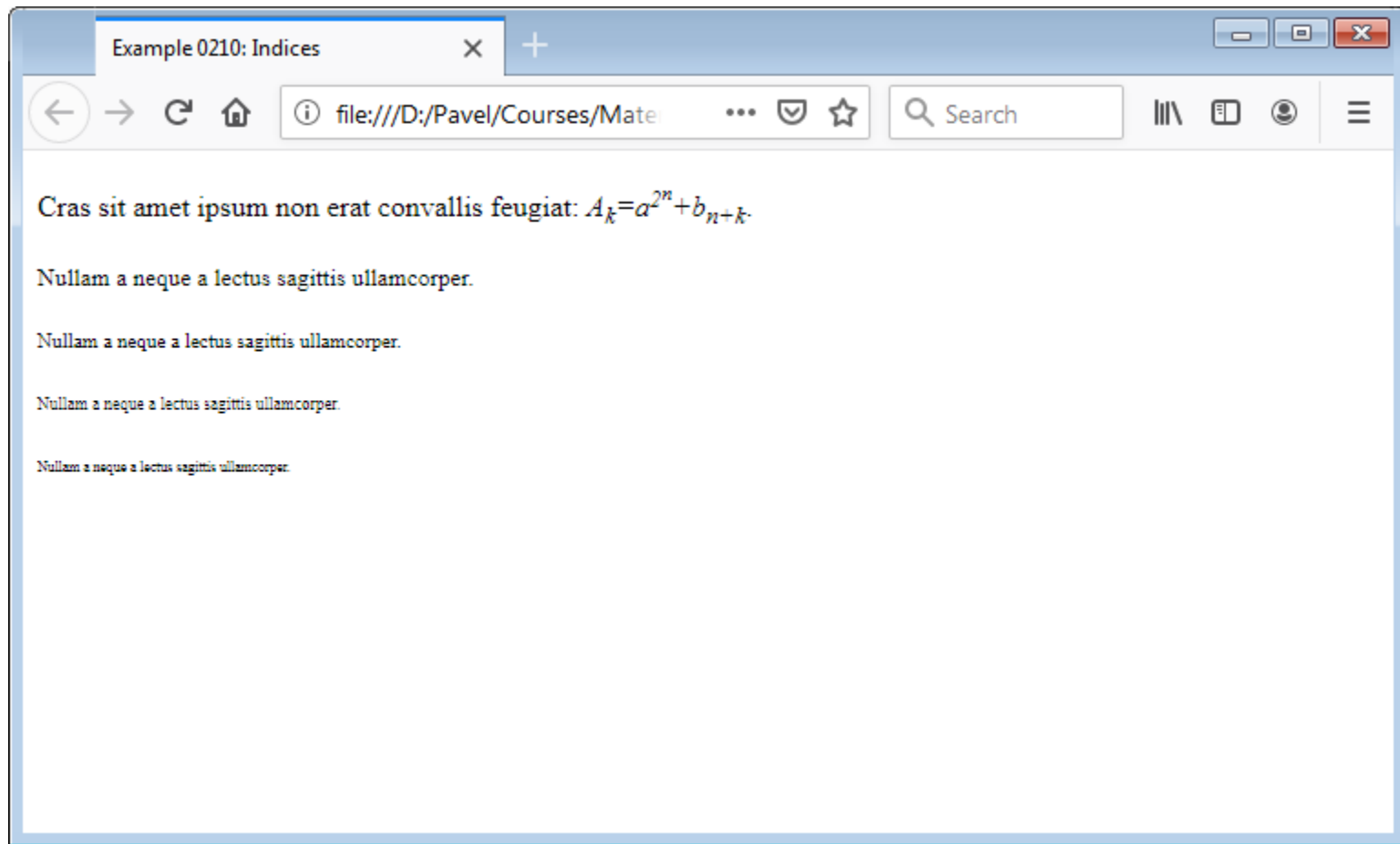
TRY IT

Tags for code fragments
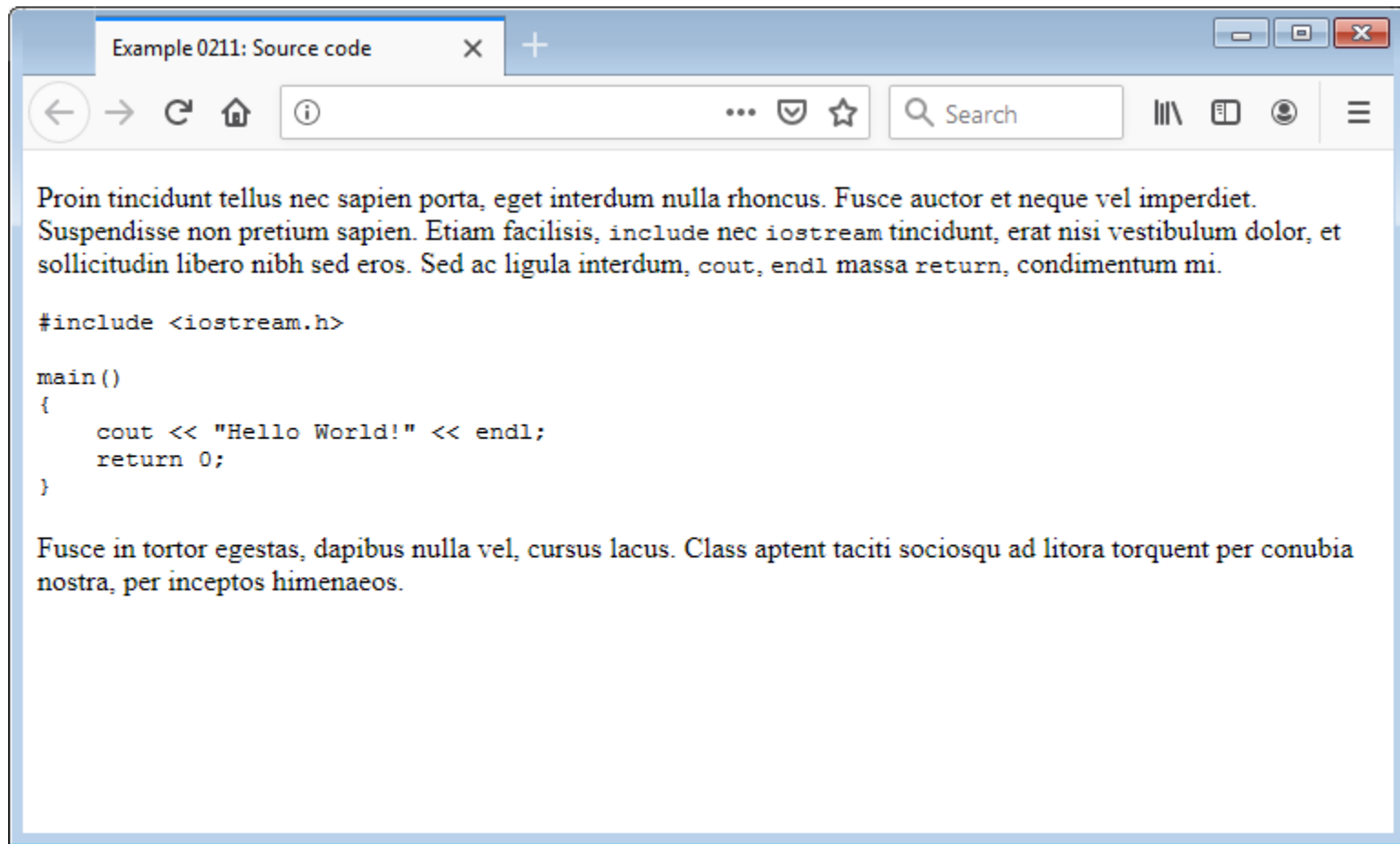
Source code

- Same character width (monospace) `<code>...</code>`

- Preserving spaces and new lines `<pre>...</pre>`

```
<p>Etiam facilisis, <code>include</code> nec
<code>iostream</code></p>

<pre>main()
{
    return 0;
}</pre>
```

Proin tincidunt tellus nec sapien porta, eget interdum nulla rhoncus. Fusce auctor et neque vel imperdiet. Suspendisse non pretium sapien. Etiam facilisis, `include` nec `iostream` tincidunt, erat nisi vestibulum dolor, et sollicitudin libero nibh sed eros. Sed ac ligula interdum, `cout`, `endl` massa `return`, condimentum mi.

```
#include <iostream.h>

main()
{
    cout << "Hello World!" << endl;
    return 0;
}
```

Fusce in tortor egestas, dapibus nulla vel, cursus lacus. Class aptent taciti sociosqu ad litora torquent per conubia nostra, per inceptos himenaeos.

