MSc. Computer Science (ESS)
Module: Enterprise Web Development

Overview

Website: https://tutors.dev/topic/enterpwebdev-2026-setu-deise/topic00

Diarmuid O Connor (doconnor@wit.ie)
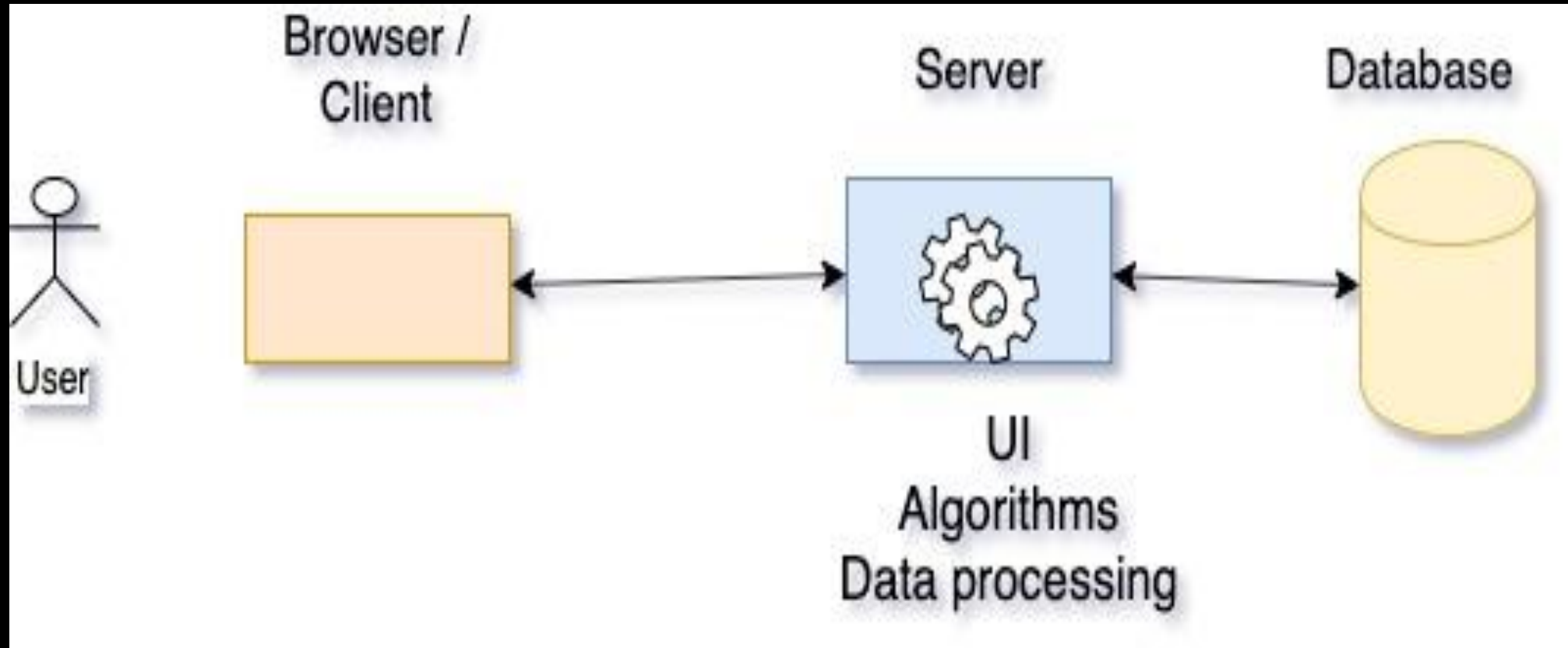
Dr. Frank Walsh (fwwalsh@wit.ie)

