

# Web Fundamentals

## HTML & CSS, Bootstrap



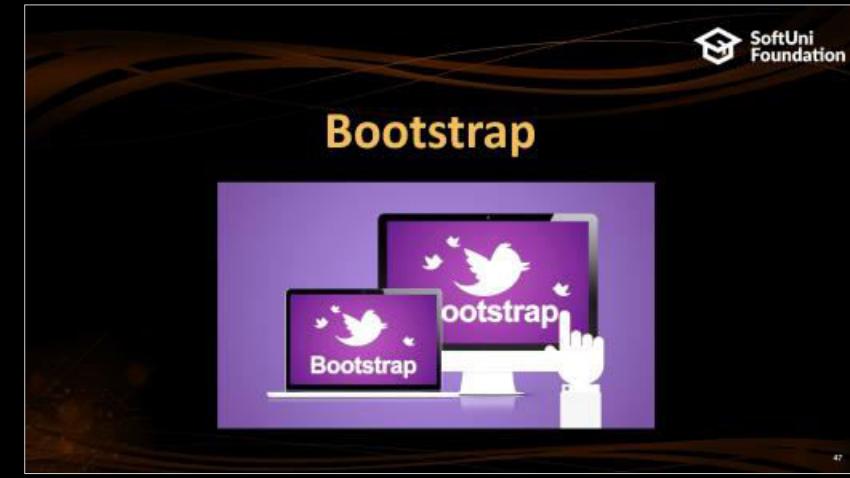
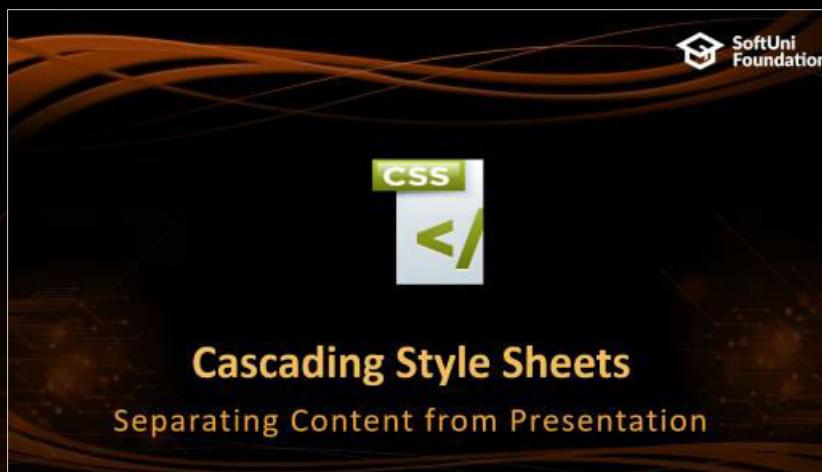
**SoftUni Team**  
Technical Trainers  
Software University  
<http://softuni.bg>



*Java Web  
Dev Basics*



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# Questions



sli.do

#java-web

# What is HTML?



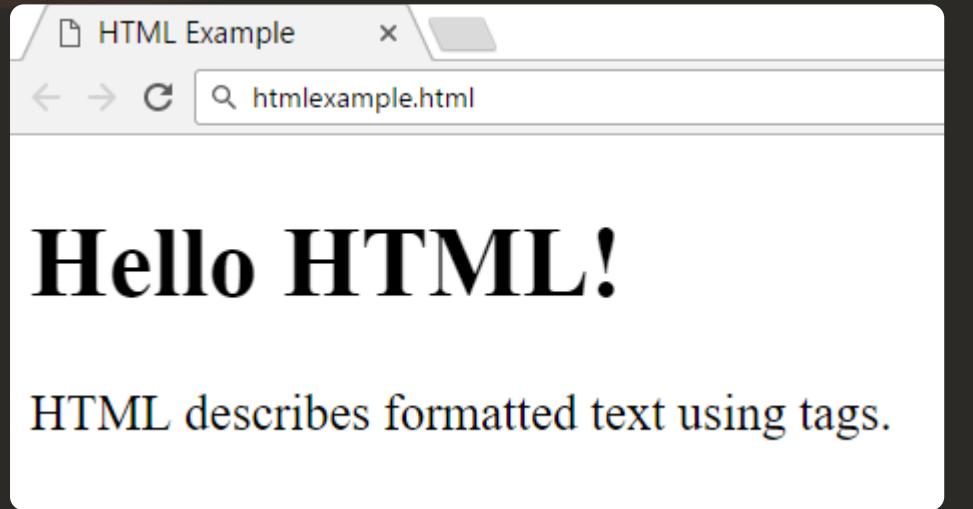
# What is HTML?

- HTML – Hyper Text Markup Language
  - A notation for describing
    - document structure (semantic markup)
    - formatting (presentation markup)
- The markup tags provide meta-information about the page content and define its structure
- A HTML document consists of many tags (with nesting)



# HTML Page – Example

```
<!DOCTYPE html>
<html>
  <head>
    <title>HTML Example</title>
  </head>
  <body>
    <h1>Hello HTML!</h1>
    <p>HTML describes formatted text using tags.</p>
  </body>
</html>
```



# HTML Terminology

- Tags – the smallest piece in HTML
- Attributes – properties of the tag, e.g. size, color, etc...
- Elements – combination of opening, closing tag and attributes

Opening tag

Attribute: **key = "value"**

```
<a href="/home">
```

Navigate to

```
<b>home page</b>
```

```
</a>
```

Element

Closing tag

# Using HTML 5 To Create Structure

- In HTML 5 there are semantic tags for layout
  - **<header>, <footer>, <nav>, <aside>, <section>**

```
<html>
  <head> ... </head>
  <body>
    <header> ... </header>
    <nav> ... </nav>
    <aside> ... </aside>
    <section> ... </section>
    <footer> ... </footer>
  </body>
</html>
```

Holds metadata

Logo + Header

Navigation

Content

Sidebar

Footer

Actual content

# Exercise: Welcome to HTML

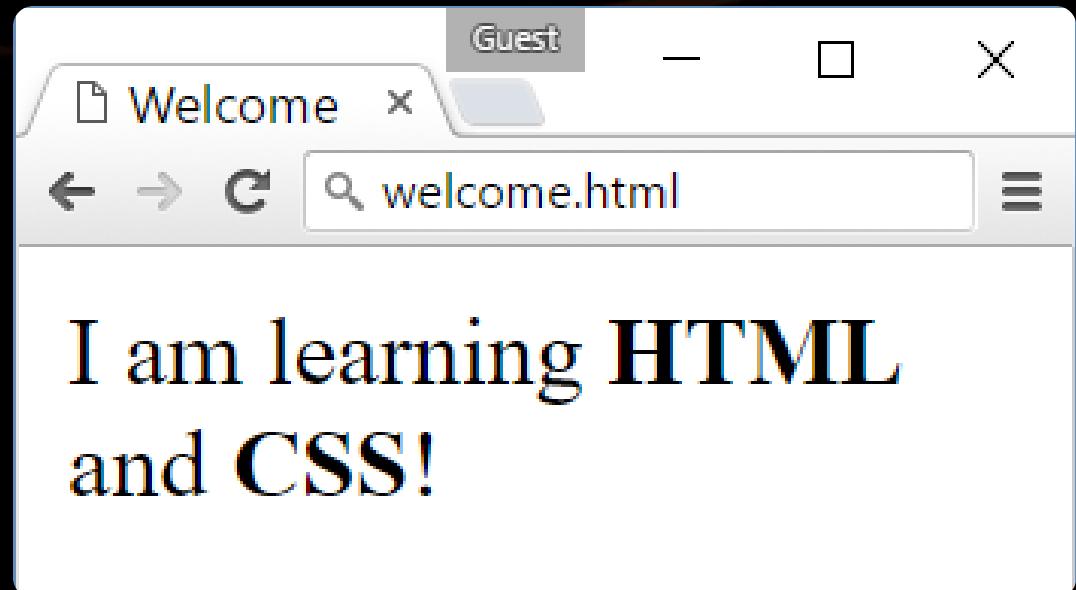
- Create your first Web page:

- File name: **welcome.html**
  - Title: Welcome
  - Paragraph of text:

I am learning **HTML** and **CSS**!

- Hint:

- You can use as a basis the html structure from the previous slides
  - For bolder text use the **<strong>** tag



<h1>  
<div>  
<span>  
<button>  
<img>  
<input>  
<script>  
<section>  
<ul>  
<li>  
<a>  
<strong>

# HTML Common Tags

Widely Used on All Websites

# Headings

- Headings:

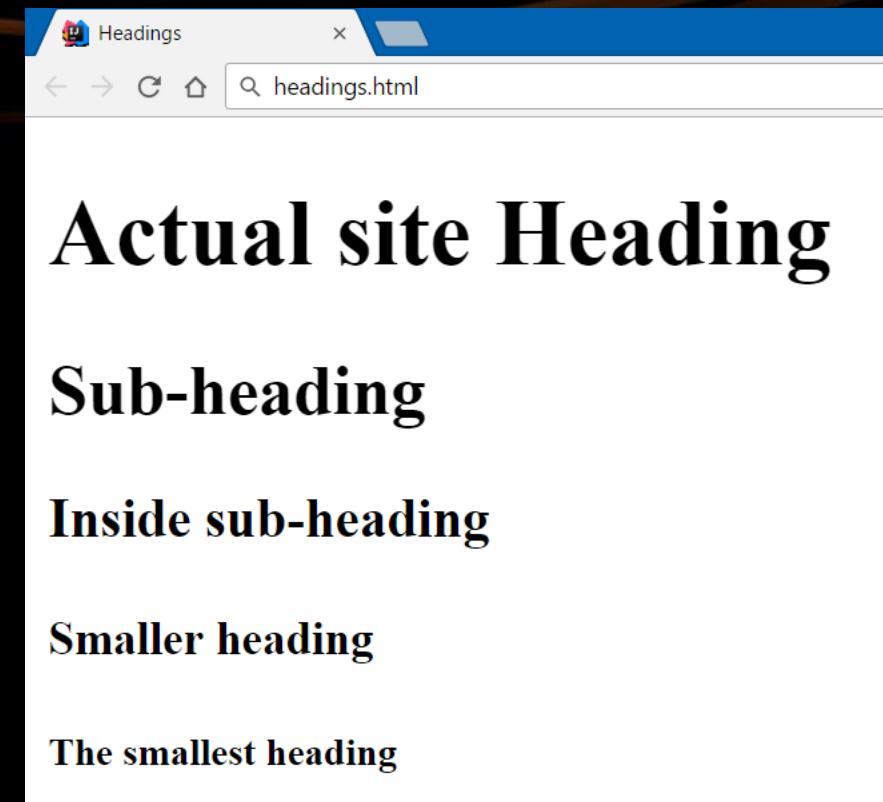
```
<h1>First Heading (Biggest)</h1>
<h2>Second Heading (Smaller)</h2>
<h3>Third Heading (Even Smaller)</h3>
<h4>Fourth Heading (Smallest)</h4>
```

First Heading (Biggest)  
Second Heading (Smaller)  
Third Heading (Even Smaller)  
Fourth Heading (Smallest)

- Headings help with page structure, as in Microsoft Word
- Html has six different HTML headings
  - **<h1>** defines the most important heading.
  - **<h6>** defines the least important heading.

