Introduction to MERN Stack

Nature of Course: Theory + Practical Total Hours per Day: 2 Hours Course Duration: 4 Weeks

Course Summary

The MERN stack is becoming more and more popular. React has become the hottest new library, and using it with Node and Express means a high level of harmony between the client and server. Throw MongoDB on for data storage, and you have JavaScript from front to back. These applications are quick to put together, and represent the modern state of web application development.

Completion Criteria

After fulfilling all of the following criteria, the student will be deemed to have finished the module:

- 1. Has attended 90% of all classes held.
- 2. Has received an average of 80% on all assignments
- 3. Has received an average of 60% in assessments.
- 4. The tutor believes the student has grasped all of the concepts and is ready to go on to the second module.

Required Text Books

- 1. Vasan Subramanian, "Pro MERN Stack", 1st Edition, Apress.
- 2. Shama Hoque, "Full-Stack React Projects", Packt.
- 3. Greg Lim, "Beginning MERN Stack", Greg Lim.

Prerequisites

- Basic knowledge about programming, bits/bytes, procedures, classes, computer architecture, etc. If you just have a theoretical knowledge that is perfectly okay but you should have strong convictions on what programming is, and what you hope to achieve from this class.
- Willing and eager to spend at least 10-20 hours (varying from studentto-student) per week outside of the training class to self-study and practice.
- If you are only interested in theory and have no interest/patience in spending at least 10 hours every week throughout the duration of the course, then this course might not be for you.

• If you have absolutely no idea about programming or do not see yourself doing programming in the next six -odd months, then this class may not be for you.

Course Details

WEEK1

MERN STACK DEVELOPMENT INTRODUCTION

- React, Node and MongoDB Overview and Features
- React, Node and MongoDB Setup
- MERN Architecture
- JavaScript, CSS and HTML Practices

WEEK 2

PROJECT SETUP AND GETTING STARTED WITH REST API WITH NODE AND EXPRESS

- Node and Express Setup
- JSON Format Overview and JSON Mapping
- Node REST API Overview
- Node REST API Designing
- MVC Architecture in API
- Async JavaScript Function in Node API
- Promise and Await Concepts
- Use of Postman for API Call

WEEK 3 MONGODB

- MongoDB Overview
- MongoDB Connection
- Setting Up Mongoose
- Design Schema
- Mongo Queries (Create and Drop Database, Insert, Delete, Update and Read Documents)
- CRUD Operations

WEEK 4 ANGULAR

- React Application Setup and Overview on React Architecture
- Types of Components
- Components (Child and Parent Components)
- React Routing
- Managing States and Props
- Data Binding
- Message Passing between Components
- API Call from React
- Axios Request
- Promise, Async and Await Functions
- React Redux Integration

LABS

Lab assignments will focus on the practice and mastery of contents covered in the lectures; and introduce critical and fundamental problem-solving techniques to the students.

Learning Outcomes

- By the end of the session, students should be able to develop Restful Application using Node, Express and MongoDB.
- Increased knowledge on JSON Data format, Node API design with async JavaScript custom functions.
- Increased knowledge on MERN Architecture and able to design website layouts.
- By the end of the session, students should be able to develop full stack MERN projects.