Objective

TL;DR

Design and implement client-side rendering web apps and deploy them on a serverless platform using automated provisioning of the required cloud resources.
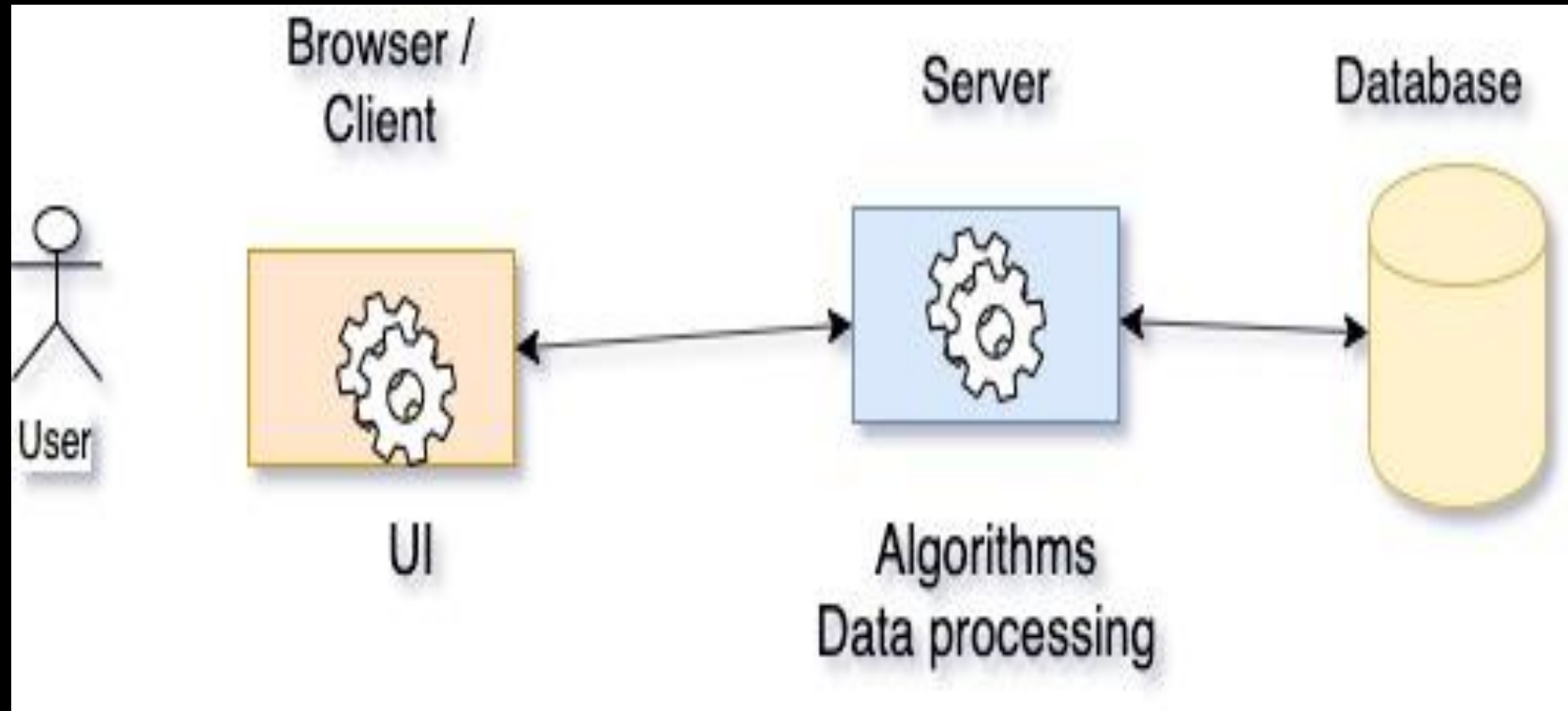
Agenda

- Context.

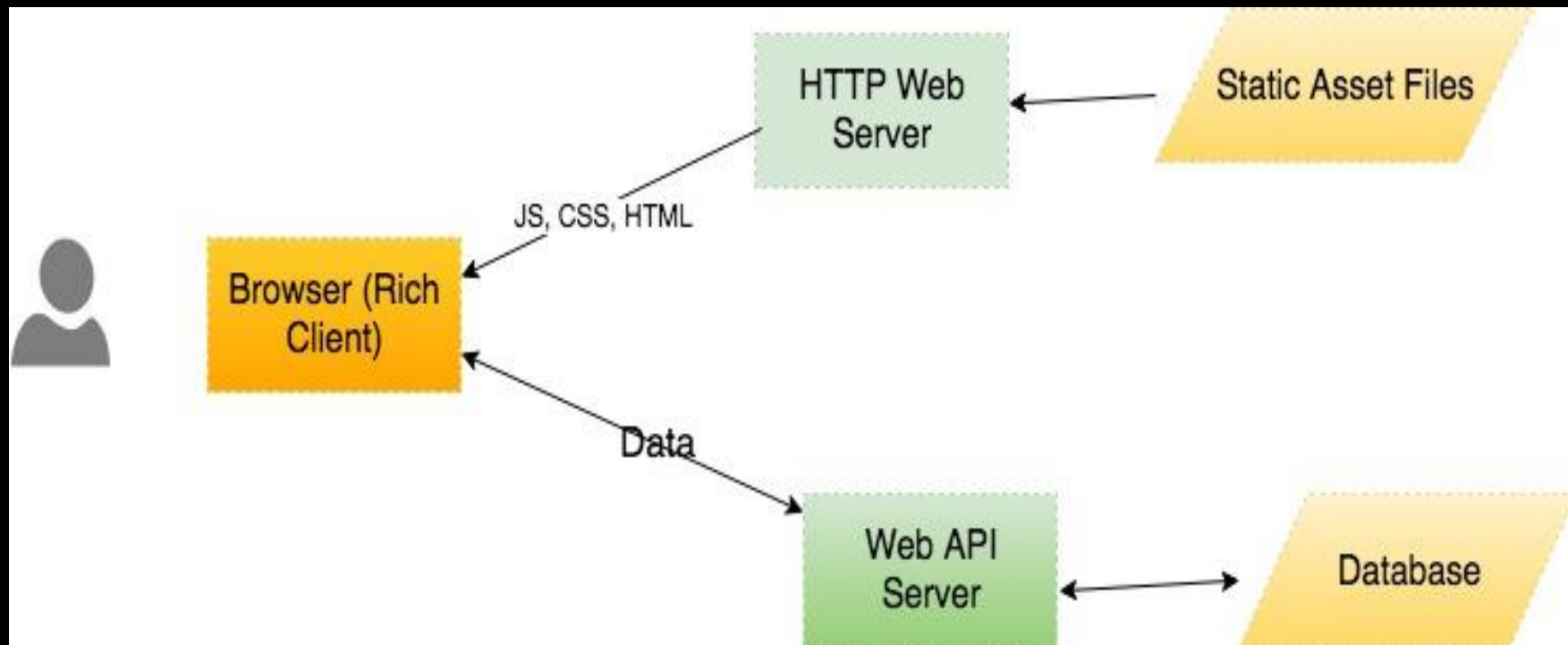- This module's focus.

