



Waterford Institute of Technology
INSTITIÚID TEICNEOLAÍOCHTA PHORT LÁIRGE

Module: Web App Development 2

Overview

Presenters:

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Where:

<https://tutors-design.netlify.com/course/wad2-2019-wit.netlify.com>

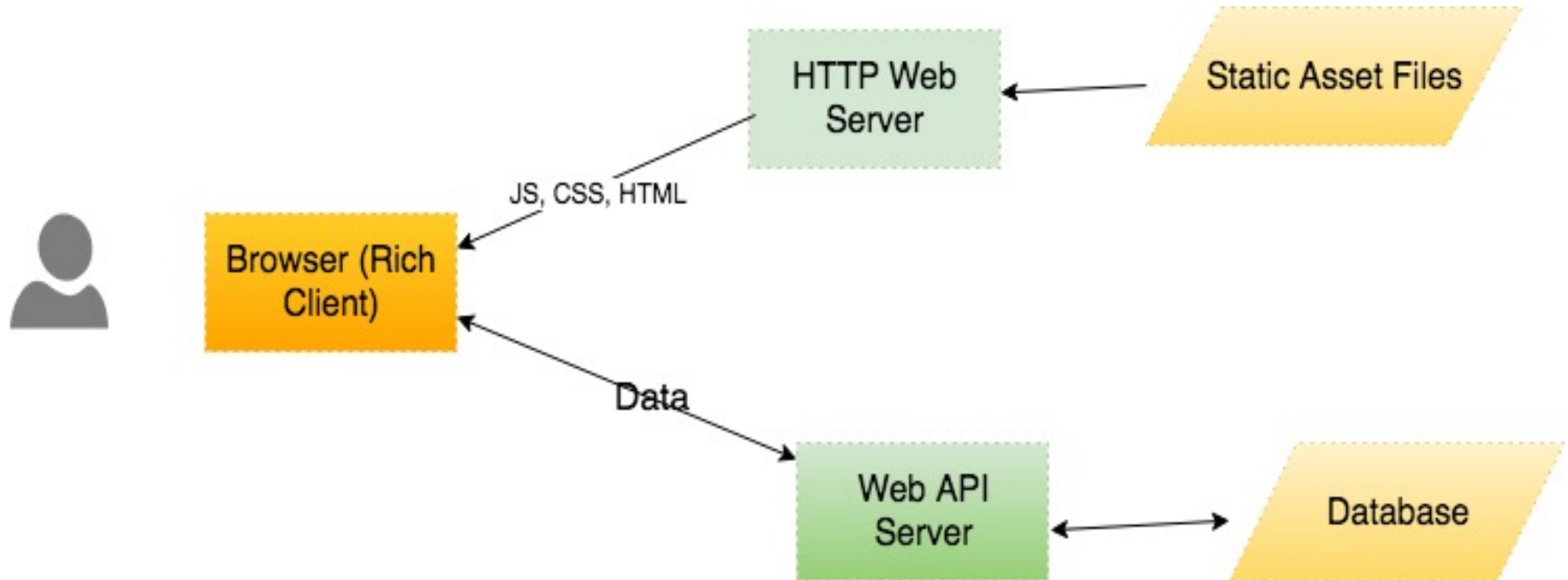
TL;DR

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

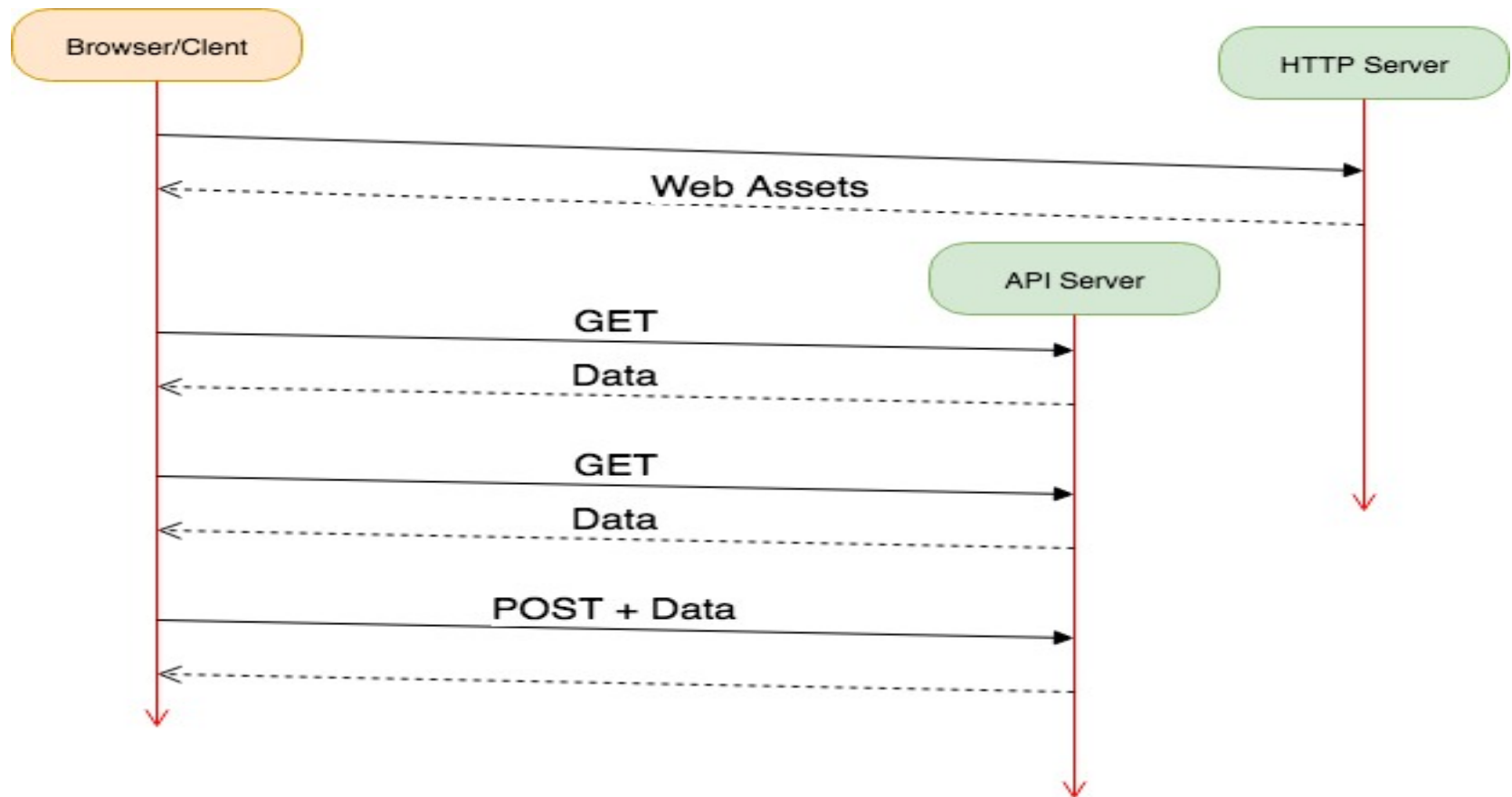
Agenda

