

LatentRAG — Master Manual

Version 2.0 · "Notebook Edition" · 2026

\$ man latentrag — "Build Your Own Skills & Job."

1 · Quick facts

|||

|-|-|

| Item | Value |

| Stack | Next.js (App Router) · TypeScript · Tailwind + shadcn · Prisma + SQLite · Zustand |

| Themes | dark honey-amber · light burnt-sienna · cyber phosphor-CRT — press T to cycle |

| Careers | AI & LLM Engineer · ML & MLOps Engineer · shared

Foundations |

| Pricing | Free tier = Phase 1 · Pro \$29/mo = all 15 courses |

| Module formats | video · notes.md · lab.ipynb · courseware.pdf · code/ |

| AI | per-module \$ tutor --chat console · floating voice --listen tutor |

| Test card (checkout) | 4242 4242 4242 4242, any future date, any CVC |

2 · Project map

src/ app/ layout.tsx fonts (Fraunces/JetBrains Mono/Space Grotesk),
theme init script page.tsx view router — renders Header + current view +
VoiceTutor globals.css ALL design tokens (:root[data-theme]) + notebook
styles components/ theme-provider.tsx 3-state theme (dark/light/cyber),
localStorage, [T] hotkey devlog-ui.tsx typewriter hook, Reveal, CountUp,
CodeWindow (copy-flash) notebook-ui.tsx TerminalTabs, AsciiProgress,
PathCrumb, Panel, TutorConsole, MarkdownLite, progress adapters
voice-tutor.tsx floating voice --listen console (Web Speech API)
header.tsx nav, live-learners pill, theme toggle, progress bar views/
landing, dashboard, course, module, pricing, checkout, account lib/
store.ts (Zustand) · auth.ts (cookie sessions) · utils.ts scripts/seed.ts the
entire curriculum — EDIT ME to change content public/ hero/student-
lady.png hero photo (swap freely) courseware/ drop PDFs here docs/ this
manual (md + pdf, linked in footer)

text

3 · Run locally (Windows / PowerShell)

```
``powershell
cd C:\Users\Owner\ai-careers
npm install
npx prisma db push      # create/sync SQLite db
npx tsx scripts/seed.ts  # load curriculum (idempotent — safe to re-run)
npm run dev              # → http://localhost:3000
```

First run checklist: sign up → pick a track → open Phase 1 course → send /help in the tutor console → checkout with the test card → verify Phase 4 unlocks.

4 · Managing the landing page

All public-facing copy lives as constants at the top of
src/components/views/landing.tsx — no digging through JSX:

|||

|-|-|

| What you see | Constant to edit |

| Typewriter phrases | PHRASES (5 strings; hex strings welcome) |

| Italic subtitle | SUB |

| Paragraph under it | DESC |

| Big stats (15 / 60+ / 14) | the values in the hero stats grid |

| Marquee tech list | TECH array |

| Track cards (01/02/03) | TRACKS array (num, tag, title, meta, body) |

| Five-phase archive list | PHASES array |

| Floating glass chips on photo | the three .glass-chip divs in the hero
(tracks / tutor / salary) |

Hero photo: replace public/hero/student-lady.png (portrait, 3:4 ideal).

Crop is automatic (object-cover); adjust framing via objectPosition (default "center 22%" = face-forward). The cyber theme applies a phosphor duotone automatically — no extra work.

Footer: edit the echo "..." line and the man --md / man --pdf links (serve files from public/docs/).

5 · Managing content (courses & modules)

Everything is one file: scripts/seed.ts. It is idempotent — re-running updates existing records by id and never duplicates or wipes progress.

5.1 Anatomy of a module (all 5 formats)

ts

```
{
  title: "Hybrid Retrieval: Dense + Sparse",
  type: "lab",           // label shown on tabs/cards
  order: 2,             // position inside the course
  durationMin: 75,
  videoUrl: "https://your-cdn.com/w6l2.mp4", // ① video tab (any
  mp4 URL)
  notesMd: "# Hybrid retrieval\nWhy BM25 still matters...", // ②
  notes.md tab
  labMd: "## Lab 2\n1. Implement bm25()...", // ③ lab.ipynb
  tab
  pdfUrl: "/courseware/w6l2.pdf", // ④ pdf tab (file in
  public/courseware/)
  sampleCode: [ // ⑤ code/ tab — copy-flash
    { filename: "hybrid_search.py", raw: "def hybrid_search(...):\n  ..." },
  ],
}
```

Leave any field empty and that tab shows a helpful \$ placeholder instead of breaking.

