



Module: Web App Development 2

Overview

Presenters:

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Where:

<https://tutors-svelte.netlify.app/#/course/wad2-2021-wit.netlify.app>

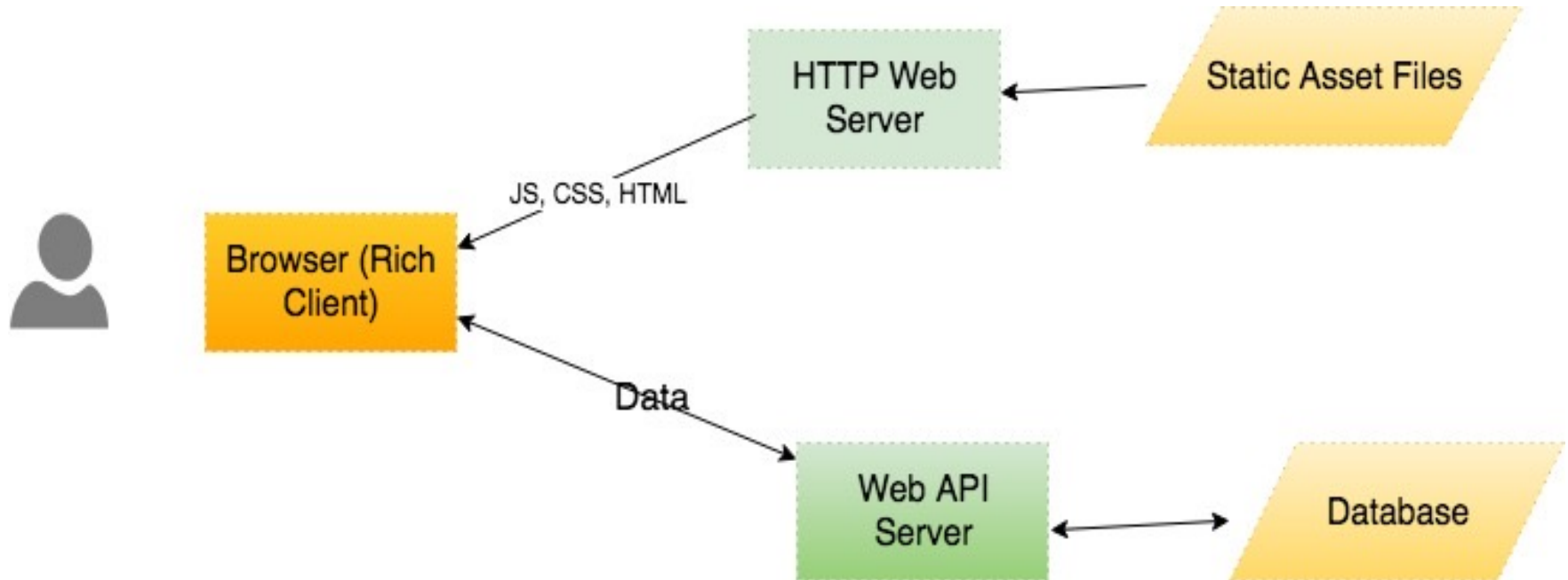
TL;DR

**Design and develop modern, secure
Web apps.**

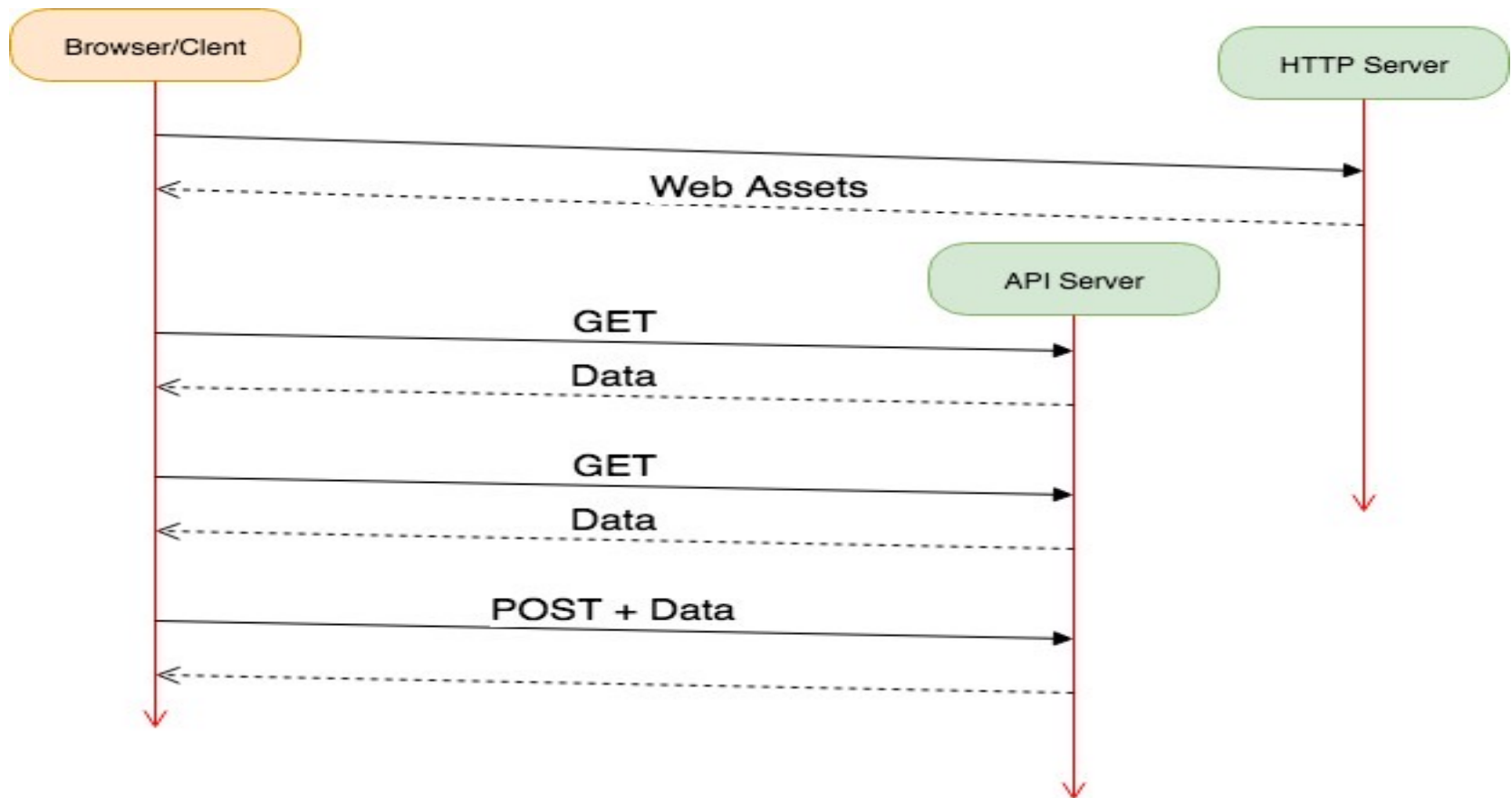
Agenda

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