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

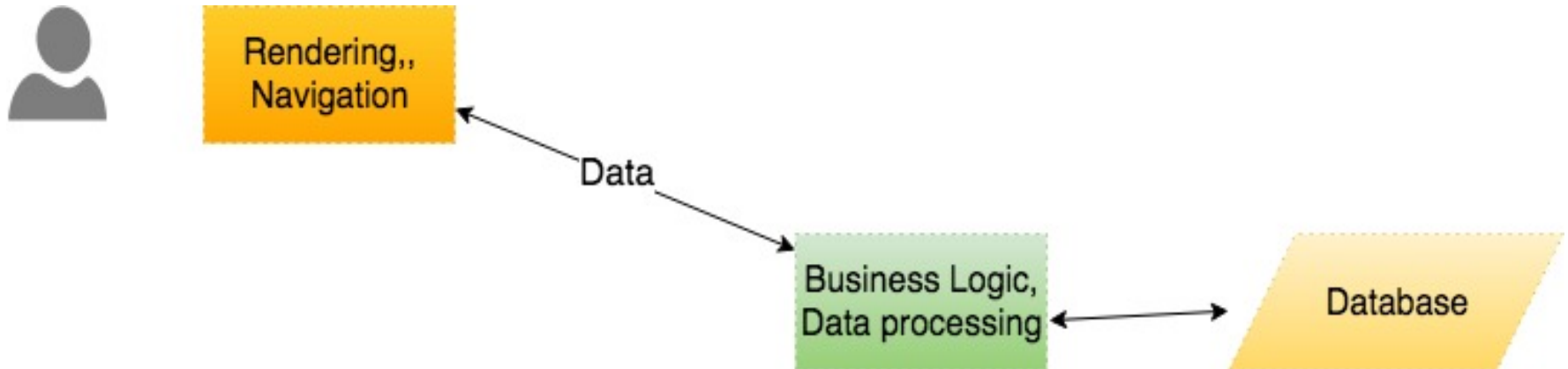
Modern Web Apps - Architecture



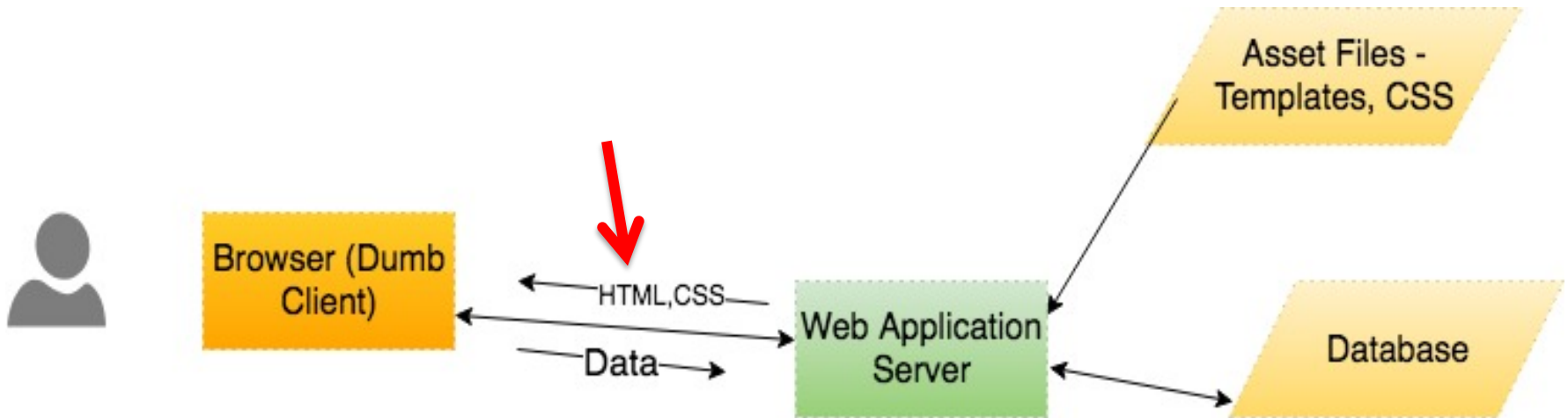
Modern Web Apps – HTTP Communications flow



