Waterford Institute *of* Technology

INSTITIÚID TEICNEOLAÍOCHTA PHORT LÁIRGE

Module: Web App Development 2

Overview

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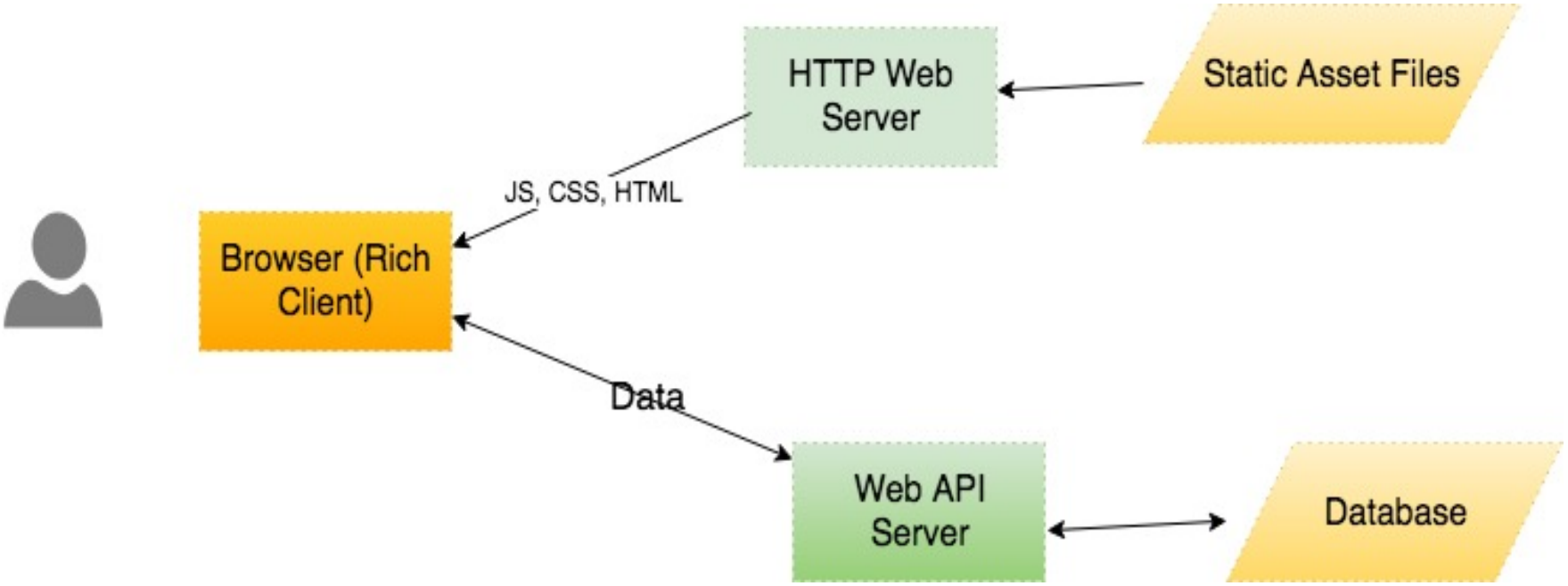
TL;DR

