



01 Introduction to Full Stack development

Prepared by Surajai Chamroensat

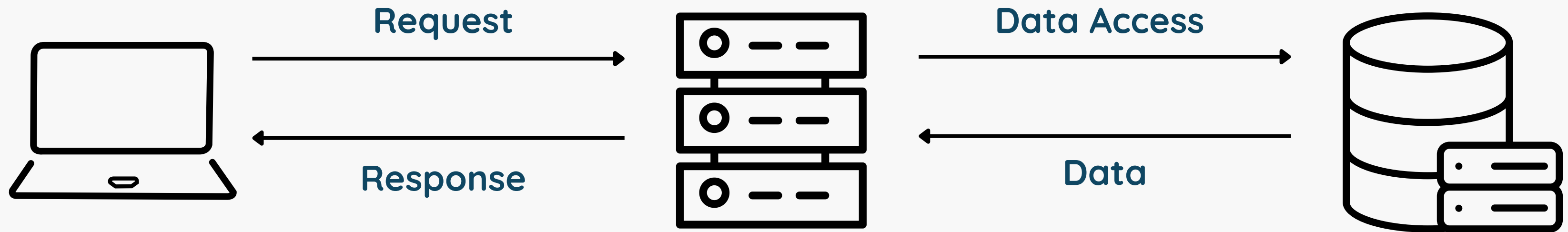


Agenda

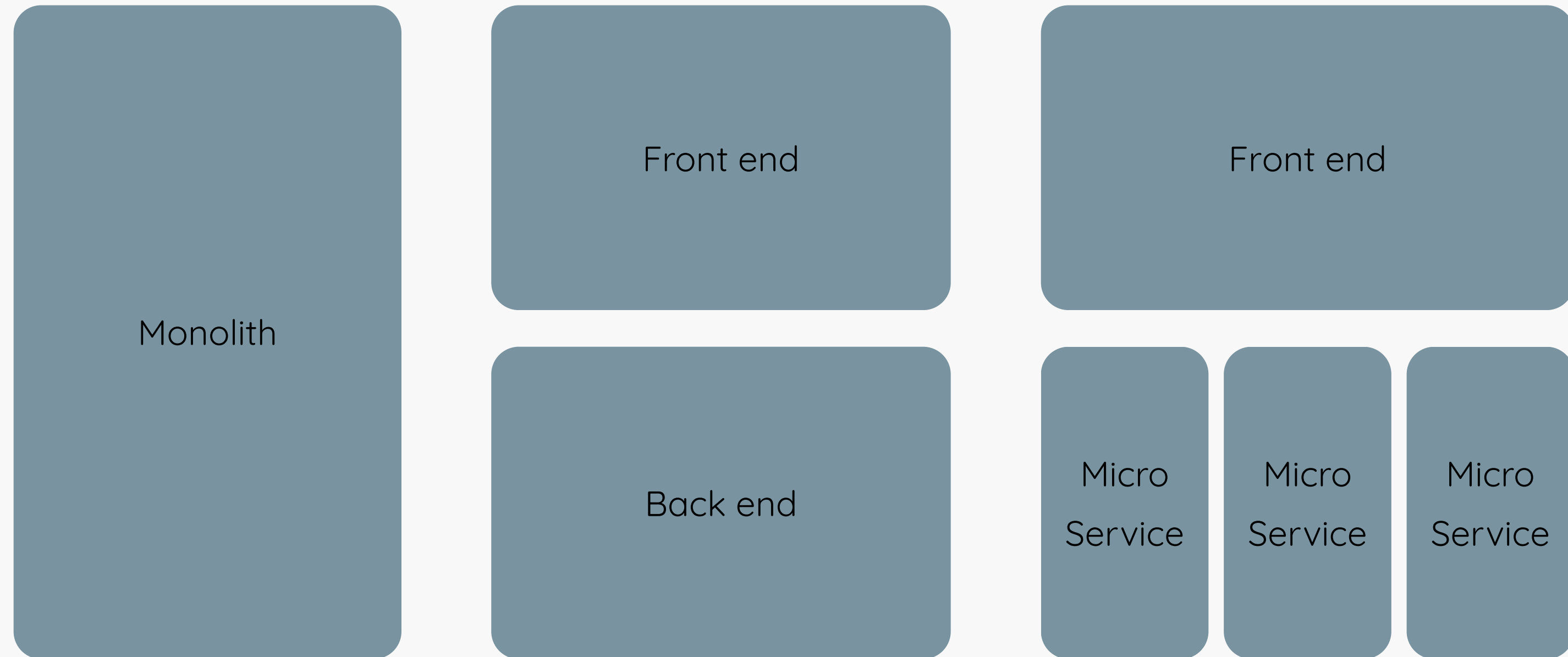


- What is Fullstack development?
- Benefit of fullstack development
- How does web work?
- Front end - Back end
- Front end technology example
- Back end technology example
- Tools introduction for this course
 - Version control
 - Git
 - Visual Studio Code
 - Node JS
 - PostgreSQL
 - Angular
 - Express JS
- Course syllabus

How does web work?



What is Fullstack development?



What is Fullstack development?

Full stack development is the process of developing both the frontend and backend of applications. Any application has a frontend (user-facing) component and a backend (database and logic) component. The frontend contains the user interface and code related to user interactions with the application. The backend contains all the code required for the application to run, including integrations with data systems, communicating with other applications, and processing data.

● ● ● ● ● <https://aws.amazon.com/what-is/full-stack-development/>

Benefit of fullstack development



Efficient resource utilization

reduces the number of specialized roles that an organization needs to fill

Enhanced problem-solving

Their comprehensive understanding of the system architecture and multiple coding languages enables them to identify bottlenecks, conflicts, or inefficiencies that specialized developers might miss



Flexibility and speed

Full-stack developers have the skills to create minimum viable products (MVPs) at a much faster rate

Front end - Back end

Frontend technology

Frontend technology (or client software) focuses on the client-facing side of development. You code any parts of the graphical user interface (GUI) or the features that users interact with using frontend technology.

The most common frontend languages are:

- Hypertext Markup Language (HTML)
- Cascading Style Sheets (CSS)
- JavaScript

HTML allows you to structure web pages and the content on them. You use CSS to style the content, creating more comprehensive layouts or structures. Finally, JavaScript lets you add interactive features to a webpage, creating dynamic content for users.

<https://aws.amazon.com/what-is/full-stack-development/>

Front end - Back end

Backend technology

Backend technology (or server software) coordinates the exchange of information between the frontend and the server running a webpage. It allows an application to communicate with the main server.

API layer

The API layer receives interactions from the frontend and then communicates these to the storage layer. This layer acts as a bridge between the frontend and the backend.