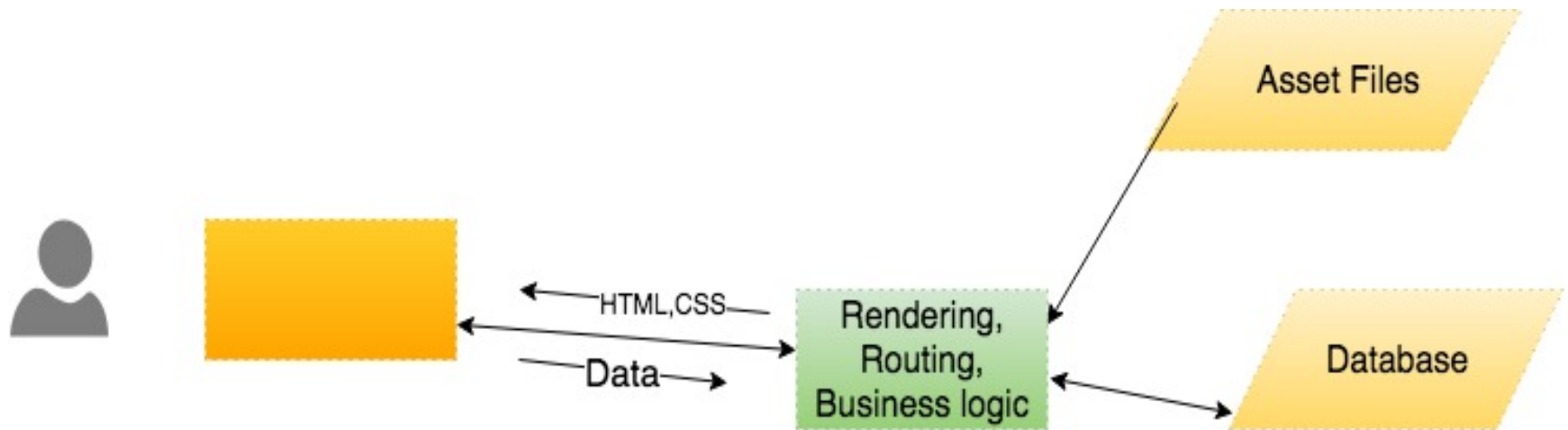
Modern Web Apps – Sub-system roles



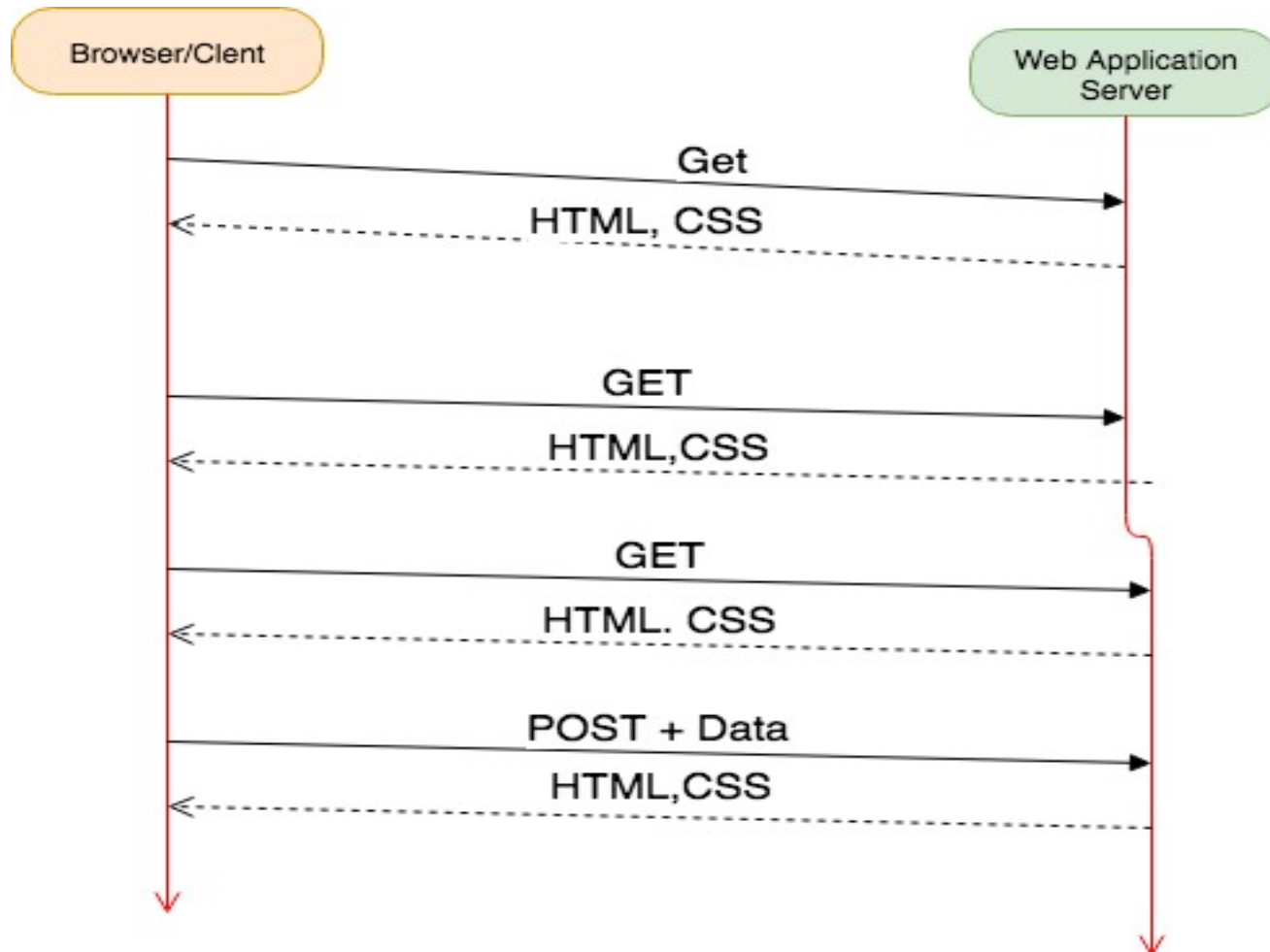
Traditional Web Apps – Architecture