Design and develop modern, secure Web apps using Agile practices

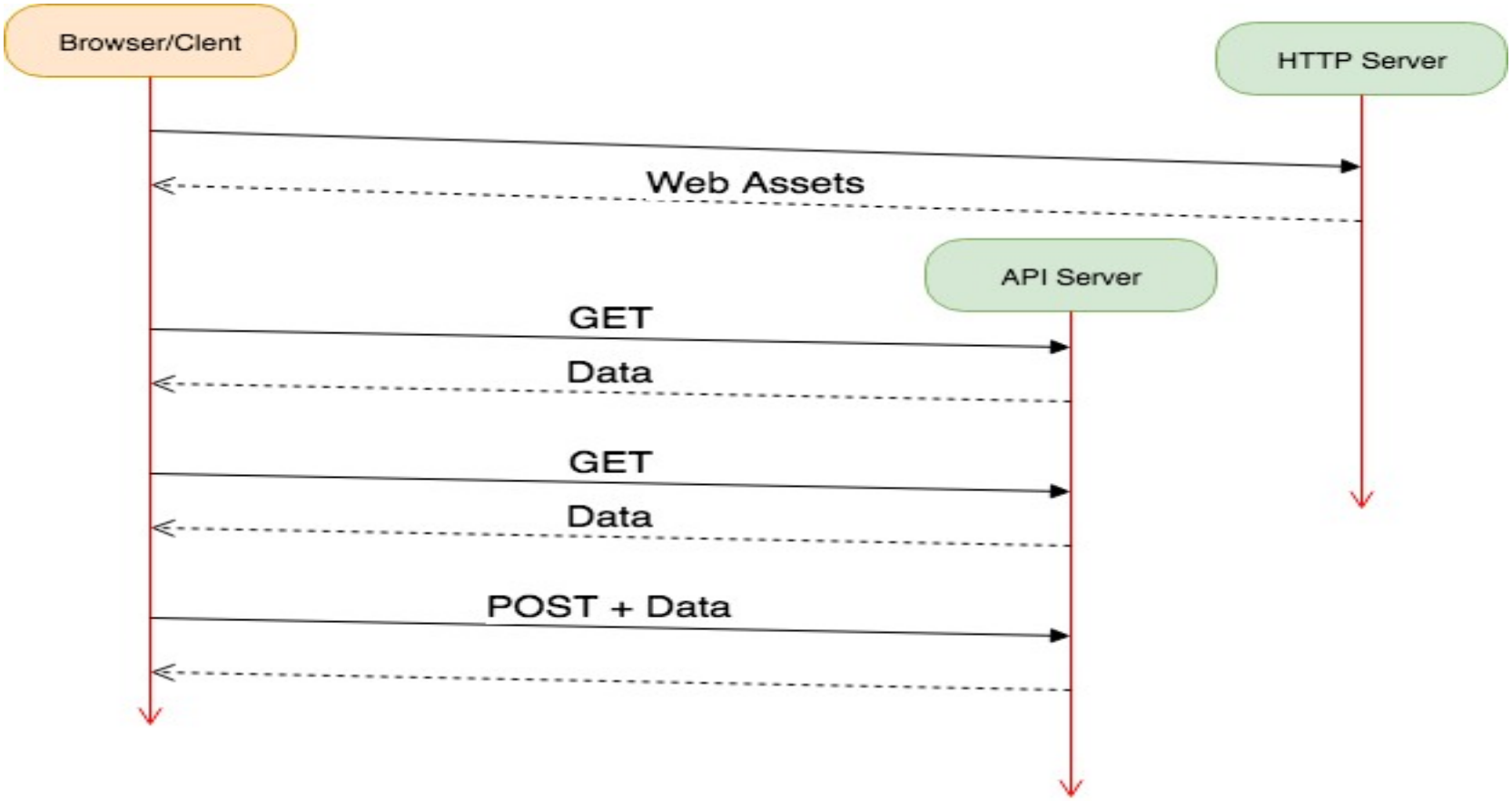
Agenda

- Context
- This module's focus
- Software installation requirements

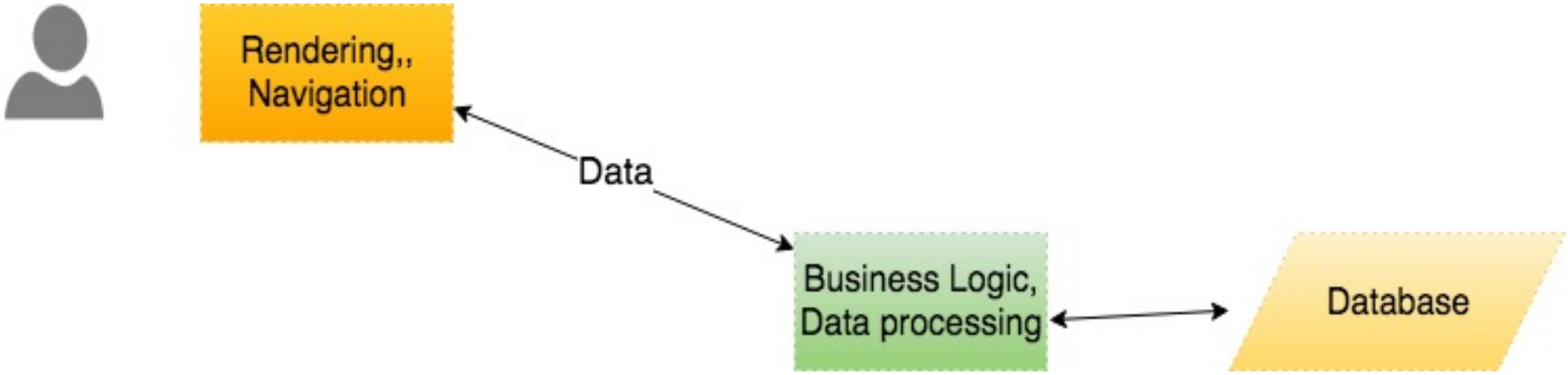
Modern Web Apps - Architecture



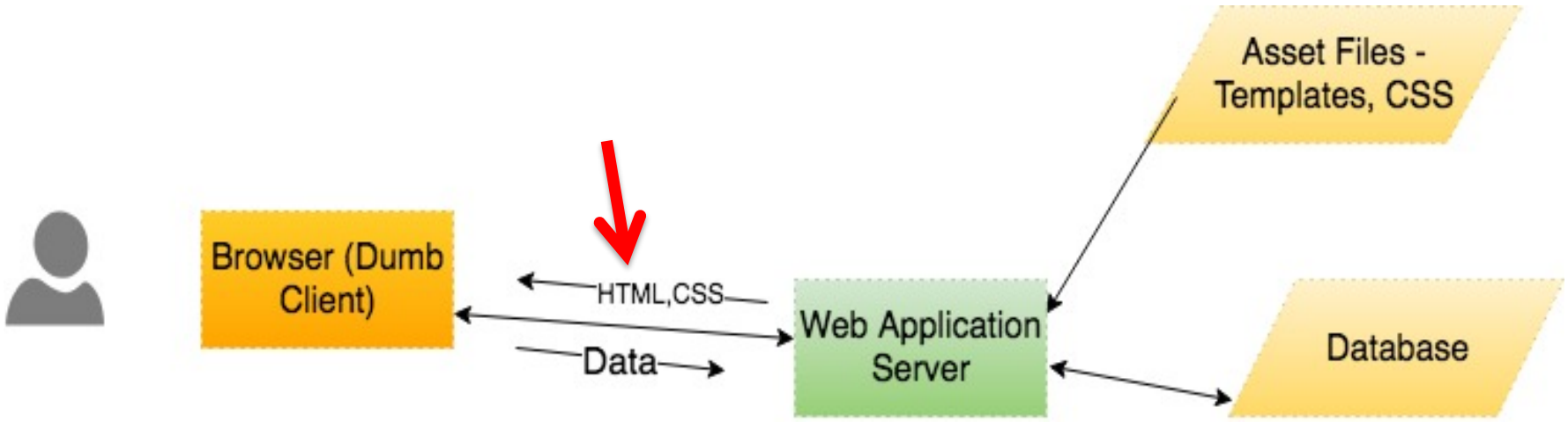
Modern Web Apps – HTTP Communications flow



