



MERN Stack (Full Stack Development)

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➤ MERN - Orientation

- What you should know before joining this course?
- What is MERN?
- Features of MERN
- Front-end Development
- Three Pillars of Front-end Development - HTML, CSS, and JS
- Back-end Development
- Full Stack Development
- Why you should use MERN?
- Advantages of MERN
- Elements of MERN
- Course Outline

➤ HTML

- Introduction to HTML
- History of HTML
- Components of HTML
- Structure of HTML
- Body section
- Categories of Tag in Body Section
- How to display images
- Creating List
- Ordered List
- Unordered List
- Definition List
- How to work with background?
- **Project**
- How to print special characters?
- Creating Tables in HTML
- Attributes of Table
- Generating Irregular Tables
- **Project**
- How to work with forms?
- How to work input controls?

- Using <select> Tag
- Generating Drop Down List
- Generating Scrollable List
- How to work text area?
- **Project**

➤ HTML 5

- Introduction to HTML 5
- Improvements Given by HTML 5
- Web Forms 2.0
- New Input Elements
- New Form Attributes
- DataList Tag
- Playing Audio
- Controlling Audio
- Playing Video
- **Project**

➤ CSS

- Introduction to CSS
- Advantages of CSS
- Versions of CSS
- Types of CSS
- CSS Selectors
- **Project**
- Inheritance in CSS
- CSS Units
- Absolute v/s Relative Units
- Styling Background using CSS
- Handling Font in CSS
- Various Font Properties
- What are Google Fonts
- How to use Google Fonts
- **Project**
- Handling Text in CSS
- Various Text Properties
- Removing Underline from Links
- Handling Link in CSS
- Pseudo-Classes
- Making Links Look Like Button
- Styling Lists in CSS

- Making Nav Bar Using List
- Styling Tables in CSS
- Styling Table Border
- Creating Zebra Striped Tables
- Making Tables Responsive
- **Project**
- The <div> and Tags
- The Difference
- Introduction to semantic HTML
- Popular Semantic HTML Tags
- The CSS Box Model
- Border, Padding and Margin
- Handling Overflow
- Setting Element Pos using Float
- The Visibility Property
- The Display Property
- Positioning in CSS
- Various Types of Positioning in CSS
- Other properties used with Positioning
- Styling form in CSS
- Attribute Selectors
- Styling Controls

➤ JavaScript - Introduction

- What is JavaScript?
- Who runs our JavaScript code?
- Relationship with HTML and CSS
- What JavaScript can do in Browser?
- What JavaScript can't do?
- Java v/s JavaScript
- History of JavaScript

➤ JavaScript Basic Programming Concepts

- JavaScript Embedding
- Writing to the document
- Using Browser Console
- Comments in JavaScript

➤ Variables and Data Types

- Declaring variables in JavaScript
- Data Types

- Primitive Data Types and Non-Primitive Data Types
- Difference between null and undefined
- Var v/s let

➤ Dialog Boxes in JavaScript

- Types of Dialog Box
- Accepting Numeric input through Dialog box
- Using Template String

➤ Operators in JavaScript

- Types of Operators
- Type Conversion & Type Coercion
- Standard rules of Number Conversion
- Controlling Decimal Points

➤ Conditional Statement in JavaScript

- If
- If else
- If else if else
- Nested if
- Ternary Operator
- Switch

➤ Loops in JavaScript

- While loop
- Do while loop
- For loop
- For/of loop
- For/in loop

➤ Array in JavaScript

- Array Definition
- Creating Array
- Using Loop with array
- Array with mixed type
- Creating Array using Constructor
- Array Methods

➤ Functions in JavaScript

- What is Function?
- Function calling
- Calling Function from link
- Variable scope
- Returning values
- Calling function via Button
- Anonymous Functions
- Some important built-in functions

➤ User Defined Objects in JavaScript

- Objects in JavaScript
- Creating Objects
- Adding properties, changing properties, and Deleting properties
- Adding methods
- Nested Objects
- Creating object using object literal

➤ Advance Concepts in Objects

- The toString() method
- Overriding toString()
- Object equality in JavaScript
- What is JSON?
- The 'this' keyword and using of 'this' keyword
- **Project**

➤ Advance Concepts in Object-II

- The Arrow function
- Restriction on Arrow function
- Callback function
- Anonymous function as callbacks
- Why we need callback?
- **Project**