TRY IT

Tags for lists

Lists of elements

- Ordered list `<ol>…</ol>`
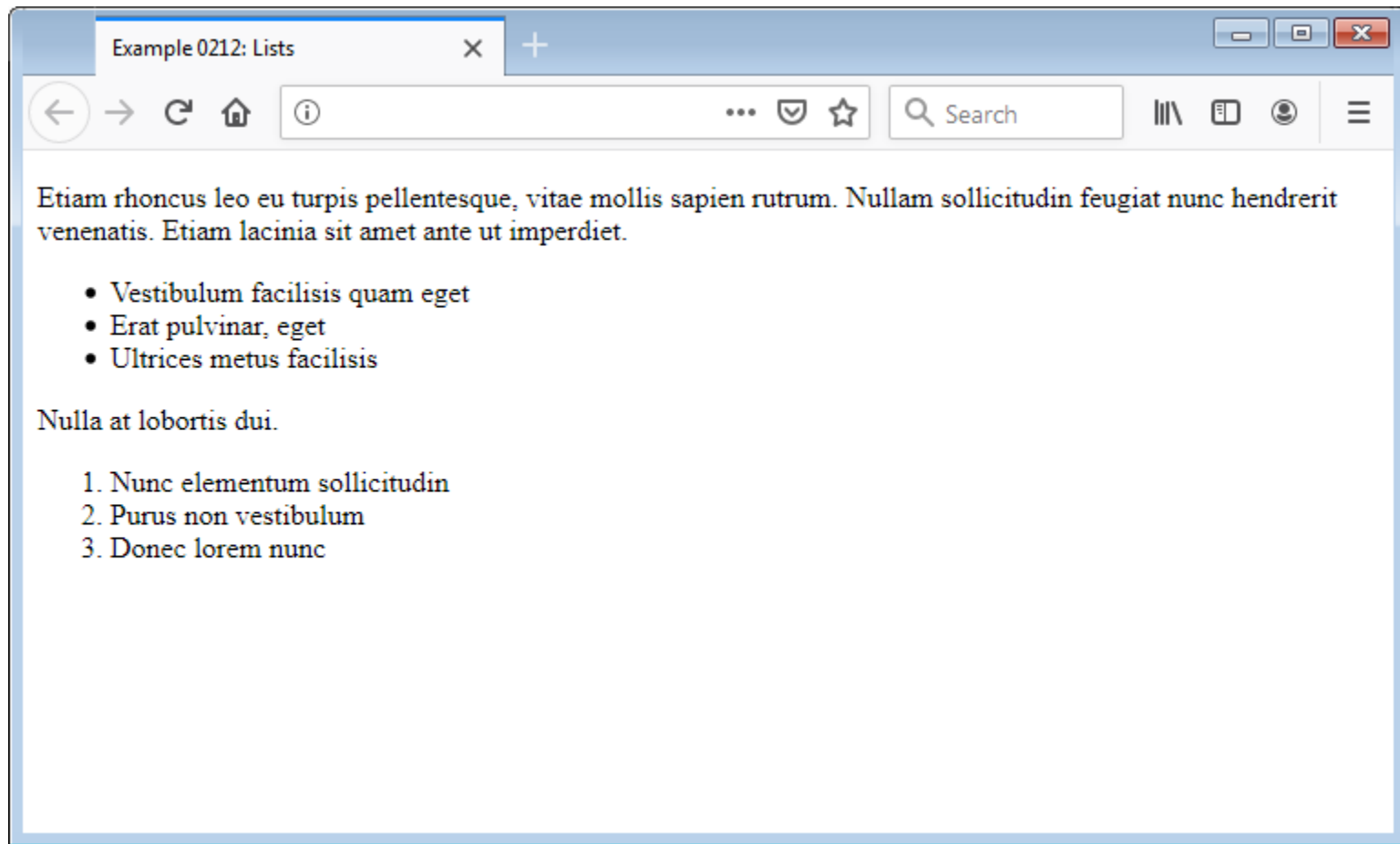
- Unordered list `<ul>…</ul>`

- List item `<li>…</li>`

```
<ul>
   <li>Vestibulum</li>
   <li>Erat pulvinar</li>
   <li>Ultrices</li>
</ul>
```

```
<ol>
   <li>Nunc</li>
   <li>Purus non</li>
   <li>Donec</li>
</ol>
```

Etiam rhoncus leo eu turpis pellentesque, vitae mollis sapien rutrum. Nullam sollicitudin feugiat nunc hendrerit venenatis. Etiam lacinia sit amet ante ut imperdiet.