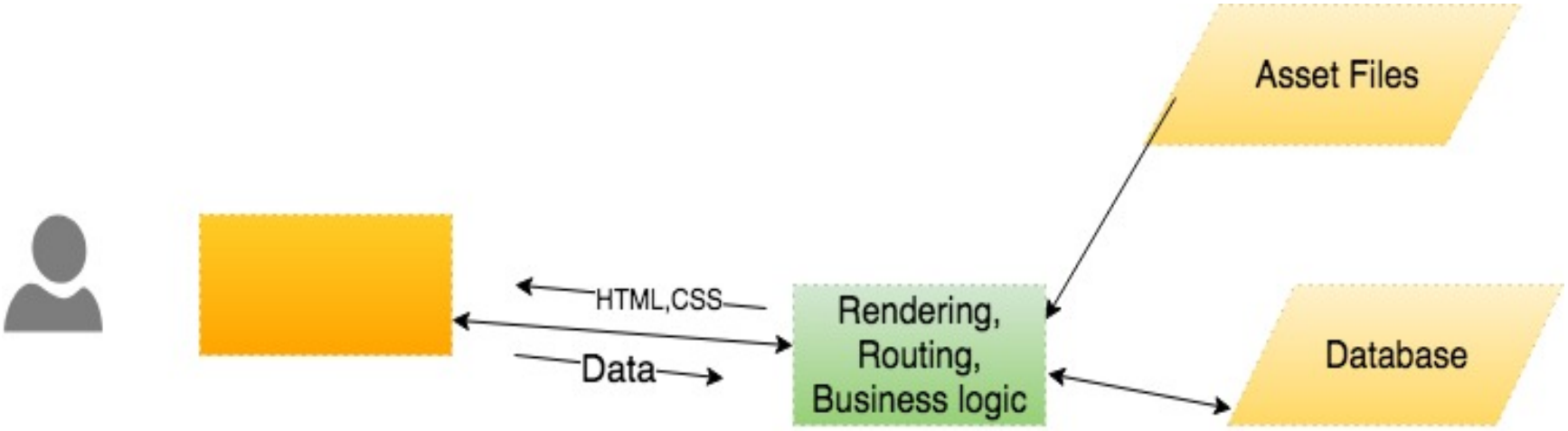
Modern Web Apps – Sub-system roles



Traditional Web Apps – Architecture



Traditional Web Apps – Sub-system roles.



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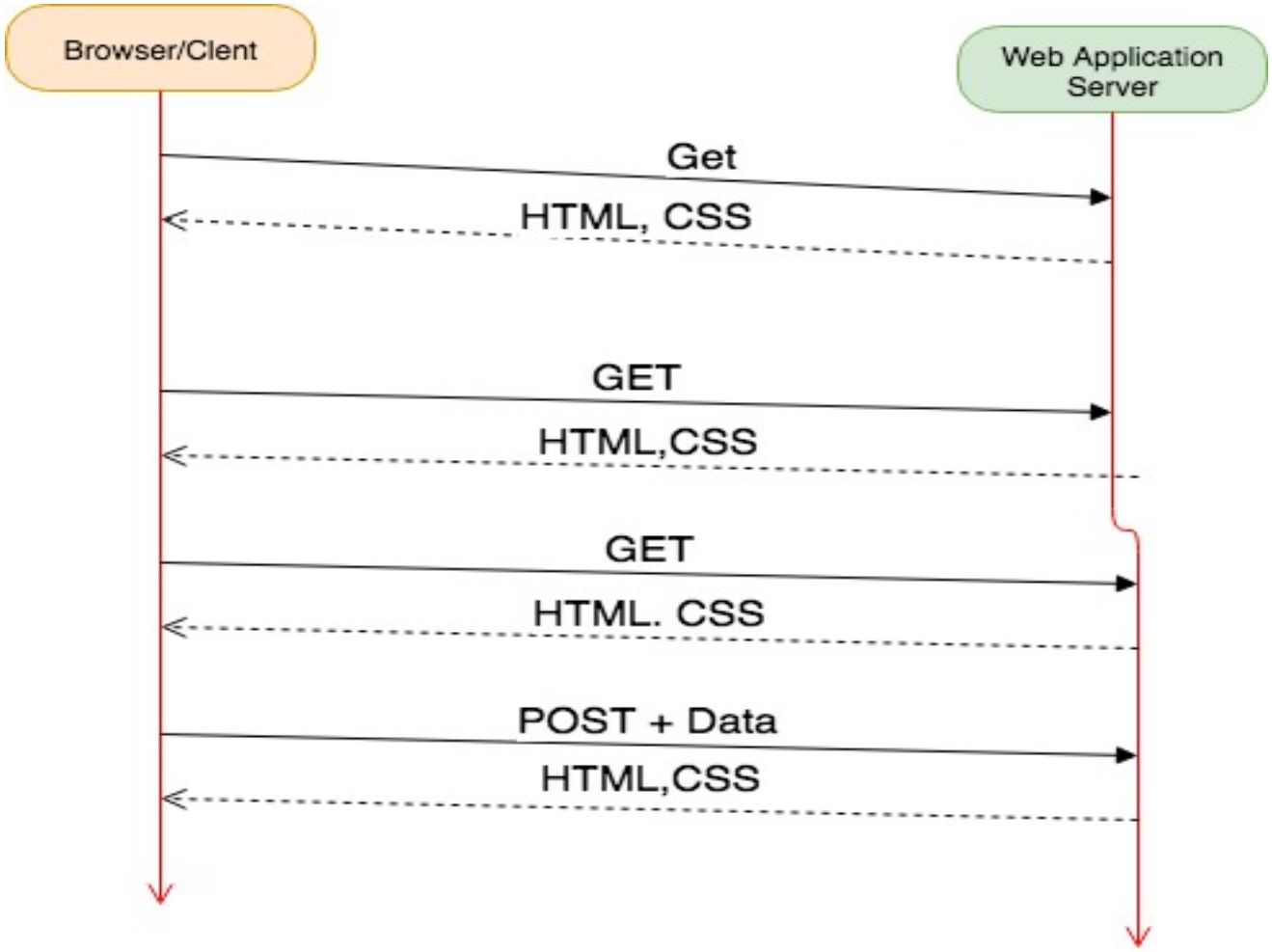


Modern Web Apps.