# Exercise: Headings

- Create a Web page with five headings:
  - Heading for the whole page **<h1>**
  - Four smaller headings **<h2>** to **<h5>**
- Hint:
  - Use **<h1>** to **<h5>** tags



# Paragraphs

- Paragraphs:

```
<p>First paragraph</p>
<p>Second paragraph</p>
<br/> <!-- empty line -->
<p>Third paragraph</p>
```

Comment

First paragraph

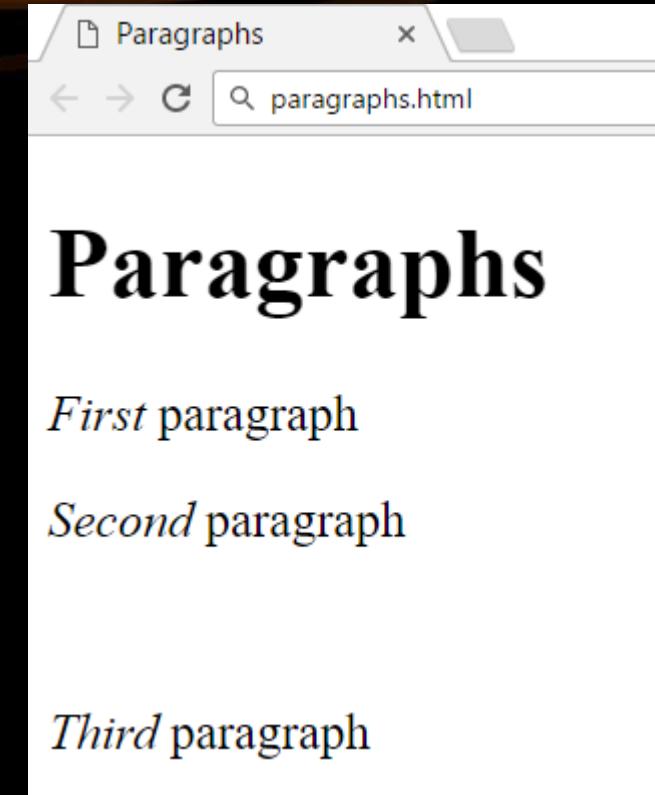
Second paragraph

Third paragraph

- The **<p>** tag defines a paragraph
- The **<br/>** tag defines a line break

# Exercise: Paragraphs

- Create a Web page with three paragraphs and a blank line:
  - Heading for the whole page `<h1>`
  - Three paragraphs `<p>`
  - Blank line `<br/>`
- Hint:
  - Use `<em>` tag for emphasizing text (italic font)



# Bullets and Numbered Lists

```
<ul>
  <li>First item</li>
  <li>Second item</li>
  <li>Third item</li>
</ul>
```

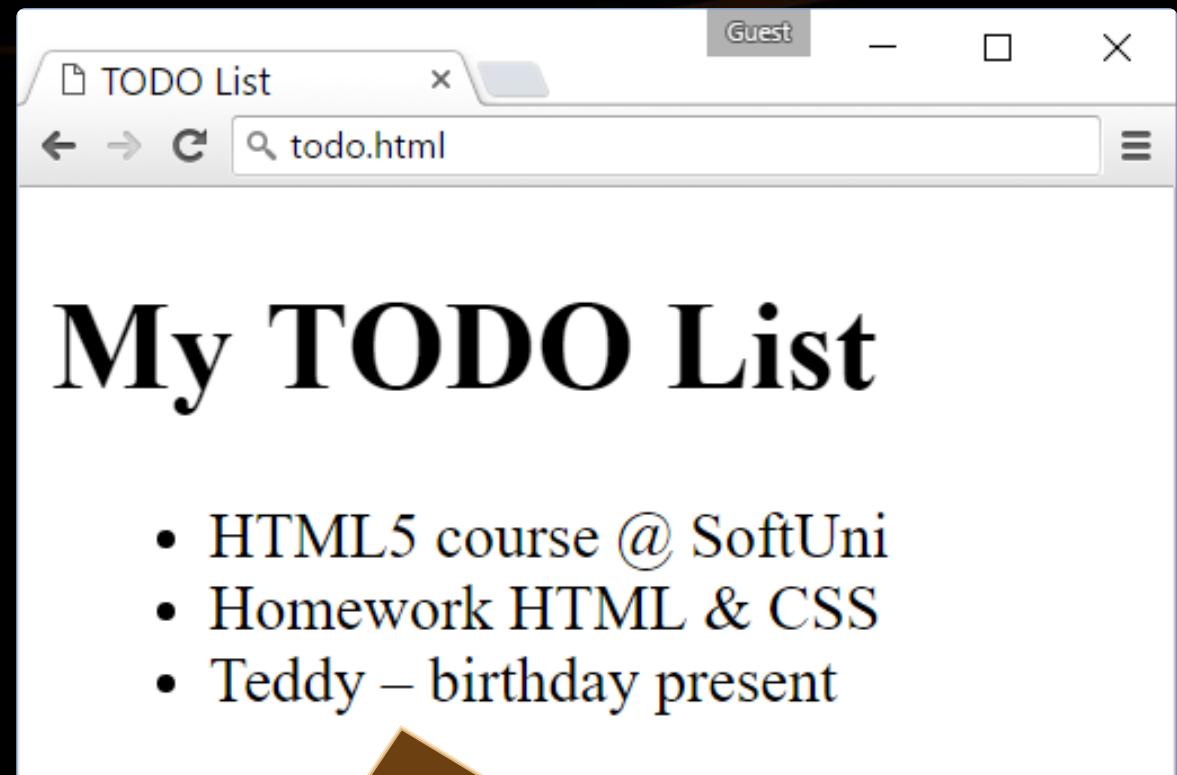
- First item
- Second item
- Third item

```
<ol>
  <li>One</li>
  <li>Two</li>
  <li>Three</li>
</ol>
```

1. One
2. Two
3. Three

# Exercise: My TODO List

- Create a Web page:
  - File name: **todo.html**
  - Title: **TODO List**
  - Large heading: **My TODO List**
  - List of items:
    - **HTML5 course @ SoftUni**
    - **Homework HTML & CSS**
    - **Teddy – birthday present**



Hint: use **&ndash;** to  
display the long hyphen –

# Hyperlinks

- Created by using the `<a>` tag

```
<a></a>
```

- The actual address is specified in the `href=""` attribute

```
href="https://softuni.bg"
```

- External hyperlink

```
<a href="https://softuni.bg">SoftUni</a>
```

SoftUni

# Exercise: Hello HTML

- Create a Web page:

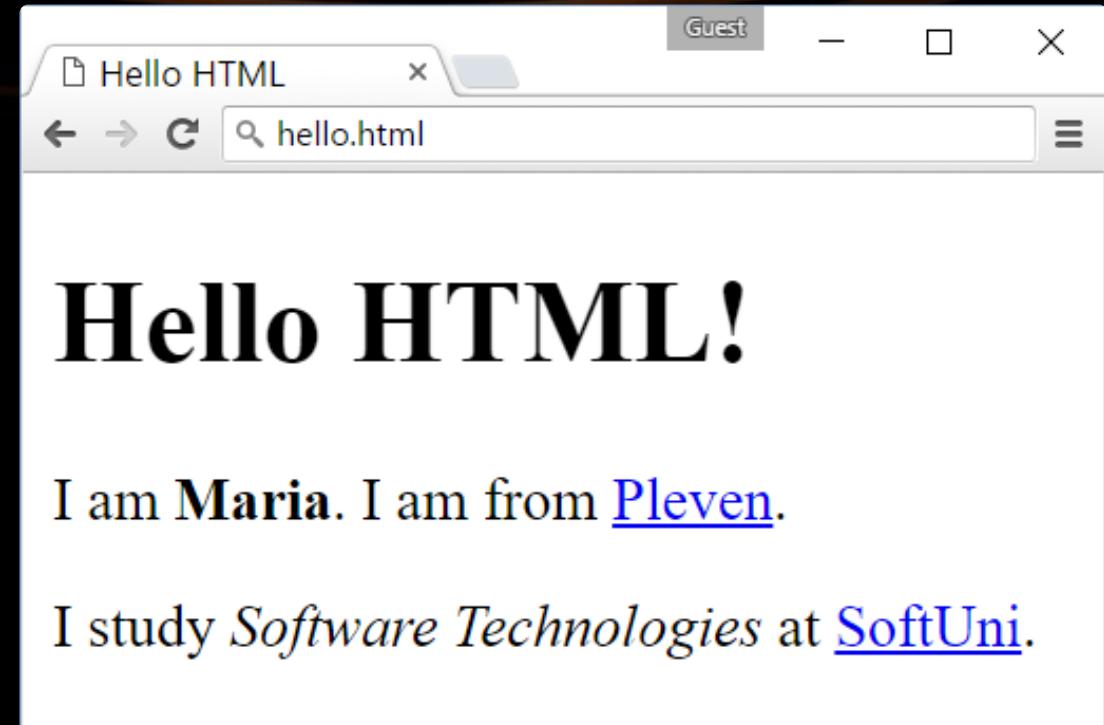
- File name: **hello.html**
- Title: Hello HTML
- Large heading: Hello HTML!

- Paragraph of text:

I am *<your name (bold)>*. I am from *<your town as link to your town's Web site>*.

- Paragraph of text:

I study *<specialty (italic)>* at *<link to SoftUni>*.



# Hyperlinks – Local

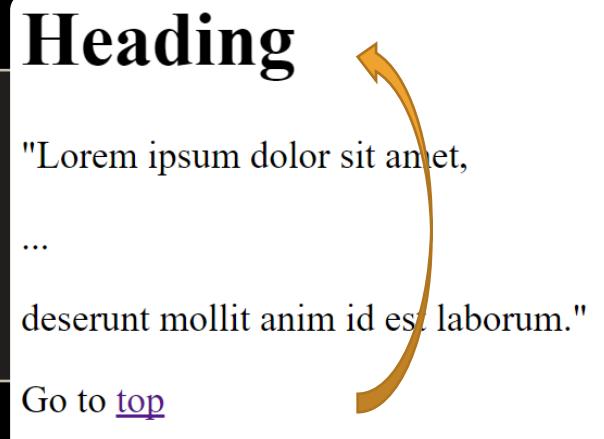
- Local hyperlink – link to the same web site

```
<a href="welcome.html">Review "welcome.html"</a>
```



- Local links can point to the same page

```
<h1 id="top">Heading</h1>  
... <!-- some Long text -->  
Go to <a href="#top" target="_self">top</a>
```



Heading

"Lorem ipsum dolor sit amet,  
...  
deserunt mollit anim id est laborum."

Go to [top](#)

# Exercise: Website

- Create a three page Web site:

- Create page:

- **home.html**

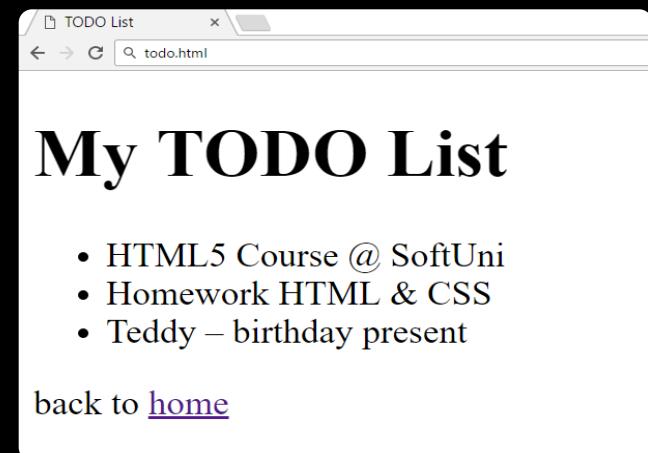
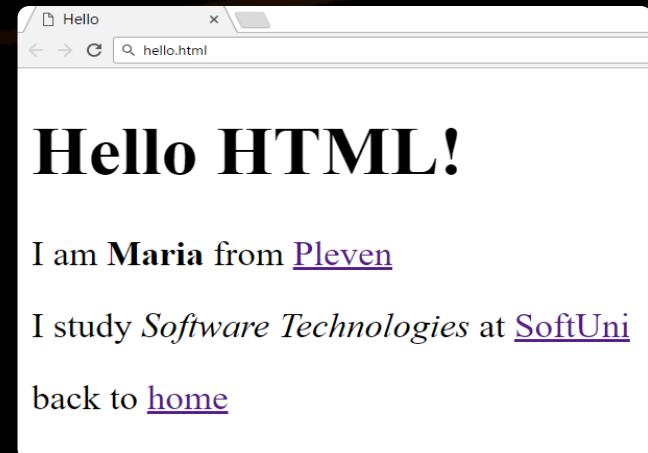
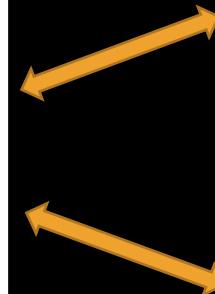
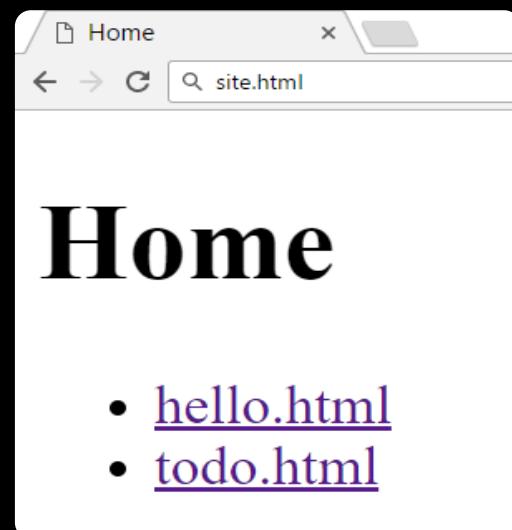
- Link it with both:

