Mern
Fullstack with
Gen AI Integration

MERN is a popular JavaScript stack used for building modern web applications. MERN gets its name from 4 technologies that make up the stack which are MongoDB, Express, React, Node.

HTML
Introduction to HTML

- headings
- paragraph
- formatting tags
- image
- anchor
- lists
- table
- id
- class
- iframe
- div
- span
- form
- audio
- video
- html vs html5

CSS
Introduction to CSS

- ways to use CSS (inline , internal, external)
- css selectors
- css color
- border
- padding
- margin
- height
- width
- lists
- text
- display (none, inline , block , inline-block)

- flex
- grid
- position
- z-index
- media

Java Script

Js Basics

- keywords
- identiers
- datatypes
- variables and constants
- tokens
- operators

Decision Making Statements

Conditions Statements Or Selection Statements

- if
- if else
- nested if else
- if else if ladder
- switch case

Iteration Statements Or Loops

- for
- while
- do while
- for in
- for of

Jump Statements

- continue
- break

Functions

- function declarations, denitions and calling
- types of functions
- anynomous functions
- at arrow functions or arrow functions
- self invoked function (IIFE)
- storage classication or varibale scope (var let const and without keywords)
- recursion

Strings Methods
array Methods
Global Execution Context and Function execution context

- scope chain rule and lexical scoping
- closure

Objects

- literal and keys
- object functions
- nested objects

- Object Prototypes
- setter and getter methods

Set and Map

WeakMap and WeakSet

Dates and Time

OOPS

- literal and keys
- object functions
- nested objects
- Object Prototypes
- setter and getter methods

DOM Manuplation

- DOM
- BOM
- event handling
- time based events

Advanced Js

How Javascript Works

- hoisting
- strict mode
- closure
- synchronous and asynchronous programming

Event propagation

- bubbling
- capturing

Event loop

function curring

ajax and json

calling api using ajax

callback hell

promise

async await

fetch

modules

version

Typescript

- Why Typescript
- Basic Types
- Class and Interfaces
- Modules

React Js

INTRODUCTION TO REACT JS

- What is React JS?
- What is SPA?
- DOM vs Virtual DOM
- Advantages and Disadvantages
- Key Features

ENVIRONMENTAL SETUP

- Node | NPM
- Installation of CLI
- Setup Project
- Directory Structure
- Code Editors
- How React JS Application Boot

BASIC FEATURES OF REACT JS

- React Concepts
- JSX and TSX
- Render Elements
- Function and Class Components
- Props and State
- Handling Events
- Dynamic Data Rendering
- Property Binding

KEY FEATURES OF REACT JS

- Conditional Rendering
- List and Keys
- Forms Handling
- Forms Validations

COMPONENT LIFECYCLE HOOK

- Understanding component lifecycle
- All Lifecycle Hooks

EVENT HANDLING REACT

- Understanding React Event System
- Passing arguments to event Handlers

NETWORK CALL

- Fetch
- Axios

CUSTOM SERVICES

- Introduction to Services
- Building a Service

LOCAL DATA STORAGE

- Local Storage
- Session Storage
- Cookies

ROUTING WITH REACT ROUTER

- Setting up React Router
- Configuring route with Route Component
- Making routes dynamic with Route Params
- Working with nested routes
- Link and NavLink
- Redirect Routes

UI COMPONENTS

- Material Design
- PrimeNG

INTRODUCTION TO REDUX

- Why Redux
- Install and setup
- Store ,Reducer , actions
- Dispatcher
- High order Components
- mapStateToProps and mapDispatchToProps usage

ADVANCE REDUX
- Async Actions
- Middleware
- Redux Thunk and Redux Saga

React Hooks
- Why We Need Hooks.
- Different Types Of Hooks
- Using State And Effect Hooks
- Usereducer , Useref Etc.
- Custom Hooks
- Rules Of Hooks

Third Party Modules
- Social Login
- Pagination
- Search
- Filter
- JWT Token
- File Upload
- Many More

Rest Js Testing
- Jest with Enzyme

Develop a CRUD Application in React Js

Next js

- Introduction
- Routing
- Page Pre-Rendering (Server Side Rending) & Data Fetching
- Server-side rendering vs Client-side rendering
- Optimizing NextJS Apps
- Adding Backend Code with API Routes
- Working with App-wide State
- Adding Authentication

Ecommerce Project

Node Js

Introduction to Node.js
- What is node.js
- A word on event loop
- Event driven architecture
- Blocking vs non-blocking code
- Node Process Model
- Setup node.js
- Node REPL
- Debugging node.js app

Modules in JS
- Understanding exports and require
- Creating modules
- Importing modules
- Quick tour on NPM
- Installing 3rd party modules

Events & streams
- Significance of Events
- Event Emitter class
- Emitting and listening to events

- Types of streams
- Working with streams
- Composing streams using pipe

Working with Process and File System

- Process object
- Handling exceptions at process level
- Listening to process events
- Working with file system using fs module
- Creating, Copying, Deleting files
- Creating, Copying, Deleting directories
- Watching for file changes

HTTP

- Building a Web Server
- HTTP Request Methods, Headers
- Response Codes and Headers

Express Js

Expressjs Introduction & Setup

- Building a Web Server
- HTTP Request Methods, Headers
- Response Codes and Headers
- Serving static files with express
- Express application generator

Routing

- Route Methods
- Route Paths
- Parameterized Routes
- Route Handlers
- Express Router

Middleware

- Types of middleware
  - Application
  - Router
  - Error
  - Built-in
  - Third-party
- Error middleware
- Body parser, cors , cookie parser, session management

Template Engines

- What are template engines
- EJS
- Jade
- Handlebars

Expressjs security

  - Authentication
  - JWT
  - Securing routes
- Debugging in Express
- Realtime programming with Socket.io

MongoDB

Introduction to MongoDB

- Installing MongoDB
- The current SQL/NoSQL landscape
- Document-oriented vs. other types of storage

- Mongo's featureset
- Common use-cases
- MongoDB databases
- MongoDB Collections
- MongoDB Documents

CRUD Operations in Mongodb

- Creating documents
  - insert()
  - update()
  - save()
- Querying documents
  - find()
  - Working with equality
  - Query operators
  - Building complex queries
- Updating documents
- Deleting documents
- Limit
- Order By

Introduction to Mongoose

- Word on ORM/ODM
- Installing mongoose
- Connecting to MongoDB from mongoose

Core concepts of Mongoose

- Understanding mongoose schemas and datatypes
- Working with Models
- Using modifiers in schema
- Using virtual fields
- Optimizing query performance by enabling indexes

Mern Application Deployment

- Build Application
- Deploy in Heroku

Generative AI Integration

- Introduction to AI & Large Language Models
- Understanding GPT Models
- What is OpenAI
- How to get API key
- Understanding Library
- How to generate text
- How to perform sentiment analysis
- How to generate image from text
- How to implement chatbot

Partners : ORACLE WORKFORCE DEVELOPMENT PROGRAM | redhat. CERTIFIED TRAINING PARTNER | UBI Unica Business and Innovation Centre | edexcel | Java

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