



6-Week Study & Build Plan (MVP-focused)

Week 1 — Setup & Fundamentals

- **Learn/Refresh**
 - Node.js + Express basics (routes, middleware, JWT auth).
 - MongoDB (CRUD, indexes, 2dsphere, TTL).
 - React fundamentals (hooks, forms, fetch API).
- **Build**
 - Setup GitHub repo + free hosting (Render/Railway/Fly.io).
 - Scaffold Node.js API + Mongo Atlas connection.
 - Scaffold React app with login/signup pages.

Week 2 — Auth & Users

- **Learn**
 - JWT (RS256) auth flow.
 - Password hashing with bcrypt.
- **Build**
 - `/auth/signup`, `/auth/login`, `/users/me` endpoints.
 - React login/signup UI.
 - Store JWT in localStorage (simple) or httpOnly cookie (safer).

Week 3 — Carpool (Rides + Requests)

- **Learn**
 - MongoDB 2dsphere indexes + `$geoNear`.
 - REST query params (date, radius).
- **Build**
 - API: create/search rides, request/accept rides.
 - React: Post a ride form, search rides list, request seat.

Week 4 — Backhaul (Loads + Truck Availability)

- **Learn**
 - LineString + corridor queries (`$geoIntersects`).
- **Build**
 - API: create/search loads & truck availability.
 - React: Post load, post availability, search + request.

Week 5 — Matching & Chat

- **Learn**
 - Matching engine basics: pre-filter + simple scoring.
 - Socket.IO (rooms, real-time messaging).
- **Build**
 - Backend: implement pre-filter (time, capacity, geo) + simple score.
 - Create `Matches` on accept.
 - React: Chat UI for confirmed matches.

Week 6 — Testing, Observability, Wrap-up

- **Learn**
 - Jest for unit tests, Playwright for E2E.
 - Logging with pino.
- **Build**
 - Unit tests (auth, scoring, validators).
 - E2E: signup → post ride → request → accept → chat.
 - Add structured logs + simple metrics counters.
 - Deploy MVP publicly.



Agile Loop Each Week

- Pick **1–2 features** from Release Plan.
- Write simple **user stories** (e.g., “As a rider, I can request a seat”).
- Implement → test → deploy → retrospect → next story.

⚡ By the end of 6 weeks, you’ll have:

- A working **MVP** with Auth, Carpool, Backhaul, Matching, and Chat.
- Hands-on experience with **React, Node/Express, Mongo, Socket.IO, JWT**.
- Free-tier deployment, ready to demo.