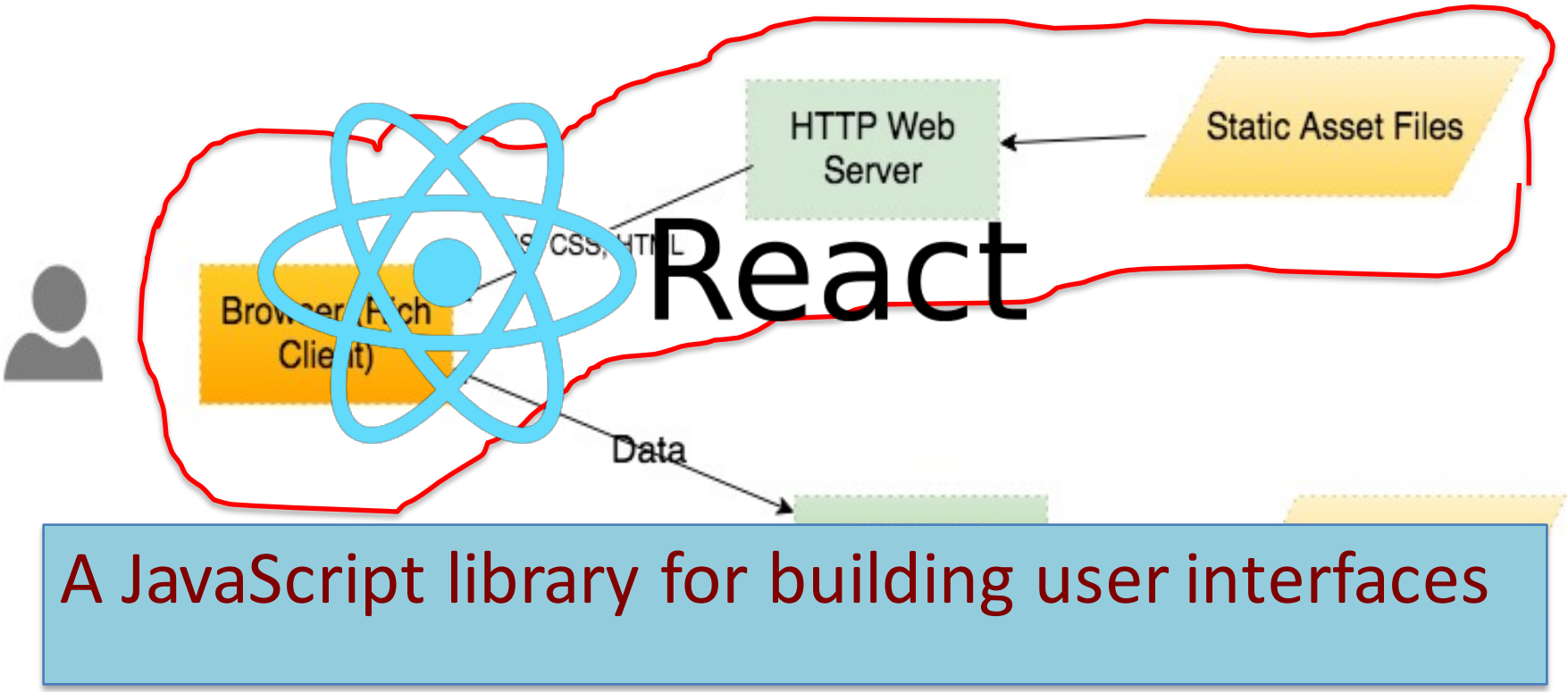
1. **Early Examples: Gmail (2004), YouTube (1st generation)**
   - **Disadvantage:**
     - **Poor developer experience (DX) – code bloat; poor maintainability; browser inconsistencies.**
     - **Lacked addressability (Key principle of the web).**

2. **Jquery – A** cross-platform **JavaScript library to** simplify **the client-side scripting of HTML pages. (2006)**
   - **Adv.: Better developer productivity;**
     - **Reduced code bloat**
     - **Cross-browser**
   - **Disadvantages –**
     - **Lacked Addressability.**
     - **Poor code maintainability (spaghetti code).**
3. **Single Page App (SPA)** *frameworks*. **(2010 ish)**
   - **Support addressability; Improved DX; Improved maintainability.**

