

MERN Stack Development

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Introduction to Websites

- What is a Webpage
- Introduction to HTML
- Creating a simple HTML Document
- Viewing HTML Document with Browsers
- Introduction to different Web Browsers – IE, Chrome, Mozilla, Safari, UC Browser
- Webpage Vs Website
- URLs / Domains
- Web Servers and Web Hosting

HTML

- Elements of a HTML Document
- Understanding HTML Tags
- HTML Editors
- Creating a Simple HTML Document
- Adding Attributes to Tags
- Handling Texts in HTML
- Headings
- Paragraphs
- Formatting Texts
- Managing Blocks with <Div> Tag
- <Div> - Id's and Class
- Line Breaks
- Managing Lists
- HTML Styles
- Controlling Fonts and Size
- Alignment
- Applying Colors
- Foreground and background colors
- HTML Tables
- Creating a Table
- Managing Columns
- Table Borders
- Border Spacing

Handling Images

- Adding Image
- Formatting Image
- Handling Size of an Image
- Aligning Images
- Adding Animated Images
- Background Images

Handling Layouts

HTML Forms

Introduction to HTML Forms

Form Elements

Form Input and Attributes

Introducing HTML 5

- HTML Vs HTML 5
- New Elements in HTML 5
- New Form Elements in HTML 5
- Handling Audio & Video
- Handling Graphics
- Canvas
- Handling SVG
- Handling Events
- HTML 5 APIs
- Geolocation
- Drag / Drop
- Web Storage
- Advantage of Web Storage over Cookies
- Session based Web Storage

Introducing CSS and CSS 3

- What is a Style Sheet
- Cascading Effect of a Style Sheet
- Text Properties
- Border Properties
- Position properties
- Display properties
- Inline and External CSS

- CSS Selectors – IDs and Classes
- Understanding Layouts
- Absolute, Relative and Fixed Positioning
- Advanced CSS
- Transformations

Responsive Layouts and Media Queries

- Simplifying CSS with BootStrap
- Introducing Boot Strap Framework
- Advantages of Bootstrap Framework over CSS
- Responsiveness with Bootstrap
- Bootstrap Grids
- Bootstrap UI Components
- Buttons, Tables, Menus, Carousels, Dropdowns, Alerts

Javascript

- Introduction to Javascript
- Necessity for Javascript
- Javascript Structure and Elements
- Operators and Functions
- Control Structures
- The Document Object Model (DOM), Objects and Nodes
- Arrays and Objects.
- Handling DOM using Javascript
- Javascript Events
- OOPS in JavaScript
- JSON and uses
- Animating UI Elements

ReactJs:

React Overview

Introduction

What are SPA apps

What is React

How react works internally

What are the alternatives

What problem does it solve

When to use React

Component based architecture

JSX

Introduction

Write your first jsx code

How to compile jsx to Javascript

Write class based components with jsx

Renderig jsx to DOM using react DOM

Dom manipulation

Introduction

Select elements using ref

Other ways to select elements

Props vs States

Introduction

What are Props

What are states

Proptypes validation

Style React Components

Introduction

Using css in react

Inline styles

Impoting external styles

Event Handling in React

Introduction

How events work in react world

What are synthetic events

Mouse events

Keyboard events

Redux and State management

Introduction

What is state management

Flux architecture

Redux Introduction

How to manage state in large applications with redux

Routing

Introduction

Navigating between components

React Router

Creating and managing routes

How componentDidUpdate works

How componentWillUnmount works

Understanding When to use which life cycle method

Lifecycle Methods in React

Introduction

How componentWillMount works

How componentDidMount works

How componentWillReceiveProps works

How shouldComponentUpdate works

How componentWillUpdate works

Integrating redux with react router

Forms & validations using Reactjs

Introduction

How to get input from users using Forms

Form validations

MongoDB

Introduction to MongoDB

What is NoSQL

Types of NoSQL DBs
Necessity for NoSQL DBs
Relational Databases Vs NoSQL Databases
Advantages of NoSQL Databases
Introducing MongoDB

Installation and Configuration of MongoDB

Downloading and Installing MongoDB
Command Line Mode - Shell
GUI mode with MongoDB Compass
Starting and Stopping MongoDB
Getting Help

Fundamentals of MongoDB

Understanding MongoDB model
SQL Terms Vs MongoDB Terms
Understanding Database
Understanding Collections
Collections Vs Tables
Understanding Schemas and Documents
Creating and Dropping a Database

Working with Data - CRUD Operations

Creating Collections
Inserting Single Document and Multiple Documents
Inserting with _id Field
Inserting Document with Arrays
Understanding Embedded and Nested Documents
Updating Single and Multiple Documents
Using Update Operators – Field Update Operators and Array Update Operators
Deleting Single and Multiple Documents
Understanding and Implementing Bulk Write Operations
Working with Retryable Writes

Querying Collections

Using Query Operator - find() to query Documents
Querying Fields and Nested Fields
Using Logical Operations in Query
Querying Nested and Embedded Documents
How to Query an Array?
Projecting Fields in a Query
Using _id Field in Query

Querying Null and Missing Fields
Querying Text in MongoDB
Indexing Text for Search
Understanding Text Search Operators
What is Geospatial Search
Understanding and using Geospatial data
Geospatial Indexes and Queries
Aggregation Operations
Understanding Aggregation Operations
Using Aggregation Pipelines
Pipeline Expressions and Behaviors
Understanding Map-Reduce Functions in MongoDB
Understanding Map and Reduce
Using Map-Reduce
Using Map-Reduce Javascript Functions
Map-Reduce results
Understanding Incremental Map-Reduce
Understanding and using Map-Reduce Concurrency
Exploring Aggregation References

