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1. Select Topics in JavaScript (3 Hours)

- Overview of features of ES2015+
 - Block-level scoping: `let`, `const`
 - Template strings
- Object and Array Destructuring
- Rest and Spread Operators
- Arrow Functions
- Modules
- Promises
- `async/await`

2. Overview of TypeScript (6 Hours)

- Installation and Getting Started
- `tsc` Compiler Options and `tsconfig.json`
- Primitive Types and `any` Type
- Type Checking and Inference
- Arrays and Type Aliases
- Union Types
- Function Argument and Return Types
- Callback Function Signatures
- Interfaces for Object Structure
- Implementing Interfaces in Classes
- Access Modifiers: `public`, `protected`, `private`, `readonly`
- Generics
- Utility Types: `Omit`, `Partial`, `Pick`, `Required`, `Record`
- Mapped Type and Conditional Type

3. React, React Router, Redux using Redux Toolkit (36 Hours)

3.1 Introduction to React (3 Hours)

- SPA Architecture
- Component-based Architecture
- Including React in Your App
- Scaffolding with `create-react-app`
- Understanding Project Structure and Build Process
- React Elements, Props, and State

3.2 Component Basics (5 Hours)

- Functional and Class-based Components
- Using Props and Children
- JSX Basics
- Variables, Expressions, and Conditional Rendering
- Array Mapping for UI
- Event Handling and Context Binding
- Event Object Details



- `defaultProps`

3.3 Stateful Components in Depth (6 Hours)

- Understanding State
- `useState()` and `useEffect()`
- Parent-Child Communication
- Virtual DOM and Reconciliation
- Using `ref`
- Working with Forms
- Controlled vs Uncontrolled Components

3.4 Hooks and Performance Optimization (6 Hours)

- Why Hooks?
- `useReducer()` for Complex State
- Performance: `useCallback()`, `memo()`, `useMemo()`
- Context API: `createContext()`, `useContext()`, `Provider`
- Custom Hooks
- Container vs Presentation Components
- HOCs and Render Props
- React Query (TanStack Query)

3.5 Routing (4 Hours)

- React Router Introduction
- Route Configuration: `Link`, `NavLink`, `Routes`, `Route`, `Navigate`
- Props: `history`, `location`, `match`
- Params and Query Strings
- Lazy Loading and Code Splitting

3.6 Redux with Redux Toolkit, Zustand Basics (6 Hours)

- Flux Architecture
- Redux Flow: Actions, Stores, Reducers
- Immutability
- React Redux Integration
- Redux Toolkit Setup
- `useDispatch()` and `useSelector()`
- Redux DevTools
- Zustand Introduction

3.7 Deployment (2 Hours)

- `.env` Files for Config Management
- Creating Production Build
- Deployment Techniques