Storage layer

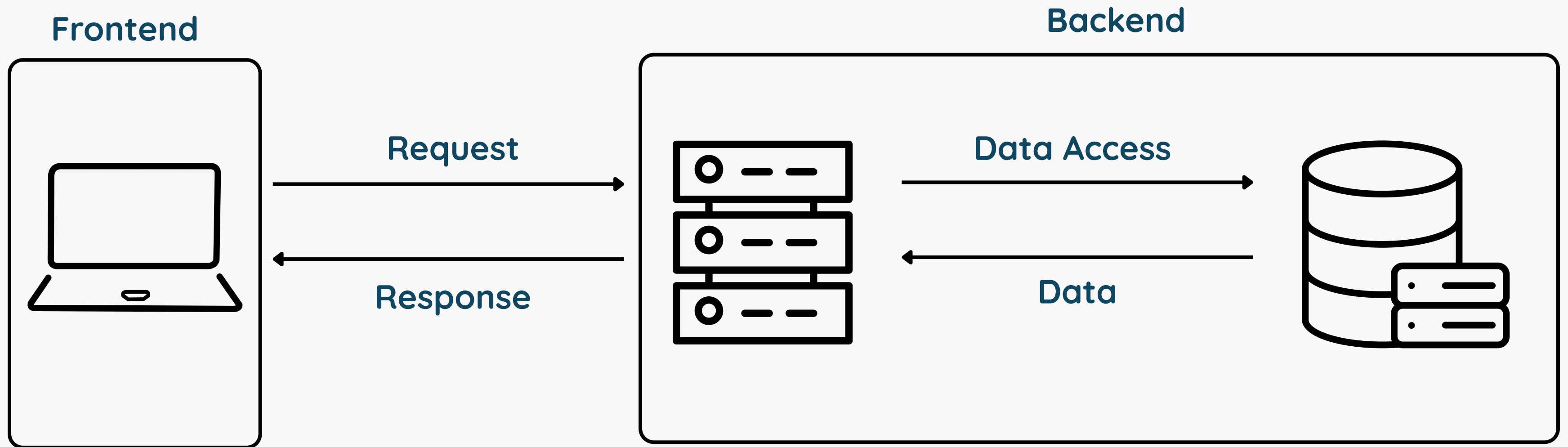
The storage layer manages and stores any application data. It will communicate with databases to write and read data, while providing access to data.

Business logic layer

The business logic layer is the main core of the backend. Backend developers configure processing logic in this layer, changing the response a certain API request delivers.

<https://aws.amazon.com/what-is/full-stack-development/>

How does web work?



Front end technology example

- **Html**
- **CSS**
- **Javascript**
- **Angular**
- **Vue**
- **React**
- **Flutter**

Back end technology example

- **Web Server**
 - **Dotnet Web API**
 - **JSP**
 - **PHP**
 - **Express JS**
- **Database**
 - **MySQL**
 - **Postgres**
 - **MongoDB**
 - **Firebase**
 - **SQL Server**
 - **Oracle**

