Introduction

MMIS 2 VU SS 2011 - 707.025

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KMI, TU Graz

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Course

- Multimediale Informationssysteme 2 (VU 707.025)
- Elective (optional) course for Software Engineering
- Elective (optional) course for Computer Sciences
- Subject area catalogue: Information Systems, Multimedia
Lecturer

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Language

- Lectures in English
- Communication in German/English
- If in German: please informally (Du)!
- Project: German/English
- Presentation: German/English
Organization of the course

- Lectures: Thursday, 11:15 – 12:45, HS i12
- Registration for the course via TUGOnline from 07.03. till 01.04
- Lecture Slides, Links to external resources (http://coronet.iicm.edu/lectures/mmis2).
- Presence at lectures is not obligatory
- Newsgroup tu-graz.lv.mmis2 (news.tu-graz.ac.at)
MMIS2 is about Web Engineering
We deal with the Web as an application platform

**Goal:** To learn and understand the **specifics of Web as an application platform**
Client/Server, Data Formats, Design Patterns ...
Goals of the course

- Further, we deal with the Web as a huge database offering data and services
- **Goal:** To learn and understand the *specifics of Web as a dynamic distributed information system*
- HTTP, URL, data management, resources
Goals of the course

- **Goal:** To learn about the **technological trends**
  - What technology is currently used? (Web Application Frameworks, Web Services, ...)

- **Goal:** To learn about the **architectural trends**
  - REST, addressability, statelessness, ...
Goals of the course

- **Goal:** To learn about the *socio-technological implications* of the Web
- The Web is a technological infrastructure that supports social processes
- Linking, publishing, communicating, connecting, collaborating, ...
- Network analysis, search engines, recommender systems, ...
How we will achieve these goals?

- The **theoretical background** and overview of the current trends
- Lectures, slides, links to articles, ...
- A **practical implementation** of a Web application or a Web-based information system
- Following a software (Web) engineering method and using some of the technologies that we have discussed
How we will achieve these goals?

- **Applying** architectural and design patterns
- Additionally, empirical network analysis and development of algorithms
- **Reflecting** on possible socio-technological implications
How we will achieve these goals?

- **Presentation** of the achieved results, i.e. projects
- All students participate in the presentation
- Submission by e-mail, **discussion** of the results after presentation
- With the lecturer and the peers
Topics of the course

- Web applications
- Server-side programming with an object-oriented programming language, e.g. Java, Ruby, Python, ...
- Design Patterns
- Model-View-Controller Pattern
- Web Application frameworks
Topics of the course

- Data Management in Web applications
- Data in RDBMS but application logic in an OO programming language
- Object/relational mappings
- Frameworks
- Patterns
Topics of the course

- Web of data & services
- Web as a (hypermedia) database
- REST architectural style
- Advantages, scalability, addressability
Topics of the course

- Socio-technological implications of the Web
- Web as a graph
- Search engine algorithms: PageRank
- Programmable Web, Mashups
- Data Integration, Recommenders
3.3.2011 Introduction (Denis)
10.3.2011 Web Engineering, Frameworks (Denis)
17.3.2011 Web Data Management (Denis)
24.3.2011 Web Design Patterns, MVC (Denis)
Course Calendar

- 14.4.2011 REST Architectural Style (Markus)
- 12.5.2011 Link Analysis, PageRank (Markus)
- 19.5.2011 Mashups, Data Integration, Recommender Algorithms (Markus)
- 28.6.2011 Project presentations (Denis)
Goals:

- Implementing a Web application, a Web database with services, a mashup
- Learning about different technologies, methods
- Working in groups (3-5 students)
- To try out something new
Prerequisites

- (X)HTML, CSS
- Optionally: XML and/or JSON
- HTTP, URI
- Java or another OO language
- Optionally: JavaScript
Submissions

- Three submissions via e-mail to dhelic@tugraz.at
- Submission of the source code is not needed
- You will present your project at the end of the term
Submission 1

Group building and preliminary description of the project (what we are going to do)

Example:
http://coronet.iicm.edu/denis/students/mmis/group.txt

Deadline: 01.04

Subject line **must include**: MMIS2[1]
Submission 2

Project plan

Example:
http://coronet.iicm.edu/denis/students/mmis/plan.txt

Deadline: 19.05

Subject line **must include**: MMIS2[2]
Submissions

- Submission 3
- Project documentation
- Example:
  http://coronet.iicm.edu/denis/students/mmis/doc.pdf
- Deadline: 23.06
- Subject line **must include**: MMIS2[3]
Grading

- Project plan: 12.5%
- Documentation: 12.5%
- Implementation: 25%
- Presentation: 25%
- Answering questions: 25%
Grading

- Important for a good mark!!! Similar to e.g. Master Thesis Exam
- Show how you applied design patterns
- Show how you applied a method
- Argue why you did something!!!
- Advantages/disadvantages!
Students can implement whatever application/database they like!

- Web shops
- Content management systems
- Collaborative systems
- Digital libraries
Small hint - also accepted as a project topic
Student challenge at I-Know http://i-know.tugraz.at/
With prize money
Empirical network analysis in connection with recommender algorithms
Deadline will be around End of June
Implementation of each project has to have these three layers

- **Data Management Layer** (implemented either with a framework or with a design pattern)
- **Middleware Layer - Server Side** (implemented either with a framework or as REST Web services)
- **Presentation Layer - Client side** (implemented either as XHTML/CSS/JavaScript, or mobile technologies, or a mashup)