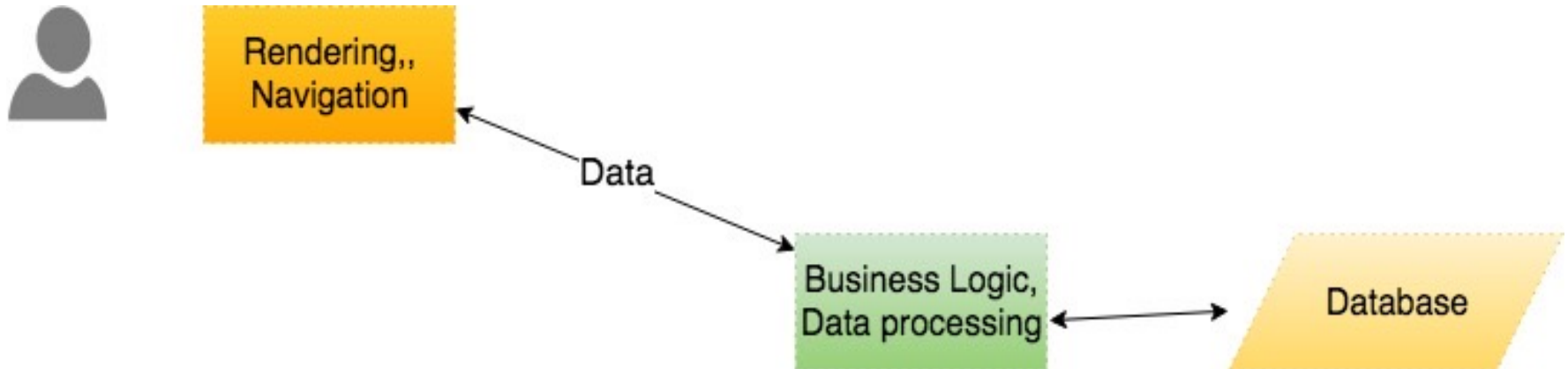
Modern Web Apps - Architecture



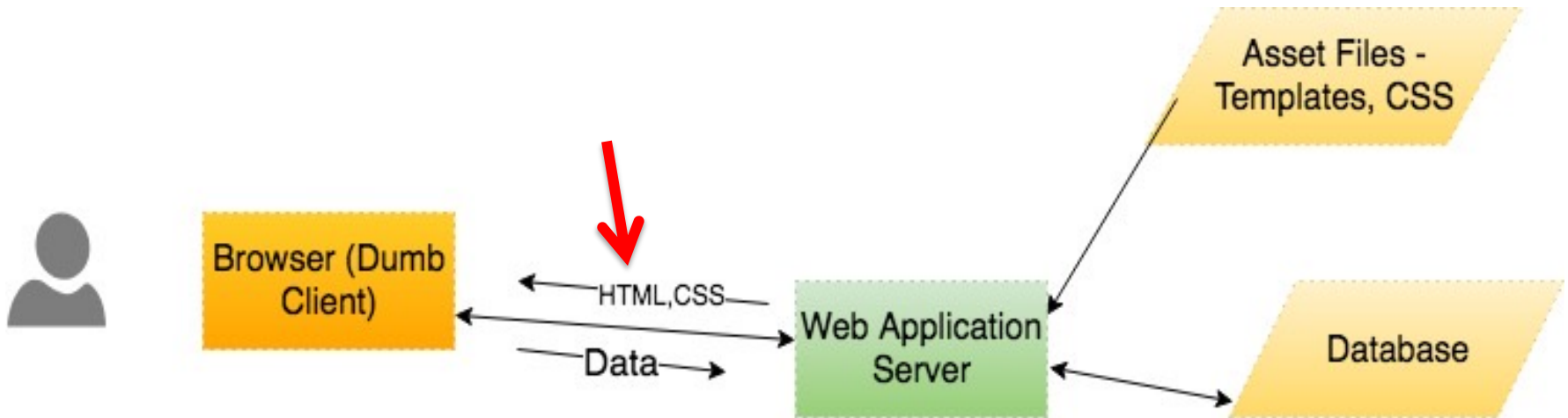
Modern Web Apps – HTTP Communications flow