- Vestibulum facilisis quam eget
- Erat pulvinar, eget
- Ultrices metus facilisis

Nulla at lobortis dui.

1. Nunc elementum sollicitudin
2. Purus non vestibulum
3. Donec lorem nunc

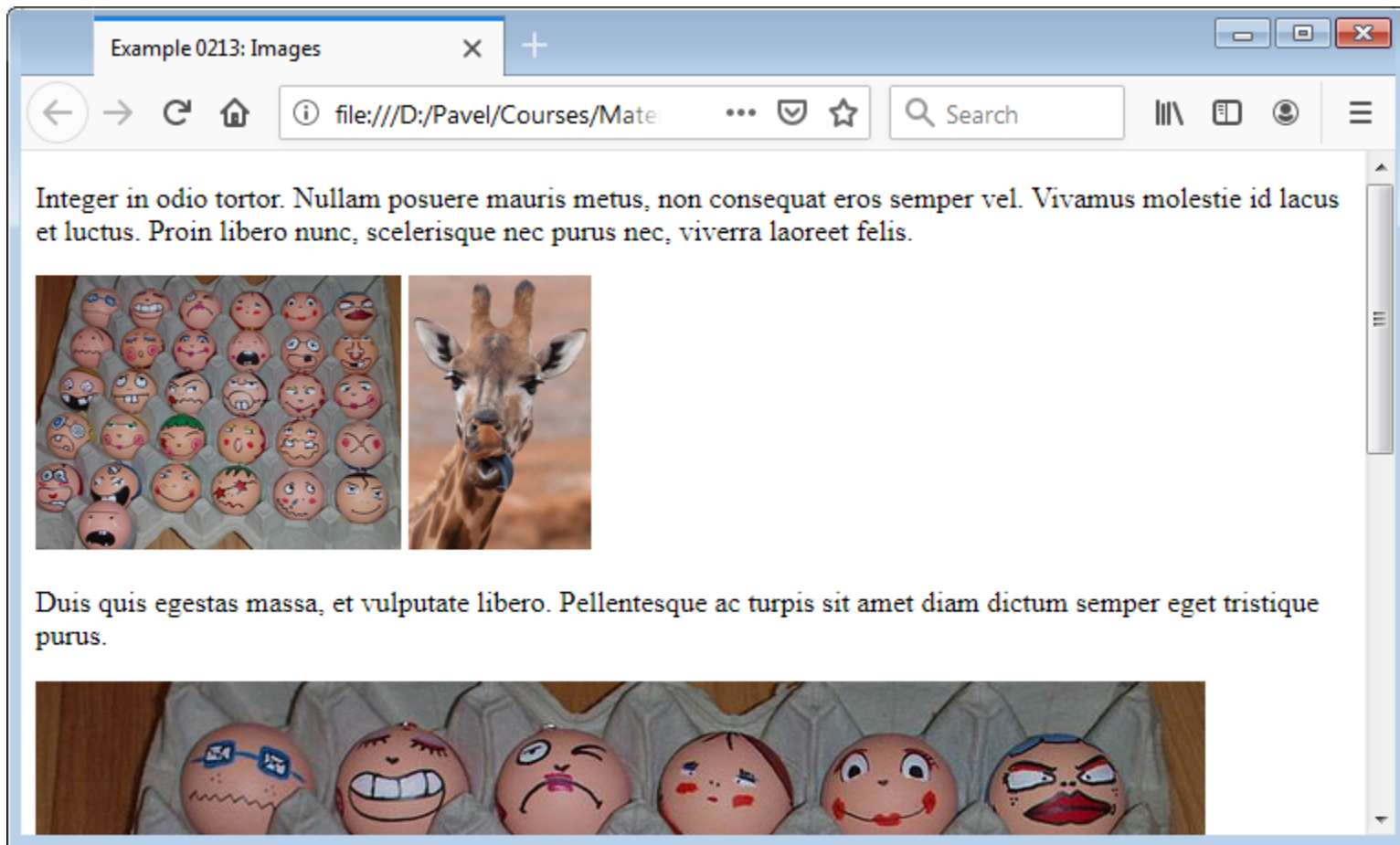TRY IT

Tags for links

Links to images

- Tag `<img>…</img>` for showing an image
- Compulsory attribute `src` with image's address
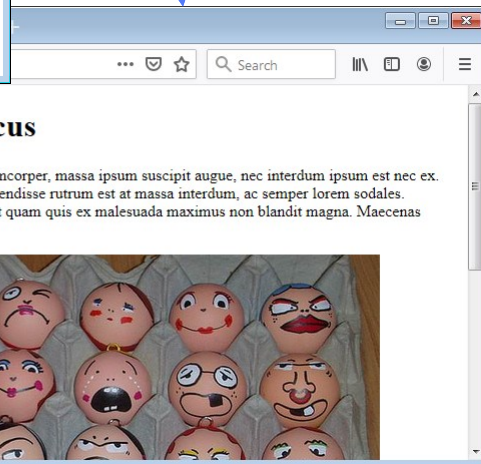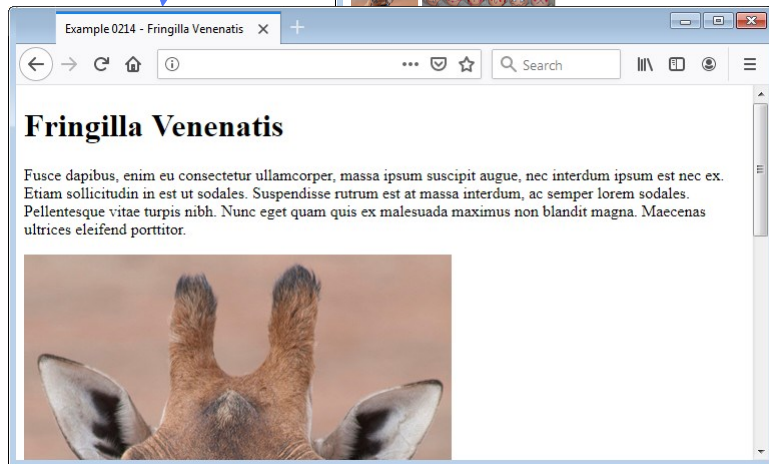- Attributes `width` and `height` set visible image size

```
<img src="Eggs.jpg" height="150">
<img src="Giraffe.jpg" height="150">