Traditional Web Apps – Sub-system roles.



Traditional Web Apps – HTTP Communication flow.



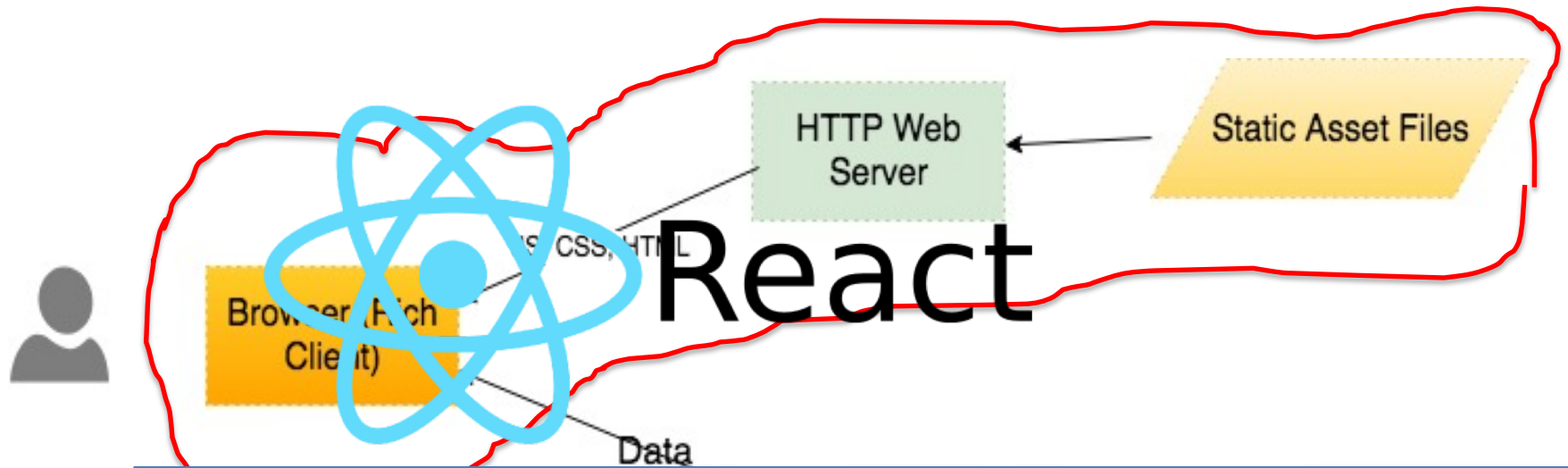
Modern Web Apps.