- Software installation requirements.

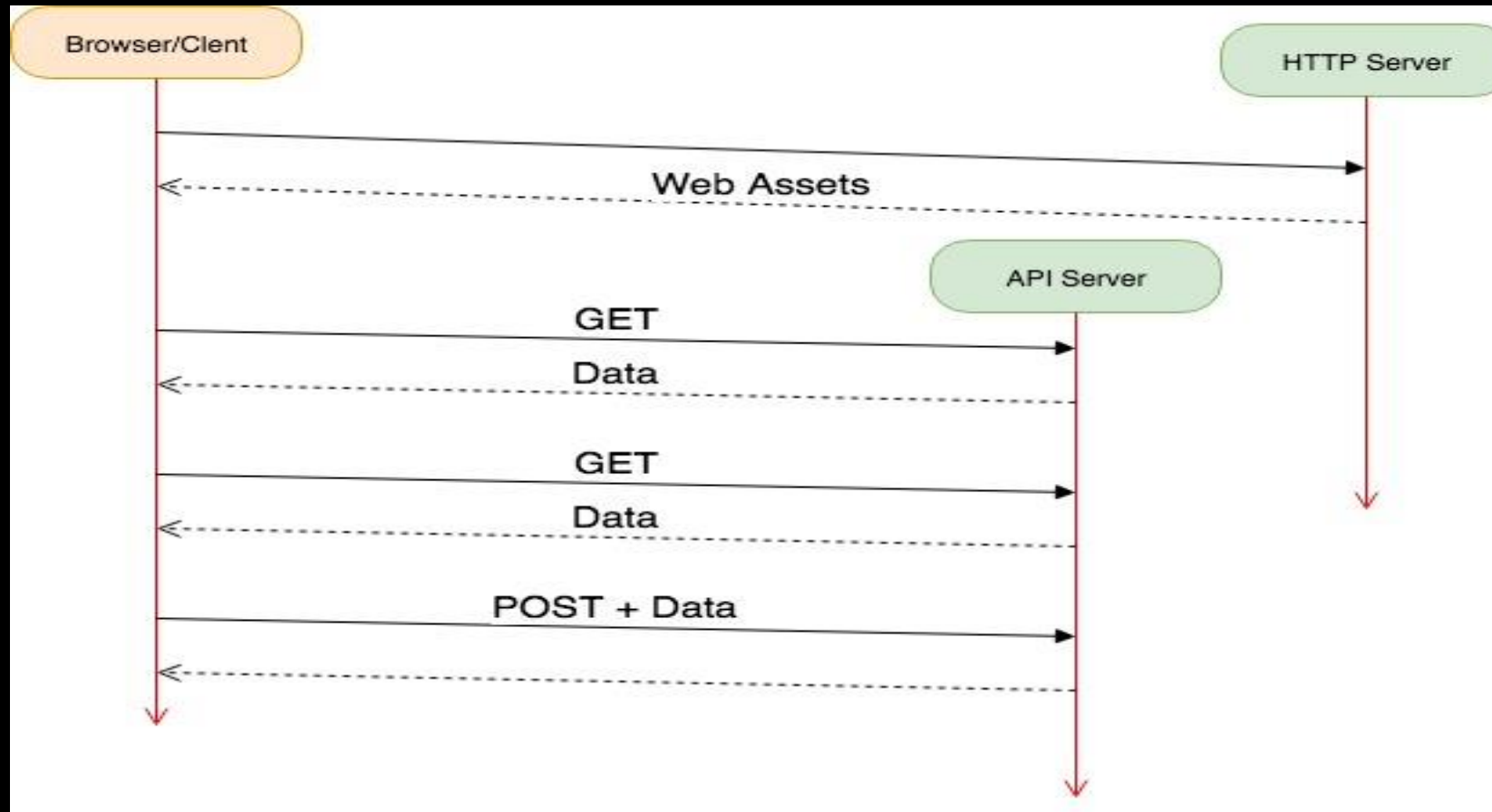# Web Apps Architecture –
Server-Side Rendering (SSR)

Web Apps Architecture – Client-Side Rendering (CSR)

Client-Side Rendering – Deployment (Traditional)

CSR Web Apps – HTTP Communications flow

CSR Web Apps – Evolution.

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

Agenda

- Context.

- This module's focus.

- Software installation requirements.

Our Technology stack - Client.