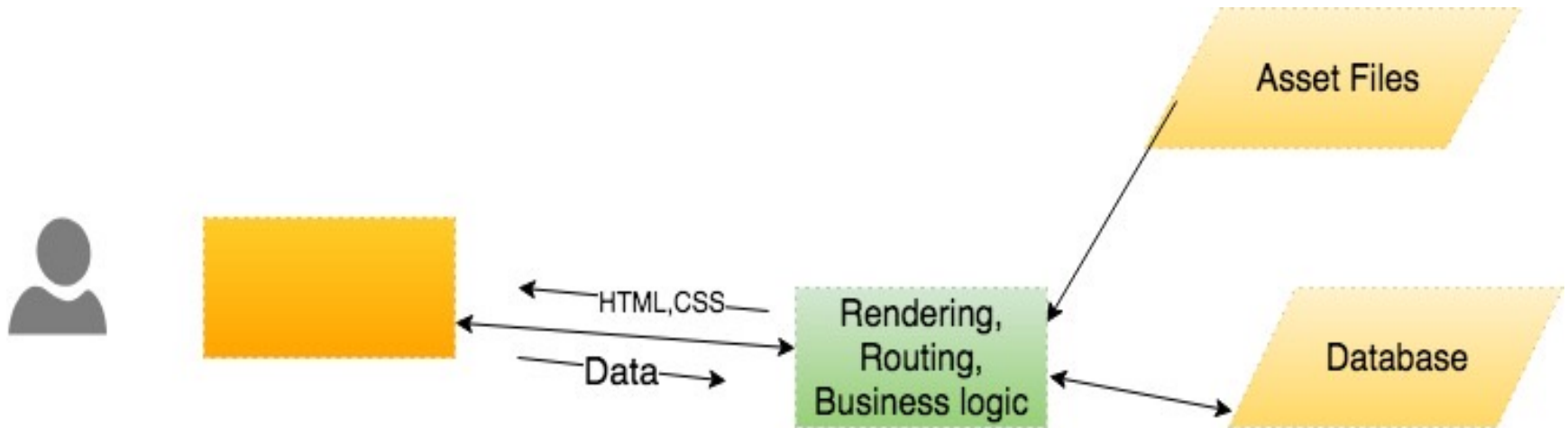
Modern Web Apps – Sub-system roles



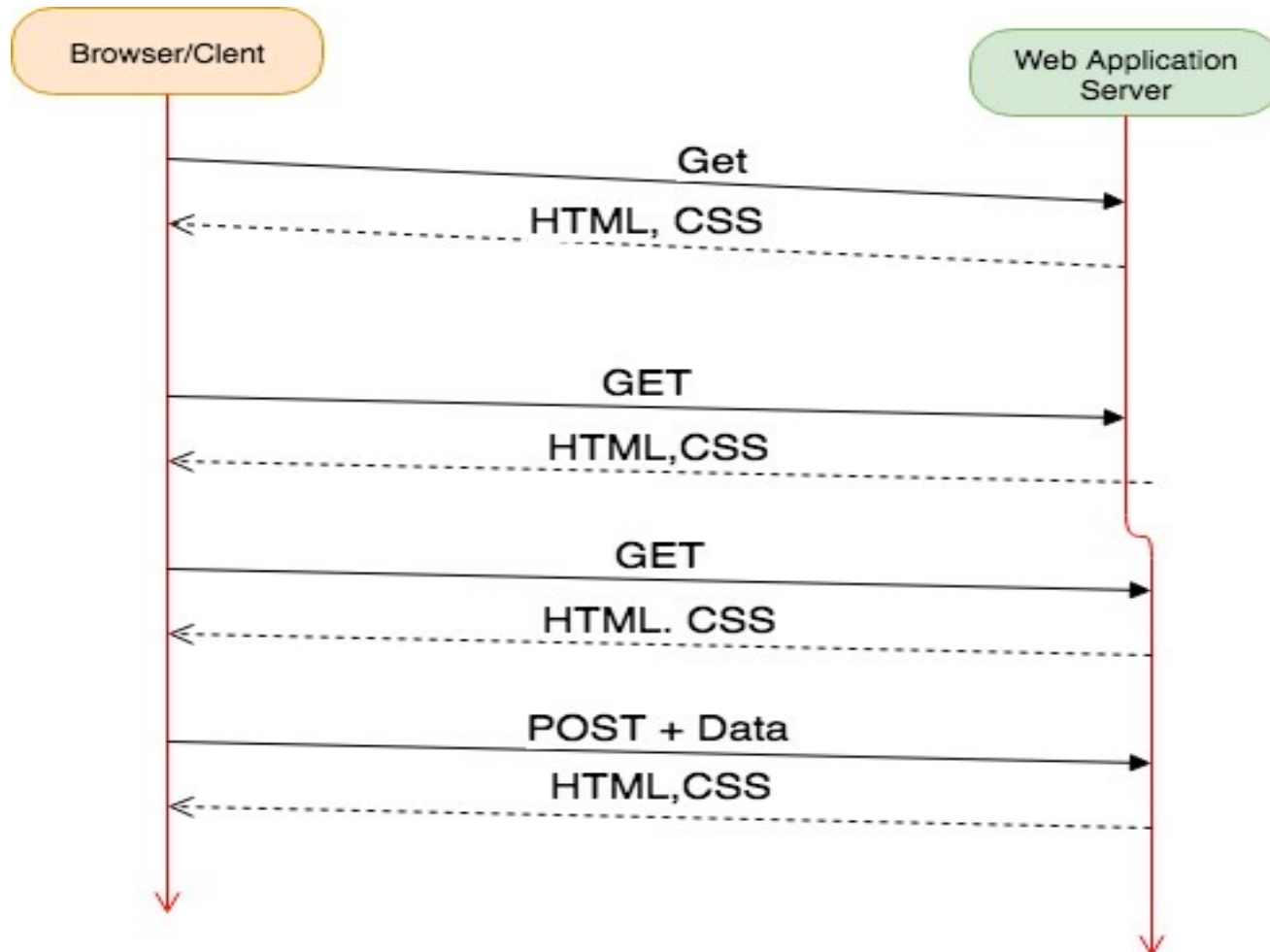
Traditional Web Apps – Architecture



Traditional Web Apps – Sub-system roles.



Traditional Web Apps – HTTP Communication flow.