➤ Pre-defined objects in JavaScript

- The Date object
- The String object
- The Math object

- **Project**

➤ DOM Part - 1

- DOM introduction
- What is DOM?
- What can be done with DOM?
- DOM selection methods
- **Project**

➤ DOM Part - 2

- Setting/Getting Text Content
- Changing CSS
- Adding & Removing classes
- **Project**

➤ DOM Part - 3

- Traversing the DOM
- DOM properties
- DOM properties drawback
- Modern DOM properties
- Creating new element
- append() & prepend()
- **Project**

➤ Event Handling - 1

- Event Introduction
- Event categories
- Ways of handling events
- Using function for event handling
- Cancelling the default behaviour.
- **Project**

➤ Event Handling - 2

- Using DOM event handler
- Working with MouseEvents
- Working with KeyBoard Events
- Determining the key Pressed
- **Project**

➤ Event Handling - 3

- Using DOM level 2 event handler
- The event object
- Event Bubbling
- Event delegation
- **Project**

➤ Forms in JavaScript

- Accessing form object through JavaScript
- Accessing Form data
- The submit event & how to handle submit event
- Other form events

➤ Main Project

- Creating A ToDo List App
- Apply All The Concepts Learnt Till Now

➤ React - Introduction

- What Is React ?
- What Problem React Solves ?
- What Are SPA's ?
- Challenges In Developing A SPA
- React Advantages
- Is React A Framework OR Library ?

➤ Building First React App

- Two Ways To Develop A React App.
- Developing Using CDN.
- Developing Using Create React App.
- Difference between CDN And Create React App.
- Developing The First App
- Creating Function Based React Element
- Creating Siblings

- Creating Nested Components

➤ JSX

- What is JSX ?
- Why JSX ?
- Characteristics Of JSX ?
- Coding JSX
- Expressions In JSX
- Inserting A Large Block Of HTML
- Summary
- Conditional Rendering
- Different Ways Of Conditional Rendering

➤ ES6 Refresher

- Modules
- Exports and Imports
- Classes
- Spread & Rest Operators
- Destructuring

➤ Class Components

- Two Types Of Components
- Class Components
- How To Create Class Components
- Industry Recommended Way Of Structuring A React Application

➤ Props

- What are props ?
- Using Props In React
- Some Important Points About Props
- How To Iterate Over Arrays In JSX
- Using map() Method Of Array
- Default props

- Exercises

➤ Styling

- Styling In React
- Different Ways Of Styling
- External Stylesheet
- Inline Styling
- JS Object Styling
- Exercises

➤ Create – React – App

- Introduction To CRA
- Installation Of Node Package Manager
- Creating A New Project Using Create-React-App.
- Introduction To CRA
- Installation Of Node Package Manager
- Creating A New Project Using Create-React-App.

➤ CRA Conventions

- Exercise To Better Understand Request Flow
- CRA Conventions
- How To Load Images In CRA ?
- How To Add CSS Files In CRA ?

➤ State in React

- What Is State ?
- How It Is Different Than Props ?
- Different Ways Of Initializing State
- Why To Update The State ?
- Correct Way To Update The State
- Points To Remember
- Exercises

➤ Event Handling

- Event Handling Basics
- How React's Event Handling Differs From JS ?
- Concept Of Binding
- Passing Arguments To Event Handlers
- Different Ways Of Passing Arguments
- React Keyboard Events
- Getting The Key Pressed
- Examples
- Exercises

➤ React Design Principle

- React Design Principles
- Recommended Way Of State Updation
- What To Keep In State ?
- Data Flow In State
- Exercises

➤ Form Handling

- Form Recap
- How Forms Work In React ?
- Uncontrolled Components V/s Controlled Components
- Adding Multiple Fields
- Creating Dynamic Keys
- Examples
- Exercises

➤ Main Project

- Modifying The ToDo List App Using React
- Apply All The Concepts Learnt Till Now

➤ Uncontrolled Components

- Uncontrolled Components
- Creating Ref

- Accessing Ref
- Examples

➤ Text – Area & Select

- TextArea In HTML
- TextArea In React
- DropDown List In HTML
- DropDownList In React
- Examples

➤ Life Cycle Of A Component

- React Component Life Cycle Phases
- React Component Life Cycle Methods
- Mounting Phase Methods
- Updating Phase Methods
- Unmounting Phase Methods

➤ Fragments

- What Is A Fragment ?
- Need Of A Fragment
- Syntax
- Example

➤ Local Storage

- Introduction
- What Is localStorage ?
- Methods Of localStorage
- Examples
- Exercise

➤ Introduction To Hook

- Introduction To Hooks
- What Exactly Are Hooks ?