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

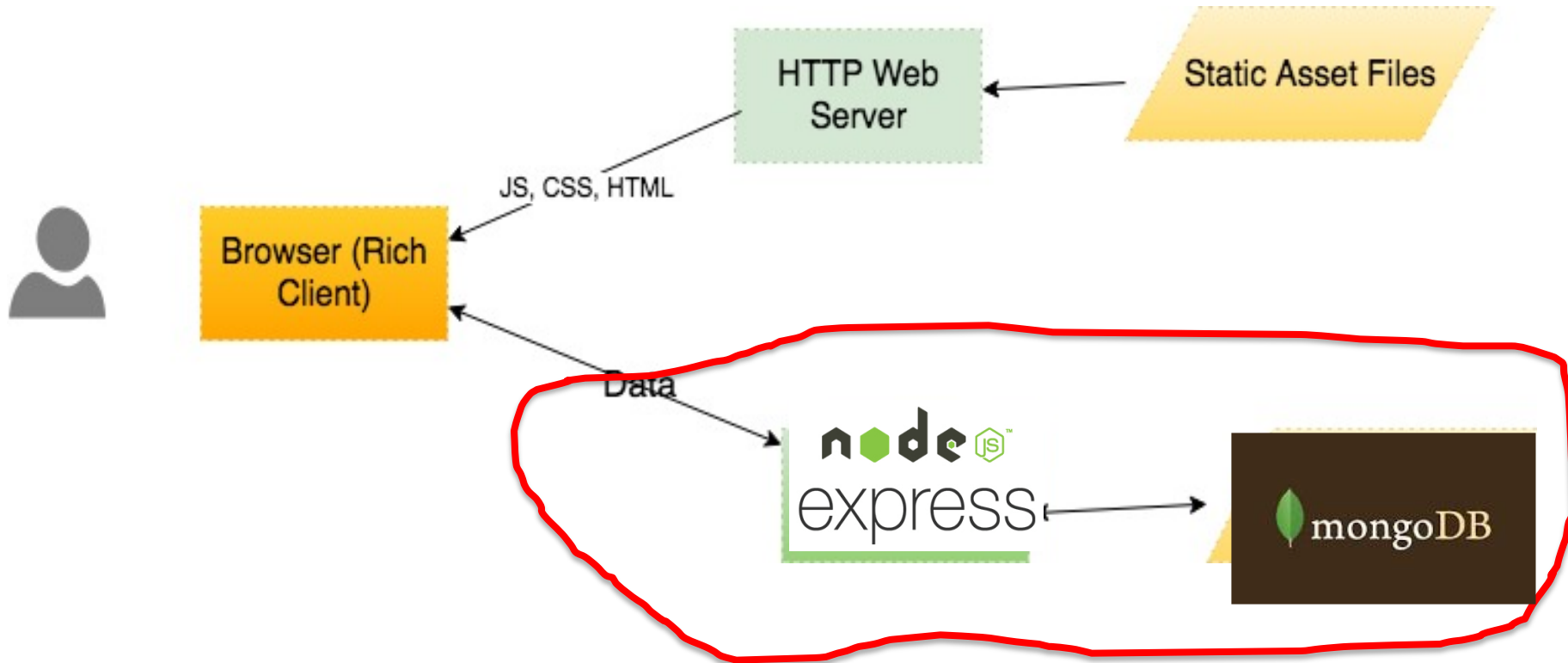
- Context. ☒
- This module's focus

Modern Web Apps

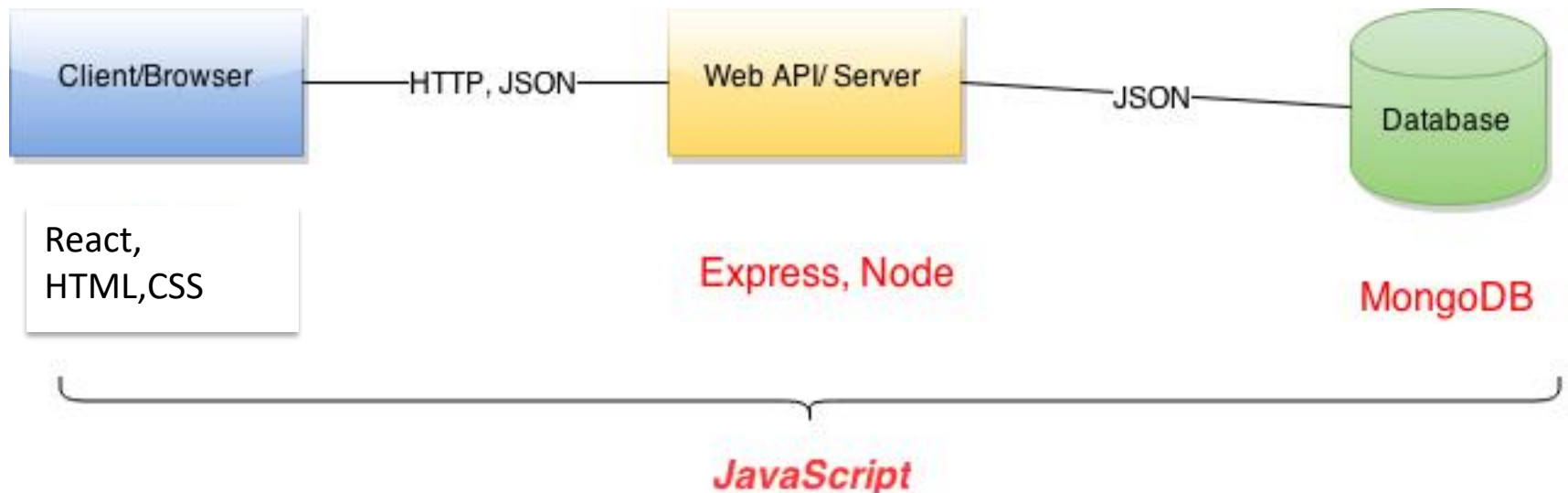


A JavaScript library for building user interfaces

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)

The screenshot shows the Node.js website with a red annotation box containing the text "You must pick this version or slightly lower". A red arrow points from this box to the "12.18.4 LTS" download button. The website header includes the Node.js logo and navigation links: HOME, ABOUT, DOWNLOADS, DOCS, GET INVOLVED, SECURITY, CERTIFICATION, and NEWS. Below the header, it states "Node.js® is a JavaScript runtime built on Chrome's V8 JavaScript engine." There is a "#BlackLivesMatter" banner and a green notification bar that says "New security releases are available". Under the heading "Download for macOS (x64)", there are two green buttons: "12.18.4 LTS Recommended For Most Users" and "14.12.0 Current Latest Features". Below these buttons are links for "Other Downloads", "Changelog", and "API Docs". At the bottom, there is a link to the "Long Term Support (LTS) schedule". The footer includes the OpenJS Foundation logo and copyright information: "© OpenJS Foundation. All Rights Reserved. Portions of this site originally © Joyent."

nodejs.org/en/

node

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Node.js® is a JavaScript runtime built on Chrome's V8 JavaScript engine.

#BlackLivesMatter

New security releases are available

Download for macOS (x64)