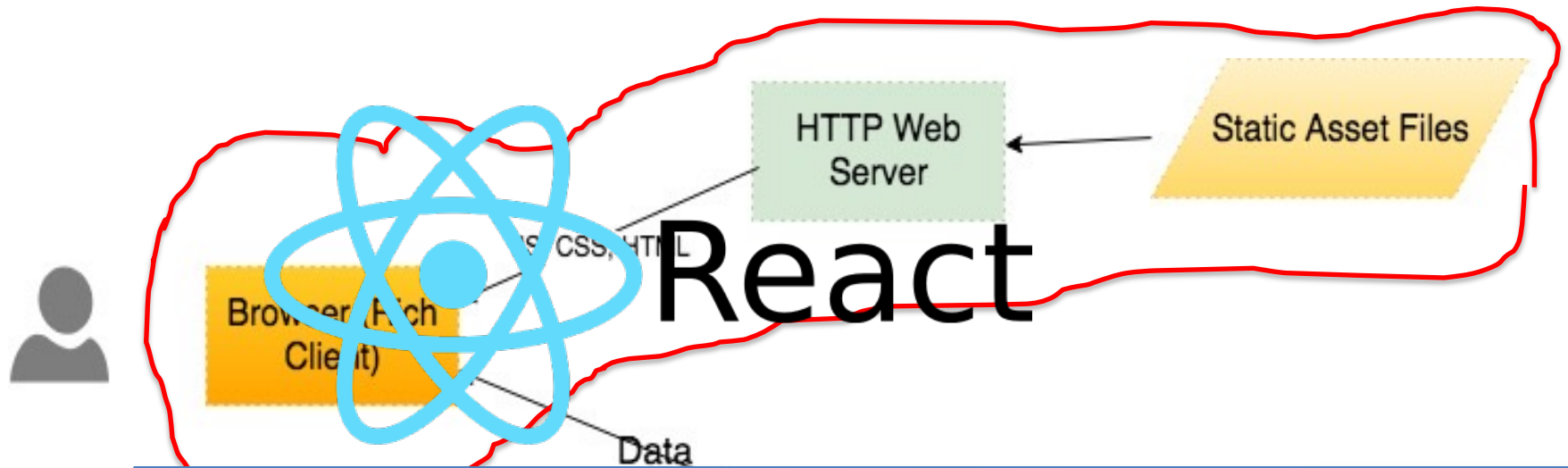
Modern Web Apps.