- **hello.html**

- **todo.html**

- In both files create:

- **link "back to home"**



# Images

- Images are external files, inserted through the `<img>` tag

```

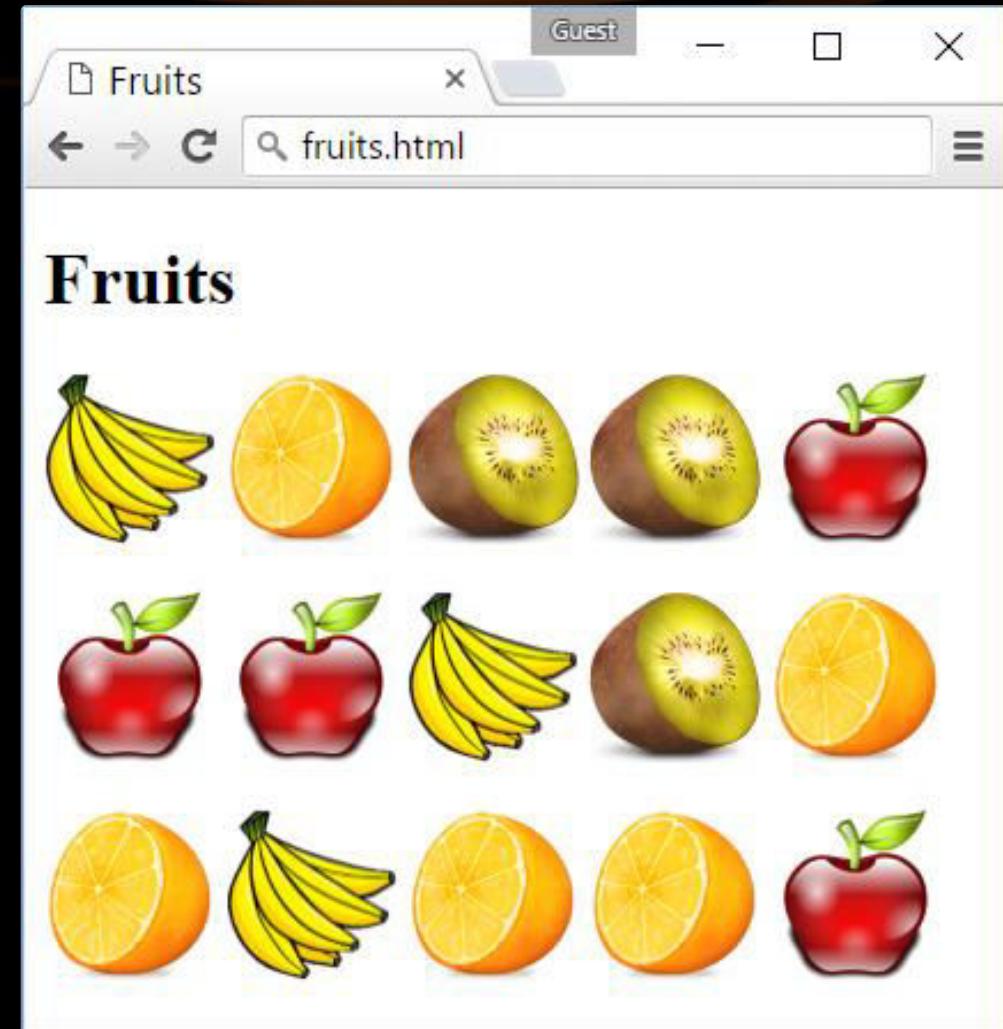
```

- `<img>` tag attributes:
  - `src="/images/logo.gif"` – image URL
  - `alt="Logo"` – alternative text
  - `width/height="200px"` – dimensions



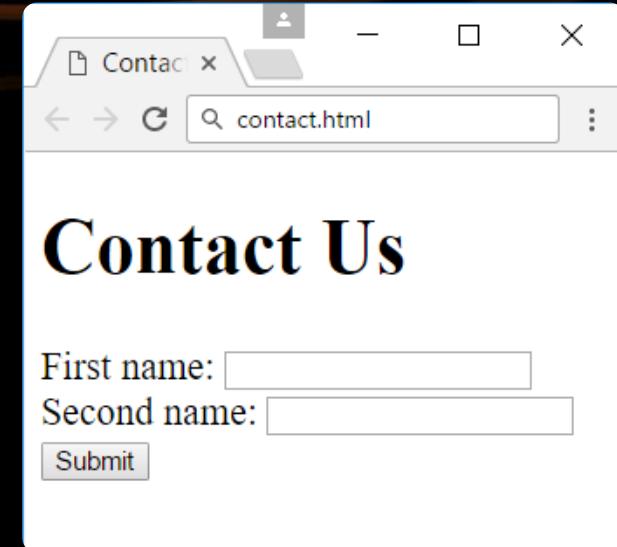
# Exercise: Fruits

- You are given 4 image files:
  - **apple.png**
  - **banana.png**
  - **kiwi.png**
  - **orange.png**
- Create a Web page like the screenshot on the right
  - Hint: use 3 paragraphs, each holding 5 images



# HTML Forms

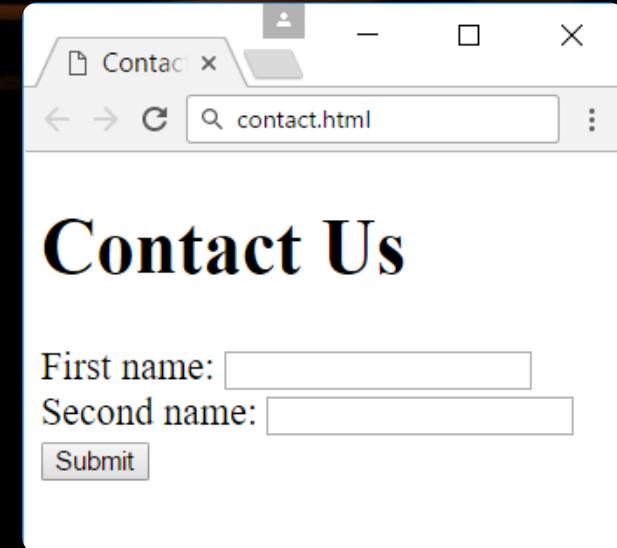
- HTML forms allow user to fill data and send it to the server
  - Input fields can hold text, number, date, radio button, checkbox, ...
- Creating a contact form:



```
<form>
    First name: <input type="text" name="firstname"><br>
    Last name: <input type="text" name="lastname"><br>
    <input type="submit" value="Submit">
</form>
```

# Exercise: Forms

- Create a form:
  - First Name - Text Box
  - Last Name - Text Box
  - Submit Button
- Create a Web page like the screenshot on the right
  - Hint: use <input type="text"/> and <input type="submit"/>



**Hello HTML!**

I am **Maria**. I am from [Pleven](#).

I study *Software Technologies* at [SoftUni](#).

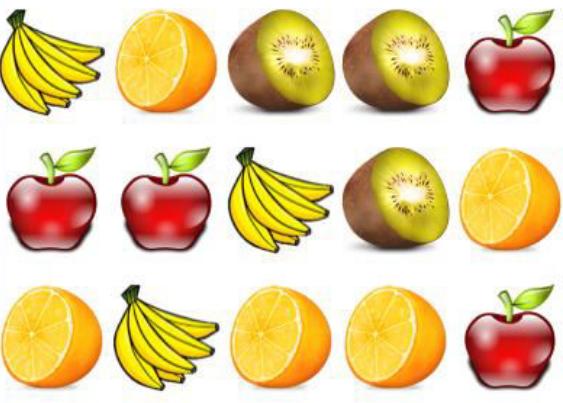
**My TODO List**

- HTML5 course @ SoftUni
- Homework HTML & CSS
- Teddy

**Welcome**

I am learning **HTML** and **CSS**

**Fruits**



# Basic HTML Tags

## Live Exercises in Class (Lab)



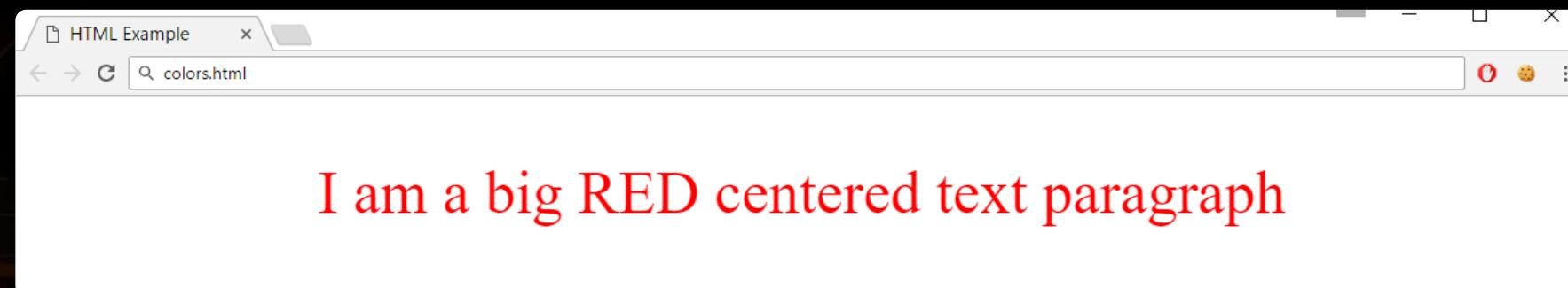
# Cascading Style Sheets

Separating Content from Presentation

# What is CSS?

- CSS defines styling of the HTML elements
  - CSS specifies fonts, colors, margins, sizes, positioning, floating, ...
  - Uses CSS declarations in format: **property:value**
- Inline CSS defines formatting rules for certain HTML element:

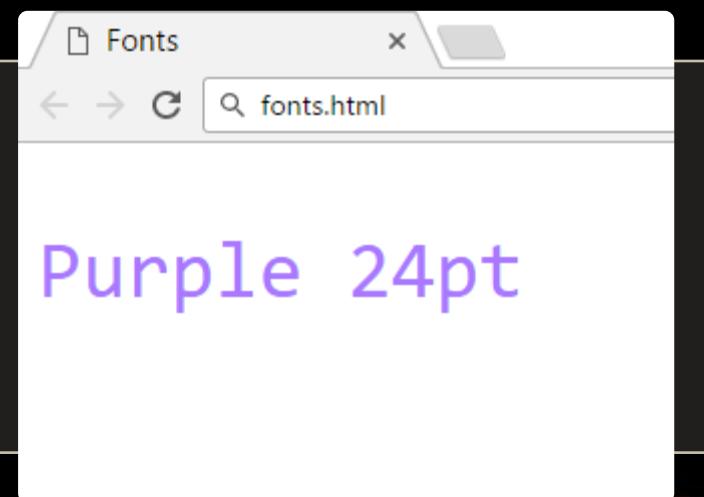
```
<p style="color: red; text-align: center; font-size: 30pt">I am a big RED centered text paragraph</p>
```



