

Geo-application Development

# **HTML and CSS**

## **Basics of Designing Websites**

# HTML



# HTML

- **H**yper **T**ext **M**arkup **L**anguage
- Text-based (XML) markup language for structuring texts, images, hyperlinks etc. in web documents → description of web sites
- Tag-based structure
- ➔ Presentation of a website in the browser according to the HTML structure



# HTML ::: Tags

- Tags are bounded by angle brackets (<, >)
- Tags generally appear in pairs:  
`<p> </p>`
- ➔ Start tag and end tag



# HTML ::: Syntax

- **Type declaration:** `<!DOCTYPE html>`  
→ information on which commands to be expected
- Text between the `<head>` and `</head>` tags: meta information about the document
- Title mandatory between the `<title>` and the `</title>` tag → displayed on the browser tab
- “Actual” HTML code: `<body>` element



# HTML ::: Basic Structure

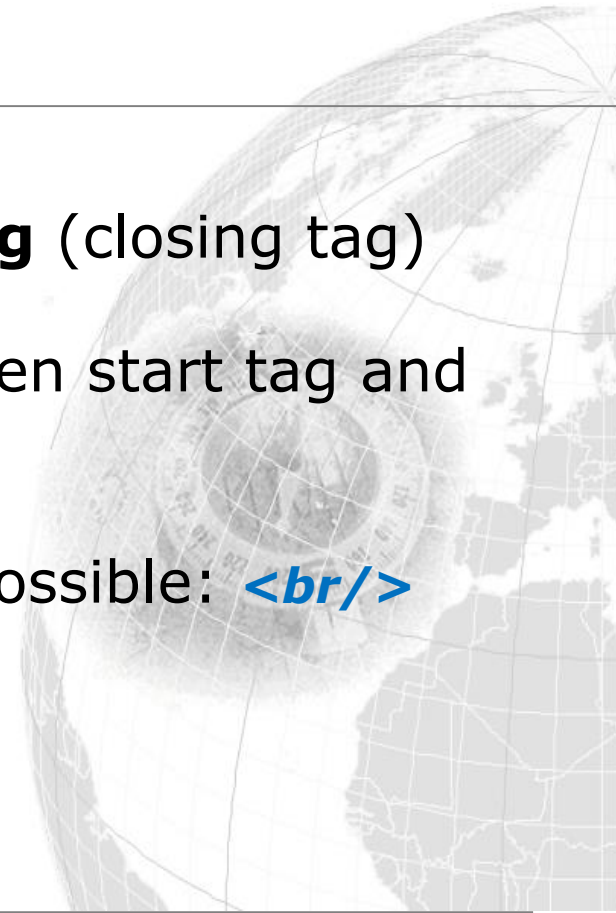
- Page Structure

```
<!DOCTYPE html>  
<html>  
  <head>  
    <title>Page Title</title>  
    ...  
  </head>  
  <body>  
    ...  
  </body>  
</html>
```



# HTML ::: Element Syntax

- **Start tag** (opening tag) and **end tag** (closing tag)
- Element **content**: everything between start tag and end tag
- **Empty elements** without content possible: `<br/>`
- Elements can have **attributes**



# HTML ::: Attributes

- Attributes describe elements
  - KVP: key-value pair
  - Attributes are defined in the start tag
- `...</img>`





# HTML ::: Document Object Model (DOM)

- Interface to access and **modify** HTML documents
  - ◆ E.g. in a web browser, via JavaScript
- HTML document as a **node tree**
  - ◆ *Nodes*: elements, text or comments
  - ◆ *Attributes*: properties of element-nodes

# HTML ::: Document Object Model (DOM)

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="UTF-8">
    <title>DOM Example</title>
  </head>
  <body>
    Some text
    
    Some more text <br>
    Some text with a <a href="...">link</a> in
  </body>
</html>
```