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

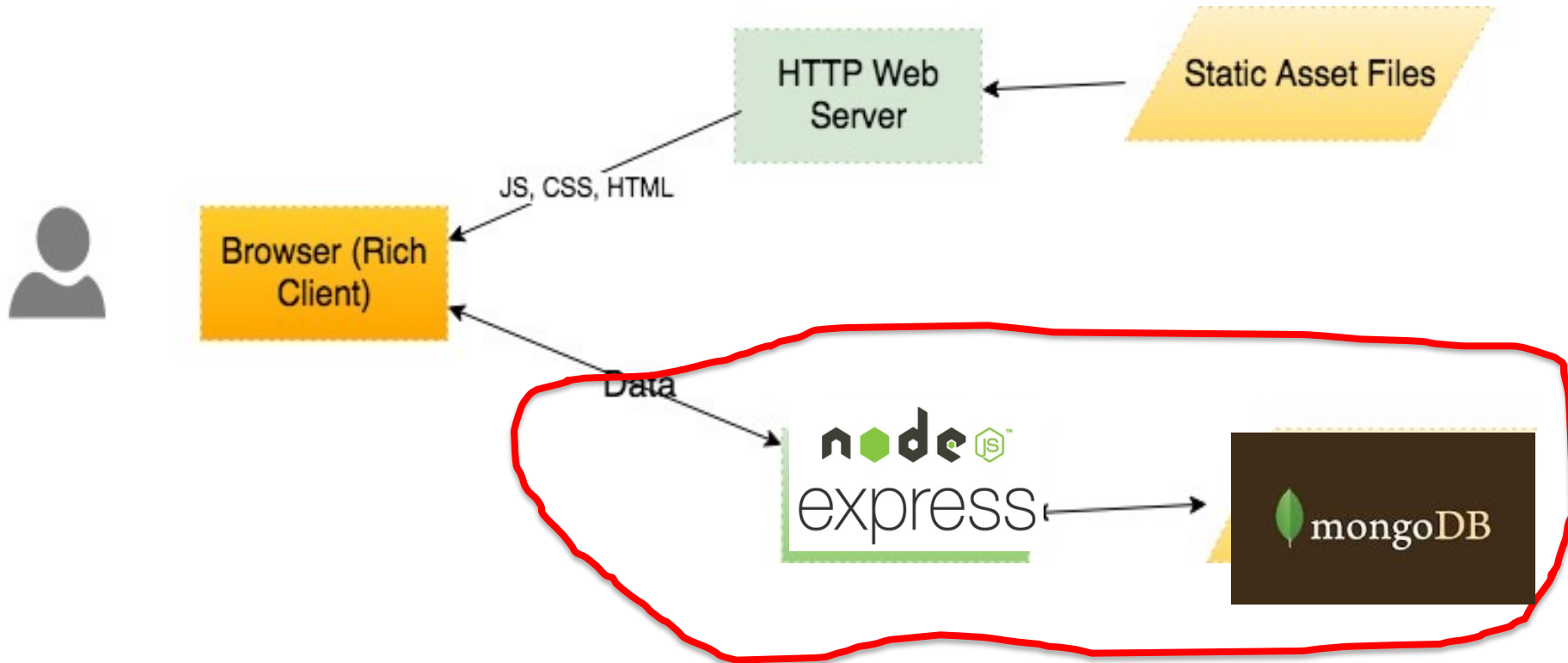
- Context. ☒
- This module's focus

Modern Web Apps

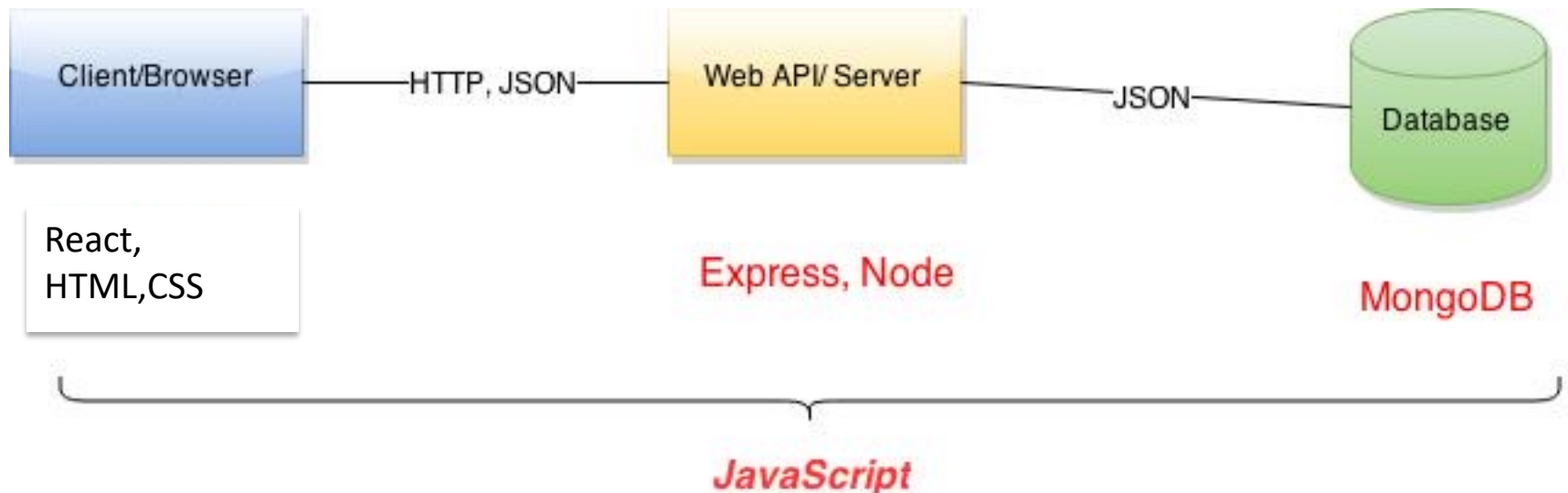


A JavaScript library for building user interfaces

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 ☒
- Software Installation Requirements

Node.js

(A JavaScript runtime platform)

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nodejs.org/en/

node

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Node.js® is a JavaScript runtime built on [Chrome's V8 JavaScript engine](#).

You must pick this version or slightly lower

Download for macOS (x64)

16.17.0 LTS
Recommended For Most Users

18.8.0 Current
Latest Features

[Other Downloads](#) | [Changelog](#) | [API Docs](#) [Other Downloads](#) | [Changelog](#) | [API Docs](#)

