

MERN Interview Preparation (Q&A;)

Q: What is React?

A: React is a JavaScript library for building user interfaces. It is component-based, uses a virtual DOM for efficient updates, and makes UI building declarative. We use hooks like `useState` and `useEffect` for state and lifecycle.

Q: What is Next.js and why use it?

A: Next.js is a React framework that provides file-based routing, server-side rendering (SSR), static site generation (SSG), and API routes. It is used for SEO-friendly and production-ready apps.

Q: Difference between SSR and SSG?

A: SSR (Server-Side Rendering): HTML is generated per request, suitable for dynamic data. SSG (Static Site Generation): HTML is generated at build time, good for static data with faster load.

Q: What is Node.js?

A: Node.js is a JavaScript runtime built on Chrome's V8 engine. It allows running JavaScript on the server side. It is event-driven, non-blocking, and suitable for APIs and real-time apps.

Q: What is Express.js?

A: Express.js is a web framework for Node.js. It simplifies building REST APIs, handling routes, and using middleware for tasks like authentication and logging.

Q: What is MongoDB?

A: MongoDB is a NoSQL database storing data as JSON-like documents. It is schema-less and highly scalable. Mongoose is often used with it to enforce schemas and provide easy querying.

Q: What is a REST API?

A: A REST API is a way of designing web services using HTTP methods (GET, POST, PUT, DELETE) to perform CRUD operations on resources. It is stateless and usually returns JSON responses.

Q: Authentication vs Authorization?

A: Authentication: Verifies identity (Who are you?). Example: login with email & password.
Authorization: Defines permissions (What can you do?). Example: Admin can add jobs, user cannot.

Q: Explain JWT authentication flow.

A: 1. User logs in and server issues a signed JWT containing user info/role. 2. Client stores the token (localStorage/cookie). 3. Client sends token in Authorization header with requests. 4. Server middleware verifies token = Authentication. 5. Server checks user role/permissions = Authorization.

Q: Common HTTP methods?

A: GET - Read, POST - Create, PUT/PATCH - Update, DELETE - Delete.

Q: Common HTTP status codes?

A: 200 OK, 201 Created, 400 Bad Request, 401 Unauthorized, 403 Forbidden, 404 Not Found, 500 Server Error.

Q: What is Mongoose populate?

A: populate() replaces an ObjectId reference in a document with the actual referenced document. Example: Application.find().populate('job').

Q: Coding: Reverse a string.

A: `function reverse(str) { return str.split('').reverse().join(''); }`

Q: Coding: Find largest number in array.

A: `function largest(arr) { return Math.max(...arr); }`

Q: Coding: Remove duplicates from array.

A: `function removeDup(arr) { return [...new Set(arr)]; }`

Q: Coding: Count characters in a string.

A: `function countChars(str) { const map={}; for(let ch of str){ map[ch]=(map[ch]||0)+1;} return map;}`