A JavaScript library for building user interfaces
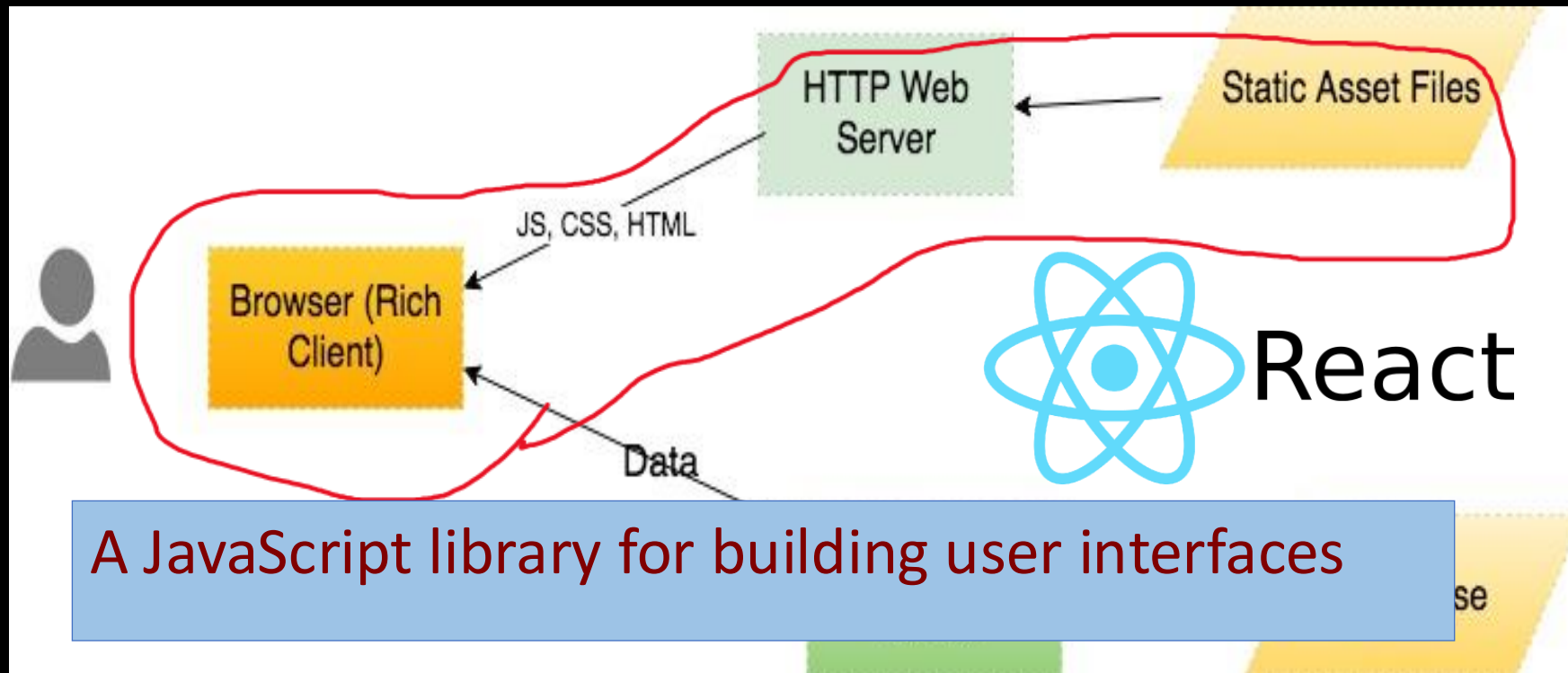