# Fonts – Font Family, Size and Colors

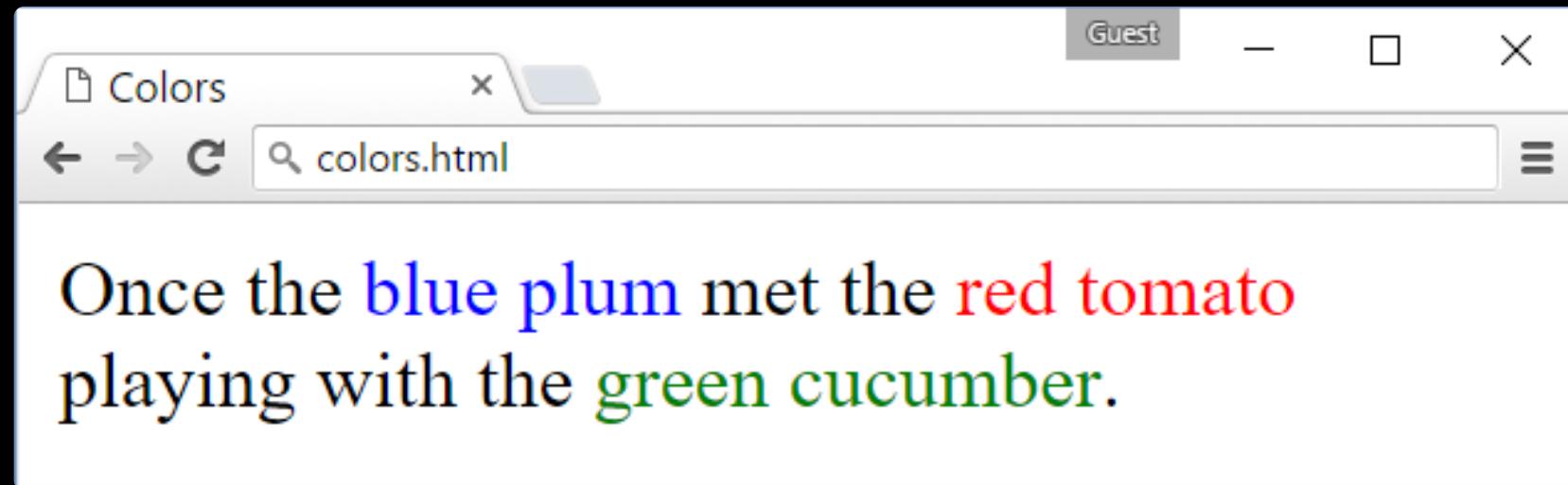
- **color**: specifies the color of the letters
- **font-family**: should hold several fonts. If the browser does not support the first one, it tries the next, and so on
- **font-size**: sets the size

```
<p style="color: #AA77FF;  
font-family: Consolas, monospace;  
font-size: 24pt; Example</p>
```



# Exercise: Colors

- Create a Web page like the screenshot below:



- Hints:
  - Use a paragraph of text
  - Use `<span style="...>text</span>` for the colored text

# Borders, Backgrounds

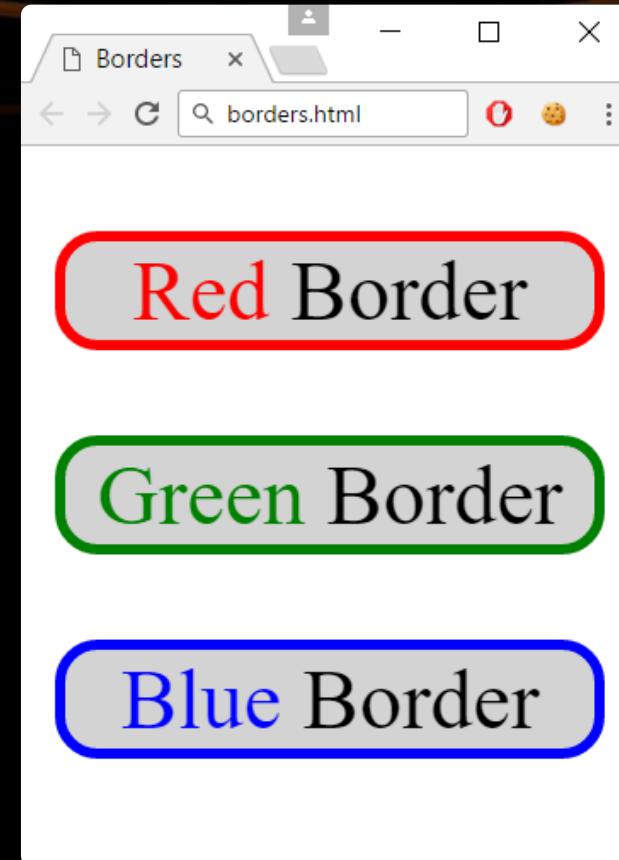
- **border**: specifies the type, thickness, color
- **border-radius**: rounds border edges
- **background**: sets the background

```
<p style=" border: 2px solid red;  
border-radius: 10px;  
background: lightgray;">red border</p>
```



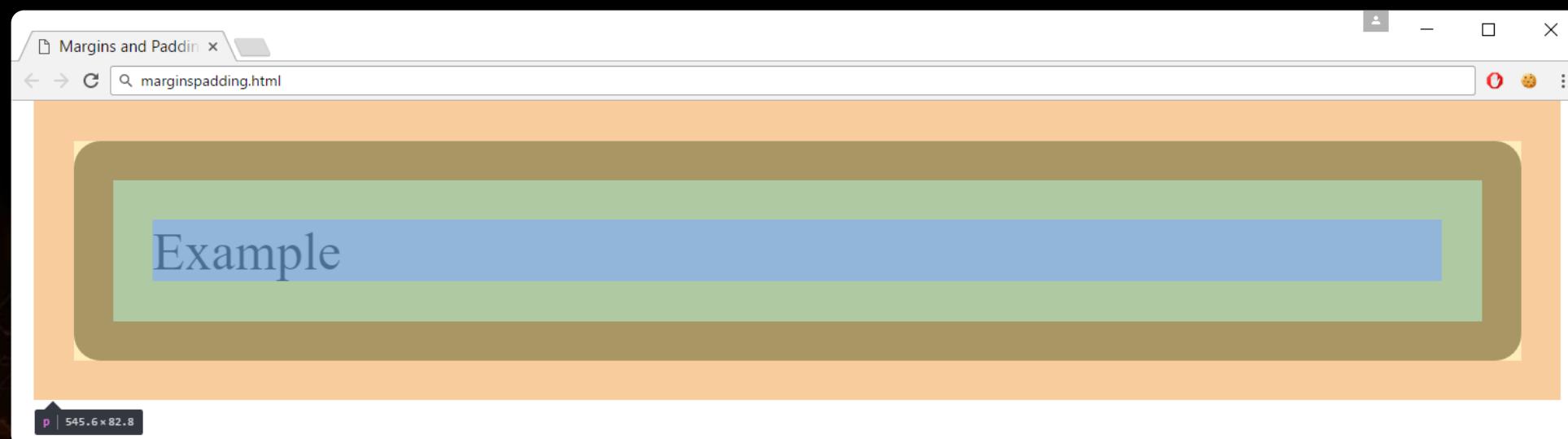
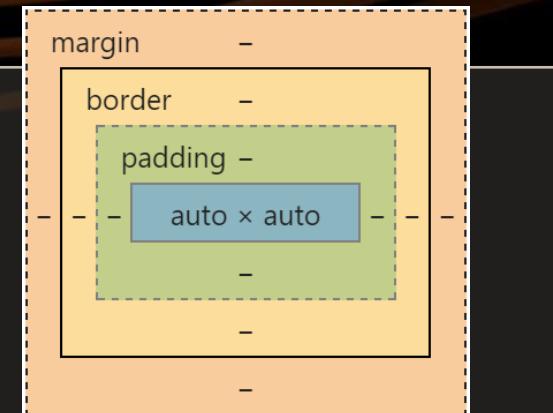
# Exercise: Colors

- Create a Web page like the screenshot:
  - Title: Borders
  - Including
    - Red bordered paragraph
    - Green bordered paragraph
    - Blue bordered paragraph
  - Hints:
    - Use a paragraphs of text
    - Use **<span style="...">text</span>** for the colored text

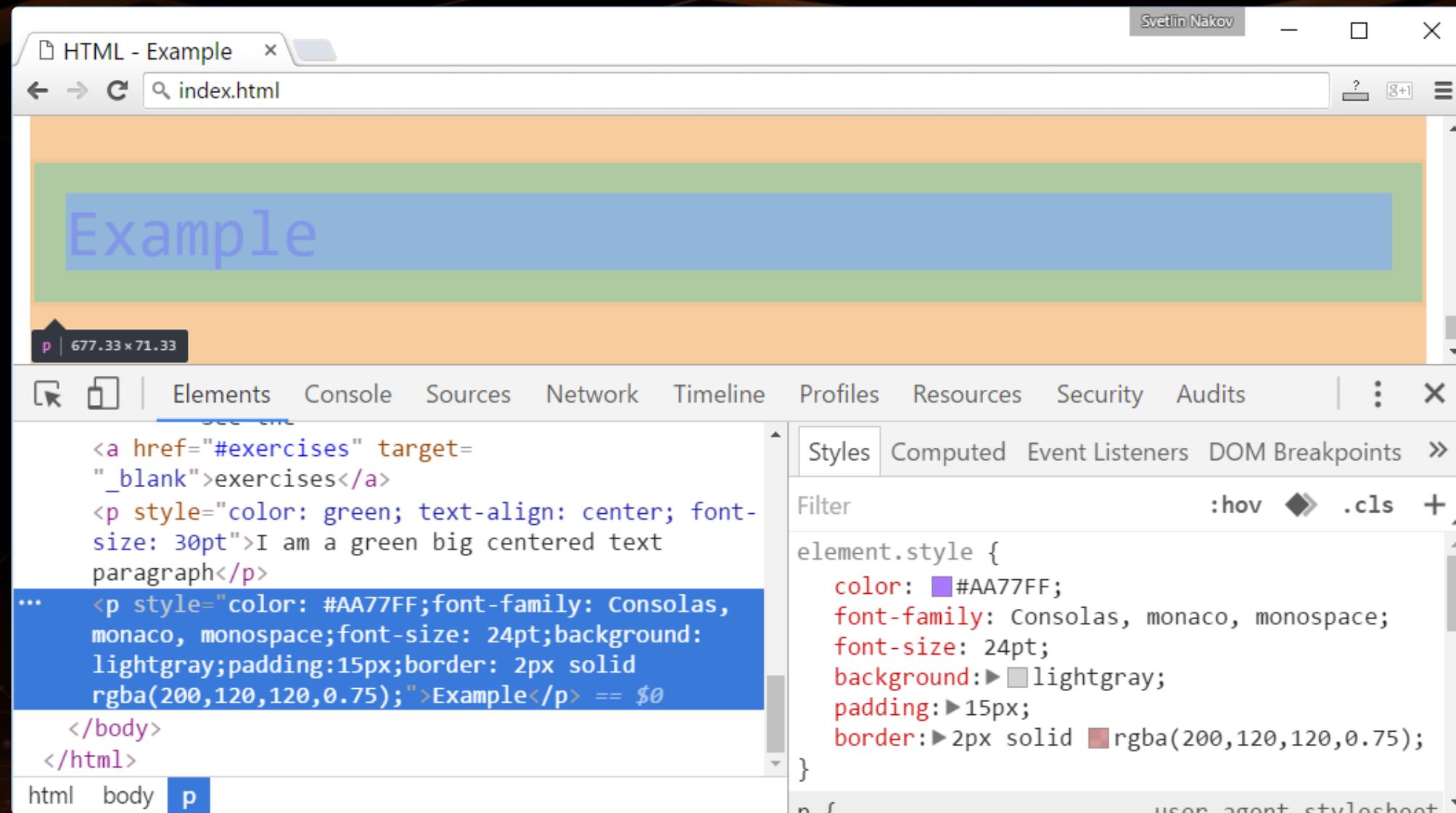


# Margins, Padding

```
<p style="margin: 15px;  
padding: 15px;  
border-radius: 10px;  
border: 15px solid black">Example</p>
```