Agenda

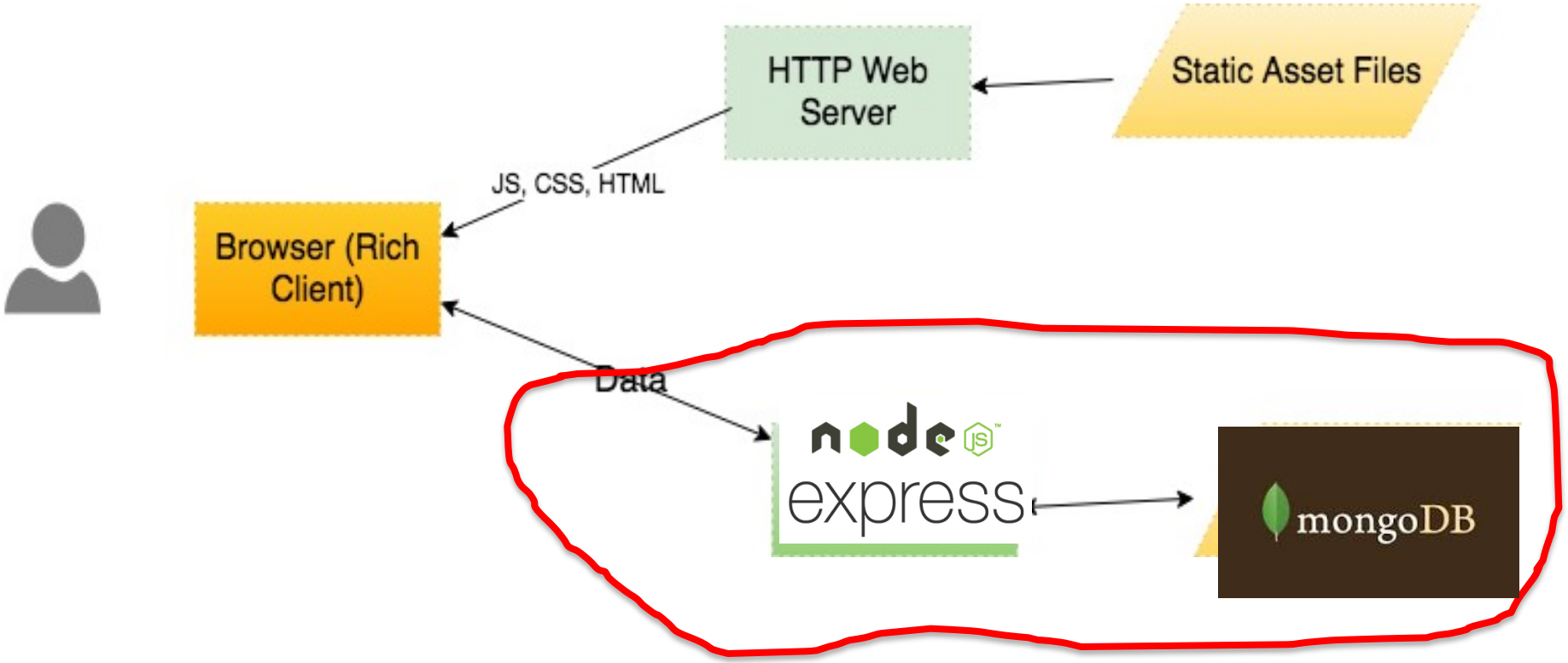
- Context. ☑
- This module's focus

Modern Web Apps

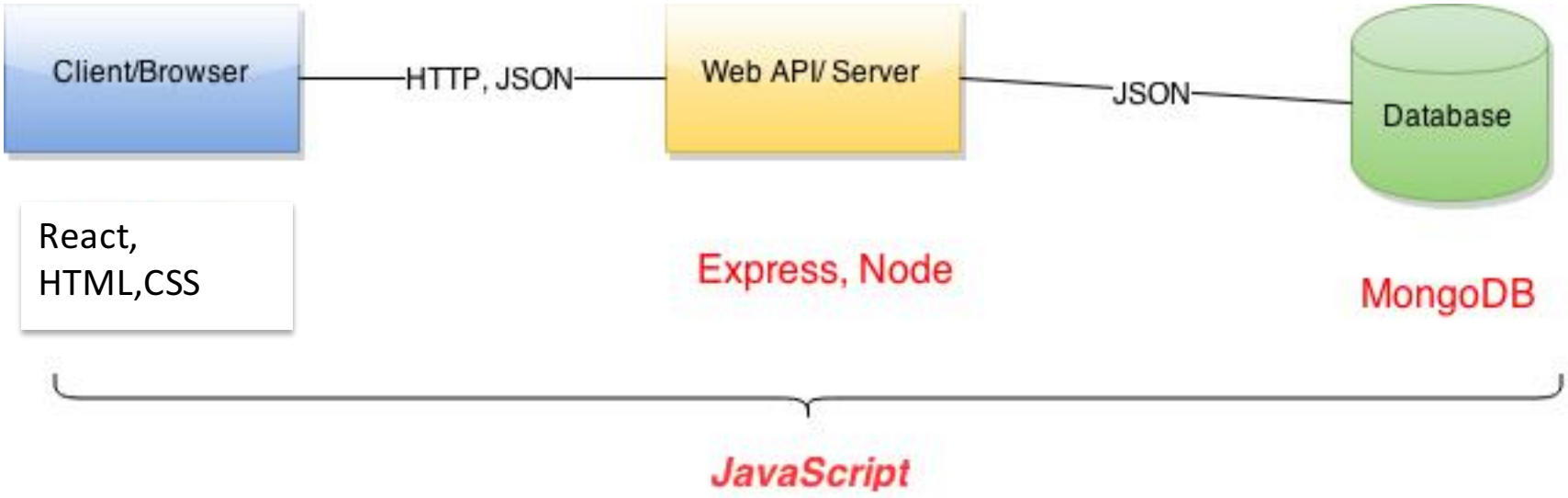


A JavaScript library for building user interfaces

Modern Web Apps



Modern Web App architecture.

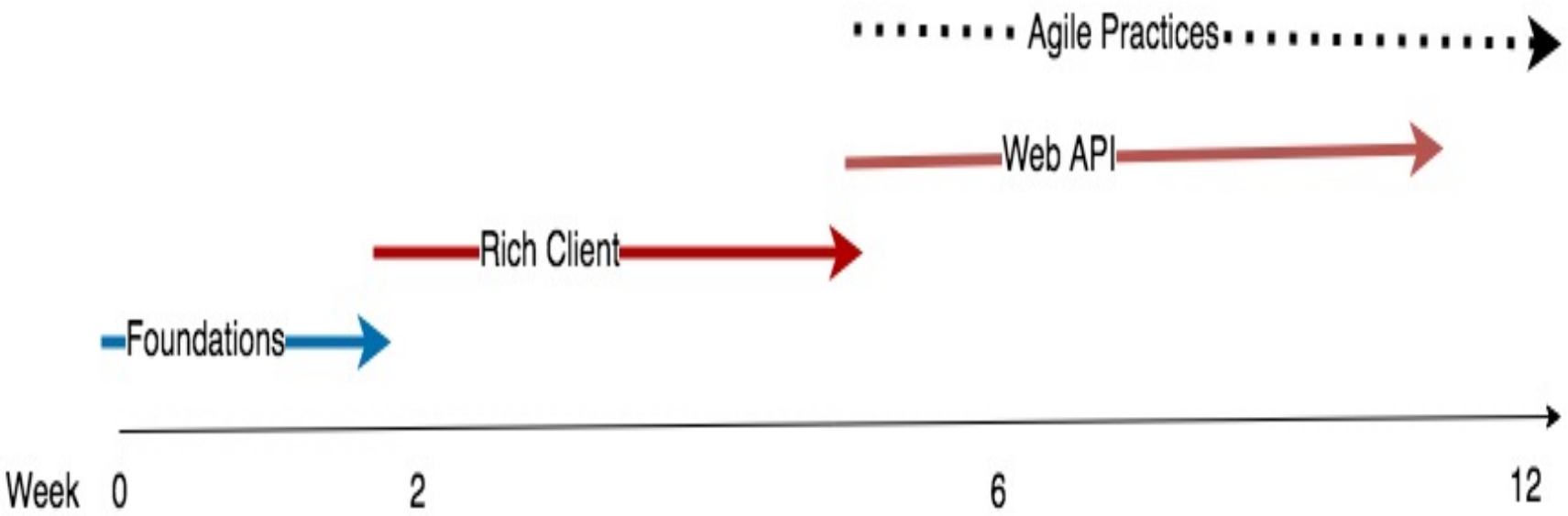


The **MERN** stack. (Mongo, Express, React, Node)

Agenda

- Context. ☑
- This module's focus
  - Single Page Apps, using React ☑
  - Web APIs, using Node and MongoDB ☑
  - Related Agile support taske: ☑
    - E.g. Automated testing,
- Software Installation Requirements