<img src="Eggs.jpg">
```
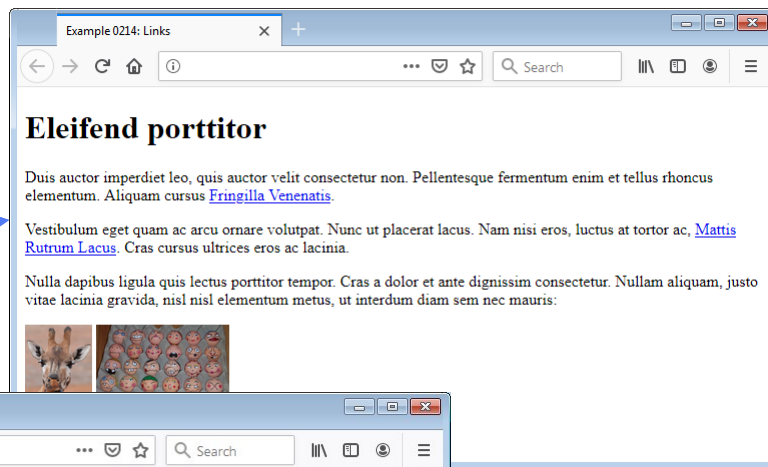
Link to pages

- Tag **<a>...** (from *anchor*)
- Page address is in attribute **href**
- Tag's content is shows as link, it may contain other HTML elements, including images

```
<a href="Giraffe.html">Fringilla Venenatis</a>

<a href="Giraffe.html">
    <img src="Giraffe.jpg" height="100">
</a>
```

Eleifend porttitor

Duis auctor imperdiet leo, quis auctor velit consectetur non. Pellentesque fermentum enim et tellus rhoncus elementum. Aliquam cursus Fringilla Venenatis.