Tools introduction for this course

- **Git**

- <https://desktop.github.com/download>

- **Visual Studio Code (IDE)**

- <https://code.visualstudio.com/download>

- **Node JS (Web Server)**

- <https://nodejs.org/en/download>

- **PostgreSQL (Database)**

- <https://www.postgresql.org/download/windows>

- **Docker Desktop**

- <https://www.docker.com/products/docker-desktop/>

- **Angular (Front end framework)**

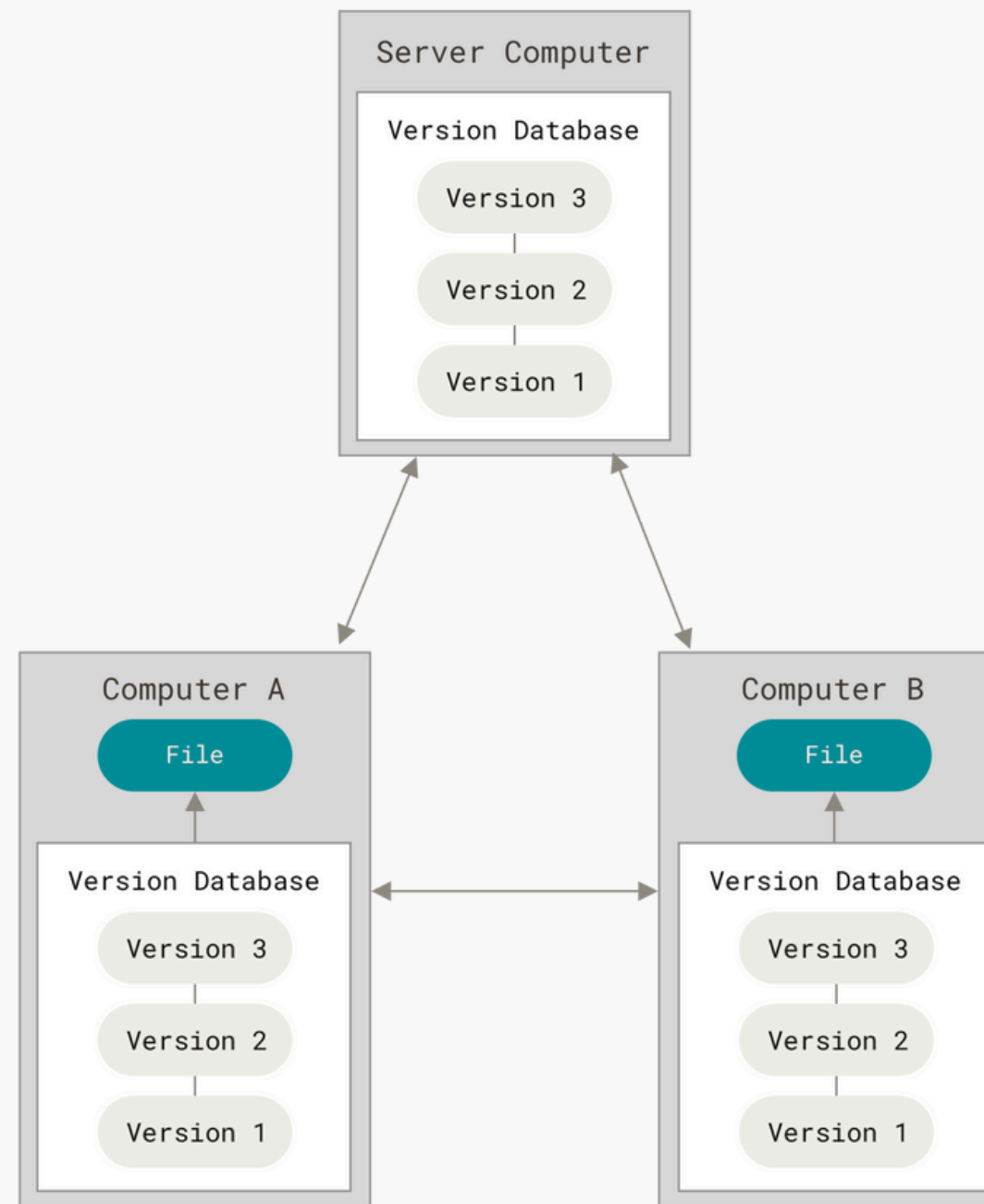
- `npm install -g @angular/cli`

- **Express JS (Web Server)**

- `npm install express --save`

Version control

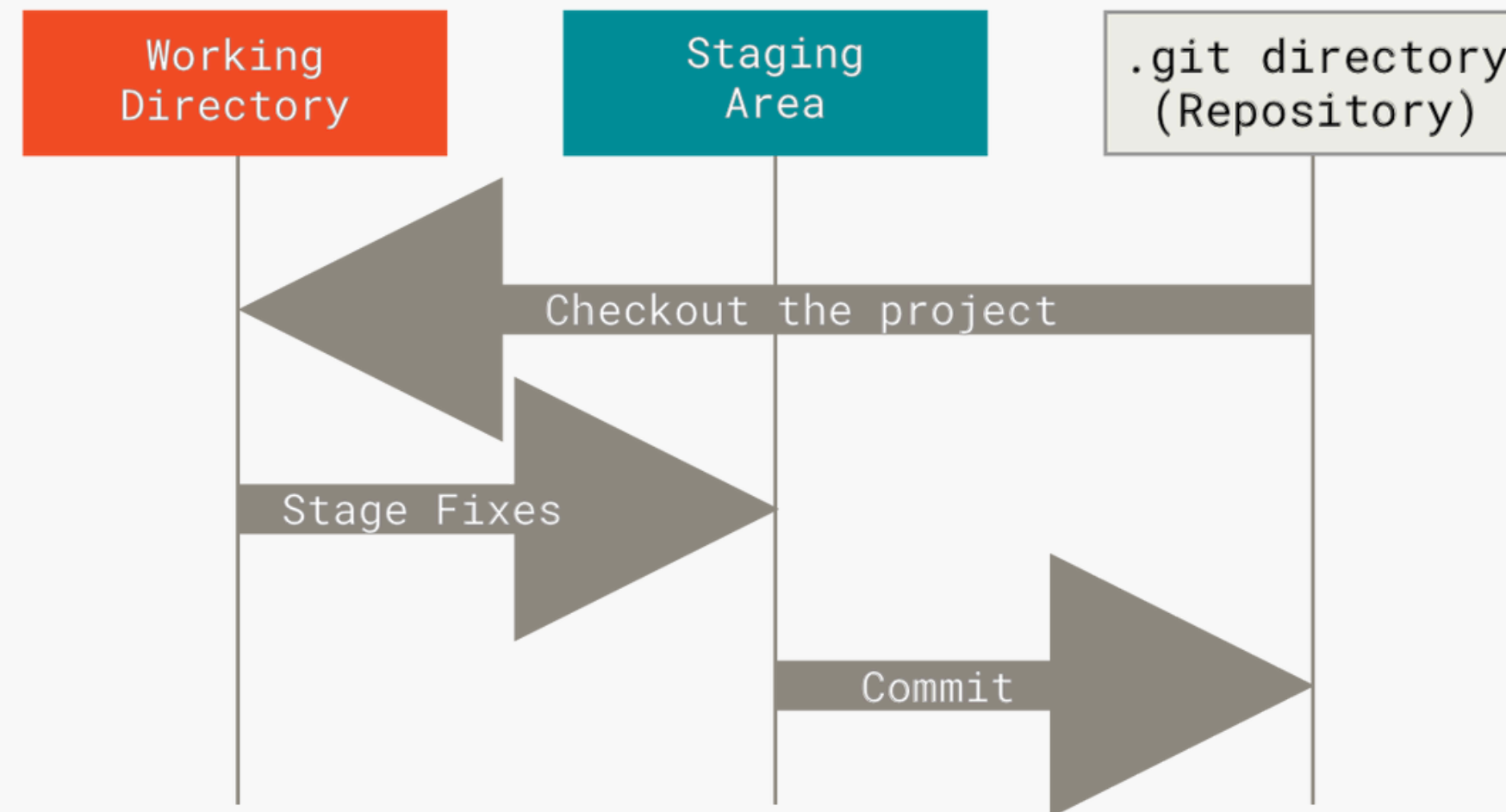
- Why version control?



