Web 2.0

Motivation and Course Overview

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Humla v0.3

Overview

- Motivation
- Scope, Requirements, Learnings
- Assessment, Resources, Communication

Motivation in Brief

- The Web is programmable
  - *Applications provide **data** and **functionality***
  - *Users – end-users (GUI) and programmers (API)*
  - *Any company with a Web presence has an API*
    → Google, Amazon, LinkedIn, Facebook, ...
- Need for highly scalable apps
  - *Sudden increase in traffic*
  - *Slashdot effect*

W20 and MDW Courses

- **W20 builds on MDW!**
- Application Architecture
  - *Multi-tier client-server architecture*
  - *Interface of the app, REST*
  - *Client side of the architecture, JavaScript, AJAX*
  - *Infrastructure empowered by cloud technologies*
- Technology, Platform
  - *JEE was a platform in enterprise environments*
  - *JavaScript*
    - → *client-side + related technologies*
    - → *server-side – asynchronous I/O, node.js*
  - *It does not mean you cannot combine technologies*
    - → *Node.js as a Web server, Oracle Service Bus for middleware to build interfaces with back-end systems, all running in a cloud environment (auto scaling, load balancers, message queues, etc.)*

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Scope

- REST Architecture
  - *Principles*
  - *HTTP in a very deep detail, HTTP/2*
  - *Resource representation*
- Security
  - *OAuth, Open ID, JWT*
- Cloud Architectures
  - *Principles*
  - *SaaS, PaaS, IaaS*
- Microservice Architecture
  - *Principles*
  - *Containers*
  - *Docker, Kubernetes*

Organization of Lectures

- 13 Lectures
  - *Czech: Mon 9:15-10:45, T9:107*
  - *English: TBA*
- Plan
  1. *19.02.2018 – Motivation and Course Overview (html)*
  2. *19.02.2018 – Introduction to JavaScript (html)*
  3. *26.02.2018 – REST Architecture (html)*
  4. *05.03.2018 – Uniform Interface (html)*
  5. *12.03.2018 – Hypertext and Application State (html)*
  6. *19.03.2018 – Resource Representation (html)*
  7. *26.03.2018 – HTTP/2*
  8. *02.04.2018 – Easters*
  9. *09.04.2018 – Accessing and Utilizing Services (html)*
  10. *16.04.2018 – Security (html)*
  11. *23.04.2018 – Protocols for the Realtime Web (html)*
  12. *30.04.2018 – Cloud Architectures (html)*
  13. *07.05.2018 – Microservice Architecture (html)*
  14. *14.05.2018 – Reserve*

Organization of Practicals

- Work alone, you can collaborate
- Practicals every second week
- Number of sessions: 6-7, 5 major tasks
  1. *Introduction, JavaScript*
  2. *Mashups*
  3. *A RESTful service - development, consumption*
  4. *HATEOAS*
  5. *OAuth, Realtime Web*
- Plus a number of tasks to complete at home
- All textual/design diagrams results in the wiki
  → https://edux.fit.cvut.cz/courses/MI-W20/

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Assessment

- Labs
  - *Presence is mandatory*
    → *You can miss up to 1 lab without sending regrets*
  - *Total maximal points:* $p_p = 40$
    → *exercises for labs + your activity + your homeworks*
  - ***to pass**:* $p_p \geq 20$
- Final exam
  - *Mandatory written test: 3 parts, ~1 hour*
    → *each gives you a max. of* 20 *points, the total* $p_t = 60$ *points*
    → *you must have at least 50% of points from each theme covered by a test part and 50% of points in total*
  - *Final score:*
    → $p_p - p_t = 100$ *maximum points*
    → *The more points you have from labs, the better for the exam!*

Assessment – Final Marks

Mark	Points	In words
A	100–90	výborně
B	89–80	velmi dobře
C	79–70	dobře
D	69–60	uspokojivě
E	59–50	dostatečně
F	49–0	nedostatečně

Source: http://www.cvut.cz/pracoviste/pravni-odbor/dokumenty/studijni-predpisy/studijnirad.pdf

- Everything good and bad will count
  - *practicals, coding, (pro-)activity, passiveness, hacking, lectures, exam, cheating, ...*

Resources

- Online sources
  - *https://edux.fit.cvut.cz/courses/MI-W20/ – EDUX*
  - *https://project.fit.cvut.cz/ – your project home*
  - *http://w20.vitvar.com – both html and pdf (1 and 2 slides per page)*
- Books
  - *G. Vossen, S. Hagermann: Unleashing Web 2.0: from concepts to creativity, Elsevier/Morgan Kaufmann, 2007, ISBN 9780123740342. (→ Web 2.0 Concepts)*
  - *L. Richardson, S. Ruby: RESTful Web Services: Web services for the real world, O'Reilly Media, May 2007, ISBN 9780596529260.*
- Other
  - *Many sources on the Web, to be listed throughout the course*
  - *A lot of W3C sources, Web architecture, HTTP*

About Slides

- Humla – Open Source HTML5 Presentation Environment
  - *every slide has a unique URL*
  - *all figures linked with Google drawings*
  - *possible to format and print in PDF*
  - *running local, with back-end NodeJS support, and offline*
  - *Fork it at Humla github repo*
- Keys

1	*default browsing mode*
2	*slideshow mode (automatically scales to full screen)*
3	*grid (overview) mode*
4	*print mode, 2 slides per page*
←	*slide left*
→	*slide right*
d	*debug mode*
e	*toggle last error messages on/off*