

# The Complete Web Development and Interview Preparation Guide

- This a complete guide to Web Development and Interview Preparation in Javascript
- “Unsurprisingly, for the eighth year in a row, JavaScript has maintained it’s stronghold as the most commonly used programming language” - StackOverflow Developer Survey 2020
- Prerequisite: Beginner Level HTML and CSS
- The following topics are covered

## DataStructure and algorithms in JavaScript (Beginner to advanced)

- Mathematics (beginner)
- Array (beginner)
- Bit Manipulation (beginner)
- Linked Lists (intermediate)
- Tree (intermediate)
- Heaps (intermediate)
- Graphs (advanced)
- Greedy Algorithms (advanced)
- Backtracking (advanced)
- Recursion (intermediate)
- Dynamic Programming (advanced)
- Algorithms (intermediate)

## JavaScript (Beginner to advanced)

- Introduction (beginner)
- Types (beginner)
- Objects and Prototypes (beginner)
- Object Descriptors (beginner)
- Scopes (intermediate)
- Async Programming (intermediate)
- Promises (intermediate)
- Generators (intermediate)
- Iterators (intermediate)
- Proxies (intermediate)
- Closures (intermediate)
- Higher Order Functions (intermediate)

- Event Delegation and Event Bubbling (intermediate)
- Advanced Design Interview Questions based on above topics (advanced)

## **Responsive Web Design (intermediate)**

- Web Layouts
- CSS units
- CSS Grids and Flexboxes
- Media Queries

## **Design Patterns in JavaScript (intermediate)**

- Constructor Pattern
- Prototype Pattern
- Module Pattern
- Concurrency Pattern
- Factory Pattern
- Observer Pattern
- Command Pattern

## **Databases (beginner)**

- SQL Databases
- Nosql Databases
- Graph Databases
- Key-Value Store Databases

## **React.js Library (intermediate)**

- Introduction
- Advanced
- Class Based Components
- Context API
- React Hooks (latest addition to Hooks)
- Redux
- Next.js (An Framework for building Isomorphic React apps)
- React.js Design Patterns
- Performance
- TypeScript
- And More (will update as React releases new features)

- Testing (using jest and Enzyme)
- Unit Testing
- Integration Testing

## **Node.js (intermediate)**

- Node.js Modules
- Internal modules
- HTTP
- Events
- Stream
- File System
- Debugging and Testing
- API Design using Node.js

## **System Design (advanced)**

- Client-Server model
- Network Protocol
- Persistence
- Latency and Throughput
- Availability
- Caching
- Load Balancer
- Hashing
- Databases
- Replication
- Sharding
- P2P Networks
- Rate Limiting
- Logging and Monitoring
- API Design
- Design Questions
- Design a Code Deployment System
- Design a Streaming Service like Netflix
- Design a URL Shortner
- Design an online Code execution System
- Design Facebook news feed
- Design a Media(photos and videos) Sharing Application
- Design a messenger and more

## Projects (with codes) and Design Questions (intermediate)

- Design an image Carousel
- Design an Autosuggestion Input Field (with debouncing)
- Design a checkerboard
- Design an efficient tooltip (using Event Delegation)
- Build an Algorithm Visualizer using Vanilla Javascript
- Build a Pet adoption website using React.js
- Build a Pet Snake Game using React.js
- Build a Face Detection Application using React.js
- Build a Tesla website clone using React.js
- Build Amazon website Clone