<https://git-scm.com/book/ms/v2/Getting-Started-About-Version-Control>

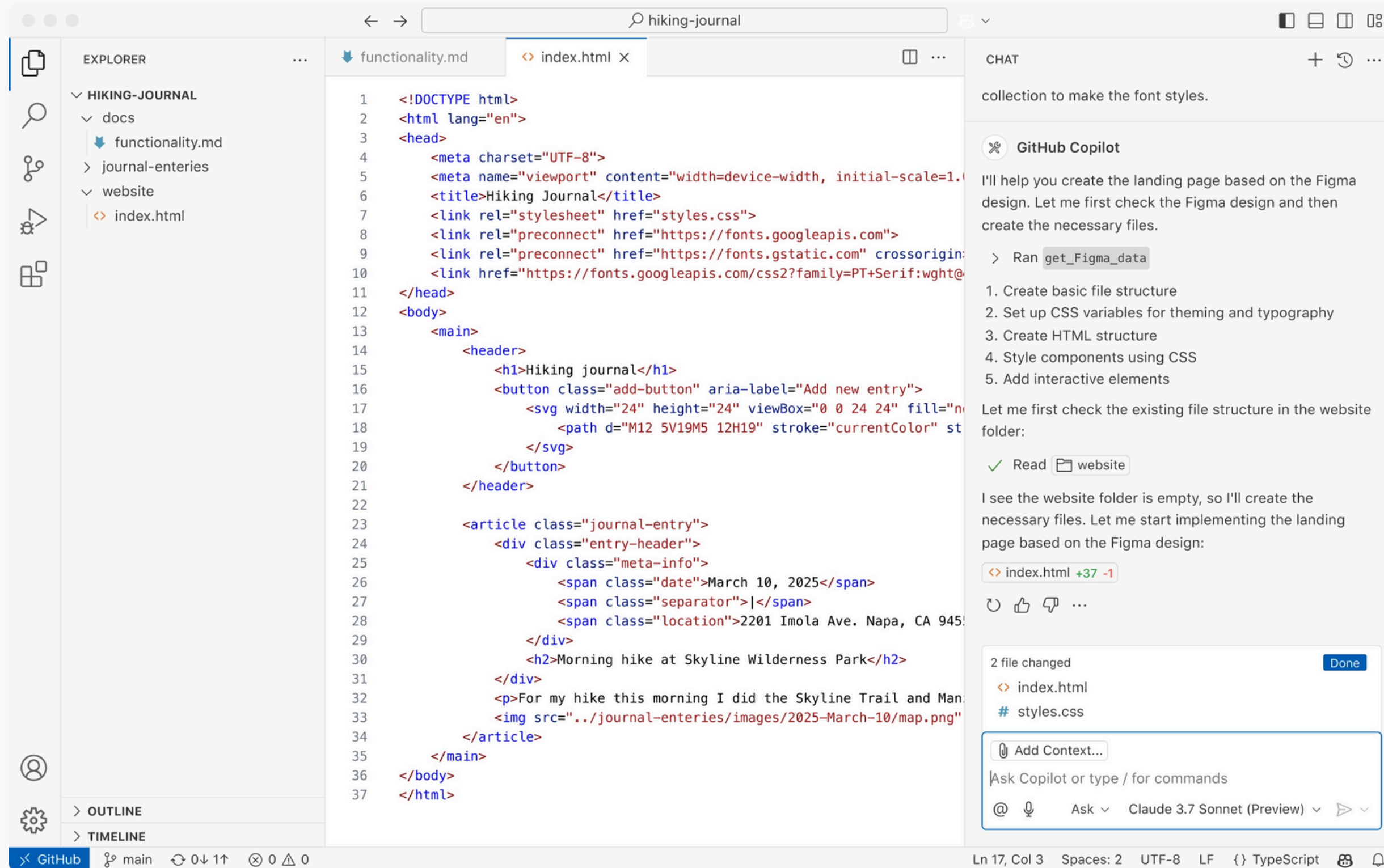
Git

- What is Git?



