CSCC09
Programming on the Web

Thierry Sans
Architecture of a Web Application

Client Side

Web Browser

Server Side

Web Server
Web Technologies

- Content
- Presentation
- Client Side Processing
- Multimedia

Resources management
The evolution of web applications
The Virtuous Circle

faster, better technology

↑  ↓

new usage
How web technologies have changed?

- Better Standards
  - Ajax (interactivity)
  - HTML 5 (multimedia)

- Better Browsers
  - Homogeneous implementation of the standards
  - Increasing speed of rendering and Javascript engines

- Better Development Tools
  - Web-oriented languages
  - Web frameworks
Consequence 1 (of 2)

- The application is moving from the server to the client

✓ Rich Content
Traditional Web Platform

Client Side

Web Browsers

Server Side

Web Server
Modern Web Platform

Client Side

Smartphones and Tablets

Server Side

Web Server
Consequence 2

➡ Data storage and data processing are moving from the desktop to the cloud

- Cloud Computing
Customer Resources Management

Accounting and Billing

E-Learning

Collaboration

Content Management

Planning

Web Portals

E-Health
Where Web Applications are going

Rich Content + Cloud Computing =

A new way to think about software

Web Technologies are at the heart of this change
• Cloud computing and Software as a Service (SaaS) are BOOMING!

“By 2018, 50% of the applications hosted in the public cloud will be considered mission-critical by the organizations that use them”

“By 2020, 24% of the total addressable IT market will be cloud.”

Emerging Web Platform

Client Side

Web-based Operating System

Server Side

Web Server
Web applications from the developer’s perspective
Why are web applications so popular?

• Easy to deploy
• Easy to maintain
• Fast and reliable technology (especially browsers)
What is challenging about web development

• A large collection of languages, framework and dev tools
• Technology evolves fast
• Concurrent programming
• Asynchronous communication
• Debugging
About this course
What you will learn in this course?

✓ Web development

• The foundations of web programming
• The new trends in web application development

๏ Web design

CSCC10 Human-Computer Interaction by Naureen Nizam
Web Designers vs Web Developers

as of October 30, 2017

source: https://www.mockplus.com/blog/post/web-designer-vs-web-developer
Learning Outcome

- This course will make you ready for the **rapid changes of web technologies**
- This course will provide you with an experience that is **beyond junior web developer**
Let’s look at the course webpage:

https://thierrysans.github.io/CSCC09/
How to succeed in this class?

• Learn and gain experience by doing labs, homework and project

• Start to work early, web applications are hard to develop and hard to debug

• Come to the lectures, do not rely solely on the slides or code snippets

• Use resources on the web extensively

• Go beyond, be curious, experiment, get your hands dirty

• Start thinking about your project now
Web Development tools

- **Chrome** (recommended) or Firefox
- **Code editor** with syntax highlighting for HTML, CSS, Javascript
- Web Accounts
  - Github
  - Piazza
- Command Line Tools
  - Git
  - **NodeJS and NPM**