React.js with redux

Level:

* Basic to advanced

Prerequisites:

* Working experience on JavaScript, HTML and CSS
* A good understating of Web Technologies like Servlet/JSP/PHP/ASP.Net/PHP

Objectives:

* Understand HTML features
* Introduces CSS 3.0
* Learning the new features of ES6 and ES7
* Develop applications using TypeScript 4.x
* Understanding the building blocks of the React framework
* Exploring the various Toolchains
* Creating a React application using create-react-app tool
* Creating React Components
* Building Form based applications
* Deep dive into React Components
* Building Data-driven applications
* Integrating with REST API’s
* Debugging and Error handling
* State Management with Redux and React Context
* Creating Single page applications
* Unit Testing
* Securing react applications.

Duration: 8 days

**Course Outline**

Day 1

* Introduction to HTML/HTML5
  + Evolution of HTML
  + The Specification
  + Device Support
* Structure
  + DOCTYPE
  + Page Encoding
  + Semantic Markup
  + Structural Elements
* DOM API’s
  + DOM Access and Manipulation
  + Event handling
  + XMLHttpRequest
* Forms
  + Input Types
  + Attributes
  + Form Validation
  + Browser Support
* Web Storage
  + Local Storage
  + Session Storage
  + API’s

Day 2

* CSS 3 Introduction
  + Cascading behaviors
  + Defines and applying Styles
  + Understanding how styles
* CSS Features
  + Selectors
  + Box model
  + Flexbox
  + Media Queries
  + Responsive UI
  + Bootstrap
* JavaScript Fundamentals
  + Scopes
  + Execution Context
  + Functions
* ES6
  + Blocked Scopes
  + Arrow Function
  + Classes
  + Modules
  + REST and Spread operator
  + Object Literal Extensions
  + Destructuring
  + Arrow Functions
  + for..of Loops

Day 3

* TypeScript
  + Data Types
  + Type Annotations
  + Type Checking
  + Type Inference
  + Functions
  + Interfaces
  + Classes and Inheritance
  + Namespaces
  + Modules
  + Decorators
  + Arrow functions

Day 4

* Introduction
  + JavaScript Frameworks
  + What is ReactJS
  + Features of React
* React Introduction
  + Understating React fundamentals
  + Components and JSX
  + The Babel compiler
  + Configuring and using Babel
* Creating ReactJS Applications
  + The build process
  + Exploring the different Toolchains
  + React Project Setup with **Create React App CLI Tool**
  + Understanding the folder structure and Bootstrapping the Application
* Components
  + Creating Components
  + Functional and Class Components
  + Understanding and using Props
  + TypeChecking with PropTypes
  + Using Internal State
  + Using setState
  + Initializing States from properties
  + Accessing DOM nodes using refs
  + Forwarding refs
* Event Handling
  + Handling events in Components
  + Synthetic Events
  + Supported events
* JSX
  + JSX Syntax
  + Using JSX to create view classes
  + Creating views without using JSX
  + JavaScript Expressions in JSX
  + Accessing props and state in JSX

Day 5

* Forms
  + Controlled Components
  + Uncontrolled Components
  + Validation options
* Components in-depth
  + Lifecycle
  + Implementing the lifecycle hooks
  + Legacy methods
  + Component Compositions
  + Communication Between Components
  + Subscribing to external State
  + Subscribing to State from Child components
  + Context
  + Higher-order components
  + Fragments
  + Server-side rendering
  + React Context
  + Hooks
  + React Lazy and Suspense
  + Styled Components
* Components and Performance
  + Understanding shouldComponenttUpdate and componentWillUpdate
  + PureComponents
  + Profiling components with Chrome
  + Immutable Data Structures

Day 6

* React Hooks
  + Understanding the need for React Hooks
  + UseState and UseEffect
  + UseRef, UseImperativeHandle
  + UseCallback, UseMemo
  + Creating a custom hook
* Errors and Debugging
  + React Error messages
  + Using React Chrome Developer Tool
  + Error Boundaries
  + Debugging using Visual Studio Code and Chrome
* Server Communication
  + Understanding HTTP Requests in React
  + AJAX libraries for Server Communications
  + Installing and using Axios
  + CRUD operations with Axios
  + Understanding the Promise API
  + Intercepting request and responses
  + Transforming request and response data
  + Client-side support for protecting against XSRF
  + Creating Mock Endpoints from Swagger for testing
* Redux
  + Understanding State and complexity of Managing State
  + Understand Redux Data Flow
  + Setting up Reducer and Store
  + Dispatching Actions, Adding Subscriptions
  + Connecting React to Redux, Store to React
  + Accessing state in a Component
  + Dispatching Actions from the Component
  + Action Creators
  + Combining Multiple Reducers
  + Async Library options
  + Using redux Saga
  + Asynchronous Operations

Day 7

* React Context
  + React Context to store data
  + The APIS’s
  + Comparing with Redux
  + UseReducer and UseContext
* Building Single Page Application
  + Routing and SPAs
  + Routing Libraries for React
  + Installing and using React Router
  + Basic Components
  + Rendering Routes, Switching between pages, Links to Switch Pages
  + Passing Route Parameters
  + Understanding Nested Routes
  + Redux Integration
* Unit Testing React.js Components
  + Understanding the Testing Libraries
  + Testing with Jest
  + Installing
  + Running Tests
  + Jest Globals
  + Watching for changes
  + Async Testing
  + Mocking
  + Testing React Component
  + Testing React Redux Components

Day 8

* Design
  + Understanding the application design
  + Recommended Design Principles
  + Common Pitfalls
* Component Libraries
  + Exploring various component libraries
  + Material UI
    - Installing and Usage
    - Using Components
* React and Security
  + Understating common security concerns
  + Authentication with JWT(JSON Web Tokens)
  + Authentication in React using Auth0 (overview & Demos)
* Deployment
  + Building a react applications for production
  + Deployment steps