

# Web 2.0

## Motivation and Course Overview

**doc. Ing. Tomáš Vitvar, Ph.D.**

tomas@vitvar.com • @TomasVitvar • <http://vitvar.com>



Czech Technical University in Prague

Faculty of Information Technologies • Software and Web Engineering • <http://vitvar.com/courses/w20>



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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, Resources, Communication**

## 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*