React

Course - 40 hours

- **Overview**

  The web started to become popular in the early 90's, and since then the web technologies advanced tremendously. From serving static HTML pages we are now running full complex high performance web applications using Javascript. The demand for better user experience and high speed web pages has increased and since the web pages need to run on mobile phones as well the challenge of creating professional web applications requires us to learn advanced web technologies.

  In this course we will learn how to create a professional single page application using React. We will cover advanced topics about react and how it can work well with redux state container to create an high performant app that runs on the browser.

- **On completion students will be able to:**

    - Write advanced Javascript ES6+

    - Write advanced Typescript

    - Write SPA application using React and Redux

- **Who should attend the course**

    - Software Developers with experience in web development

- **Prerequisites**

    - Basic JS ES6+ (over 1 year experience)

    - HTML

- ○ CSS

- **Installations**

  Before the first lesson, every student of the course need to install the following:

  - Node.js (version greater than 12.18.4)
  - Visual Studio Code

  After installation, every student should successfully do the following:

  1. Open CMD or terminal
  2. cd to a directory of your choice and type the following command in CMD:

     > **npx create-react-app test-project**

     > **cd test-project**

     > **npm start**

  3. After typing the following commands you can open the browser and you should see your first React app.

PLEASE COMPLETE THESE STEPS BEFORE THE FIRST LESSON

- **Syllabus**

  Module 1 - Typescript

  - About Typescript
  - Basic Types
  - Type Inference
  - Advanced Types
  - OOP

  Module 2 - About React

  - What is React
  - React Architecture

- Hello World
- React Elements
- VirtualDOM
- JSX introduction
- React Component introduction

Module 3 - JSX

- Component as class
- Component as function
- React.Fragment
- JS expression
- Events
- if
- for

Module 4 - create-react-app

- start a new project
- dev server
- building the project
- webpack
- project file structure
- Handling styles
- handling assets
- debugging

Module 5 - React Component

- render
- Props
- State
- useState
- Lifecycle hooks
- useEffect

Module 6 - Dealing with forms

- Controlled form
- Uncontrolled form
- useRef
- Formik

Module 7 - Redux

- What is Redux
- Our app as a state machine
- Redux architecture
- Actions
- Reducers
- Store
- combineReducers
- Debugging the state with redux dev tools
- Redux thunk? (What kind of middlewares are you using? Saga? Epics?)
- Connecting react components to actions and state

Module 8 - Routing

- react-router
- BrowserHistory
- Route
- Switch
- passing params
- Navigation
- Lazy loading

Module 9 - Electron

- What is Electron
- Electron architecture
- Main process
- Window
- Talking to OS and transferring data to window

Module 10 - Testing

- jest
- @testing-library/react
- Unit testing
- Cypress - E2E testing