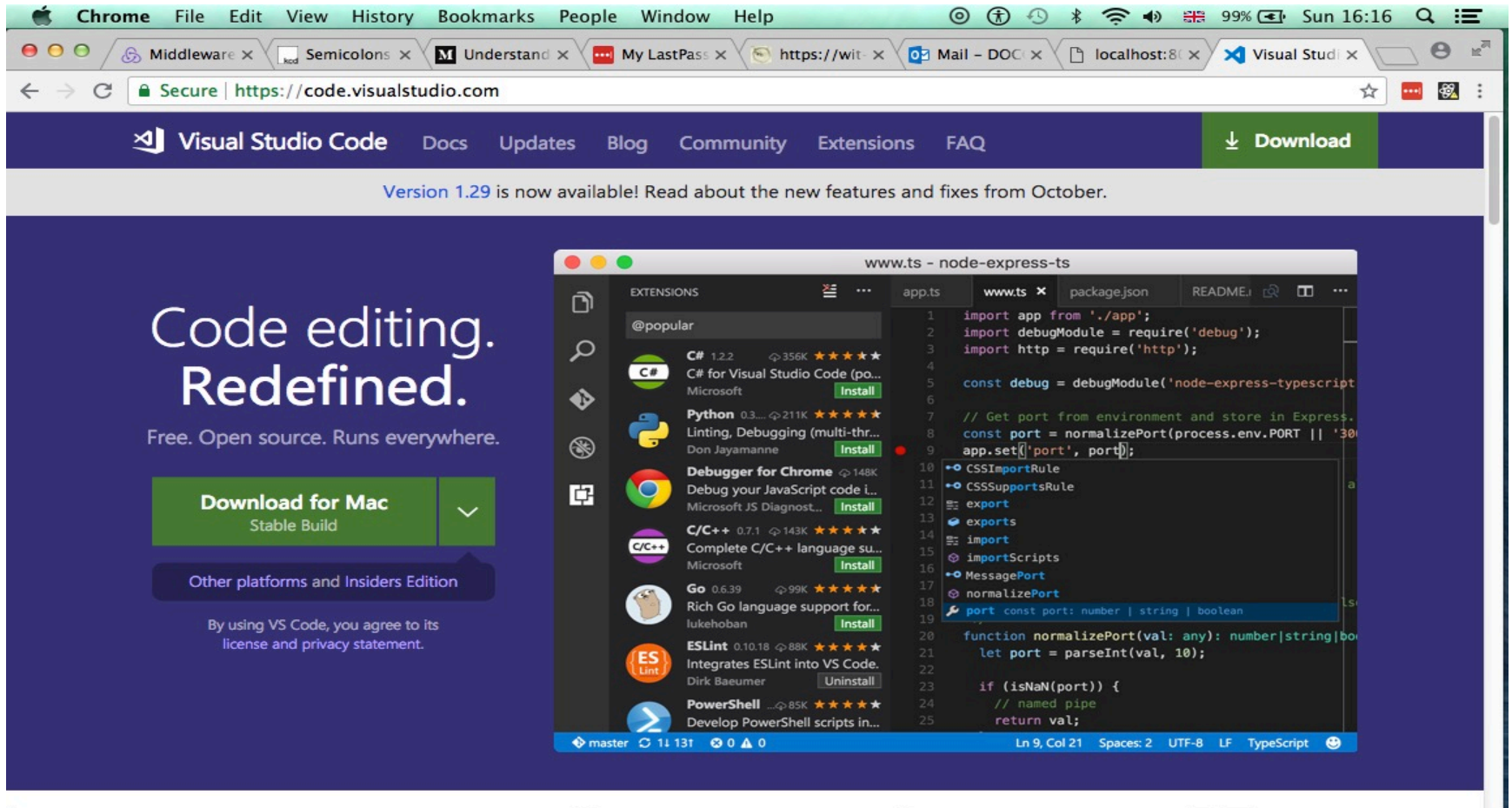
Or have a look at the [Long Term Support \(LTS\) schedule](#)

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Text Editor

(Not a heavyweight IDE, thankfully)



Source Control (Git)

The screenshot shows a web browser window with the URL <https://www.atlassian.com/git/tutorials/install-git>. The page is titled "Install Git" and features a sidebar with navigation links: "Learn Git", "Beginner", "What is version control", "What is Git", "What is a repository", "What is a commit", "What is a branch", "What is a pull request", "What is a merge", "What is a fork", "What is a clone", "What is a push", "What is a pull", "What is a fetch", "What is a checkout", "What is a revert", "What is a reset", "What is a stash", "What is a cherry-pick", "What is a rebase", "What is a merge conflict", "What is a merge commit", "What is a merge pull request", "What is a merge branch", "What is a merge commit", "What is a merge pull request", "What is a merge branch". The main content area displays the title "Install Git" and a list of links: "Install Git on Mac OS X / Install Git on Windows / Install Git on Linux". A cookie banner is visible at the bottom of the page.

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Secure | <https://www.atlassian.com/git/tutorials/install-git>

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Learn Git

Beginner

- What is version control
- What is Git
- What is a repository
- What is a commit
- What is a branch
- What is a pull request
- What is a merge
- What is a fork
- What is a clone
- What is a push
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Install Git