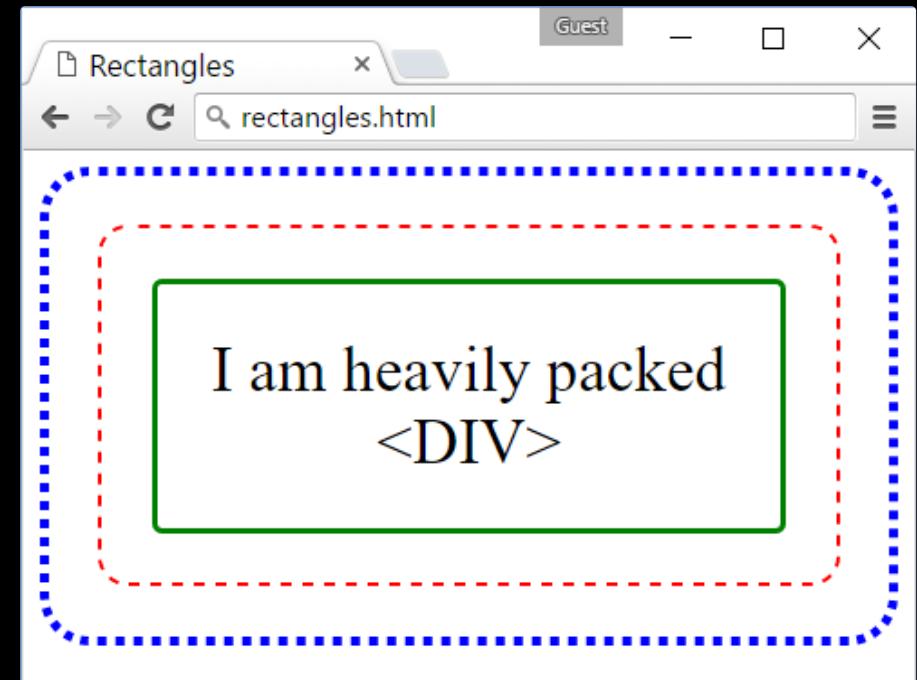


# The Dev Tools / Styles Inspector / [F12]



# Exercise: Rectangles

- Create a Web page like at the screenshot. **Hints:**
  - Use 3 nested `<div>` elements
  - Outside div: blue dotted border + border-radius + padding
  - Middle div: red dashed border + border-radius + padding
  - Inner div: green solid border + border-radius + padding + text-align + font-size
  - Use `&lt;` and `&gt;` to escape the `<` and `>` characters in the text



## ■ Separate content from presentation!

**Content**  
**(HTML document)**

Title  
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Suspendisse at pede ut purus malesuada dictum. Donec vitae neque non magna aliquam dictum.  
• Vestibulum et odio et ipsum  
• accumsan accumsan. Morbi at  
• arcu vel elit ultricies porta. Proin tortor purus, luctus non, aliquam nec, interdum vel, mi. Sed nec quam nec odio lacinia molestie. Praesent augue tortor, convallis eget, euismod nonummy, lacinia ut, risus.

**Presentation**  
**(CSS document)**

**Bold**  
**Italics**  
**Indent**



# The Resulting Page

## Title

**Consectetuer adipiscing elit.**  
**Suspendisse at pede ut purus**  
**malesuada dictum. Donec vitae neque**  
**non magna aliquam dictum.**

- *Vestibulum et odio et ipsum*
- *accumsan accumsan. Morbi at*
- *arcu vel elit ultricies porta. Proin*

**Tortor purus, luctus non, aliquam nec,**  
**interdum vel, mi. Sed nec quam nec**  
**odio lacinia molestie. Praesent augue**  
**tortor, convallis eget, euismod**  
**nonummy, lacinia ut, risus.**

# Combining HTML and CSS Files – body id

using-css.html

```
<!DOCTYPE html>
<html>
  <head>
    <link rel="stylesheet"
type="text/css" href="styles.css">
  </head>
  <body id="content"><p>
    This is a <span class="special">
special beer</span> for <span class=
"special">special drinkers</span>.</p>
  </body>
</html>
```

styles.css

```
.special {
  font-style: italic;
  font-weight: bold;
  color: blue;
}

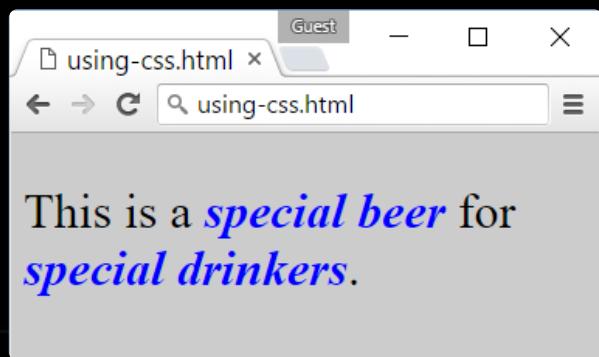
#content {
  background: #EEE;
}

p {
  font-
}
```



# CSS Selectors

- **.class** – selects a group of elements with the specified class
- **#id** – selects a unique element
- **tag** – selects all specified tags
- **\*** - selects everything

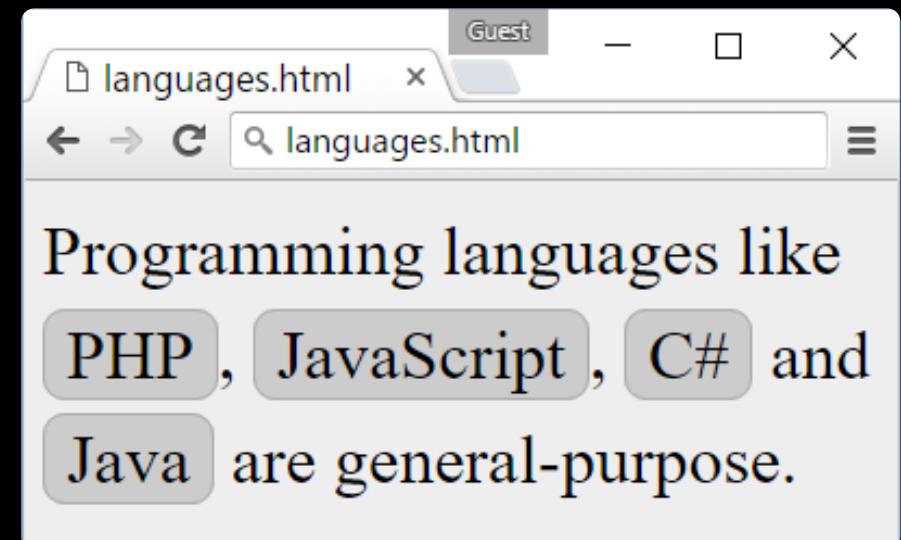


**styles.css**

```
.special {  
    font-style: italic;  
    font-weight: bold;  
    color: blue;  
}  
  
#content {  
    background: #EEE;  
}  
  
p {  
    font-size: 24pt;  
}
```

# Exercise – Languages

- Create a Web page like at the screenshot. **Hints:**
  - Create HTML file **langs.html**
  - Create CSS file **langs.css**
  - Link the CSS file in the HTML header  
`<link rel="..." href="langs.css">`
  - In the **body** CSS selector define:
    - `background:#EEE; line-height:1.5em; font-size:24pt;`
    - Define and use a CSS class **.lang** for styling the languages:
      - Specify `border:1px #AAA, border-radius, background:#CCC, padding`



# Solution – Languages (HTML + CSS)

## languages.html

```
<!DOCTYPE html>
<html>
  <head> <title>...</title>
    <link rel="stylesheet" type=
      "text/css" href="languages.css">
  </head>
  <body>
    Programming ... <span class="lang">
      PHP</span>, <span class="lang">
      JavaScript</span>, ... purpose.
  </body>
</html>
```

## languages.css

```
body {
  font-size: 24pt;
  background: #EEE;
  line-height: 1.5em;
}

.lang {
  padding: 2px 10px;
  border: 1px solid #AAA;
  background: #CCC;
  border-radius: 10px;
}
```

# Block Elements

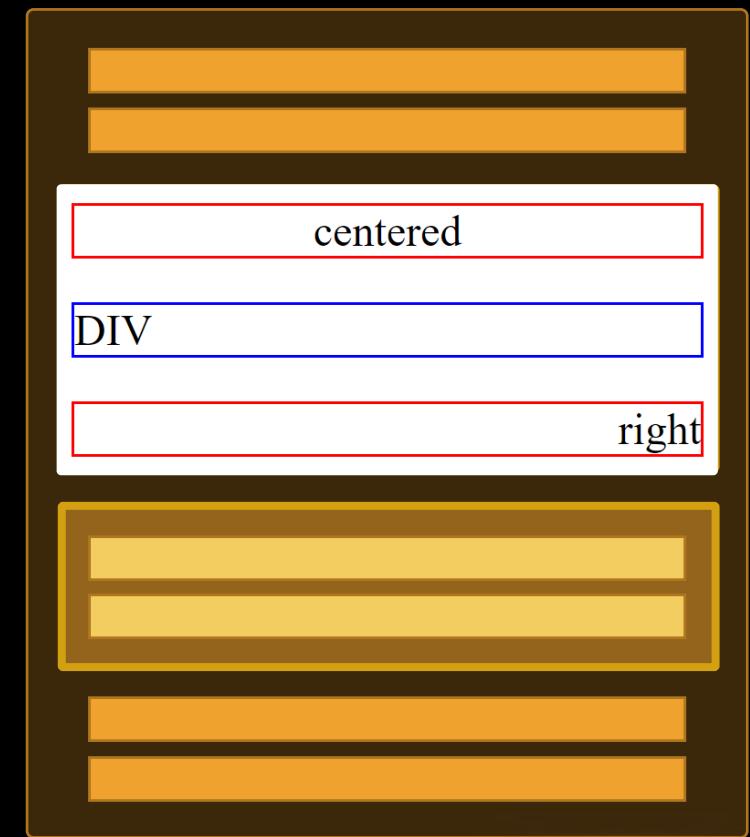
- **<div>** and **<p>** are **block** elements (rectangles)

- Fill the entire container width

- Stack vertically one after another

```
<p style="border:1px solid red;  
text-align:center">centered</p>  
  
<div style="border:1px solid  
blue">DIV</div>  
  
<p style="border:1px solid red;  
text-align:right">right</p>
```

**display: block**



# Inline Elements

- <span> is inline element
  - Its shape is not always rectangular
  - Can be split across multiple lines

```
<p style="text-align:justify">  
Welcome <span style="color:white;  
background:blue; padding-right:3px;  
padding-left:3px;">to the Software  
University (SoftUni) in Sofia  
(Bulgaria)</span>, good luck!</p>
```

display: inline



# Inline-Block Elements

- Elements can be also **inline-block**
  - Rectangles arranged one after another
  - Just like words in a sentence

```
<div style="text-align:justify;">  
  <div style="display:inline-block;  
background:green">green</div>  
  <div style="display:inline-block;  
background:red">red block</div>  
  ...  
</div>
```

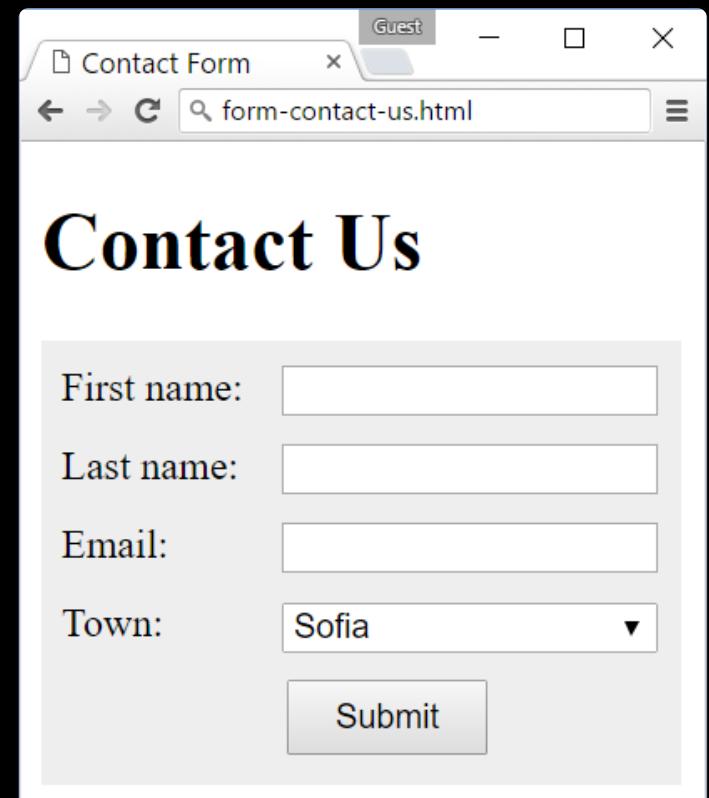
**display: inline-block**



# Exercise – Contact Us Form (HTML)

- Create a Web page (HTML + CSS) like at the screenshot:

```
<form>
  <span>First name:</span>
  <input type="text" name="firstname"><br>
...
  <span>Town:</span>
  <select name="town">
    <option value="1">Sofia</option>
    ...
  </select>
  <input type="submit" value="Submit">
</form>
```