Our Technology stack - Server.
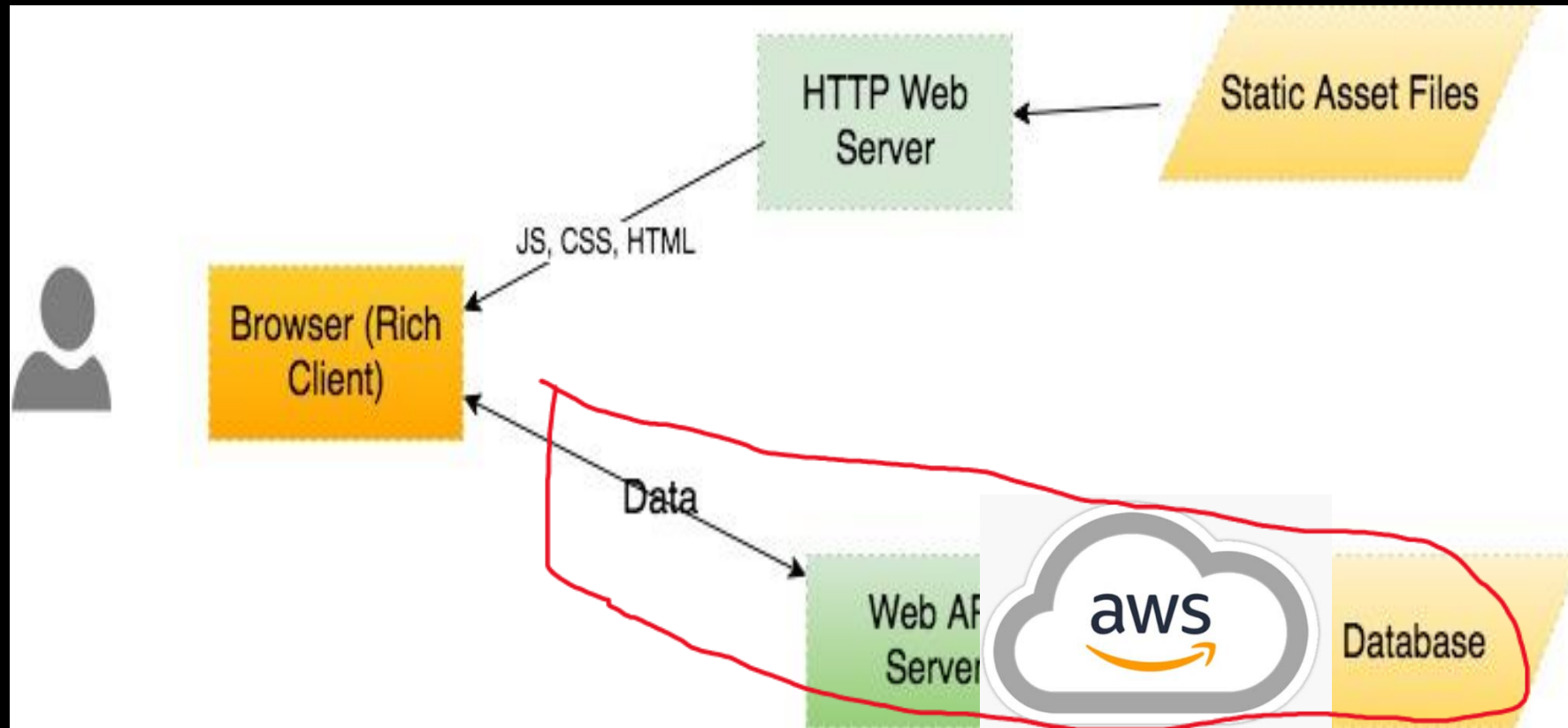
Outline schedule