```
DOCTYPE: html
HTML lang="en"
  HEAD
    META charset="UTF-8"
    TITLE
      #text: DOM Example
  BODY
    #text: Some text
    IMG src="..."
    #text: Some more text
    BR
    #text: Some text with a
    A href="."
      #text: link
    #text: in it.
```

# HTML ::: Styles and Cascading Style Sheets

- CSS: Cascading Style Sheets
- Creation of classes for pre-defined formatting of elements
- Storage in external .css file
- Integration into HTML file:

```
<head>  
  <link rel="stylesheet" type="text/css" href="mystyle.css">  
</head>
```

# HTML ::: Challenges

- Display in different browsers
- Integration of dynamic elements and multimedia content
- Integration with dynamic pages (PHP, JSP, JavaScript etc.)
- Time-critical (real-time) web applications

# HTML ::: Summary

- Purpose: to structure and to format content
- No programming or scripting language
- Mainly static (for displaying/rendering)
- Styling with CSS
- Dynamic content: added with JavaScript or server-side scripting/programming languages



# Introduction to Eclipse



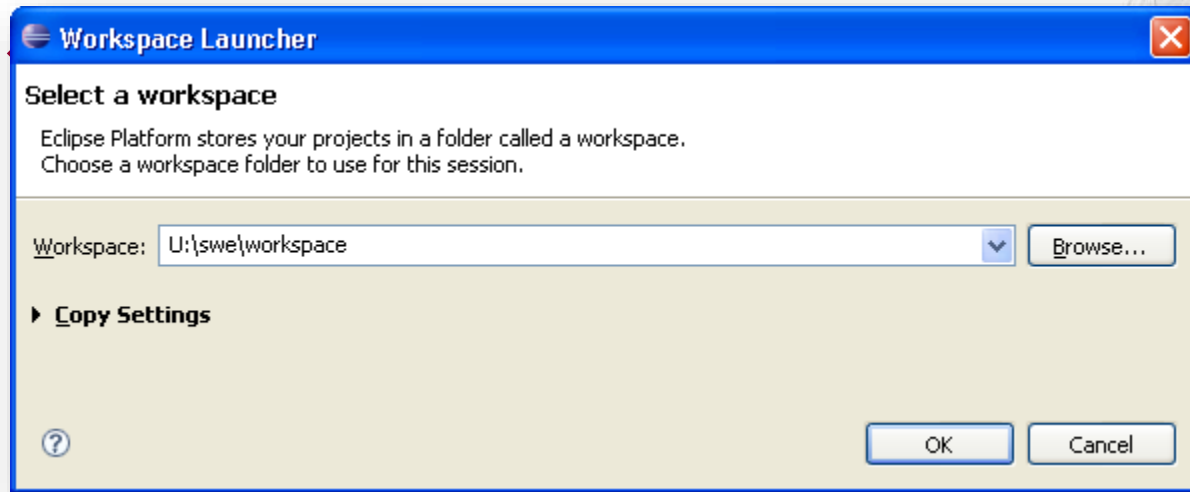
# Introduction to Eclipse

- IDE – Integrated Development Environment
- One-click:
  - ◆ (Compilation)
  - ◆ Execution
  - ◆ (Debugging)



# Introduction to Eclipse

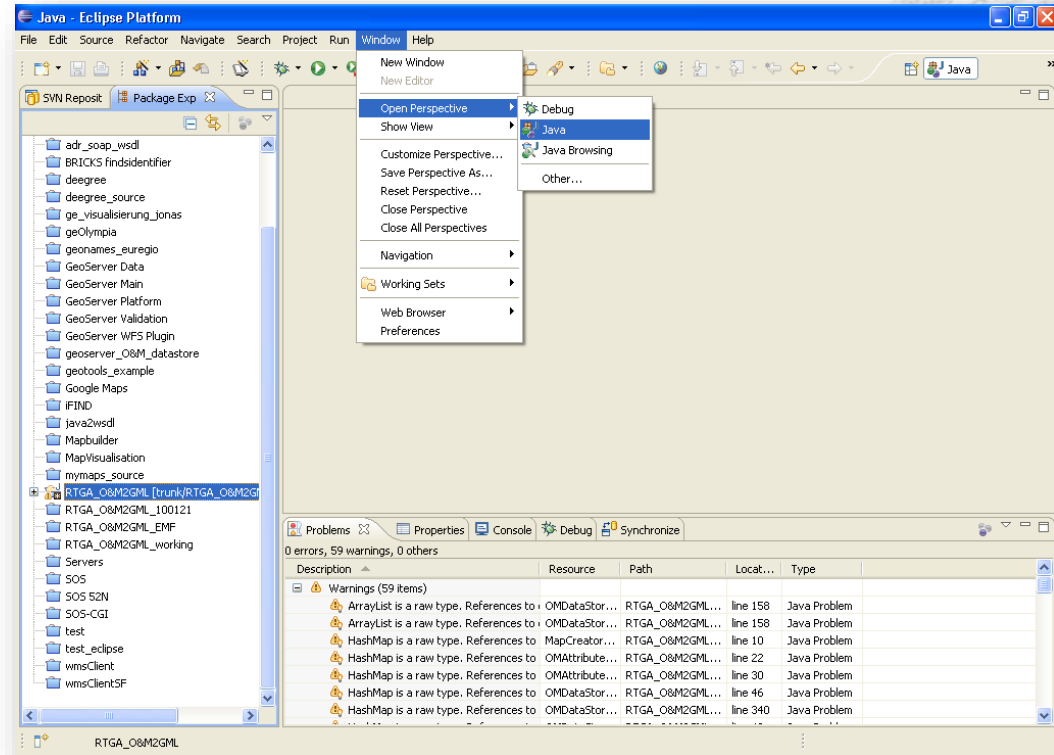
- Start-up – Workspace Launcher
  - ◆ C:\Users\<yourID>\workspace (***or on memory stick***)





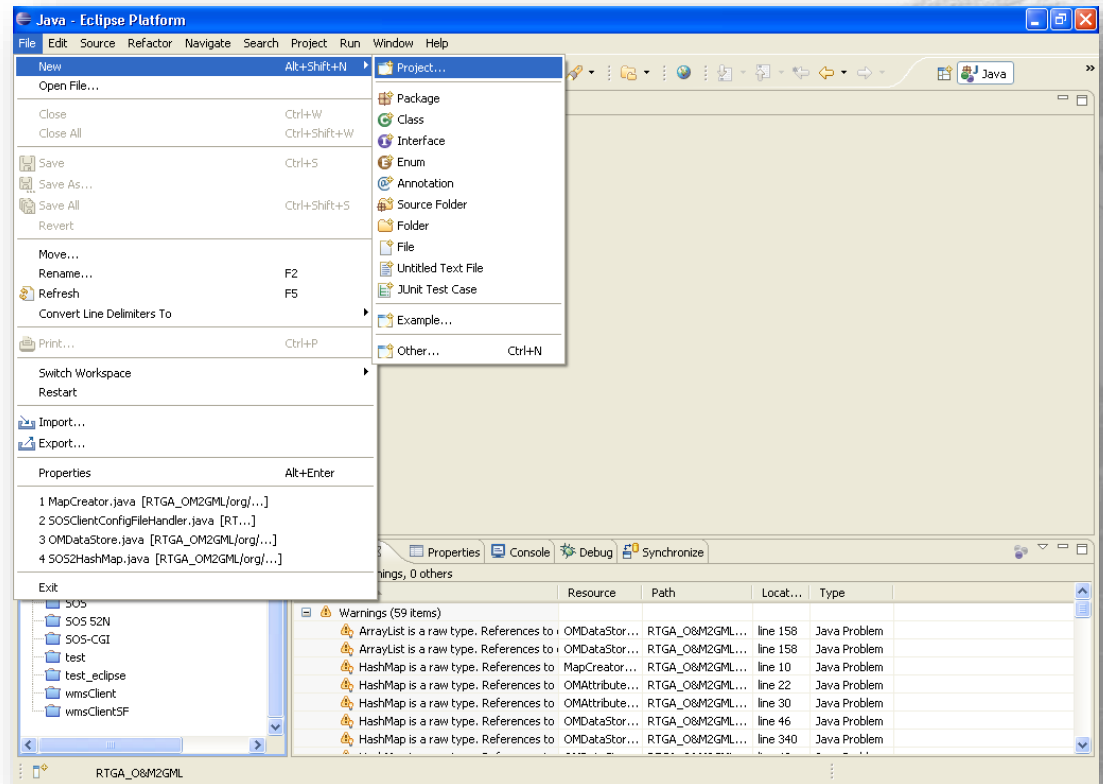
# Introduction to Eclipse

- Switch to „JavaScript perspective“



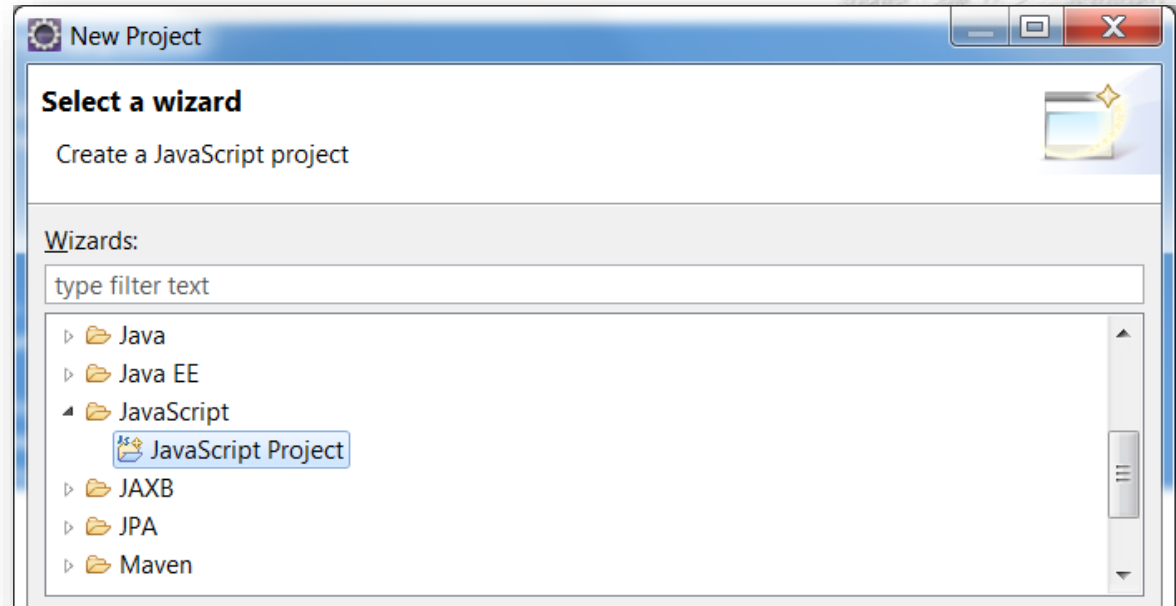
# Introduction to Eclipse

- Create a new JavaScript project
  - ◆ “unit1”



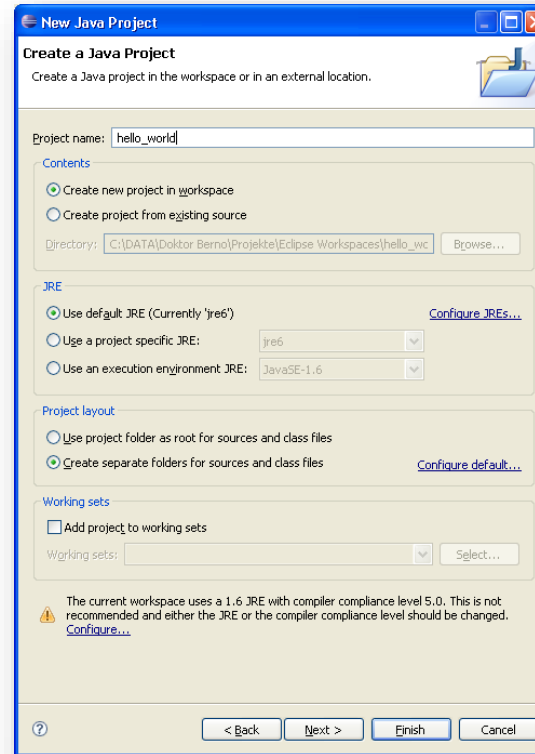
# Exercise: CV in HTML

- Create a new JavaScript project
  - "unit1"



# Introduction to Eclipse

- Create a new JavaScript project
  - ◆ “unit1”



# HTML ::: Exercise



# Exercise ::: CV in HTML

- Create a file as `<name>_cv.html`
- Fill the file with a **CV of yourself** using HTML  
→ create your personal webpage
- Make use of the various kinds of HTML tags
- Integrate one or more pictures
- Add links to your email address and to some webpages which you consider useful



# HTML ::: Tutorials

- <https://www.tutorialspoint.com/html>
  - <https://www.w3schools.com/html>
  - [https://www.w3schools.com/html/html\\_intro.asp](https://www.w3schools.com/html/html_intro.asp)
  - ... *(and many others on the Internet)*
- ➔ **Online editor for testing purposes**  
[https://www.w3schools.com/tryit/tryit.asp?filename=tryhtml\\_default](https://www.w3schools.com/tryit/tryit.asp?filename=tryhtml_default)



# Cascading Style Sheets - CSS





# CSS :: Definition

## *Cascading Style Sheets (CSS)*

- *Are used for the definition of styles for structured content*

`<h1>Mobile Geo-Apps</h1>`



Mobile Geo-Apps