Outline schedule



Agenda

- Context. ☑

- This module's focus
  - Single Page Apps, using React ☑
  - Web APIs, using Node and MongoDB ☑
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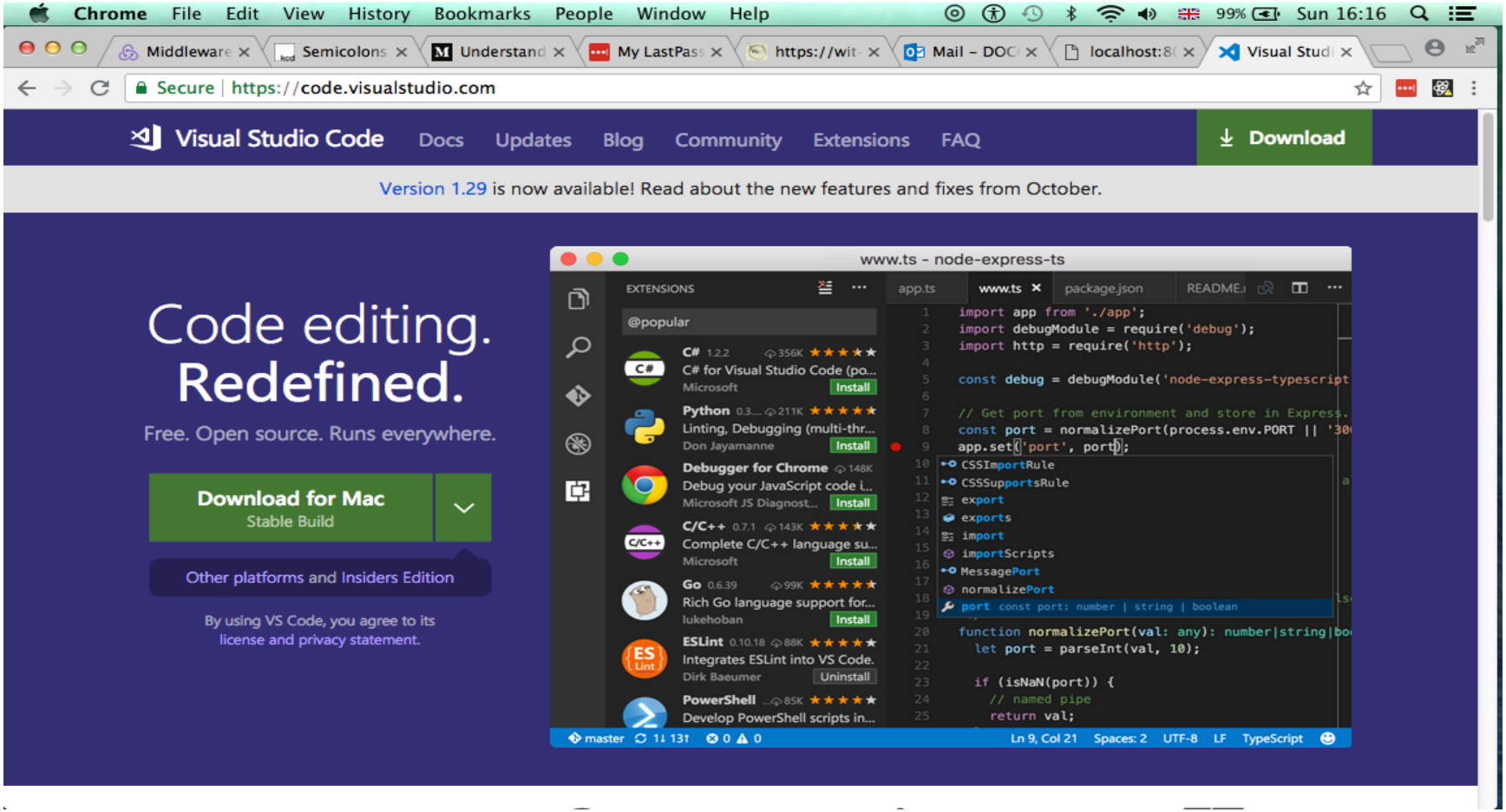
    - E.g. Automated testing, Source control

