1. Fundamental of React

# 1.1 Hello React

-SPA (Single-page application) made it easier to build web app that advanced beyond vanilla JS and JQueryy. React was released by Facebook in 2013.

-In the past, websites were rendered from server: user visits URL in browser and requests one HTML file and associated files. After network delay, users see the rendered HTML in browser (client).

-Modern JS shifted the focus from server to client. A user visits URL and request one small HTML file and one larger JS file. After network delay, user see the by JS rendered HTML in browser. Additional page transition wouldn’t request more files from web server, but would use initially requested JS to render new page. Every additional interaction by user is handled on client. In this modern version, the server delivers mainly JavaScript across the wire with one minimal HTML file. HTML file then executes all linked JS from files on client-side to render entire app.

-SPA is one bulk of JS, which is organized in folders and files, to create app whereas SPA framework (React) gives all tools to architect it. React takes over for rendering everything in browser as HTML and for dealing with user interactions with JS.

-How we moved from websites to web app: https://www.robinwieruch.de/web-applications/

# 1.2 Requirements

-Editor and Terminal: Visual Studio Code

-VCS: Github

<https://www.robinwieruch.de/git-essential-commands/>

-Node and NPM

+Both are used to manage libraries (node packages) you will need. These node packages can be libraries or whole frameworks. We install external node packages via npm

+node –version and npm –version.

<https://www.robinwieruch.de/npm-crash-course/>

-Yarn and pnpm: <https://yarnpkg.com/> https://pnpm.io/

# 1.3 Setting up a React Project

-We use Vite to set up React application: vite.dev

+Vite is a modern build tool for status quo web frameworks which comes with sensible defaults while staying highly extensible for specific use cases (SVG support, Lint support, TypeScript)

+The essential core of Vite is development server ( start React app on local machine) and a bundler (outputs optimized files for production ready deployment)

-There are 2 ways to create project with Vite: online template (vite.dev/guide/#trying-vite-online) and creating a React project with Viton on local machine for working on it in IDE/editor.

-Crash course for navigating on command line:

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-Create React project hacker-stories



-Install all 3rd party dependencies of project and run it locally:

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# 1.4 Project Structure

-code .: see project structure

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-src/App.jsx used to implement React components. Later you want to split up React components into multiple files, each file maintains one or more components on its own.

-src/main.jsx is entry point to React world.

-src/index.css and src/App.css style overall app and components.

# 1.5 npm Scripts

# 1.6 Meet the React Project

# 1.7 React JSX

# 1.8 Linting with ESlint (Optional)

# 1.9. Lists in React

# 1.10 Meet another React Component

# 1.11 React Component Instantiation

# 1.12 Handler Function in JSX

# 1.13 React Props

# 1.14 React Stage

# 1.15 Callback Handlers in JSX

# 1.16 Lifting State in React

# 1.17 React Controlled Components

# 1.18 Props Handling (Advanced)

# 1.19 React Side-Effects

# 1.20 React Custom Hooks (Advanced)

# 1.21 React Fragments

# 1.22 Reusable React Component

# 1.23 React Component Composition

# 1.24 Imperative React

# 1.25 Inline Handler in JSX

# 1.26 React Asynchronous Data

# 1.27 React Conditional Rendering

# 1.28 React Advanced State

# 1.29 React Impossible States

# 1.30 Data Fetching with React

# 1.31 Data Re-Fetching in React

# 1.32 Memoized Functions in React (Advanced)

# 1.33 Explicit Data Fetching with React

# 1.34 Third-Party Libraries in React

# 1.35 Async/Await in React

# 1.36 Form in React