```
h1 {  
  font-face: Arial;  
  font-size: 36px;  
  color: green;  
  margin-top: 5px;  
  margin-bottom: 20px;  
}
```

# CSS :: Classes

Creating groups of equal elements

```
<li class="highlight">nodes</li>  
<li class="hello">ways</li>  
<li>relations</li>  
<li>key-value pairs</li>
```

```
li {  
  color: green;  
}  
  
li.highlight {  
  color: red;  
}  
  
li.hello {  
  color: blue;  
}
```



# CSS :: IDs

Identifier for unique elements in a HTML document

```
<div id="map">
  <h2>A map</h2>
  
</div>
```

```
div#map {
  background-color: grey;
  border: 1px solid black;
  padding: 10px;
  width: 350px;
  height: 350px;
}
```

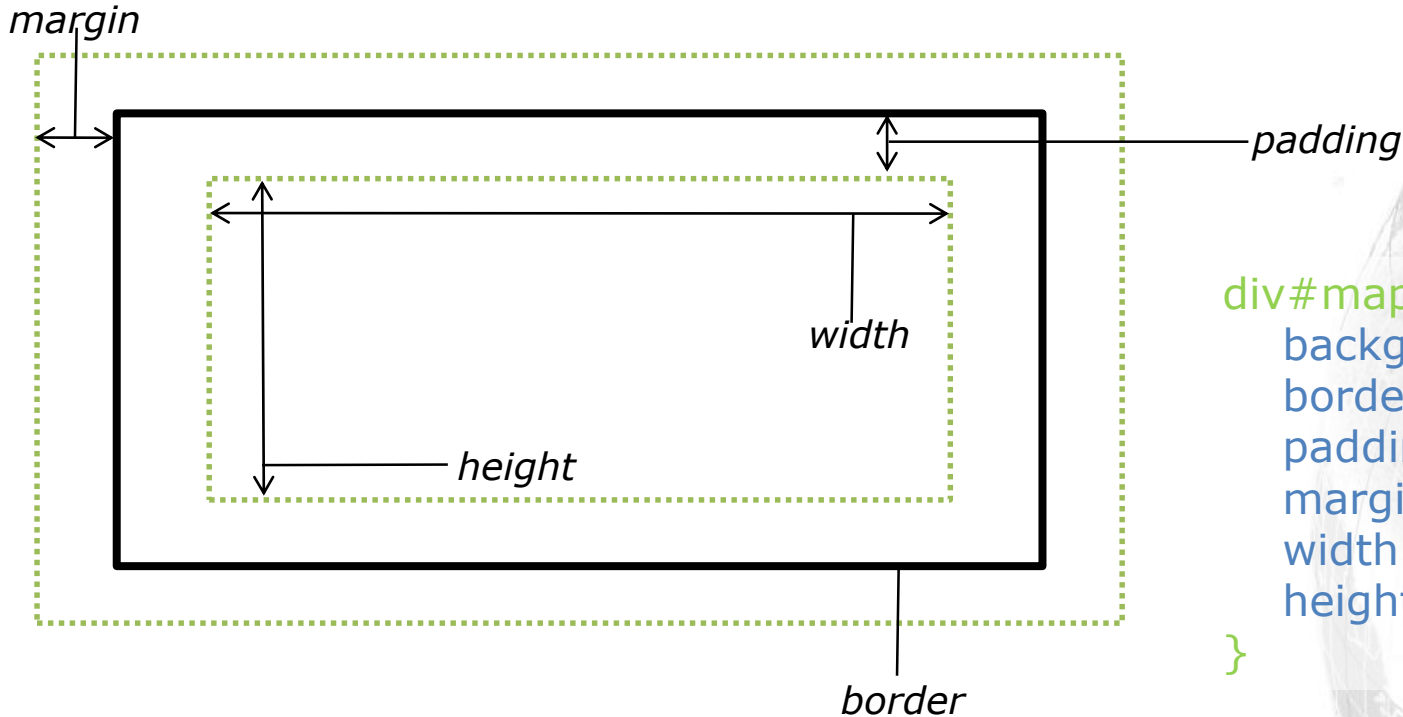


# CSS :: Nested CSS Rules