Vestibulum eget quam ac arcu ornare volutpat. Nunc ut placerat lacus. Nam nisi eros, luctus at tortor ac, Mattis Rutrum Lacus. Cras cursus ultrices eros ac lacinia.

Nulla dapibus ligula quis lectus porttitor tempor. Cras a dolor et ante dignissim consectetur. Nullam aliquam, justo vitae lacinia gravida, nisl nisl elementum metus, ut interdum diam sem nec mauris:

Example 0214 - Fringilla Venenatis

Fringilla Venenatis

Fusce dapibus, enim eu consectetur ullamcorper, massa ipsum suscipit augue, nec interdum ipsum est nec ex. Etiam sollicitudin in est ut sodales. Suspendisse rutrum est at massa interdum, ac semper lorem sodales. Pellentesque vitae turpis nibh. Nunc eget quam quis ex malesuada maximus non blandit magna. Maecenas ultrices eleifend porttitor.

Mattis Rutrum Lacus

Fusce dapibus, enim eu consectetur ullamcorper, massa ipsum suscipit augue, nec interdum ipsum est nec ex. Etiam sollicitudin in est ut sodales. Suspendisse rutrum est at massa interdum, ac semper lorem sodales. Pellentesque vitae turpis nibh. Nunc eget quam quis ex malesuada maximus non blandit magna. Maecenas ultrices eleifend porttitor.

TRY IT

Tags for tables

Tables

- Defined row by row

Tags

- Main tag `<table>…</table>`
- For every row `<tr>…</tr>` (table row)
- Header cells `<th>…</th>` (table header)
- Data cells c `<td>…</td>` (table data)
- Difference between `<th>` and `<td>` is the formatting

Example

- Using attribute **border** for table borders
- HTML5 does not support borders (use CSS for this), but most browsers still acknowledge this attribute

```
<table border="1">
  <tr>
    <th>Maecenas</th>
    <th>At massa</th>
  </tr>
  <tr>
    <td>Pulvinar non sed sem</td>
    <td>Tortor</td>
  </tr>
</table>
```

Maecenas	At massa	Sit amet	Augue iaculis
Pulvinar non sed sem	Tortor	Nulla	Maecenas ullamcorper turpis quam, vel aliquet justo ornare mattis. Phasellus cursus eu ipsum sed faucibus. Sed egestas odio sed faucibus scelerisque.
Suspendisse placerat libero	Maximus	Scelerisque	Quisque facilisis vehicula purus, lobortis tincidunt leo sagittis vel. Quisque bibendum rutrum leo vitae viverra.
Duis at feugiat	Proin mi	Fermentum	Vivamus suscipit sapien eu erat fringilla vestibulum. Aliquam interdum tortor et quam sagittis, non fringilla felis bibendum. Phasellus non maximus nunc.

