React logo from: https://facebook.github.io/react/

Objectives

- **To understand what ReactJS is**
- **To understand how ReactJS works with the DOM**

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QAREACTJS

ReactJS – another JS Framework?

- **WRONG!**
- **ReactJS is not a framework it's a UI Library**
  - Developed at Facebook
  - Purpose is to facilitate the creation of interactive, stateful and reusable UI components

- **Facebook have used React for Instagram and in Facebook itself!**
  - Instagram's UI is completely made with React
  - Facebook's commenting UI is React-based

- **Often used as the "V" part of MVC**
  - Even in Angular and other similar application stacks

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What does React do?

- **Performs work on client side**
- **Can be rendered on server side**
  - Both client and server side can work together

- **Uses a concept called Virtual DOM**
- **It performs the least amount of DOM manipulation possible for a fast, fluid interface yet still up to date**

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Virtual DOMs

- **A copy of the actual DOM that React uses to decide what needs to updated**
  - If a component is changed as a result of code being executed, the page has to update
  - Rather than update the whole page, React does two things:
    - First, it runs a **diffing** algorithm, which finds out what properties have changed in that object in the Virtual DOM
    - Second, **reconciliation** happens, where it updates the parts of the DOM identified by the **diffing** algorithm

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Virtual DOMs

- **This is really good for multiple reasons.**
  1. *Memory*: since it's only changing what it needs to change, there's less overhead overall.
  2. *Fluidity*: the entire object (or page!) doesn't need to refresh whenever anything changes, only what needs to change.

- **Server-side DOMs can be rendered to enable server-side React views**
  - Even less overheads!

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Because of this server side rendering, React is much more SEO friendly than most JS MVC Frameworks as the bots can simply access your server side rendering instead of having to emulate rendering for the search engine bots

QAREACTJS

"V" for View

- **As already stated, often the "V" part of MVC pattern**

- **React makes no assumptions about the rest of the technology stack**

- **Simply takes data and renders it to the UI**

- **Can be used with JS MVC Frameworks**
  - Plugs in to framework component technology (e.g Directives in Angular)

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Exercise Time

- **No exercise for this chapter**

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