

JavaScript Roadmap for SDE-1 (Topics Checklist)

Core Basics

- Variables: var, let, const
- Hoisting & Temporal Dead Zone (TDZ)
- Data Types (primitive vs reference)
- Type Conversion & Coercion
- Operators & Expressions
- Control Structures (if, switch, loops)
- Functions (declaration, expression, arrow)
- Scope (block, function, global)

Advanced Language Concepts

- Closures
- Prototypes & Prototype Chain
- this keyword (default, call, apply, bind, arrow)
- Object.create & inheritance
- ES6+ Features (destructuring, spread/rest, default params, template literals)
- Symbols & BigInt
- Optional Chaining & Nullish Coalescing

Asynchronous JS

- Event Loop (call stack, microtask, macrotask)
- Callbacks
- Promises
- Async/Await
- Promise methods (all, race, allSettled, any)
- AbortController (cancel async tasks)

Advanced Features

- Generators & Iterators
- Async Iterators
- Proxies & Reflect
- WeakMap & WeakSet
- Modules (CommonJS vs ES Modules, import/export)

Browser & DOM

- DOM Tree & Manipulation
- Events: bubbling, capturing, delegation
- Forms & Validation
- Custom Events
- LocalStorage / SessionStorage / IndexedDB
- Cookies & SameSite attribute

- Fetch API, XMLHttpRequest (XHR)
- WebSockets, SSE (Server-Sent Events)
- Service Workers & Web Workers

Node.js (Basics for SDE-1)

- Node Event Loop vs Browser
- CommonJS & ES Modules
- File System module
- Streams & Buffers
- HTTP basics (creating server)
- Middleware & Express fundamentals

Tooling & Workflow

- npm / yarn / pnpm basics
- package.json & semantic versioning
- Babel & polyfills
- Webpack / Vite / Rollup basics (bundling, tree-shaking)
- ESLint & Prettier

TypeScript (Optional but Recommended)

- Types, Interfaces, Generics
- Union, Intersection, Utility Types
- Type narrowing (unknown, never, any)

Testing & Debugging

- Unit Testing (Jest / Mocha)
- Integration Testing
- E2E Testing (Cypress / Playwright)
- Debugging (DevTools, Node Inspector)

Security & Performance

- XSS & CSRF basics
- CORS
- Content Security Policy (CSP)
- Memory Leaks (listeners, closures, timers)
- Performance: reflow vs repaint, async loading, code-splitting
- Lighthouse & Web Vitals (LCP, FID, CLS)

Patterns & Interview Prep

- Common Patterns: Module, Factory, Singleton, Observer, Pub/Sub
- EventEmitter implementation
- Deep clone vs shallow clone

- Polyfills (bind, debounce, throttle, promise.all)
- LRU Cache
- DS & Algos in JS (arrays, objects, sets, maps, stacks, queues, trees, graphs)