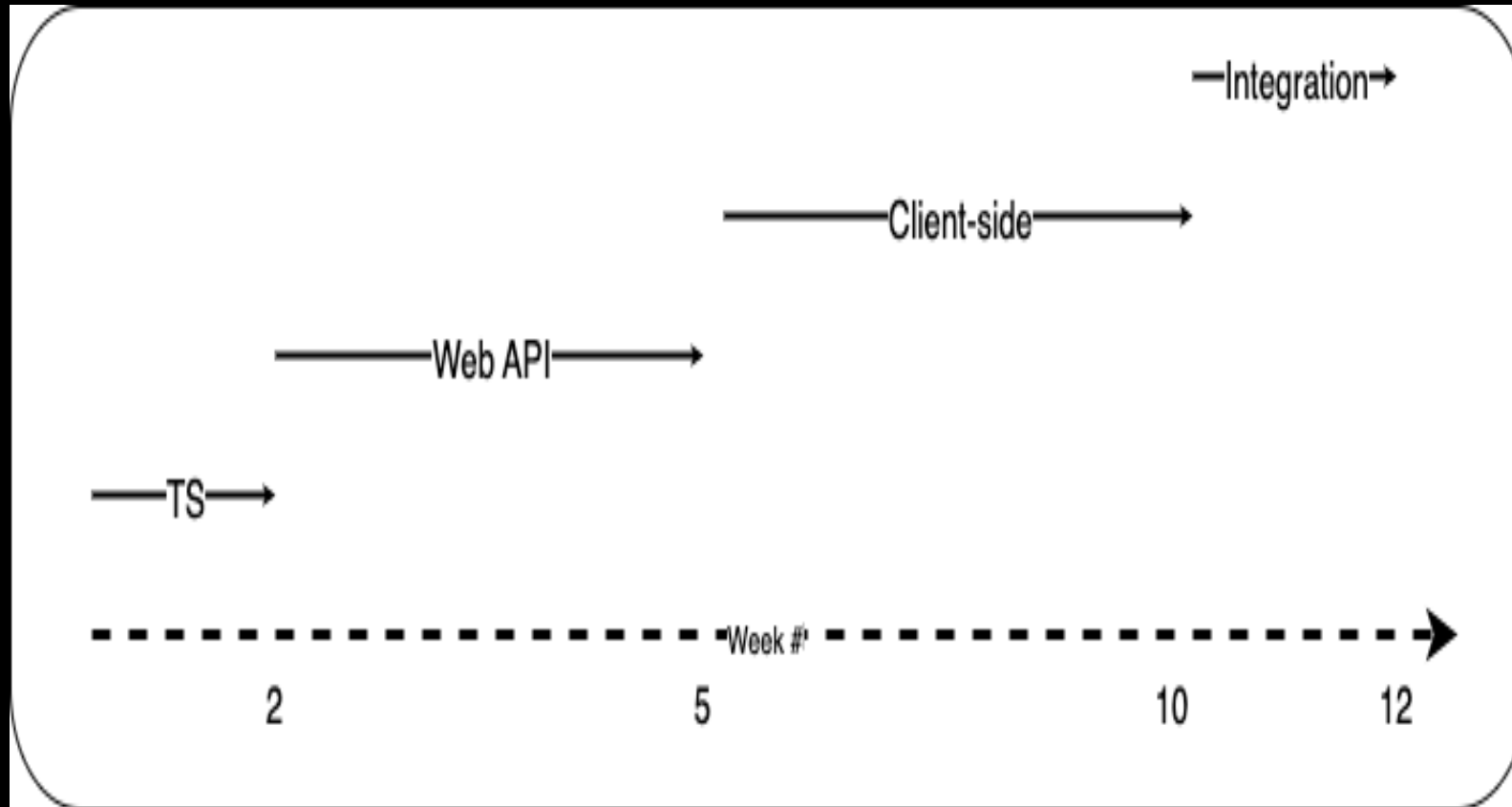
Agenda
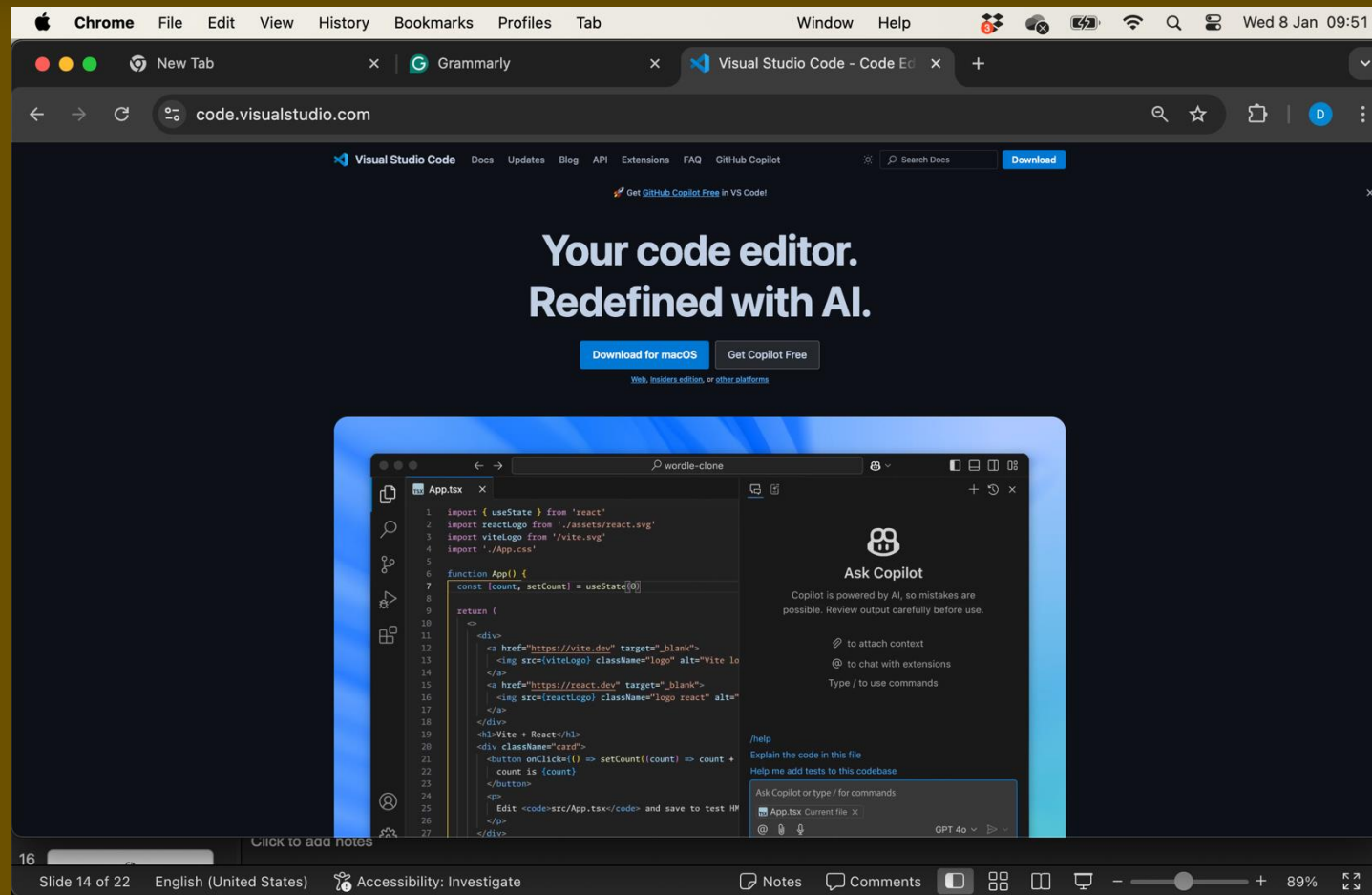
- Context.