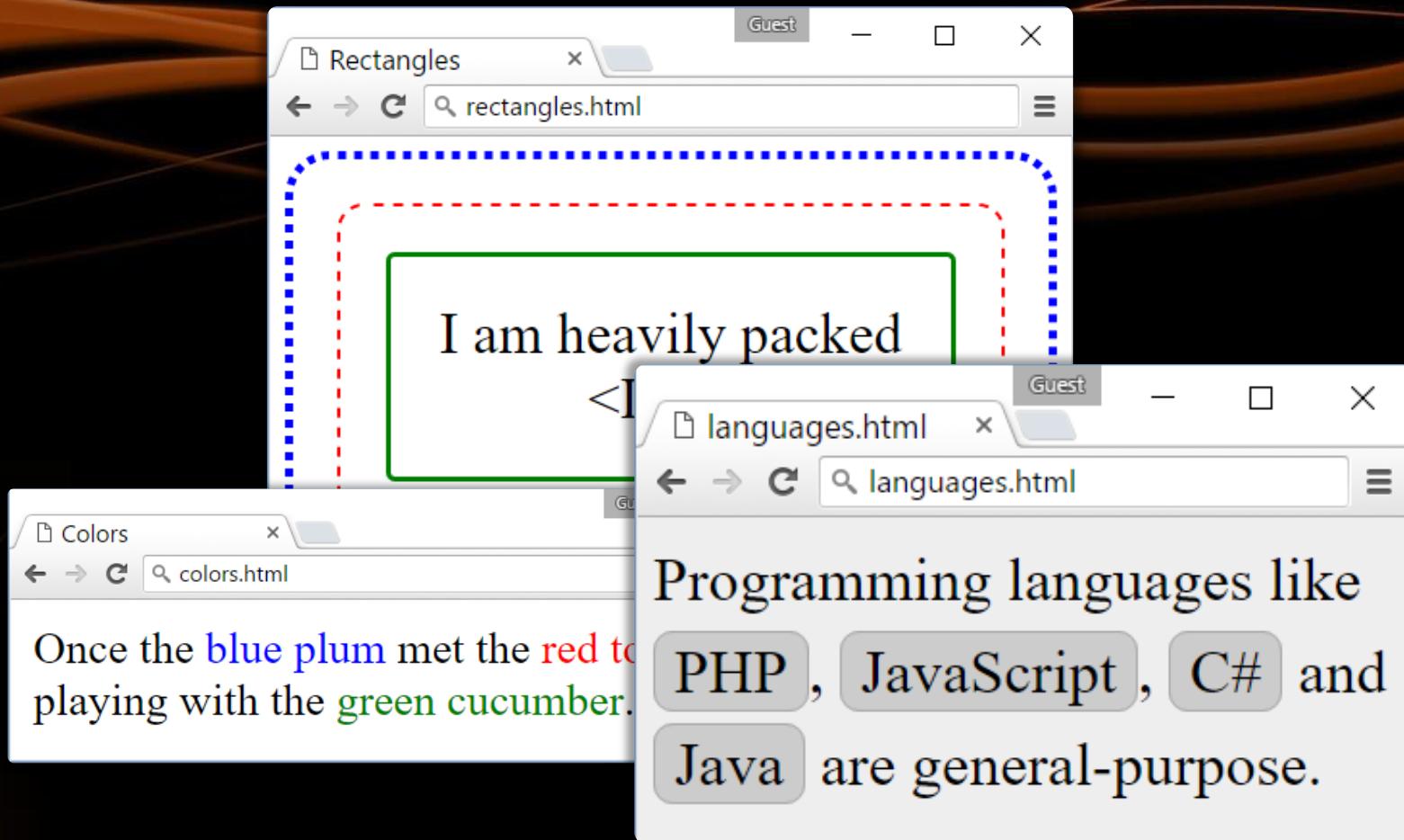


The screenshot shows a web browser window with the title "Contact Form". The address bar displays "form-contact-us.html". The main content area has a heading "Contact Us". Below it is a form with four fields: "First name:" followed by a text input field, "Last name:" followed by a text input field, "Email:" followed by a text input field, and "Town:" followed by a dropdown menu set to "Sofia". A "Submit" button is located at the bottom right of the form.

# Exercise – Styling the Contact Us Form (CSS)

```
form {  
    background: #eee;  
    display: inline-block;  
}  
  
form span {  
    display: inline-block;  
    width: 80px;  
    background: #eee;  
    margin: 10px 3px 3px 8px;  
}  
  
form input, form select {  
    width: 150px;
```

```
height: 20px;  
margin: 0px 5px;  
box-sizing: border-box;  
}  
  
form select {  
    margin: 1px;  
}  
  
form input[type='submit'] {  
    display: block;  
    margin: 10px 0 12px 98px;  
    width: 80px; height: 30px;  
}
```



# Styling with CSS

## Live Exercises in Class (Lab)

# Bootstrap

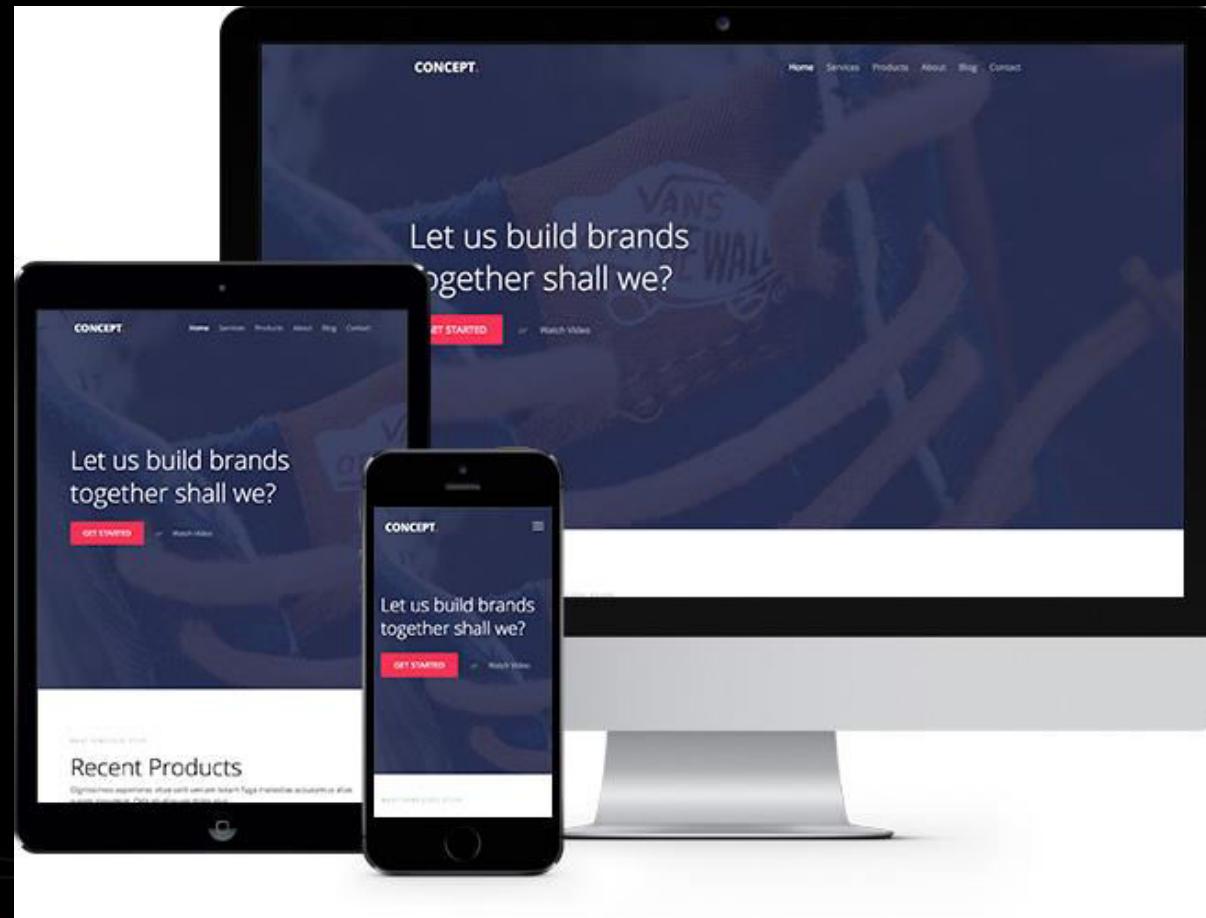


# What is a Responsive Design?

- Presentation layers that adjust according to the screen size of the different devices



- Free front-end framework that provides capabilities to ensure responsive design



# Bootstrap Import Option 1

```
<link rel="stylesheet"  
      href="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.7/css/bootstrap.min.css" />
```

```
<script  
      src="https://ajax.googleapis.com/ajax/libs/jquery/3.1.1/jquery.min.js" />
```

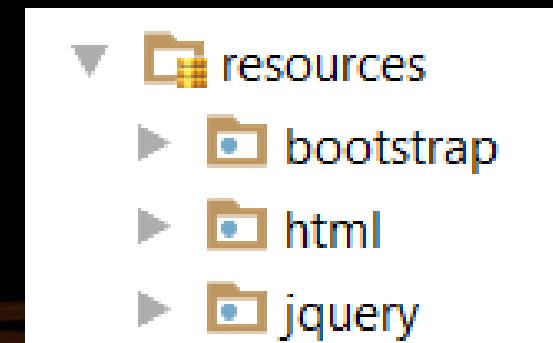
```
<script  
      src="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.7/js/bootstrap.min.js" />
```

# Bootstrap Import Option 2

```
<link rel='stylesheet' href='..../bootstrap/css/bootstrap.min.css'/>
```

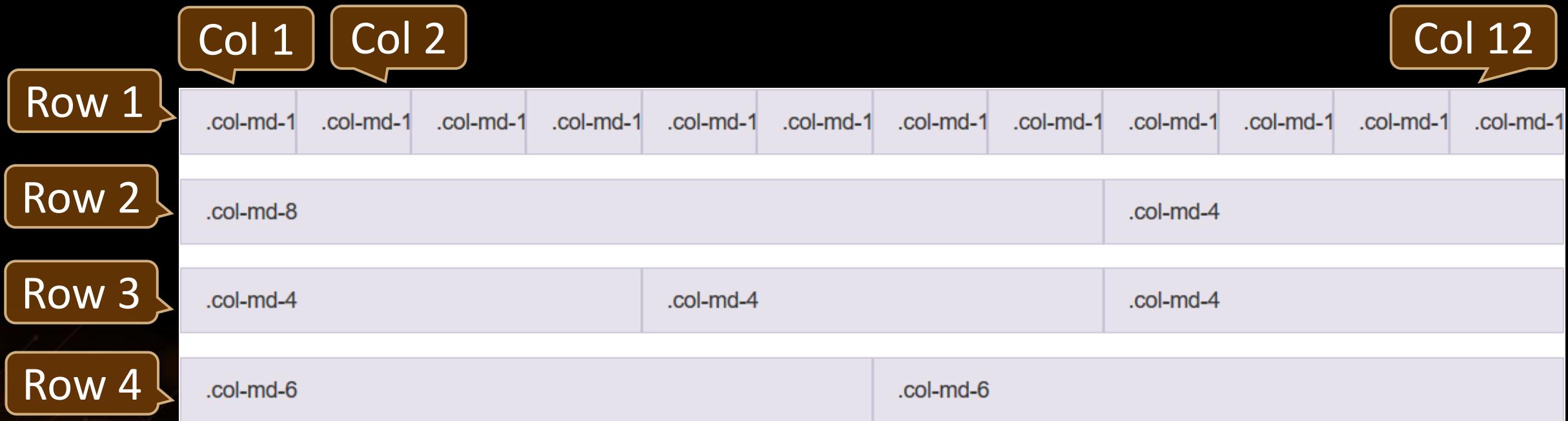
```
<script src="..../jquery/jquery.min.js"></script>
```

```
<script src="..../bootstrap/js/bootstrap.min.js"></script>
```



