



# Modern Full Stack Roadmap

## 📍 PHASE 1 — Core Web Foundations (4–6 weeks)

### Skills

- HTML structure, semantics, forms
- CSS basics: flexbox, grid, responsive design
- JS essentials: variables, functions, loops, objects, arrays
- DOM: query, events, manipulation
- Fetch API basics

### Concepts

- How the web works (HTTP)
- Browser rendering
- Client vs server

### Projects (easy → medium)

1. **Startup landing page clone** (build 3 different ones)
2. **Interactive quiz game**
3. **DOM-based Notes app**
4. **Movie search UI using OMDB API**
5. **Browser Expense Tracker**

### Outcome

You can build visually solid, interactive UIs without frameworks.

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## PHASE 2 — JavaScript Mastery + TypeScript Intro (6–8 weeks)

### Skills

- Array methods: map, filter, reduce
- Closures, scope, prototypes
- Async: promises, async/await
- Modules (import/export)
- Error handling
- TypeScript basics: types, interfaces, generics

### Concepts

- Single threaded nature of JS
- Event loop, call stack
- Immutability
- Type inference

### Projects

1. **AI-assisted flashcard generator (TS)**
2. **Browser automation toolkit (TS)**
3. **Crypto price tracker dashboard**
4. **Public API aggregator CLI (Node.js)**

### Outcome

You think like a JS engineer, not a copy-paster.

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# PHASE 3 — React Foundation (6–8 weeks)

## Skills

- JSX, components, props, state
- Hooks (useState, useEffect)
- Controlled/uncontrolled forms
- Routing (React Router)
- Performance basics

## Concepts

- Component-driven UI
- Composition over inheritance
- State management fundamentals

## Projects

1. **Real-time Markdown Editor**
2. **Kanban Board**
3. **AI-based brainstorming board**
4. **Flashcard app with spaced repetition**

**Unique:** build 2 versions:

- basic JS
- TypeScript + improved patterns

## Outcome

You can build medium complexity SPAs comfortably.

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# PHASE 4 — Next.js & Tailwind (6–10 weeks)

## Skills

- File-based routing
- Server vs client components
- Layouts, metadata
- SSR, ISR, SSG
- Tailwind design patterns

## Concepts

- Progressive enhancement
- SEO basics
- Performance/CLS

## Projects

1. **Blog platform with MDX**
2. **AI-generated website builder**
3. **Product landing generator (unique)**
4. **Travel itinerary generator with AI**

## Outcome

You can build modern, fast, beautiful frontends.

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# PHASE 5 — Auth, Forms, Validation (5–7 weeks)

## Skills

- Auth.js or Clerk
- Sessions, cookies
- RBAC basics
- React Hook Form
- Zod

## Concepts

- Secure form validation
- Protected routes
- JWTs vs sessions

## Projects

1. User system with roles & permissions
2. Multi-step onboarding flow
3. Feedback dashboard with form analytics

### Unique MVP:

Reddit-style micro-blog with social login

## Outcome

You can build secure user flows like real SaaS products.

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# PHASE 6 — Databases + ORM (8–12 weeks)

## Skills

- PostgreSQL
- Prisma ORM
- Migrations

- Relations
- Indexing basics
- Redis for caching

## Concepts

- Normalization
- Query optimization
- ACID properties

## Projects

1. Personal finance tracker (full CRUD)
2. AIRBNB-style listing platform
3. Task manager with collaborative boards
4. Redis-cached leaderboard

Unique:

AI-powered recipe nutrition analyzer with DB

## Outcome

You can model real data and persist it cleanly.

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## PHASE 7 — Modern Data Flow (4–6 weeks)

### Skills

- TanStack Query (client cache)
- Zustand (local global state)
- Optimistic updates
- Refetching strategies

## Concepts

- API caching vs global state
- Cache invalidation
- Race conditions

## Projects

1. **Realtime collaborative to-do app**
2. **Frontend analytics dashboard**
3. **GitHub stats dashboard**

## Outcome

You can build fast, reactive, responsive apps.

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# PHASE 8 — API Design & Typesafe Backend (6–8 weeks)

## Skills

- Next.js API routes OR tRPC
- Input validation with Zod
- Business logic separation
- Error handling

## Concepts

- Type-safe contracts
- Service architecture
- Monolith vs microservices

## Projects

1. **Productivity dashboard SaaS**

**2. URL shortener with analytics**

**3. Content scheduling system**

**Unique:**

**Team OKR manager with role permissions**

## **Outcome**

You design professional backend APIs.

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# **PHASE 9 — Payments, Emails, SaaS Plumbing (6–10 weeks)**

## **Skills**

- Stripe subscriptions
- Stripe webhooks
- Resend emails
- Cron jobs
- Webhooks handling

## **Concepts**

- SaaS billing models
- Multi-tenant architectures

## **Projects**

- 1. Subscription-based SaaS**
- 2. AI resume generator with paid tiers**
- 3. Team billing + onboarding system**

**Unique:**

**AI content calendar with auto email reminders**

## Outcome

You build profitable systems, not hobby apps.

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# PHASE 10 — AI Engineering + RAG (10–14 weeks)

## Skills

- OpenAI API
- Embeddings
- pgvector
- RAG pipelines
- SSE streaming

## Concepts

- Retrieval augmentation
- Semantic search
- Prompt engineering

## Projects

1. Team knowledge base with embeddings
2. AI tutor for custom datasets
3. AI chatbot for uploaded files
4. Code explanation bot with memory

## Unique MVP:

"Company brain" SaaS that learns docs + slack messages

## Outcome

You can build usable, valuable AI products.

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# PHASE 11 — DevOps, CI/CD, Monitoring (6–10 weeks)

## Skills

- Docker
- GitHub Actions
- Vercel deployments
- Env management
- Sentry
- PostHog

## Concepts

- CI/CD pipelines
- Observability
- Error tracking
- Growth metrics

## Projects

1. Staging/production pipeline
2. User analytics feature
3. Feature flags for experiments

Unique:

**Self-hosted analytics for internal metrics**

## Outcome

You deploy professional, reliable apps.



# PHASE 12 — SYSTEM DESIGN (ongoing)

Not theory.

Practical patterns:

- Horizontal vs vertical scaling
- Caching layers
- Load balancing
- Sharding
- Event driven systems

## Mini-projects

- Rate limiting service
- File processing worker
- Queue-based notifications

## Outcome

You think like an architect.

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## CAPSTONE PROJECTS (choose 2)

Build **large, real, monetizable apps**:

### 1. AI-Powered Notion Alternative

- collab docs
- chat
- embeddings
- subscriptions
- analytics

### 2. Trello-like PM Tool with AI Assistant

- tasks, boards, roles

- OCR of screenshots
- Slack integration
- billing

### **3. Real-time collaborative whiteboard**

- websockets
- OT/CRDT
- multi-user editing

### **4. SaaS for automating invoices and emails**

- OCR
- AI extraction
- PDF generation
- subscriptions

### **5. AI Learning Platform**

- quizzes
- recommendations
- progress tracking
- gamification