# React.js + Redux Training

Software Requirements

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| Software | 1. Install NodeJS 6.x LTS from <https://nodejs.org/en/download/> 2. Google Chrome Version 55 or later 3. Git (install from <https://git-scm.com/)> 4. Visual Studio Code <https://code.visualstudio.com/> |

Workshop Starter git repositories: Please make sure that you clone the repositories from below link at the start of the workshop.

1. <https://github.com/nodesense/react-workshop>
2. <https://github.com/nodesense/restful-server>

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| **Pre-requites for Participants** | |
| IDE | Visual Studio Code |
| **Developer Skill** | **Good understanding of JavaScript, HTML, Web Technologies, Basic knowledge on ES6 is preferred** |
| Internet | Course need fulltime internet connectivity for Developers. Trainer shall use DataCard or Company given WIFI connectivity |
| Firewall | If you have firewall setup, you should enabled npm registry, github website or provide a proxy settings with username/password for installing software modules |
| System | Laptop/Desktop PCs with one of the operating system   1. Windows 7.0 or later 2. Mac OS 110.11 3. Ubuntu Linux Desktop 15.10 or later |
| Administrator Account | All the systems must have Administrator privileges for developers attending training. |

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| **Day 1** | |
| Topic |  |
| Introduction  15 Minutes | Course Objective  Single Page Application Introduction  ReactJS Introduction |
| React Tool chain Setup  (30 minutes) | Node.js  NPM  Babel Cli for ES6 + to ES5  Webpack  WebPack Dev Server configuration  Setup Debug Map Files  Visual Studio Code  Debugger for Chrome for Debugging with Visual Studio Code |
| ECMA 2015/ES6  (60 minutes) | Introduction to ES6, Features  Template Literals  Block Scope, Let, Constant, Variables  Rest, Spread, Deconstruct  ES6 Classes, Inheritance  Arrow Operator  ES6 modules, export, import, module level scope  ES6 Promise, resolve, catch, then |
| React Basics & Fundamentals  15 minutes | Component based Architecture  React Data Flow  Getting Started with React Application  react, react-dom, prop-types packages |
| Virtual DOM  15 minutes | Virtual DOM Introduction  Virtual vs Real DOM  Diffing Virtual & Real DOM  Patching process |
| JSX  15 minutes | JSX Introduction  Using JSX in JS Files  View Components using JSX  JSX Syntax  Using JSX to create view classes  Conditional rendering  Looping over elements, objects  Comments in JSX |
| Render UI with React  120 minutes | React Component class using ES6  ReactDOM Introduction  React Element  React Prop (Properties), Passing props to components  Parent Child communication  Child Parent communication  PropTypes  React State, Set state, forceUpdate APIs  render function  Working with Text Input, Data Flow  Functional & Stateless Component  Content/Children components handling [props.children] |
| Component Advanced  120 minutes | Component Life-Cycle Introduction  Component Creation life cycle  Component destruction life cycle  Movement of props to child components |
| Debugging React  15 minutes | Debugging react in browser  Debugging React in Visual Studio Code |
| Assignment  45 Minutes | Create 3 level components, establish parent/child communication, siblings |

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| **Day 2** | |
| Component Update Life Cycle  60 minutes | Component update life cycle  componentWilReceiveProps  Immutable Objects  shouldComponentUpdate methods  Pure Component  Performance Optimization |
| React Ref  15 minutes | Using Ref to get access to DOM element  Use Ref to access child component |
| React Router 4  120 minutes | React Router 4 Introduction  Switch, HashRouter, BrowserRouter  Path Matching  Routing with dynamic values  Accessing Route values in match params |
| Ajax with Fetch  30 minutes | Using Fetch.js or Axios for AJAX  HTTP backend REST API/Web API Communication with React  Promises, flattening the response  https://github.com/github/fetch |
| Higher Order Components  30 minutes | Understanding higher order components  Higher Order functions & Closure revisit  Passing properties to higher order components |
| Redux Overview  15 minutes | Flux Overview  Redux Introduction  Pure function/impure function |
| Redux Basic Implementation  60 minutes | Creating Reducers  Creating Store, getState, Initialize State, Susbcribe, Unsubscribe  Dispatch |
| Actions  15 minutes | Action Creator  Action Types/Constants  Creating Actions  Dispatching actions to the dispatcher |
| Binding & Provides, Injection  60 minutes | React-Redux Bindings  Binding Components to React Store using "Connect"  Injecting Redux Store using Provider  Using Providers with React Routers |
| Assignments | Assignments post training day |

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| **Day 3** | | |
| Topic | |  |
| Views and Components with React and Redux  Advanced part, working iwht List, Objects with redux  120 Minutes | Views  Presentational/Function Views  Container Views  React Components as Container Views  React Component vs Presentational View  State Subscribers  Updating data from the store  Applying React & Redux integration  Pure Presentational Components  Container Components  Map redux state to react components  Map Dispatch to react components  bindActionCreators | |
| Redux Middleware  30 minutes | | Middleware Introduction  Using Middlewares, applyMiddleware  Creating Logger Middleware  Creating Storage Middleware |
| React & Redux Advanced, handing Async in Redux  60 minutes | | Dispatching Async Actions  Redux-Thunk Introduction  Applying Redux-Thunk with action  Fetching Data from server using Thunk |
| Forms  60 minutes | | React and Forms Introductions  Controlled Components  Working with Input elements  Working with Select elements  Uncontrolled Components (with ref)  One-Way and Two-Way Data Binding |
| Unit Testing React  Introduction & Demo with source code  90 minutes | | React and Unit Testing with Jasmine, Jest, Enzyme  Testing Component using Snapshot  Testing component using Enzyme  Shallow vs Mount features of Enzyme  Jest Test Runner  Code Coverage Testing |
| Setup Release Environments  15 minutes | | Release Build  Bundle Creation  Source map generation |
| Assignments | | Try it yourself assignments |