# Grid System

- Bootstrap includes a responsive, mobile first fluid grid system that appropriately scales up to 12 columns



# Grid System Demo

index.html

```
...  
<div class="container-fluid">  
  <div class="row">  
    <div class="col-sm-4">Column one</div>  
    <div class="col-sm-4">Column two</div>  
    <div class="col-sm-4">Column three</div>  
  </div>  
</div>  
...
```

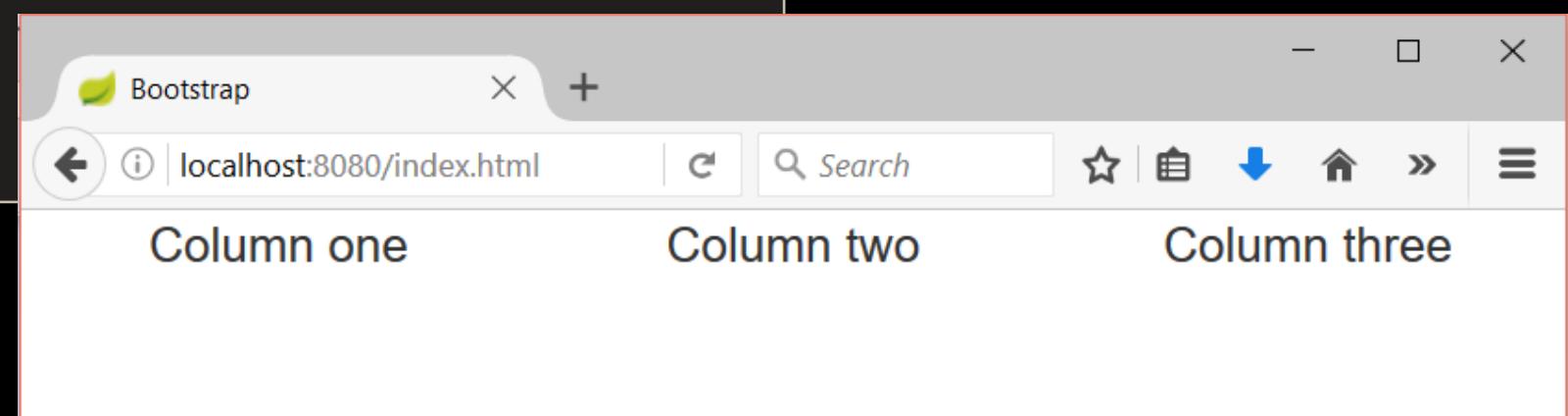
Container

Row

Columns

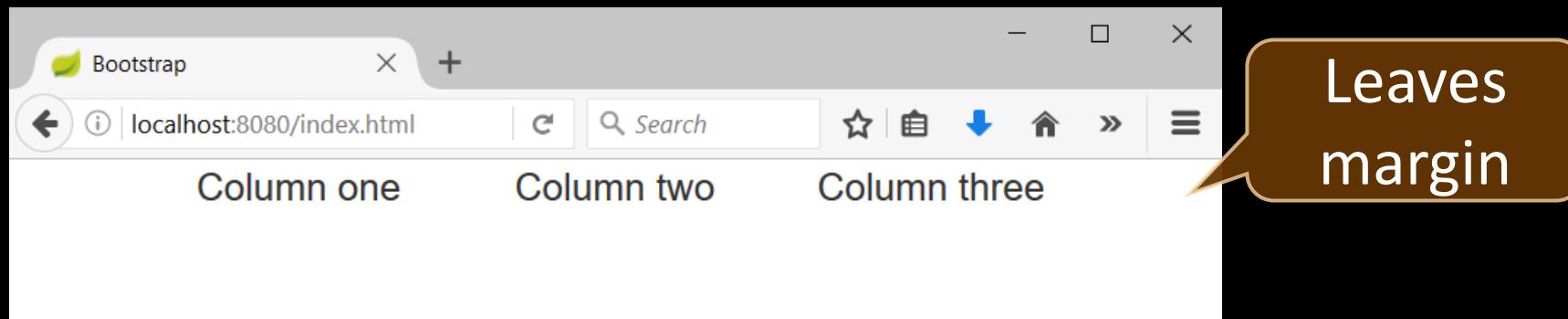
index.css

```
div {  
  text-align: center;  
}
```

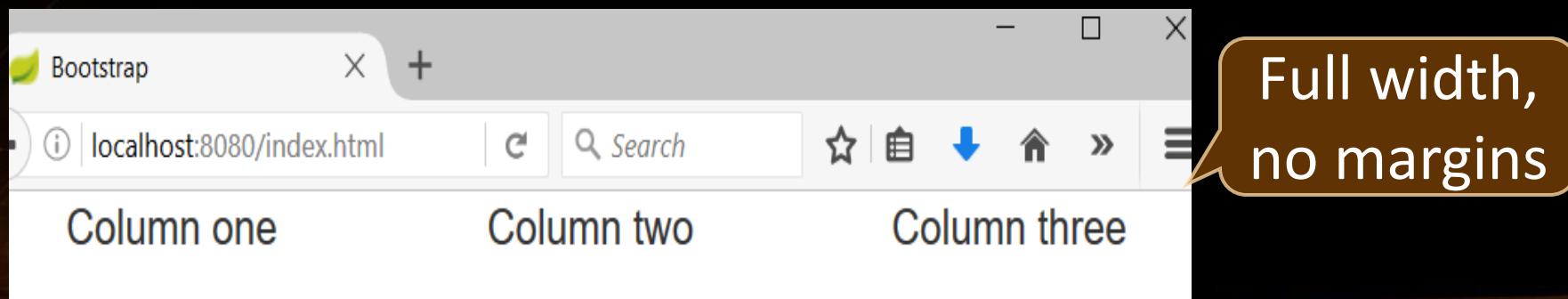


# Containers

- Rows must be placed in containers
  - `.container` is fixed-width



- `.container-fluid` is full-width



# Column Classes

- Determines how many columns to use on different screen sizes

## index.html

```
<div class="col-sm-8 col-lg-4">Column one</div>
<div class="col-sm-2 col-lg-4">Column two</div>
<div class="col-sm-2 col-lg-4">Column three</div>
```

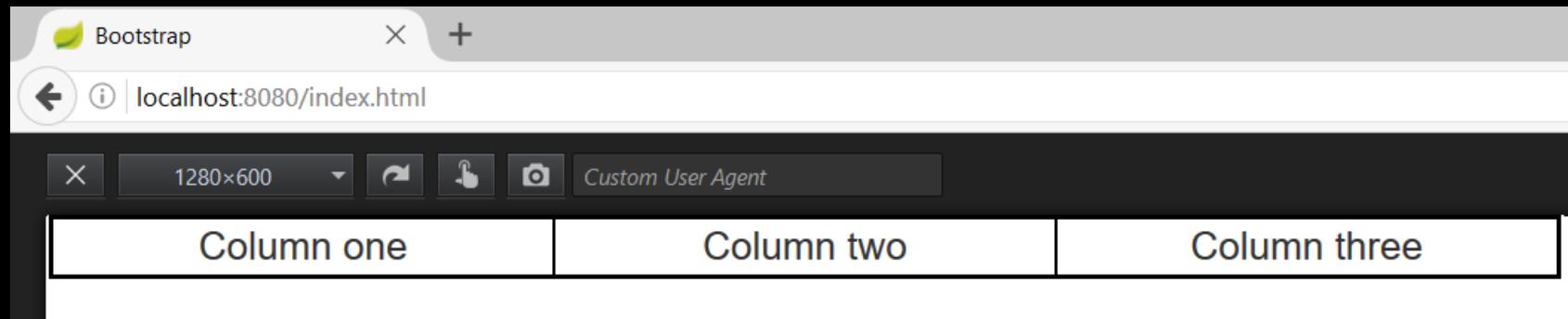
- .col-xs: Width Less than 768px
- .col-sm: Width Between 768px and 992px
- .col-md: Width Between 992px and 1200px
- .col-lg: Width Over 120px

# Column Classes (2)

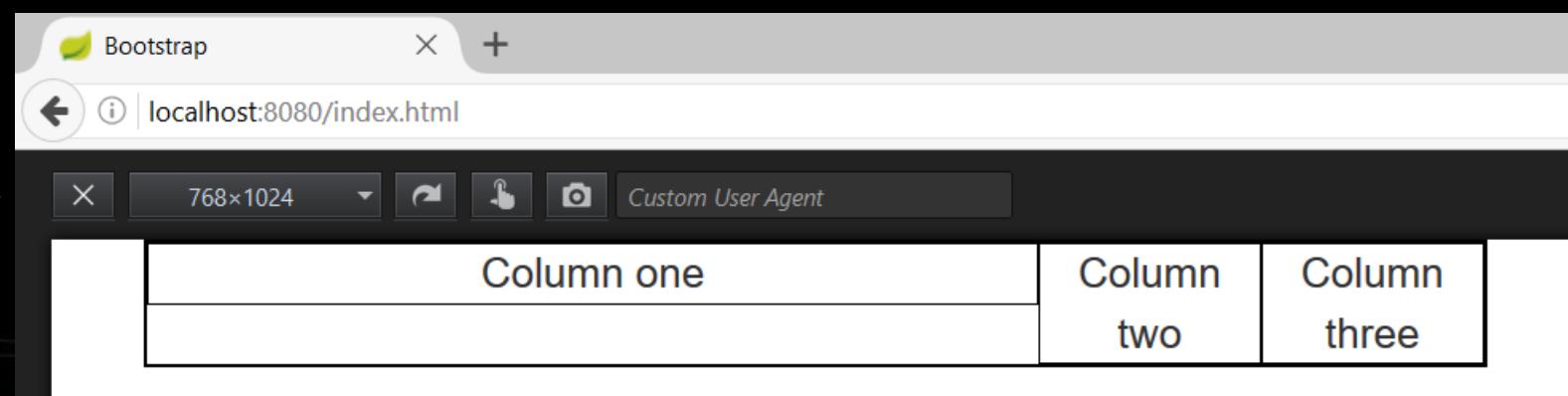
index.html

```
<div class="col-sm-8 col-lg-4">Column one</div>
<div class="col-sm-2 col-lg-4">Column two</div>
<div class="col-sm-2 col-lg-4">Column three</div>
```

Width  
1280px



Width  
768px



# HTML Table

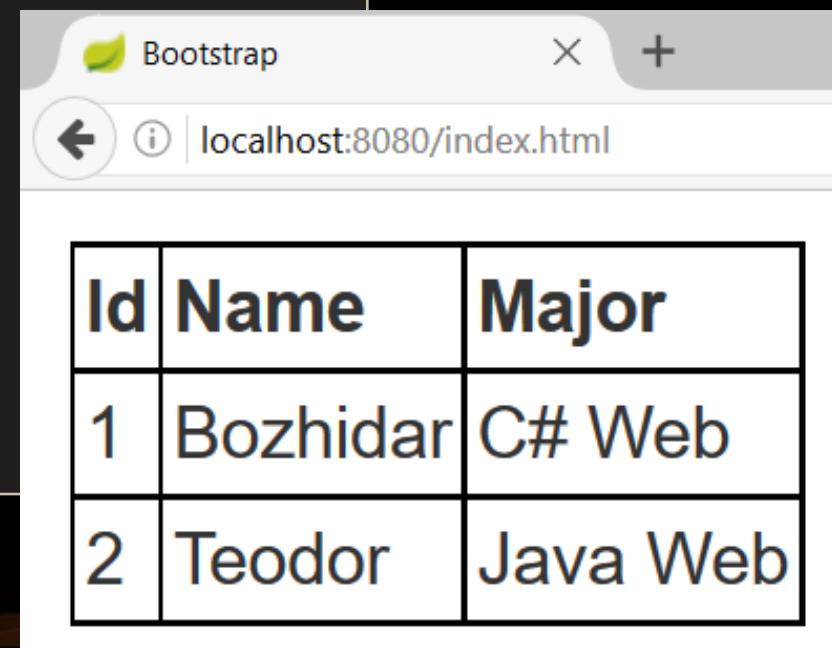
index.html

```
<table>
  <tr> Table row
    <th>Id</th> Table header
    <th>Name</th>
    <th>Major</th>
  </tr>
  <tr>
    <td>1</td> Table data
    <td>Bozhidar</td>
    <td>C# Web</td>
  </tr>
  ...
</table>
```

index.css

```
table {
  margin: 10px;
}

table, th, td {
  border: 1px solid black;
  border-collapse: collapse;
  padding: 2px;
}
```

