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## MERN Stack Development

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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
- identifiers
- data types
- 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, definitions and calling
- types of functions
- anonymous functions
- flat arrow functions or arrow functions
- self invoked function (IIFE)
- storage classification or variable 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 Manipulation

- 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

- Angular Material
- PrimeNG

## INTRODUCTION TO REDUX

- Why Redux
- Install and setup
- Store Reducer, actions
- Dispatcher
- High order Components
- mapStateToProps and mapDispatch ToProps 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

### React JS Application Deployment

- Build Application and Deployment

## 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
- 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