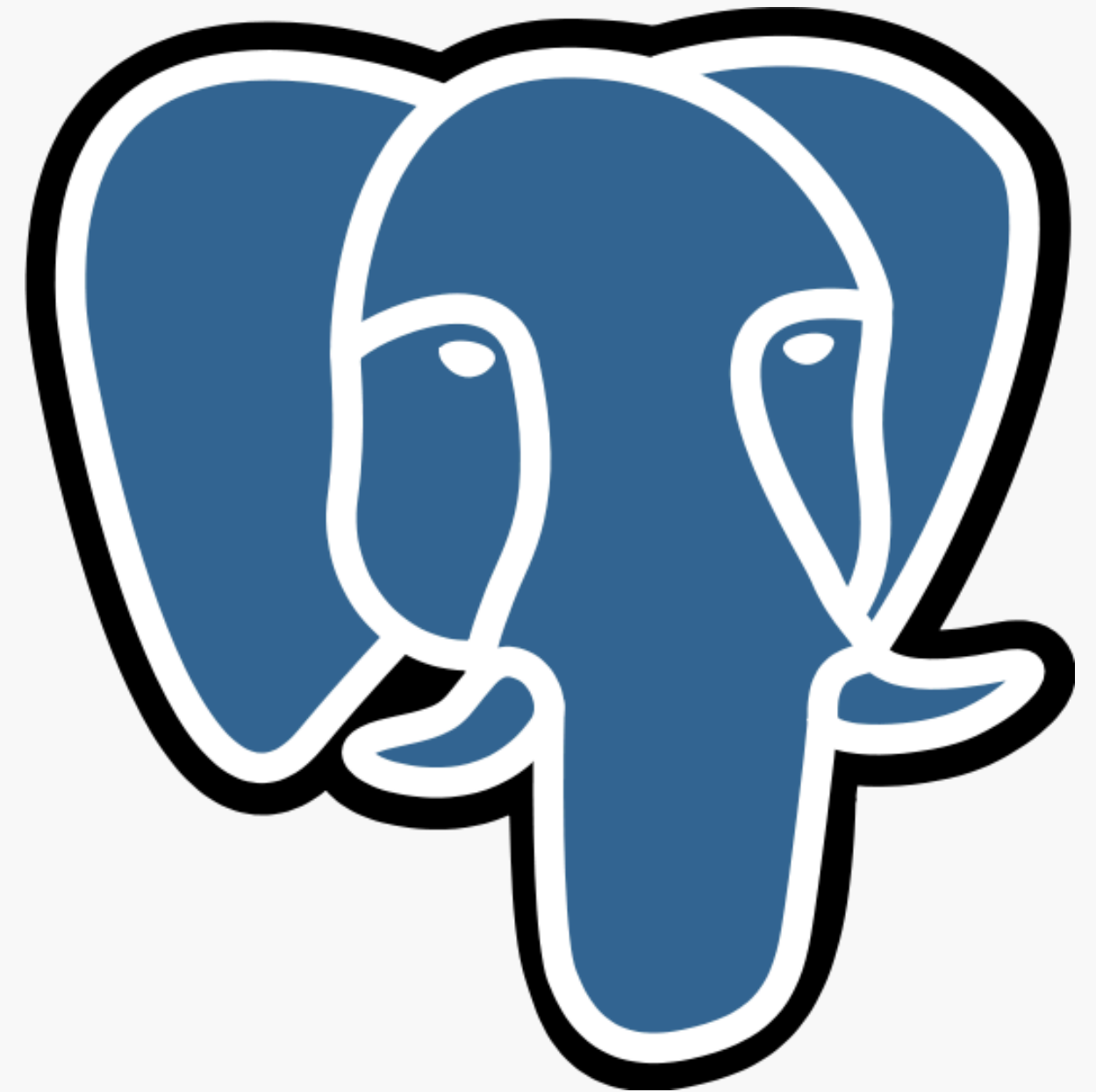
<https://git-scm.com/book/en/v2/Getting-Started-What-is-Git%3F>

Visual Studio Code



PostgreSQL

PostgreSQL is a powerful, open source object-relational database system that uses and extends the SQL language combined with many features that safely store and scale the most complicated data workloads. The origins of PostgreSQL date back to 1986 as part of the POSTGRES project at the University of California at Berkeley and has more than 35 years of active development on the core platform.



Node JS

Node.js® is a free, open-source, cross-platform JavaScript runtime environment that lets developers create servers, web apps, command line tools and scripts.



Node Package Manager (NPM)

npm is the world's largest software registry. Open source developers from every continent use npm to share and borrow packages, and many organizations use npm to manage private development as well.



Angular

Angular is a web framework that empowers developers to build fast, reliable applications.

Maintained by a dedicated team at Google, Angular provides a broad suite of tools, APIs, and libraries to simplify and streamline your development workflow. Angular gives you a solid platform on which to build fast, reliable applications that scale with both the size of your team and the size of your codebase.



Express JS

Fast, unopinionated, minimalist web framework for Node.js

The logo for Express.js, featuring the word "express" in a lowercase, thin, sans-serif font. The text is centered within a white rectangular box that has a subtle drop shadow against the light gray background.

express

Course Syllabus

- Introduction
- Basic Front End
- Responsive Design
- Angular Fundamental
- Angular Routing / Service / Form
- Version Control
- API / NodeJS / Express
- DB & PostgreSQL
- Authentication / Authorization / OAuth /JWT
- API Integration
- Logging / Monitoring
- Docker Fundamental
- Web Sercurity / OWASP