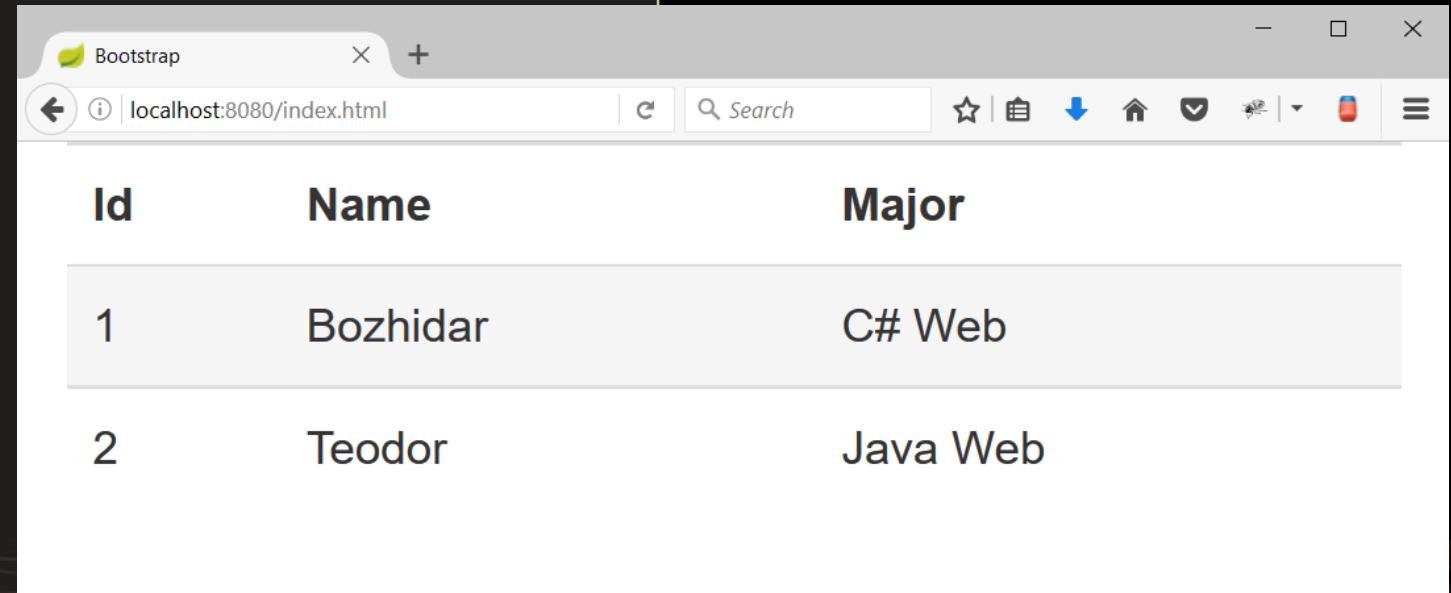


# HTML Table with Bootstrap

index.html

Hover effect

```
<table class="table table-hover">
  <tr>
    <th>Id</th> Bootstrap table
    <th>Name</th>
    <th>Major</th>
  </tr>
  <tr>
    <td>1</td>
    <td>Bozhidar</td>
    <td>C# Web</td>
  </tr>
...
</table>
```

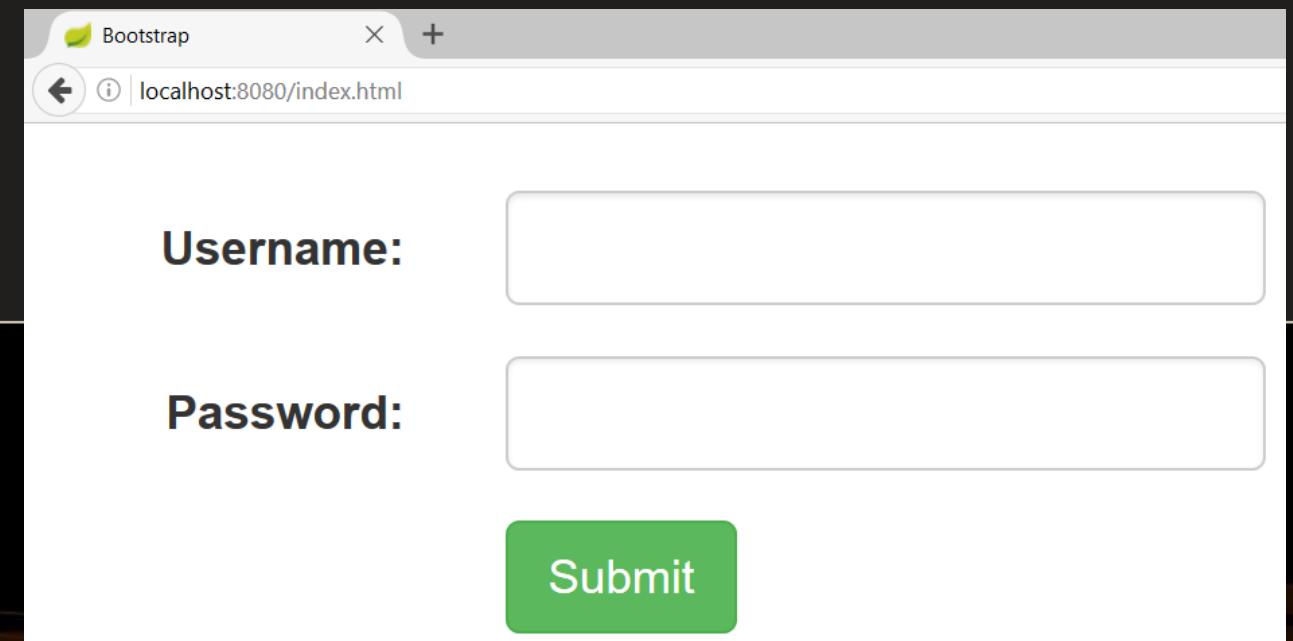


Id	Name	Major
1	Bozhidar	C# Web
2	Teodor	Java Web

# Form with Bootstrap

index.html

```
<form class="form-horizontal">
  <div class="form-group">
    <label class="control-label col-sm-2">Username:</label>
    <div class="col-sm-4">
      <input class="form-control" type="text"/>
    </div>
  </div>
  ...
</form>
```

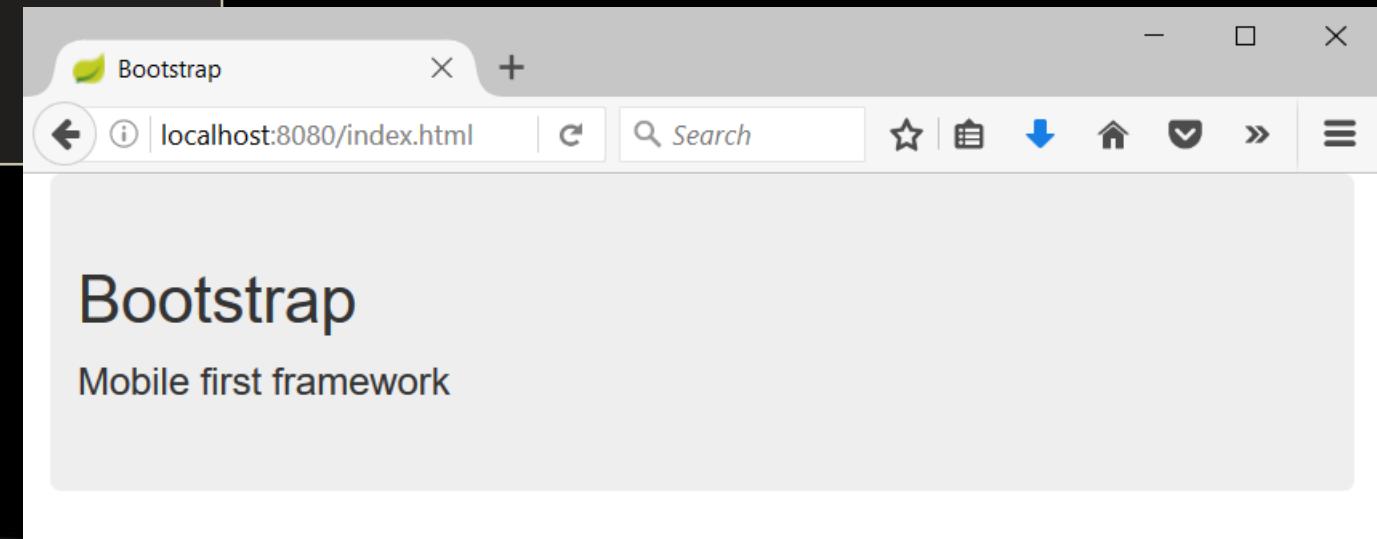


# Jumbotron

- Big box that provides information

index.html

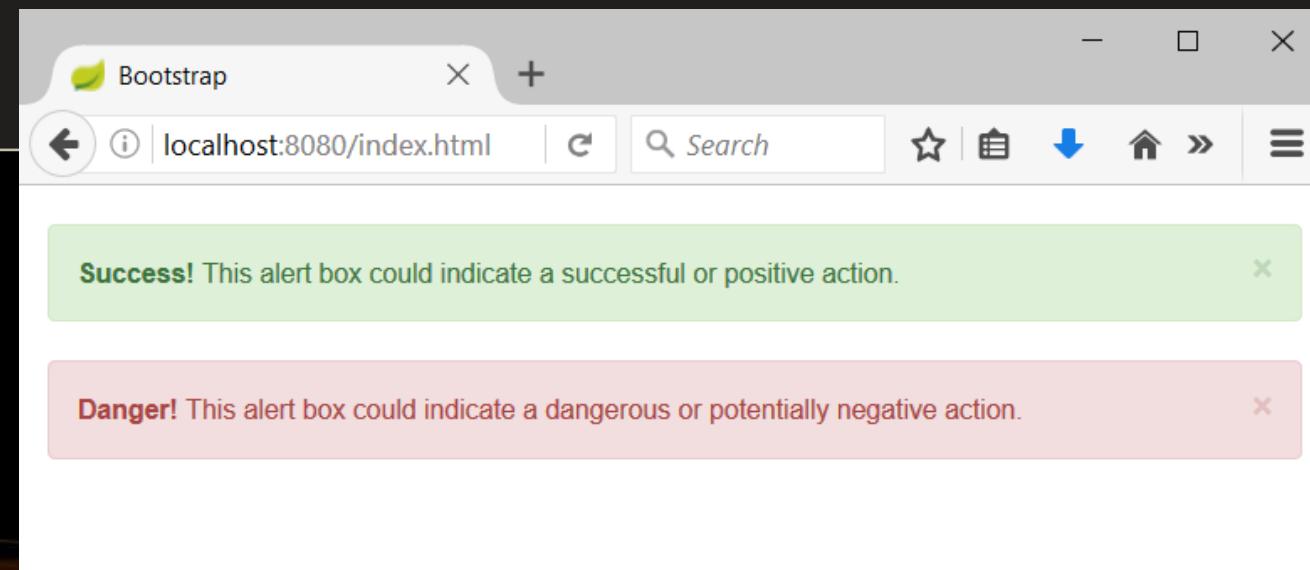
```
<div class="container">
  <div class="jumbotron">
    <h1>Bootstrap</h1>
    <p>Mobile first framework</p>
  </div>
</div>
```



- Provide information about the outcome of an event

## index.html

```
<div class="alert alert-success alert-dismissible">
  <a class="close" data-dismiss="alert" aria-label="close">x</a>
  <strong>Success!</strong>
  This alert box could indicate a successful or positive action.
</div>
...
...
```



# Summary

- What is HTML?
  - What are the most common tags?
- What is CSS?
  - How to separate content from presentation
- What is Bootstrap?
  - The fundamentals of Bootstrap



# Java Web Dev Basics – Web Fundamentals



# Questions?



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