- Software Installation Requirements

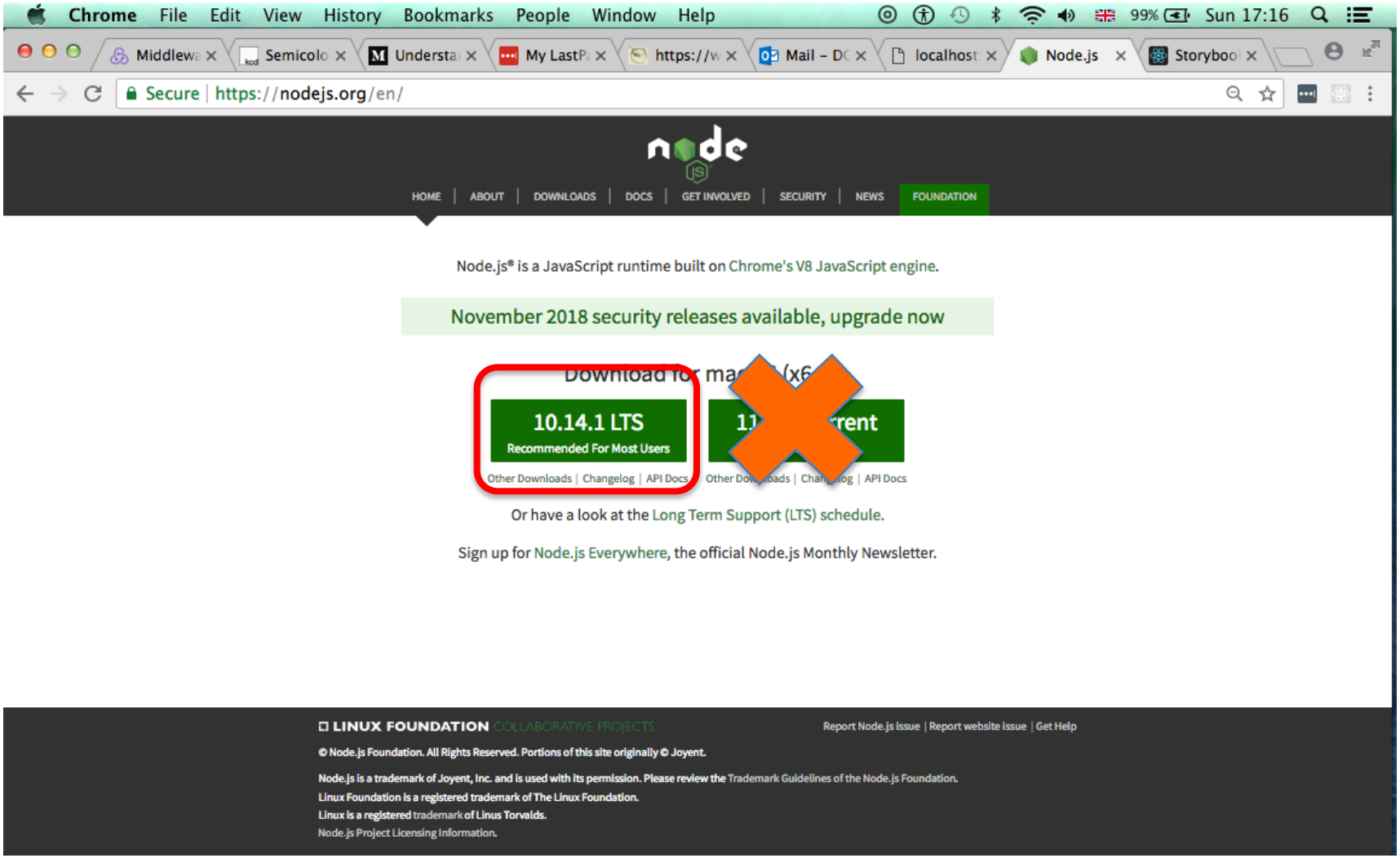
Text Editor

(Not a heavyweight IDE, thankfully)



Node.js

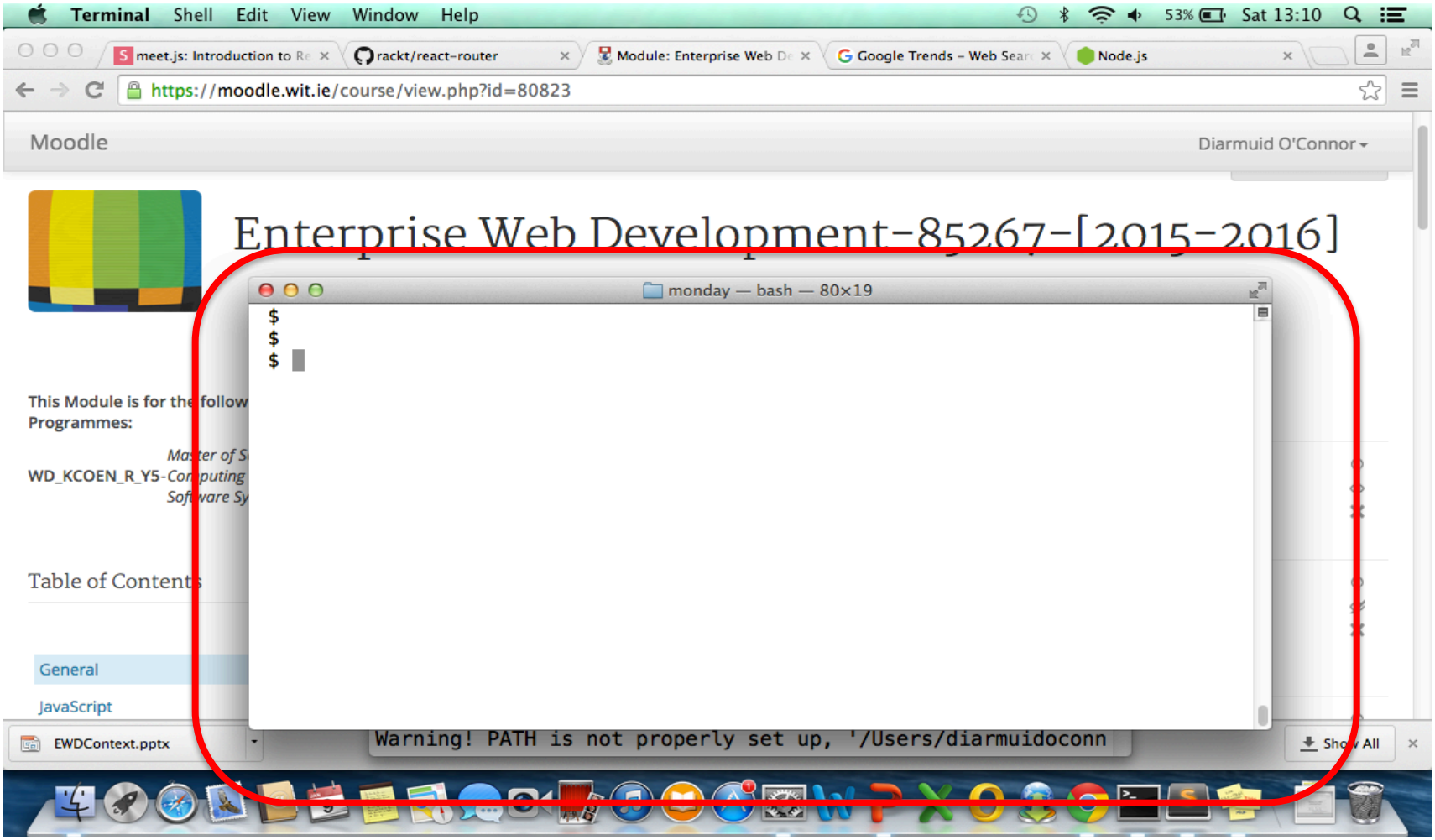
(A JavaScript runtime platform)



Git

Chrome File Edit View History Bookmarks People Window Help
96% Mon 10:35
Git
Secure | https://git-scm.com
git --distributed-even-if-your-workflow-isnt
Search entire site...
Git is a free and open source distributed version control system designed to handle everything from small to very large projects with speed and efficiency.
Git is easy to learn and has a tiny footprint with lightning fast performance. It outclasses SCM tools like Subversion, CVS, Perforce, and ClearCase with features like cheap local branching, convenient staging areas, and multiple workflows.
Learn Git in your browser for free with Try Git.
About
The advantages of Git compared
Documentation
Command reference pages, Pro
Latest source Release
2.15.1
GUI clients and binary releases for all major platforms.
Get involved! Bug reporting, mailing list, chat, development
console.log(acar.owner + ' drives a ' + acar.type.make);
Line 33, Column 76
35 misspelled words
Spaces: 4
Markdown

DOS/Terminal window.



DOS commands

$ represents the terminal prompt – not part of command.

