

Full Stack Development - Complete Concepts List

1. Frontend Development

Basics

- HTML5 (Semantic tags, Forms, Canvas, etc.)
- CSS3 (Flexbox, Grid, Media Queries, Animations)
- JavaScript (ES6+ syntax, DOM manipulation, Events, Fetch API)

Advanced JavaScript

- Async/Await, Promises
- Closures, Scope, Hoisting
- Modules and Bundlers (ES Modules, Webpack, Vite)
- Event Loop, Call Stack, Microtasks/macrotasks

Frontend Frameworks/Libraries

- React.js (or Vue.js / Angular)
- State Management (Redux / Zustand / Context API / MobX / Pinia)
- Routing (React Router / Vue Router)
- Hooks (useState, useEffect, custom hooks)

Styling

- CSS Preprocessors (SASS, SCSS)
- CSS Frameworks (Tailwind CSS, Bootstrap)
- Component Libraries (Material UI, Chakra UI, Ant Design)

Other

- Responsive Design (Mobile-first)
- Accessibility (ARIA, Screen Reader support)
- SEO Basics (Meta tags, semantic HTML, SSR/SSG)

2. Backend Development

Programming Languages

- JavaScript/TypeScript (Node.js)
- Python (Django, Flask, FastAPI)
- Go, Java (Spring Boot), Ruby (Rails), Rust (Actix, Rocket)

Frameworks

- Express.js (Node.js)
- FastAPI (Python)
- Nest.js (TypeScript)
- Django / Flask

APIs

- RESTful APIs
- GraphQL
- WebSockets
- Rate Limiting, Caching, Pagination

Authentication & Authorization

- Sessions vs JWT

- OAuth2, OpenID Connect
- Role-based access control (RBAC)
- Passport.js / Firebase Auth / Auth0 / Clerk

3. Databases

SQL Databases

- PostgreSQL
- MySQL / MariaDB
- SQLite

NoSQL Databases

- MongoDB
- Redis
- Firebase Firestore

Concepts

- Database Design & Normalization
- Joins, Indexes, Transactions
- ORM (Prisma, Sequelize, TypeORM, Mongoose)

4. DevOps, Tools & Testing

Development Tools

- Git

- GitHub / GitLab / Bitbucket
- Linters (ESLint), Formatters (Prettier)
- Docker
- Package Managers (npm, yarn, pnpm)

Testing

- Unit Testing (Jest, Mocha)
- Integration & E2E (Cypress, Playwright, Supertest)
- Test Coverage Tools

5. CI/CD & Deployment

- CI Tools (GitHub Actions, GitLab CI, CircleCI)
- Docker + Docker Compose
- NGINX / Apache
- Reverse Proxy
- PM2
- Hosting (Vercel, Netlify, Render, Railway, Heroku, AWS EC2/S3/Lambda)
- Domain setup, HTTPS with SSL (Let's Encrypt)

6. Architectural & Design Patterns

- MVC, MVVM
- Monolithic vs Microservices
- Serverless Architecture

- API Gateways
- Webhooks
- Queues (RabbitMQ, Redis Streams, Kafka)
- Rate Limiting, Throttling

7. Bonus: Modern Full Stack Tools & Ecosystem

- Next.js (React Full Stack Framework)
- tRPC / REST / GraphQL
- Supabase / Firebase (BaaS)
- Prisma ORM
- Tailwind + DaisyUI / ShadCN
- Redis (caching, pub/sub)
- Stripe / Razorpay (payments)
- WebSockets / Socket.IO (real-time apps)
- Service Workers / PWA