Web 2.0
Motivation and Course Overview

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

`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*