```
h2{
  color: blue;
  text-decoration: none;
}
div#map {
  background-color: grey;
  border: 1px solid black;
  padding: 10px;
  width: 350px;
  height: 350px;
}
div#map h2{
  color: red;
  text-decoration: underline;
}
```



# CSS :: Box Model



```
div#map {  
  background-color: grey;  
  border: 1px solid black;  
  padding: 10px;  
  margin: 15px;  
  width: 350px;  
  height: 350px;  
}
```

# CSS :: Box Model

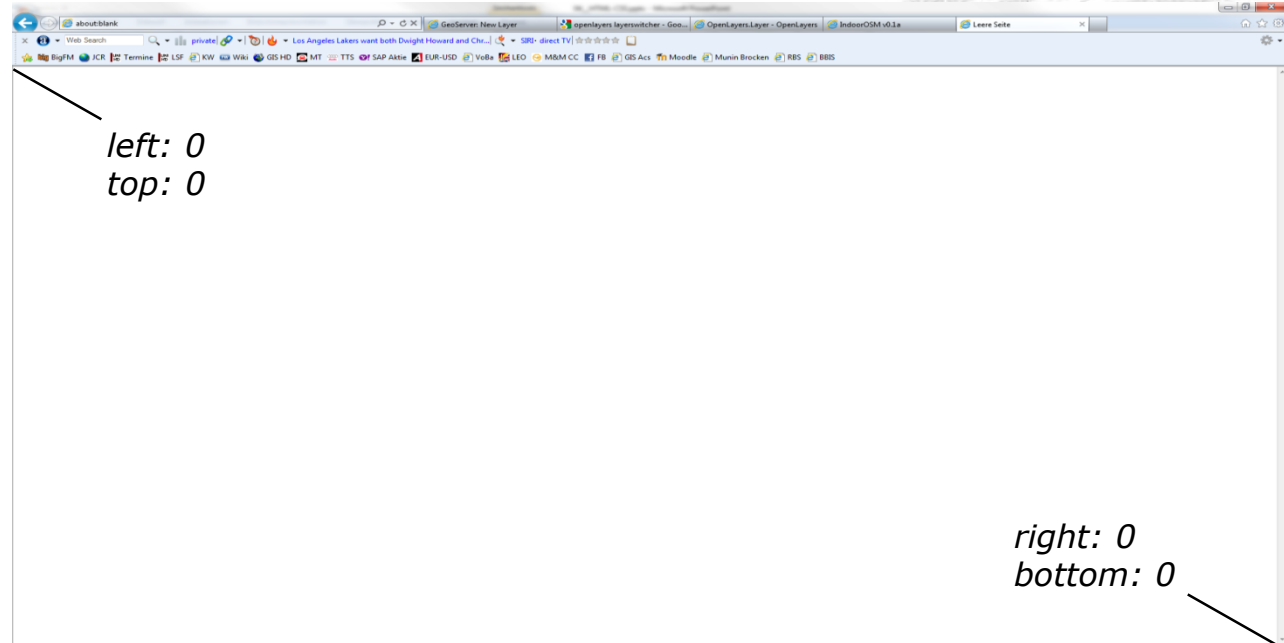
```
div#map {  
  background-color: grey;  
  border-bottom: 1px solid black;  
  border-right: 1px dashed blue;  