Understanding Data Models and Schema
Introduction to Data Modelling
Understanding Schema in MongoDB
Flexible Schema and References
Understanding Schema Validation
Create Validation Rules
Using Query Expression to Validate Data
Bypassing the Document Validation
Deep dive into Data Modeling Concepts

Handling Transactions in MongoDB
Understanding Transactions and Transactions API
Understanding Atomicity
Executing Multi-document Transactions or Distributed Transactions
Transactions Operations and Restricted Operations
Production Considerations
Handling Indexes in MongoDB
What is Indexing and Advantages of Indexes
Single Field and Compound Indexes
Multi key Indexes, Text Indexes, Wild-card Indexes
Hashed Indexes
Managing Indexes

Managing Security

Implementing Security in MongoDB

Understanding and Enabling Access Control

Handling Authentications

Understanding and Configuring Encryptions

Configuring and Managing Auditing

Replication

Importance of Replication for High Data Availability

Implementing Replication in MongoDB with Replica Sets

Understanding Asynchronous Replication

Change Stream

Sharding in MongoDB

Understanding the purpose of uses of Sharding

Understanding Sharded Cluster Components

Harshed Sharding and Ranged Sharding

Handling Collation in Sharding

Understanding Zones

Introduction to Sharded Cluster Administration

Node.js

Understanding the Web

Architecture of a Web Application

Server Side Scripting

Client Side Scripting

Importance of Performance

Introduction to Node.js

What is Node.js

Advantages of Node.js

Installing Node.js and Configuring Node.js

Architecture of Node.js

Appreciating the Performance of Node.js

Understanding Event Driven code execution and Asynchronous Events in Node.js

Understanding Event Emitters

Implementing Node.js

The Node lifecycle

Creating and running a Node Server

- Handling Requests and Responses
- Routing and Redirecting Requests
- Handling Streams, buffers and Events
- Handling Multi-processing in Node.js
- Handling Run time Errors

Modules in Node.js

- Understanding Modules in Node.js
- Exploring various built-in Modules
- Third party Modules for Node.js
- Introduction to Node Package Manager - NPM
- Understanding Global and Local NPM Packages
- Installing and Updating a Module
- Deleting a Module
- Introduction to various NPM Modules

ExpressJS Framework

- Introduction to ExpressJS Framework
- Why the need for Express Framework
- Overview of ExpressJS framework
- Installing ExpressJS
- Understanding Request and Response Objects
- Exploring ExpressJS
- Configuring ExpressJS
- Understanding Middleware

- Understand How Middleware Works in ExpressJS
- Add a Middleware
- Creating Custom Middleware
- Handling Requests and Responses
- Handling Routing
- Using ExpressJS Router
- Path Filtering
- Creating and Serving HTML Pages
- Using Jade Templates
- Navigating Datasets
- Using REST in ExpressJS
- Handling POST
- Handling JSON data
- Handling Errors

Real Time Project using MERN Stack InterView Preparation

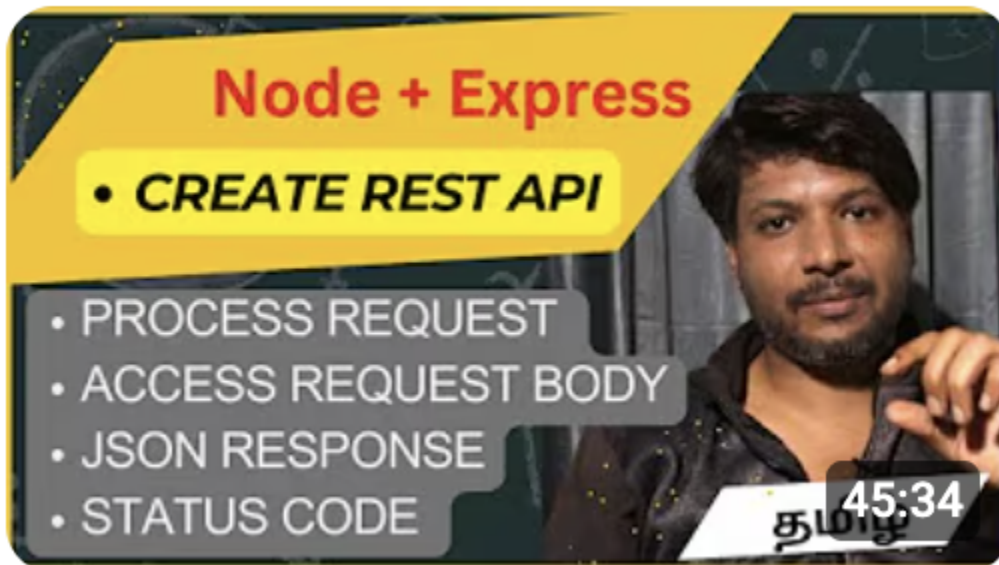
Previous batches projects:

https://github.com/programmerpraveenkumar/careerx_mern_dec_2023

https://github.com/programmerpraveenkumar/shopping_cart_react_js

https://github.com/programmerpraveenkumar/spectrum_may2024

Youtube Link



<https://youtu.be/zM29tFKGYkU?si=IHGGv-6PqjBiXEkK>