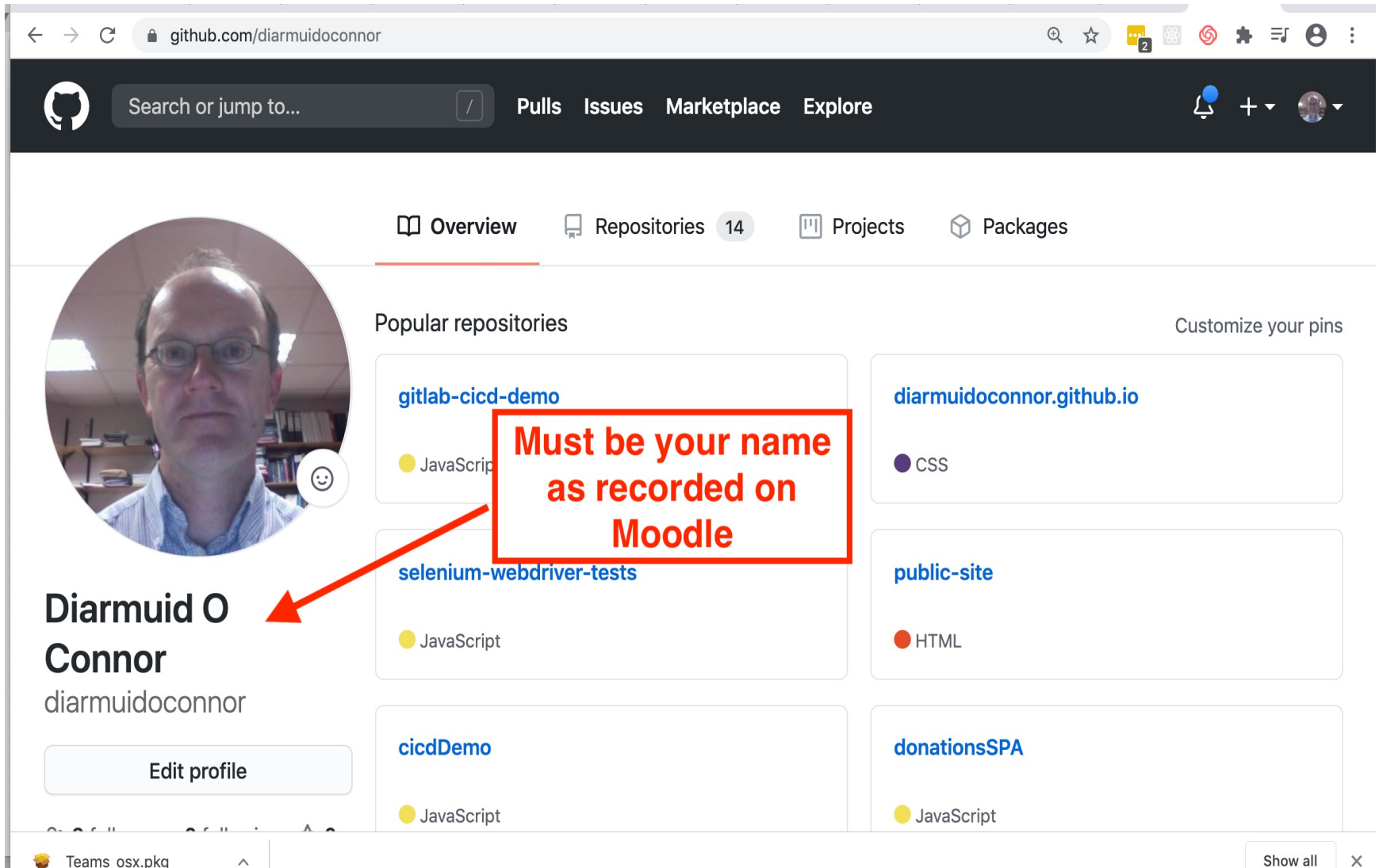
Install Git on Mac OS X / [Install Git on Windows](#) / [Install Git on Linux](#)

There are several ways to install Git on a Mac. In fact, if

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<https://www.atlassian.com/git/tutorials/install-git#windows>

Create a GitHub account



The screenshot shows a web browser at the URL `github.com/diarmuidoconnor`. The GitHub navigation bar is at the top with links for Pulls, Issues, Marketplace, and Explore. The user's profile is displayed on the left, featuring a circular profile picture of a man with glasses and a blue button labeled "Edit profile". To the right of the profile picture, the name "Diarmuid O Connor" and the username "diarmuidoconnor" are shown. A red arrow points from a red-bordered text box to the profile picture. The text box contains the instruction: "Must be your name as recorded on Moodle". Below the profile information, the "Popular repositories" section lists several repositories: "gitlab-cicd-demo", "selenium-webdriver-tests", "cicdDemo", "diarmuidoconnor.github.io", "public-site", and "donationsSPA". Each repository entry includes a language icon (JavaScript or CSS) and a language label. At the bottom of the page, a Teams chat window for "osx.pka" is partially visible.

github.com/diarmuidoconnor

Search or jump to... Pulls Issues Marketplace Explore

Overview Repositories 14 Projects Packages

Popular repositories

Customize your pins

gitlab-cicd-demo
JavaScript

diarmuidoconnor.github.io
CSS

selenium-webdriver-tests
JavaScript

public-site
HTML

cicdDemo
JavaScript

donationsSPA
JavaScript

Diarmuid O Connor
diarmuidoconnor

Edit profile

Teams osx.pka

Show all

Summary.

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

Assessment.

- **100% continuous assessment.**
 - **20% lab work.**
 - 2 submissions.
 - **80% - 2 projects:**
 - 1. React SPA (40%)**
 - 2. (Integrated) Web API (40%)**
 - Build on top of lab work.
 - May be subject to small changes.