- The cd command (Change directory)

  $ cd (Show pathname of my current directory)

  c:\Users\diarmuid

  $ cd webdev (Relative pathname)

  $ cd c:\Users\diarmuid\webdev (Absolute pathname)

  $ cd .. (c:\Users\diarmuid)

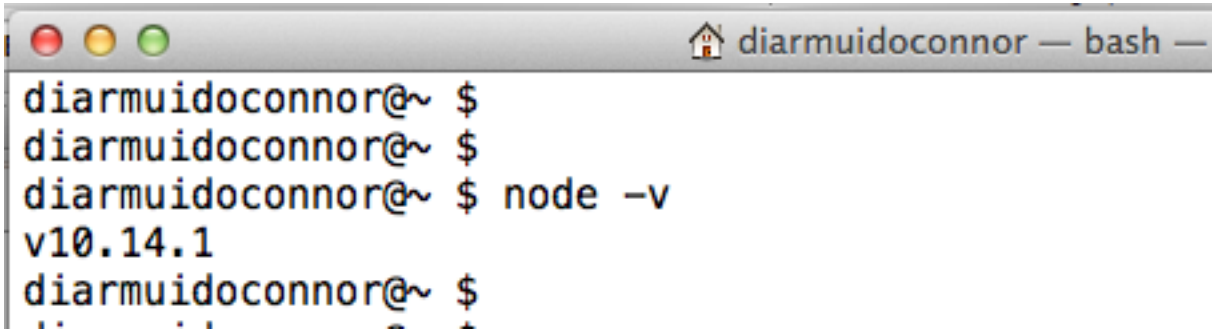
  $ cd webdev\lab01 (c:\Users\diarmuid\webdev\lab01)

  $ cd ..\lab02 (c:\Users\diarmuid\webdev\lab02)

  $ cd ..\.. (c:\Users\diarmuid\)

DOS commands

- To check node.js installation using DOS terminal:



- Your version may be slightly newer.

Summary.

- **Two models of web apps:**
  - **Traditional – Server Side Rendering (SSR)**
  - **Modern – Client Side Rendering (CSR)**

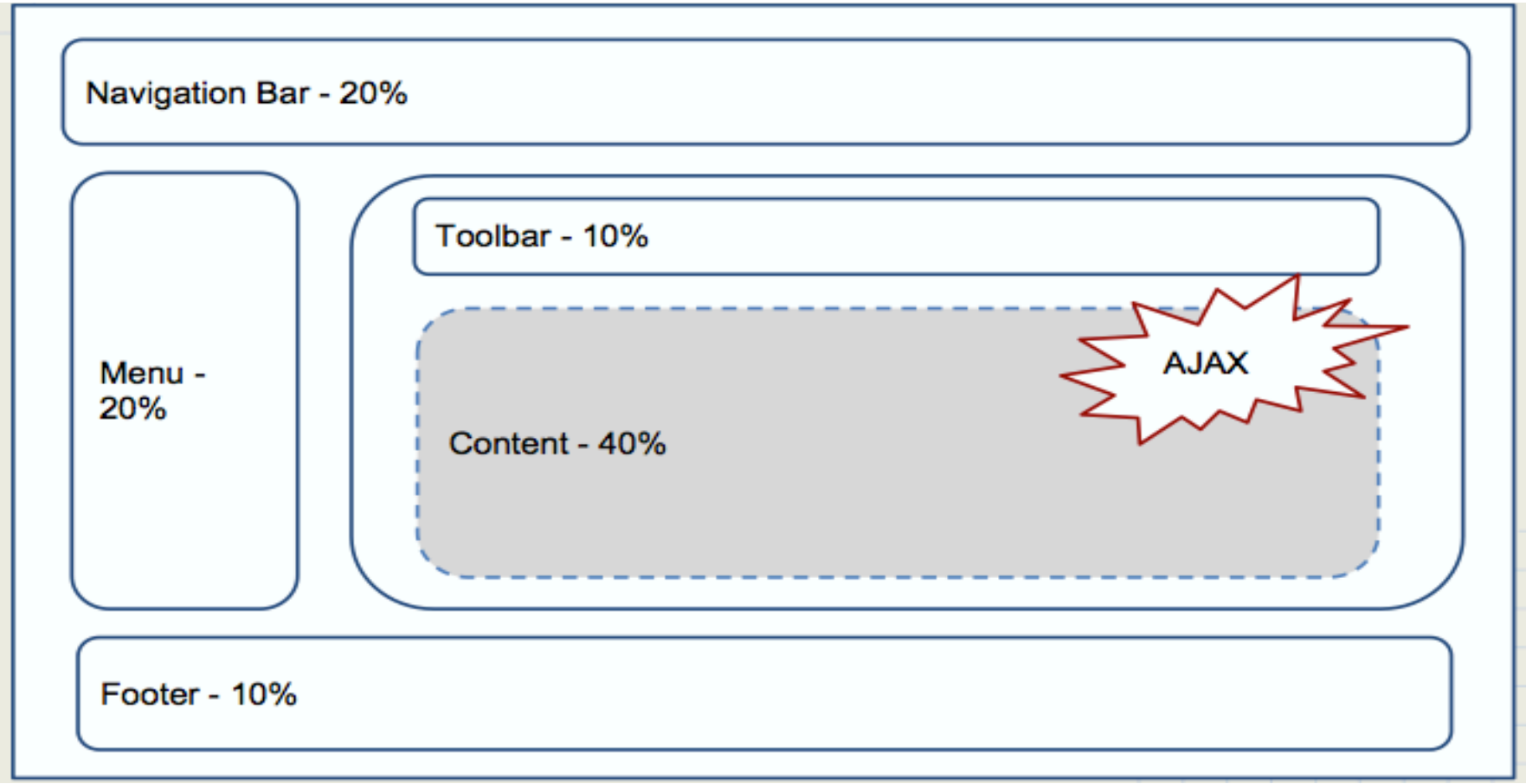
- **CSR model has evelved:**
  - **Unmaintainable JS codebase to SPA framework based codebase**
  - **No addressability to addressable**

- **Server-side**
  - **From SSR web applications to Web APIs**
  - **REST style interface.**

- **NoSQL databases.**

- **Agile development processes.**

Web Evolution - AJAX.



Static

Dynamic