12.18.4 LTS
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14.12.0 Current
Latest Features

Other Downloads | Changelog | API Docs Other Downloads | Changelog | API Docs

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

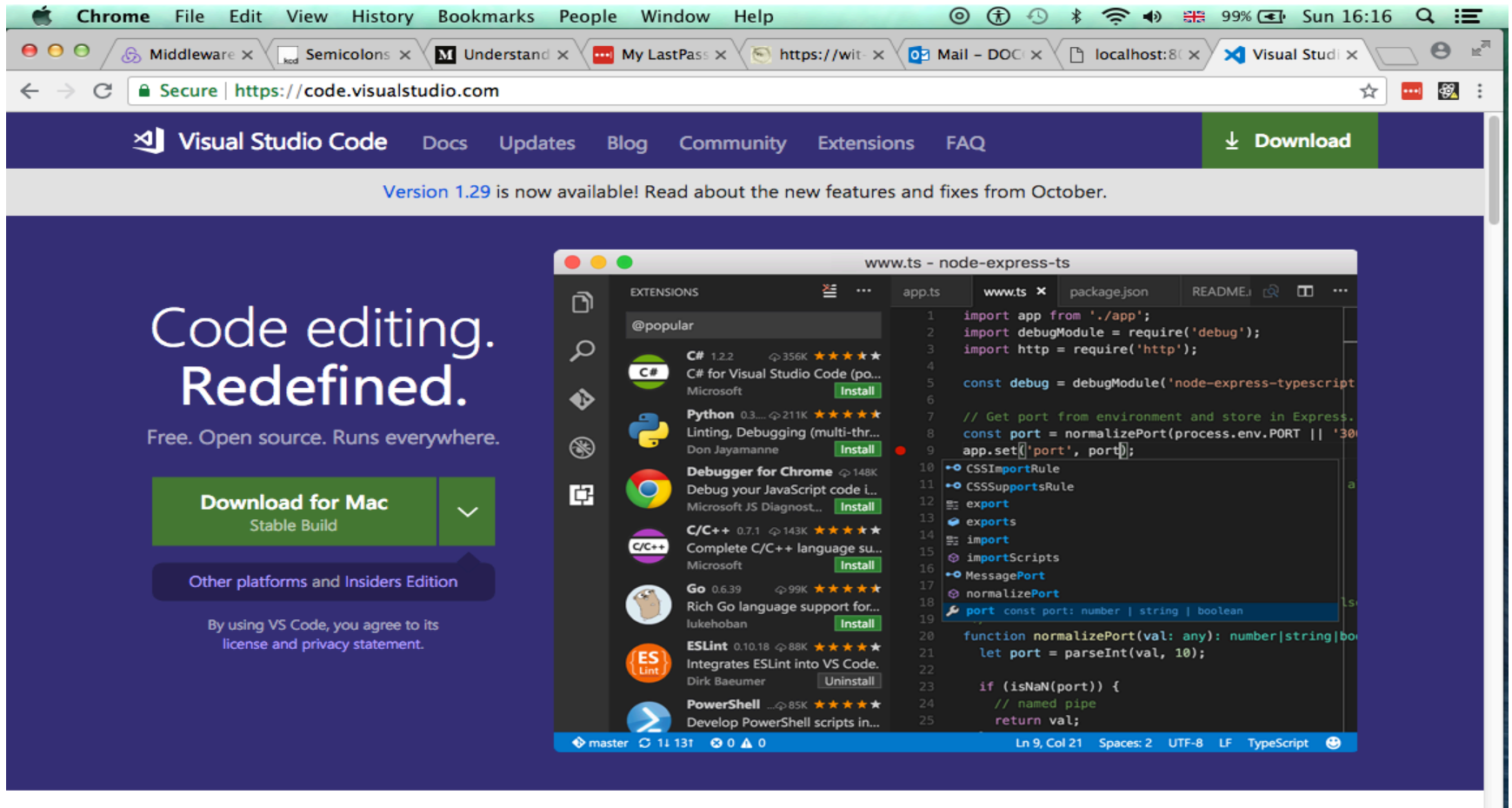
OpenJS Foundation

Report Node.js issue | Report website issue | Get Help

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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 text box highlights the URL <https://www.atlassian.com/git/tutorials/install-git>. At the bottom, a cookie consent banner is visible with the text: "This site uses cookies to improve your browsing experience, perform analytics and research, and conduct advertising. To change your preferences, see our Cookies & Tracking Notice. Otherwise, closing the banner or clicking Accept all Cookies indicates you agree to the use of cookies on your device. Cookies & Tracking Notice". The banner includes an "Accept all Cookies" button and a close button.

Chrome File Edit View History Bookmarks People Window Help 96% Sat 08:41

Redux WakaTime · Open source p VS Code Can Do That?! VS Install Git | Atlassian Git Tu

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
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- What is a push
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- 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

Install Git

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

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

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>

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 submissions.**
 - **80% - projects:**
 - **React SPA (40%)**
 - **(Integrated) Web API (40%)**