- This module's focus.

- Software installation requirements.

Text Editor – VS Code
(Not a heavyweight IDE, thankfully)

Node.js
(A JavaScript runtime platform)

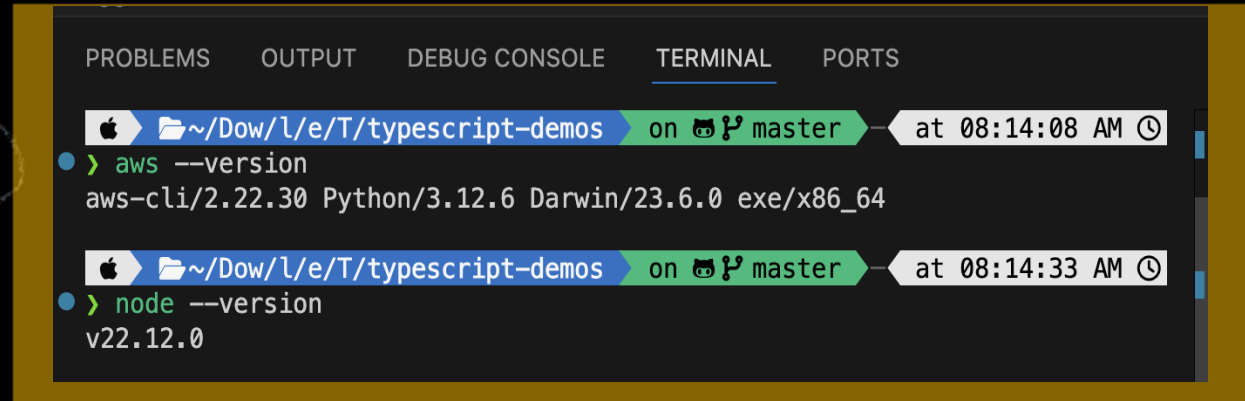# Source Control - Git

Terminal/Shell
(Use VS Code's integrated terminal)
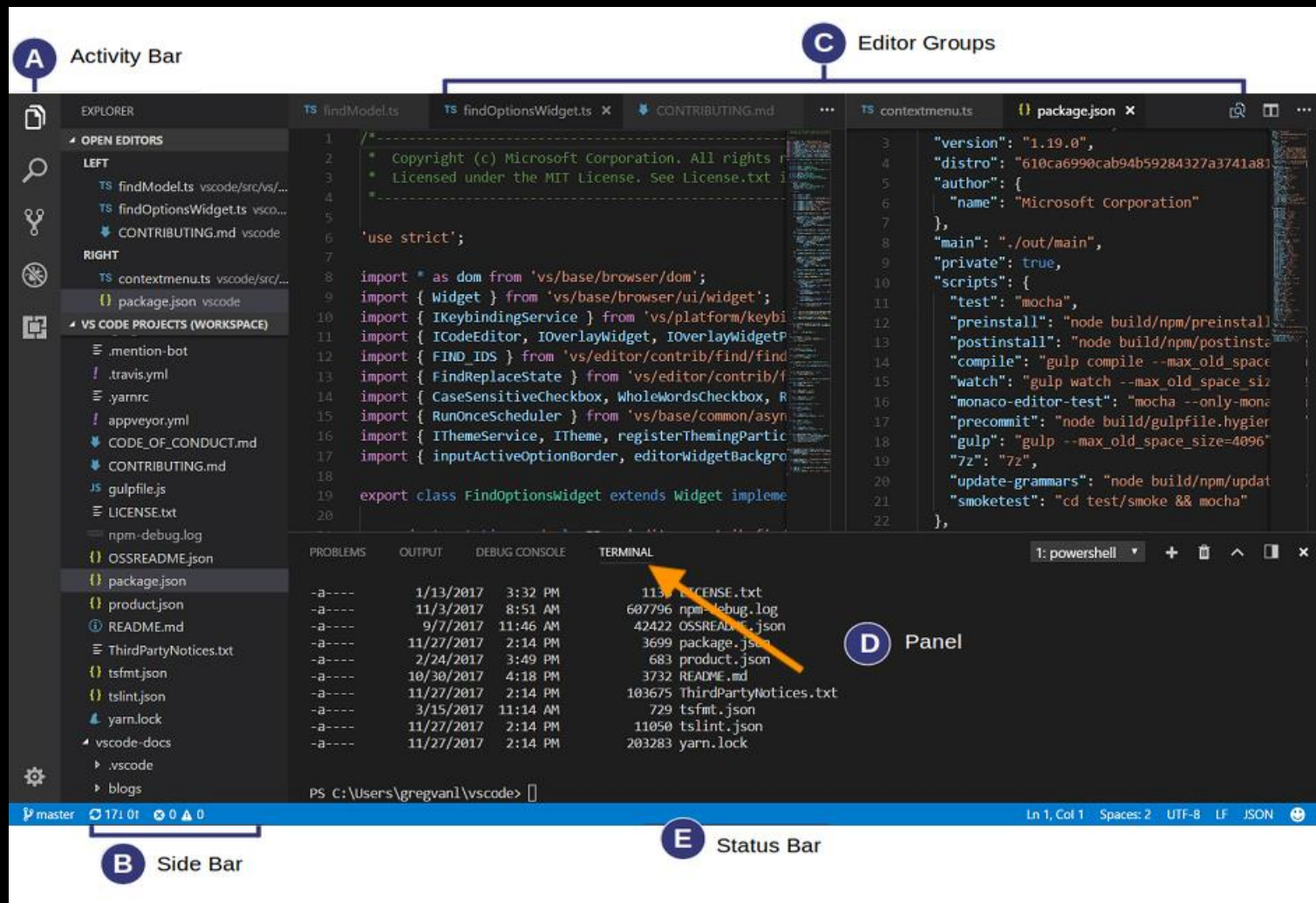
Prerequisites.