  border-left: 1px solid #CCCCCC;  
  border-top: 1px dashed #FF0000;  
  padding-top: 2px;  
  padding-right: 5px;  
  padding-bottom: 10px;  
  padding-left: 3px;  
  margin-right: 10px;  
  margin-top: 15px;  
  margin-bottom: 5px;  
  margin-left: 3px;  
  width: 350px;  
  height: 350px;  
}
```

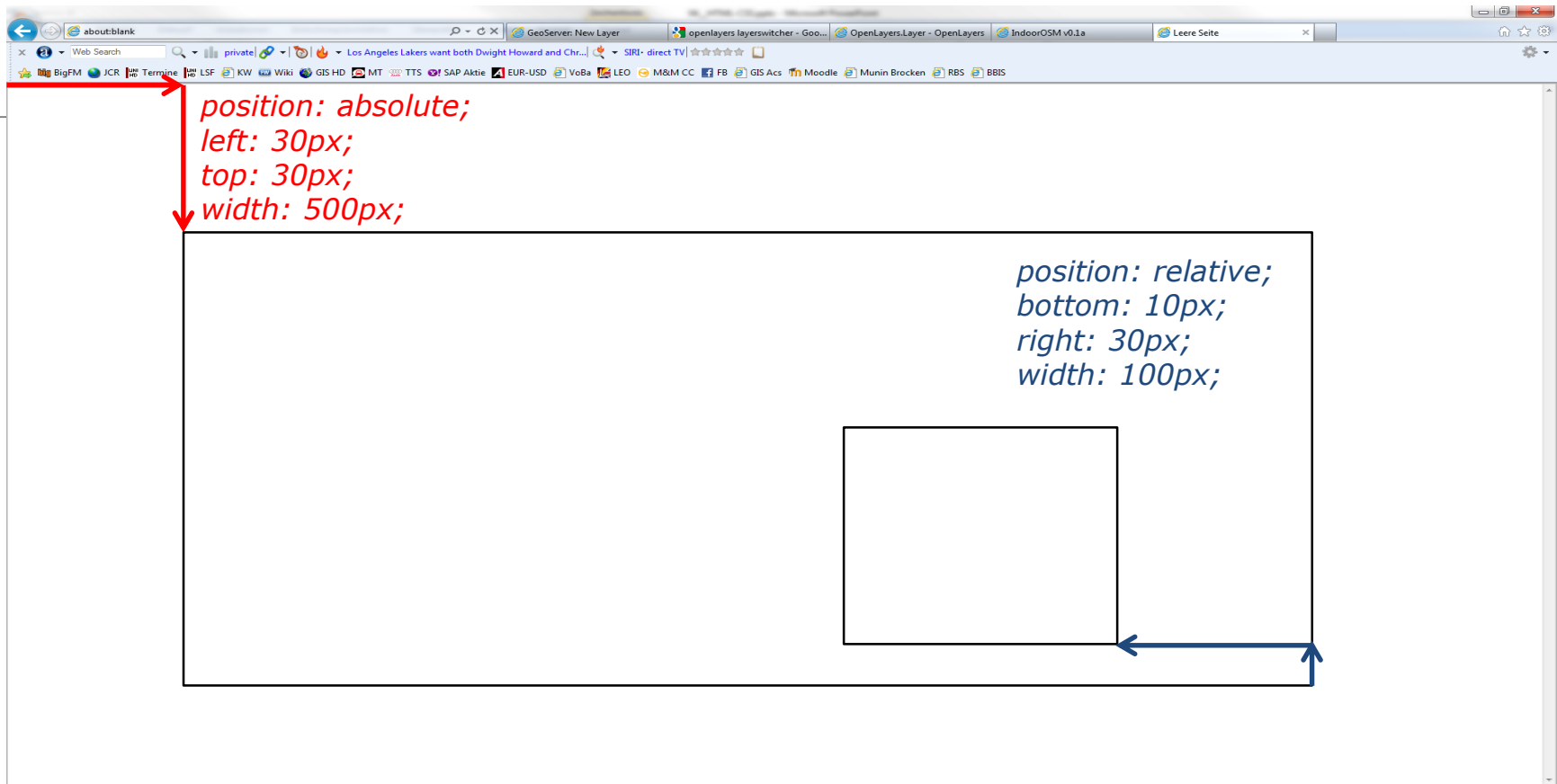
```
div#map {  
  background-color: grey;  
  border: 1px solid black;  
  padding: 2px 5px 10px 3px;  
  margin: 10px 15px 5px 3px;  
  width: 350px;  
  height: 350px;  
}
```

*top right bottom left*

# CSS :: Positioning

