MERN Stack Interview Questions

For Experienced Developers

1. Core JavaScript Concepts

1. Explain the event loop in Node.js and how it differs from client-side JavaScript.

2. How would you implement memoization in React to optimize performance? Provide code examples.

3. Explain the difference between prototypal inheritance and classical inheritance in JavaScript.

4. Describe how you would handle memory leaks in a large-scale MERN application.

2. React Advanced Concepts

5. Compare and contrast React Context API with Redux. When would you choose one over the other?

6. How would you implement server-side rendering (SSR) with React in a MERN application? What are the benefits?

7. Explain React Fiber architecture and how it improves rendering performance.

8. Describe your approach to testing a complex React application (unit, integration, E2E).

3. Node.js & Express

9. How would you design a rate-limiting middleware for an Express API?

10. Explain different strategies for handling file uploads in a Node.js backend.

11. Describe your approach to implementing real-time features using WebSockets in a MERN app.

12. How would you optimize database queries in a high-traffic MERN application?

4. MongoDB & Database Design

13. When would you choose to denormalize data in MongoDB versus keeping it normalized?

14. Explain how you would implement transactions in MongoDB for a banking application.

15. Describe your strategy for database indexing in a large MongoDB collection.

16. How would you handle database migrations in a production MERN application?

5. Performance & Scaling

17. What strategies would you use to optimize a MERN application for slow mobile networks?

18. How would you implement caching at different layers of a MERN stack application?

19. Describe your approach to monitoring and debugging performance issues in production.

20. How would you scale a MERN application to handle 10x the current traffic?

6. Security

21. Explain common security vulnerabilities in MERN applications and how to mitigate them.

22. How would you implement proper authentication with JWT, including refresh tokens?

23. Describe your approach to securing API endpoints against common attacks (CSRF, XSS, etc.).

24. How would you handle sensitive configuration in a MERN application (API keys, DB credentials)?

7. Architecture & Best Practices

25. How would you structure a large-scale MERN application with multiple teams working on it?

26. Describe your approach to error handling and logging across the entire stack.

27. How would you implement feature flags in a MERN application?

28. Explain your CI/CD pipeline for a production MERN application.

8. Real-world Scenarios

29. Walk me through how you would implement a real-time collaborative editing feature (like Google Docs).

30. How would you design a MERN application that needs to support offline functionality?

31. Describe how you would implement search functionality with autocomplete and faceted search.

32. How would you handle internationalization (i18n) in a large MERN application?

9. Behavioral Questions

33. Describe the most challenging MERN project you worked on and how you overcame the challenges.

34. How do you stay updated with the rapidly changing MERN ecosystem?

35. Explain your approach to mentoring junior developers on a MERN project.

36. How would you handle a situation where the client requests a major feature change late in the project?