- Rules Of Hooks
- Types Of Hooks

➤ The useState() Hook

- Introduction To useState() Hook
- Syntax Of useState()
- Examples
- Exercise

➤ The useEffect() Hook

- Introduction To useEffect()
- Syntax
- Examples
- Use Of Dependencies Argument
- Performing Clean Up

➤ The useContext() Hook

- Introduction To Context API In React
- The useContext() Hook
- The useContext() Hook
- **Project**

➤ The useReducer() Hook

- Introduction To Reducer In JS
- The reduce() Method
- Understanding useReducer() Hook
- **Project**

➤ React Router

- Multi page React sites
- React Router Setup
- Links and Nave Links
- Switch and exact match
- Fetching Data
- Route Parameters

- Introduction to React Router 6
- The Route Component
- Redirects and use Navigate

➤ Sending HTTP request

- Fetch API in React to populate data

➤ Node.JS

- Introduction
- Who this course is for
- How Node.JS Works
- Node V8 Engine
- Installation Node.JS

➤ Fundamentals of Node.JS

- What is REPL – Read Evaluate Print Line
- Loading Files – Using REPL
- Process Object
- Global Namespace
- Buffers
- Understanding Callbacks

➤ Modules & Node Package Manager

- Introduction
- Making use of NPM – Node Package Manager
- Publishing node modules
- Module Caching
- Module Caching – Overcoming the limitations
- Module Patterns

➤ Events

- Events and EventEmitter
- EventEmitter and Inheritance
- Creating your own EventEmitter
- Creating Classes in ES6
- ES6 Classes and EventEmitter

➤ Streams

- Introduction to Streams
- Readable Streams
- Writable Streams
- Piping
- Chaining
- Set Encoding
- Additional Methods of Readable Streams
- Duplex Streams

➤ Introduction to Asynchronous Programming

- Introduction
- Promises
- Generators
- Resolving Callback Hell

➤ Creating a WebServer

- How a Web Server works
- Creating our WebServer
- Sending HTML content as response from WebServer
- Serving Static Contents
- Post data to Node Web Server
- Handling Querystring

➤ Working with Express

- Introduction to Express
- Installing Express
- Creating a Web Server using Express
- Adding routes to Express App
- Working with Express Templates
- Working with partials
- Sharing content across routes
- Organizing our routes
- Making use of Express Generator
- Express Middleware

➤ Main Project

- Developing a project using Express
- Apply All the Concepts Learnt till Now
- Understanding assets of our Express Web Application
- Structuring our express web application

➤ Working with Database

- Introduction to Database
- Download and installing MySQL and Workbench on windows
- Connecting MySQL with our Express Application
- Introduction to NoSQL Database
- Installing to MongoDB Locally
- Working with MongoDB and Mongoose
- Using Mongolab – MongoDB as a Service

➤ Authentication using Express and Passport

- Setting up our Authentication Application
- Creating User Model in Mongoose
- Developing Strategies – I – Login Strategy
- Developing Strategies – II – Signup Strategy
- Creating Routes
- Creating our Login/Signup Layout and Finishing the Application

➤ Ajax

- Introduction to Ajax
- Advantages of Ajax
- Introduction to XMLHttpRequest class
- Steps in Ajax programming
- Examples of Ajax

➤ Main Project

- Creating A Project Using Ajax
- Apply All The Concepts Learnt Till Now

➤ jQuery

- Introduction to jQuery
- Advantages of jQuery
- Downloading jQuery
- Examples of jQuery

➤ jQuery Selector

- Introduction to jQuery Selector
- Types of Selector
- Syntaxes and uses
- Examples of jQuery Selectors

➤ Additional Features of jQuery - 1

- jQuery Effects
- Slides, Hide, Show and Fade
- Applying animation
- Accessing HTML input Controls
- **Project**

➤ Additional Features of jQuery - 2

- jQuery Ajax Support
- load() method
- get() method
- post() method

THANK YOU!