```
div#map {  
  position: absolute;  
  top: 30px;  
  left: 30px;  
}
```







# CSS – HTML Integration ::: Inline

*Directly inside the HTML document (in the header)*

```
<head>
  <!-- in addition to other tags in the head -->
  <style type="text/css">
    div#map {
      position: absolute;
      top: 30px;
      left: 30px;
    }
  </style>
</head>
```



# CSS – HTML Integration ::: External

*Separated in an external CSS (\*.css) file*

<head>

<!-- in addition to other tags in the head -->

<link rel="stylesheet" type="text/css" href="style.css">

</head>



# CSS Development ::: Hints

- <http://de.selfhtml.org/css/>
- <http://w3schools.com/css/>
- <http://www.w3.org/TR/CSS/>
- make sure that you do not add two classes for one element
- make sure that you do not miss the {} and ;



# HTML and CSS ::: Exercise



# HTML-CSS Exercise: Enhance your CV

- Create a file **<name>\_cv\_css.html**
- Enhance and extend your simple HTML CV using CSS  
→ design and layout of a personal webpage
- Add a link between the HTML CV and the HTML-CSS CV
- Check the appearance of your new CV also on smaller displays  
→ e.g. on a mobile device such as your smartphone!

# Home Study

- [www.tutorialspoint.com/javascript](http://www.tutorialspoint.com/javascript)
  - ◆ Go through the entire tutorial (JavaScript Basics)

JavaScript Basics Tutorial

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## Javascript Tutorial

PDF Version Quick Guide Resources Job Search Discussion

JavaScript is a lightweight, interpreted programming language. It is designed for creating network-centric applications. It is complimentary to and integrated with Java. JavaScript is very easy to implement because it is integrated with HTML. It is open and cross-platform.

### Audience

This tutorial has been prepared for JavaScript beginners to help them understand the basic functionality of JavaScript to build dynamic web pages and web applications.

### Prerequisites

For this tutorial, it is assumed that the reader have a prior knowledge of HTML coding. It would help if the reader had some prior exposure to object-oriented programming concepts and a general idea on creating online applications.

### Execute JavaScript Online

For most of the examples given in this tutorial you will find Try it option, so just make use of this option to execute your JavaScript programs at the spot and enjoy your learning.

Try following example using Try it option available at the top right corner of the below sample code box –



Geo-application Development

# **HTML and CSS**

## **Basics of Designing Websites**