

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, ESB for proxy services with back-end systems, all running in a cloud environment (auto scaling, load balancers, message queues, etc.)

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Scope

- Cloud Architectures
 - *Details of some IaaS and PaaS services*
- Microservice Architecture
 - *Principles*
 - *Containers*
 - *Docker, Kubernetes*
- Advanced REST
 - *Same origin policy, cross-origin*
 - *OAuth, Open ID, JWT*
- Annotations
 - *Microdata, RDF*

Organization of Lectures

- 13 Lectures
 - Czech: Mon 9:15-10:45, T9:111
 - English: TBA
- Plan
 1. 18.02.2019 – Motivation and Course Overview ([html](#))
 2. 18.02.2019 – Introduction to JavaScript ([html](#))
 3. 25.02.2019 – Cloud Computing – IaaS
 4. 04.03.2019 – Microservice Architecture – Docker, PaaS
 5. 11.03.2019 – Reserve (Cloud Computing)
 6. 18.03.2019 – Accessing and Utilizing Services
 7. 25.03.2019 – Security
 8. 01.04.2019 – Protocols for the Realtime Web
 9. 08.04.2019 – HTTP/2
 10. 15.04.2019 – Blockchain – Hyperledger Fabric
 11. 22.04.2019 – Easers
 12. 29.04.2019 – Reserve (Blockchain)
 13. 06.05.2019 – Annotations
 14. 13.05.2019 – Reserve (Annotations)

Organization of Practicals

- Work alone, you can collaborate
- Practicals every second week
- Number of sessions: 6-7, 5 major tasks
 1. Introduction, JavaScript/AppScript
 2. TBD
 3. CORS/JSONP
 4. OAuth (JWT)
 5. Realtime Web
 6. Annotations
- Plus a number of tasks to complete at home

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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 $p_f = 60$ 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:*
 - *$p_p + p_f = 100$ 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
 - L. Richardson, M. Amundsen: *RESTful Web APIs*, O'Reilly Media, May 2015, ISBN 978-1-449-35806-8.
- 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
 - default browsing mode*
 - slideshow mode (automatically scales to full screen)*
 - grid (overview) mode*
 - print mode, 2 slides per page*
 - slide left*
 - slide right*
 - debug mode*
 - toggle last error messages on/off*