

Developing Web Applications

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Course is about Web Applications

Technologies used to **build** modern web applications

Full stack: Browser \Leftrightarrow Web server \Leftrightarrow Storage system

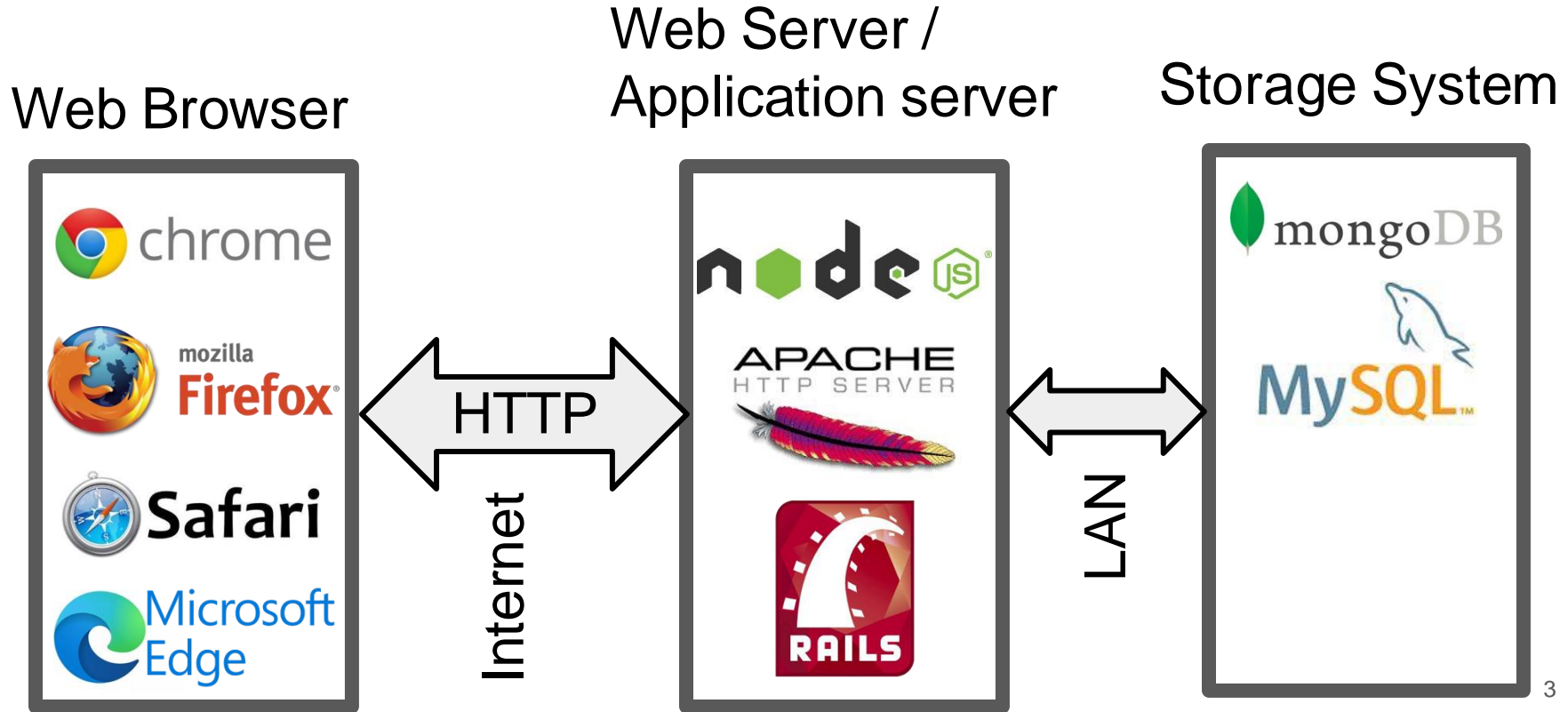
Learning Goal: Learn how a web application is built and run

How to build a web application - learn by doing:

Use MERN stack (React.js, Node.js, Express.js, MongoDB)

Learning Goal: Build a web app and understand how it works!

Full Stack Web Application Architecture



Technologies and Concepts

Browser environment:

- HTML/CSS/JavaScript - Markup, separation of content & style, reuse, scripting
- Document object Model (DOM) - Document structure

Browser software:

- Model View Controller, Single page applications, Responsive design - React.js

Backend communication:

- API design - HTTP/AJAX/REST/GraphQL
- Cookies/Sessions/State management - Storage/Trust

Backend implementation:

- Web Server - HTTP request processing - Node.js
- DBMS - Schema, Objects, CRUD, indexes, transactions - MongoDB
- End-to-End - Scale and Security

Grading

10% Attendance (5% for attending classes, 5% for attitude)

20% Exercises (Almost every week)

20% Labs (3 practice labs)

50% Final Project Defense (personal project)

Course Material and Grading

- Lectures cover many more concepts than are addressed in the programming project
 - Lecture focused on concepts, not directly helping with project coding
- Exercises focused on concepts presented in class but not used in project
 - Possible to do well on the project and not get a good grade in the class
 - Need understanding beyond "magic incantations"

Course Communication

- Web page/Classroom:
 - Lecture slides will be available there
 - Other announcements will be available there
 - Submitting exercise (class code: announce later)
- Mailing:
 - Email: duongtranduc@gmail.com

Class software requirements

- A modern web browser

Chrome is strongly suggested

- Node.js

Installs fairly easily on modern OS environment (Linux, MacOS, Windows)

npm (in Node.js install) is used for fetching assignments and dependencies

- MongoDB

Easy to install (for a DBMS) on modern OS environments

Questions?