- An AWS account.
  - (Paid tier)

- The AWS CLI installed

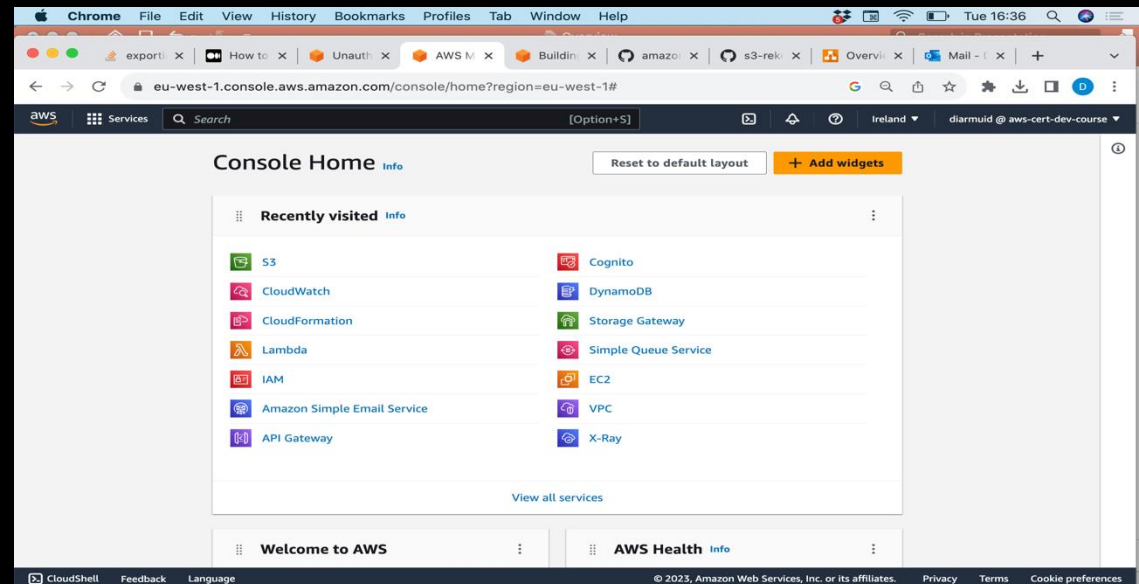- Familiarity with AWS Management Console

(Serverless) Full-Stack Web Development
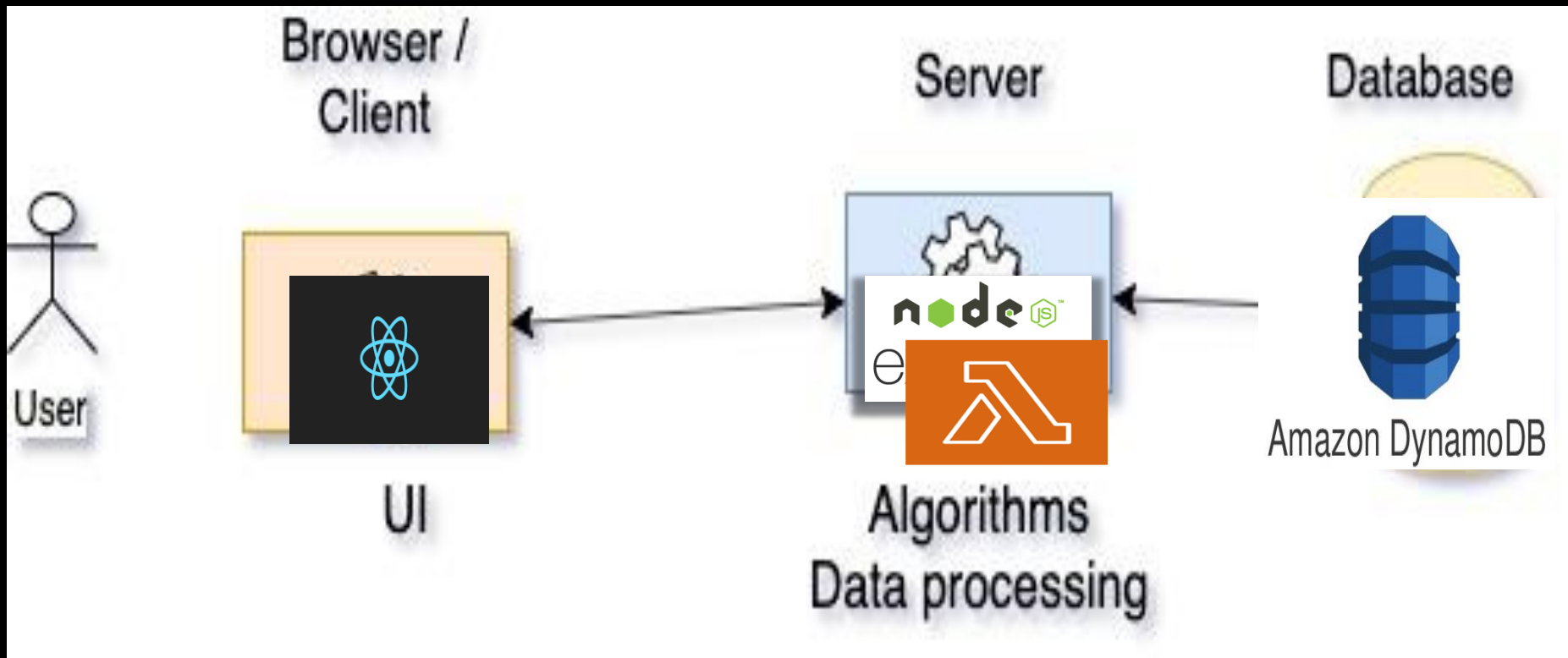
Summary

- Two models of web apps:
  - Server Side Rendering (SSR)
  - Client Side Rendering (CSR)

- CSR model evolution:
  - Unmaintainable JS codebase to SPA framework-based.
  - No addressability to full addressable.

- Server-side evolution:
  - From SSR web applications to Web APIs.

- NoSQL databases.