TRY IT

Merging cells

- Attribute **rowspan** defines the number of merged rows
- Attribute **colspan** defines the number of merged columns
- They are applied to **<td>** or **<th>**

```
<table border="1">
   <tr>
      <th colspan="2">Maecenas</th>
   </tr>
   <tr>
      <td>Pulvinar non sed sem</td>
      <td>Tortor</td>
   </tr>
</table>
```
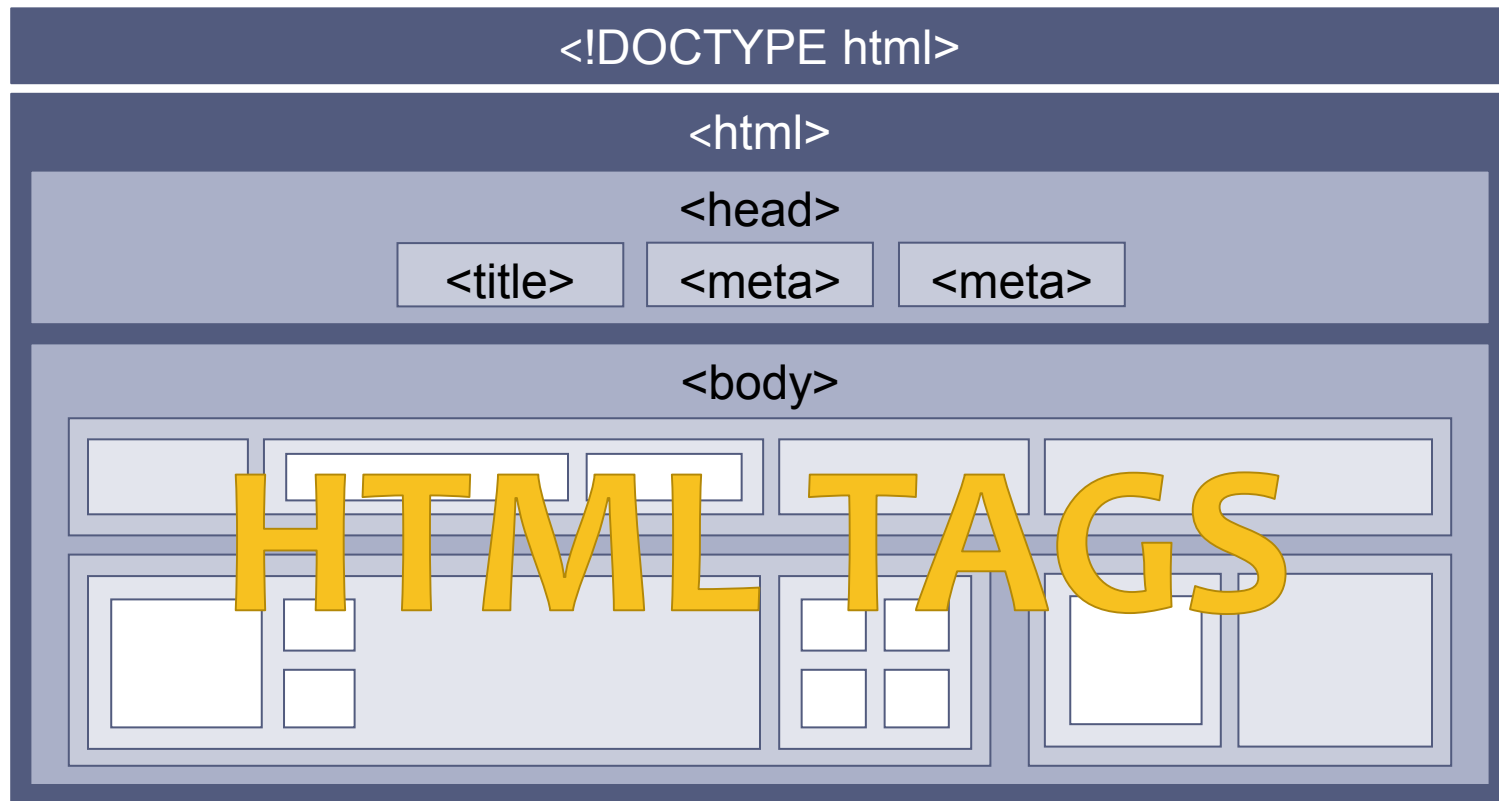
Maecenas	At massa		Augue iaculis
Pulvinar non sed sem	Tortor	Nulla	Maecenas ullamcorper turpis quam, vel aliquet justo ornare mattis. Phasellus cursus eu ipsum sed faucibus. Sed egestas odio sed faucibus scelerisque.
	Maximus	Scelerisque	
Duis at feugiat	Proin mi	Fermentum	

TRY IT

Summary

HTML page

<!DOCTYPE html>

<html>

<head>

<title> <meta> <meta>

<body>

HTML TAGS

Tags

Various tags

- We mentioned just a few of them

- Also, only a few of their attributes are presented

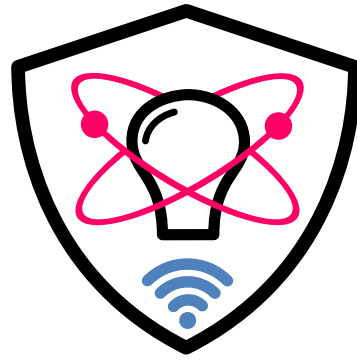**Some elements will be introduced in the other lessons**

- HTML elements for graphics, video and sound

- HTML elements for entering data and building user interface

- Programming access to HTML elements and their attributes

More

Additional info

- Here: http://www.w3schools.com/html
- Attention! Check versions – prefer HTML5 examples

ICT in SES

End

Comments, questions