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| **Week** | **Date** | **Topics** |
| Week 1 | 14 August | **Prerequisites** HTML, CSS, and JavaScript basics  JavaScript vs. JSX  JSX Style Components  JSX Properties |
| 15 August | **Arrays & Objects in JSX** Arrays (Add, Replace & Remove)  Handling Objects in JSX  Import & Exports  Inputs Types (Date, Text, etc.)  Handling Inputs |
| 16 August | **JSX Basics**  If/Else & Operators in JSX  Repeating Elements with key property  Adding event handlers in JSX  JSX Fragments  Security Considerations in JSX |
| 17 August | **TypeScript Basics** Introduction to TypeScript & its benefits  Type declarations for libraries  Type inference & Declaring types of variables  Primitive types (Int, String, Boolean)  Exporting & Importing in TypeScript |
| 18 August | **SUNDAY** |
| Week 2 | 19 August | **TypeScript Advanced** Array Types & Object Types  Function Types & Type Assertions  Union Types  TypeScript with React Components |
| 20 August | **React Components** Function Components & Class Components  Components as functions  Sharing data between components  Props in custom components |
| 21 August | **Events & State Management in React** Events in custom components  Passing content to components  Introduction to State Management  useState Hook & State initialization |
| 22 August | **React Router Basics**  Routing Basics (client-side routing)  Defining routes, using links, nested routes  Route parameters, navigation from JS, active link style |
| 23 August | **React Context API** Pure Providers & Stateful Providers  Stateful Context with constate  Context with vanilla React |
| 24 August | **Styling in React**  Class names package  CSS Modules & SCSS  CSS in JS & Inline Styles  Styled Components |
| 25 August | **SUNDAY** |
| Week 3 | 26 August | **Form Validation in React**  Form Validation strategies  Libraries (react-hook-form, Formik)  Handling Form Submissions & Validation |
| 27 August | **React Hooks**  Introduction to Hooks & Rules of Hooks  useEffect Hook & Side Effects  Creating custom Hooks |
| 28 August | **Advanced React Concepts**  State Hook details, state transformer functions  State initialization function  Error Boundaries & Higher-order Components |
| 29 August | **React Refs & Performance** Refs for storing objects that don’t influence rendering  Using refs to avoid outdated states  The ref property for accessing DOM elements  Performance Optimization in React: React Dev Tools & Memorization |
| 30 August | **Firebase Introduction** Setting up Firebase in a React Project  Firebase Authentication  Firestore Database Basics |
| 31 August | **Firebase Advanced** Realtime Database vs Firestore  Firebase Storage  Firebase Hosting & Deployment |
| 1 September | **SUNDAY** |
| Week 4 | 2 September | **Testing in React** Testing in JavaScript  Assertions, test runners, mocking in JavaScript  End-to-end testing libraries like Cypress, Playwright |
| 3 September | **Node.js Fundamentals**  Introduction to Node.js, Node.js Runtime & Architecture  Event-Driven Architecture, Non-blocking I/O  CommonJS Modules in Node.js |
| 4 September | **JavaScript for Node.js** JavaScript Syntax & Operators  Functions & Closures  Asynchronous JavaScript (Callback, Promises, Async/Await) |
| 5 September | **Node.js Package Management**  Introduction to NPM  Package.json file, scripts, dependencies & metadata  Installing & updating packages  Understanding Node\_Modules & .gitignore |
| 6 September | **Web Development with Node.js** Building a basic HTTP server  Using Express.js: Routing, Middleware, and Error Handling  Parsing requests (body-parser)  Serving static files |
| 7 September | **API & Databases**  Creating RESTful APIs with Express  Introduction to GraphQL  Working with Databases (MongoDB)  Querying Databases & Handling Migrations |
| 8 September | **SUNDAY** |
| Week 5 | 9 September | **Material UI** Setting up Material UI in a React Project  Theming and Customization  Implementing Material UI Components |
| 10 September | **Authentication & Authorization** User Authentication Strategies (JWT, OAuth)  Securing APIs & Web Applications  Handling User Sessions & Cookies |
| 11 September | **Error Handling & Debugging** Debugging Node.js Applications  Logging best practices & Error Handling strategies  Testing Node.js: Unit Testing with frameworks like Mocha, Jasmine, or Jest |
| 12 September | **Sockets & Real-time Communication**  Introduction to WebSockets  Implementing WebSockets in Node.js for real-time communication  Creating real-time applications with Socket.IO |
| 13 September | **Advanced Node.js Concepts** Microservices Architecture  Using Worker Threads and Child Processes  Creating Custom Node.js Modules |
| 14 September | **Performance Optimization in Node.js** Profiling & Monitoring  Optimizing Performance with Caching  Memory Management & Scaling Node.js Applications |
| 15 September | **SUNDAY** |
| Week 6 | 16 September | **Security in Node.js** Understanding Common Security Vulnerabilities (XSS, CSRF)  Securing HTTP Headers, Using HTTPS and SSL/TLS  Input Validation & Sanitization |
| 17 September | **Deployment Operations** Deployment Strategies  Continuous Integration  Hosting Options & Environment Variables |
| 18 September | **Best Practices & Design Patterns** Writing Clean & Maintainable Code  Adhering to Coding Standards & Conventions  Using Design Patterns like Singleton, Factory & Observer in Node.js |