Multimedia im Netz
(Online Multimedia)
Wintersemester 2014/15

Übung 11 (Nebenfach)
Today’s Agenda

• Announcements
• Repetition:
  – JavaScript
  – HTML5
  – Selected Topics from the lecture
Announcements

• Remaining tutorial dates / topics
  – 28.01.2015: Q&A
  – Send your questions in advance to tobias.stockinger@ifi.lmu.de

• Repetition sheet
  – For your individual preparation
  – Not submitted to UniWorX
  – Try to do it on paper!
Exam (1)

• Exam Details:
  – Open Book: it’s okay to bring handwritten notes, printed slides, code and other resources (do not bring books)
  – You can bring a non-programmable calculator, but you are not going to need it.
  – Bring a valid student card and personal ID card!

• Date, Time & Location:
  – 16.02.2015 14-16h, Rooms A140 & A240 (Main Building)
  – register until: 09.02.2015
  – de-register until: 13.02.2015
  – If you do not de-register, the attempt will be treated as “failed”
Exam (2)

• Possible topics:
  – Interactive web applications
  – digital rights
  – multimedia content description
  – streaming architectures

• Excluded:
  – Market trends, statistics, numerical data
  – Topics that were explicitly excluded by Prof. Hußmann.

• Distribution Lecture : Tutorial = roughly 40:60
Repetition
JavaScript (1)

- JavaScript is a programming / scripting language
- Code is **interpreted** by the browser
- Code is embeddable into HTML:

```html
<html>
<head>
  <title>Example</title>
  <script type="text/javascript">
    alert("Hello World!");
  </script>
</head>
<body></body>
</html>
```
JavaScript (2)

- Just as in PHP, JavaScript has a number of data- and control structures:
  - Variables
  - Arrays
  - Functions
  - For-loops / while-loops
  - If ... else
  - Etc.
JavaScript

- **Scopes:**
  Depending on where you declare your variables, they have different scopes

- **Exercise:**
  The code on the following slide is faulty and does not work.
  - Write the value of the variables in the comment next to the alert() calls!
  - How do you fix the problems?
Task: Scopes

```html
<html><head><title>Scopes</title>
  <script type="text/javascript">
    var var1 = "A";

    function test(){
      var var1 = "D";
      var var2 = "B";
      var3 = "C";
    }

    alert(var1); // output: 
    alert(var2); // output: 
    alert(var3); // output: 

    test();

    alert(var1); // output: 
    alert(var2); // output: 
    alert(var2); // output: 
  </script>
</head><body></body></html>
```
JavaScript: Interaction

• What does “DOM” stand for?

• Each element in the DOM of an HTML / XML file is accessible through JavaScript

• **Events**: JavaScript can handle numerous events, e.g. when the user types into a text field or submits a form
JavaScript: Interaction

• What does “DOM” stand for?

• Each element in the DOM of an HTML / XML file is accessible through JavaScript

• **Events**: JavaScript can handle numerous events, e.g. when the user types into a text field or submits a form
  – Mouse events (onclick, onmousedown, …)
  – Keyboard events (onkeydown, onkeypress, …)
  – ….

• There are multiple ways to handle events in JS, e.g. with `addEventListener()`
Task: Interaction with JavaScript

```html
<html><head><title>Interaction</title>
<script type="text/javascript">
</script></head>
<body>
<input type="text" />
<h3>Output</h3>
<div id="output"></div>
</body></html>
```
The HTML5 standard brought many new features:

- Form validation
  - New input types (E-Mail, URL, number, etc...)
  - New attributes (placeholder, required, pattern, ...)
  - Constraint Validation API: allows you to customize user dialogs

- New elements
  - `<video></video>`
  - `<audio></audio>`
  - `<canvas></canvas>`
Form Validation

• Look at the code skeleton on the following slide. There is a text field and a button.
  – The field should only take upper- and lower-case letters, as well as numbers
  – The field is not optional
  – Provide a customized error message, if the user fails to enter valid data.

• Extend the code on the next slide to meet the requirements.
Task: Form Validation

```html
<!DOCTYPE html>
<html lang="de">
<head>
<title>HTML5</title>
</head>
<body>
<form>
<div>
<label for="text">Text: </label>
<input id="text" type="text" name="text"/>

<input type="submit" id="submit" />
</div>
</form>

<script>

</script>
</body>
</html>
```
Multimedia Elements

• The `<video>` and `<audio>` elements embed multimedia content into a web page
• Greatest advantage: Playback does not require plug-ins, e.g. Flash / QuickTime / VLC
• Shortcoming: Not all browsers support all file formats and encodings.
  – You can provide alternatives and the browser picks the one that it can play back.
  – Ultimately, you could fall back to a plug in.
Task: Video Element

• You want to embed a video into a web page
  – You have the video as movie.mp4 and movie.ogv
  – You want to use the <video> tag.

• How do you code that in HTML5?

```html
<video width="320" height="240" controls="controls">
  <source src="movie.mp4" type="video/mp4"/>
  <source src="movie.ogv" type="video/ogg"/>

  Your browser does not support the video tag.
</video>
```
Multimedia Content

- You are asked to create a 3 minute video clip about thunderstorms for a television news magazine. The company you work for has a huge collection of video snippets.
  - Explain how meta data comes into play now!
  - The company uses a software tool that implements the MPEG-7 standard.
    Which meta data parts are standardized by MPEG-7?
  - A colleague recommends searching the library by “segments”. What is a segment? Explain 3 subclasses of segments!
Watermarking

• Name 3 things that digital watermarks should „survive“?

• What does „imperceptible watermarking“ mean?

• Explain and discuss the following statement: Steganography aims for imperceptibility to human senses, digital watermarking tries to control the robustness as top priority. (Wikipedia)
eBooks

• ePub is just a container. What does it actually contain? What other e-book formats do you know?

• Explain how an e-Ink display works in your own words!

• A friend of yours needs to decide whether to buy an eBook-reader or a tablet PC. She mainly wants to read books. Explain the pro’s and con’s of each technology to her!
Off Topic: Tutors wanted!

• If you enjoyed this course and are excited about the topic, become a tutor!

• Responsibilities:
  – run tutorials (at least one)
  – help with corrections

• Feel free to contact us for further details 😊
  tobias.stockinger@ifi.lmu.de
Thanks!

What are your questions?