5.2 Course-level fields

ts

title, description,

track: "shared" | "ai-llm" | "ml-mlops", // "shared" = visible to both tracks (free tier)

phase: 1..5, // drives dashboard grouping

tier: "free" | "pro", // "pro" = locked until subscription

5.3 Workflow

Edit scripts/seed.ts (add a module, tweak copy, attach a PDF).

Re-run `npx tsx scripts/seed.ts`.

Refresh the site — dashboards, progress, and locks update automatically.

Video hosting options (cheapest first): direct MP4 on any object storage · Cloudflare Stream (~\$5/mo) · Mux · Vimeo unlisted. Paste the URL into `videoUrl`.

6 · Users, auth & subscriptions

Auth: email + password, cookie session (`src/lib/auth.ts`). The in-memory session map is hoisted to `globalThis` so it survives dev-mode module splits.

Gating: a course with tier: "pro" shows the access --denied panel for free users; the dashboard marks rows upgrade →.

Checkout: currently the built-in mock (test card 4242...). To go live, replace the card block in `/api/subscribe/route.ts` with `stripe.checkout.sessions.create()` — the route's shape is already structured for it.

Account changes: PATCH `/api/account` (e.g., `{ "track": "ai-llm" }`) — used by the dashboard track picker. 6.1 Domain (`latentrag.com`): Vercel →

Project → Settings → Domains → `addlatentrag.com` +

www.latentrag.com. At your registrar: A record @ → 76.76.21.21 · CNAME `www` → `cname.vercel-dns.com`. SSL is automatic. Set `www` → apex redirect in Vercel. `metadataBase` is already set.

7 · AI instructors

| | | |

| - | - | - |

| Feature | Where | Notes |

| Module tutor console | `notebook-ui.tsx` → `TutorConsole` | slash

commands: /explain /quiz /hint /clear /help; replies type out char-by-char |

| Voice tutor | voice-tutor.tsx | push-to-talk mic chip; replies spoken via TTS (tts:on/off); needs Chrome/Edge for mic — text input works everywhere |

| Backend | POST /api/instructor/chat | context-aware when moduleId is sent; general career mode otherwise (voice-friendly short answers) |

| Model | z-ai-web-dev-sdk in the route | swap for OpenAI/Anthropic by editing that one file's SDK call |

Mic permissions: first click triggers the browser prompt — the tutor prints a friendly error if denied. Mute: the tts:off toggle stops all speech; visual typewriter output continues.

8 · Theme system

Switch: header pill (moon/sun/terminal) or press T anywhere (ignored while typing in inputs). Persists in localStorage key aihub-theme; a pre-hydration script prevents flash-of-wrong-theme.

Recolor: every color is a CSS variable in globals.css under :root[data-theme="dark|light|cyber"]. Key tokens:

|||

|-|-|

| Token | Meaning |

| --acc / --acc2 | primary accent / secondary accent (buttons, tags, gradients) |

| --paper, --panel | page background / card background |

| --ink, --ink-dim, --ink-mut | text / dim text / muted text |

| --line, --line-strong | borders |

| --code-bg, --code-fg | terminal windows |

shadcn bridge: the HSL variables under each theme recolor all existing shadcn components automatically.

Rule for new code: use style={{ color: "var(--acc)" }}-style tokens — never hardcode Tailwind palette colors, or the cyber theme will break.

9 · API reference

|||||

| - | - | - |

| Method | Path | Body | Returns |

| POST | /api/auth/signup | { email, password } | session cookie |

| POST | /api/auth/login | { email, password } | session cookie |

| GET | /api/auth/me | — | { user } |

| GET | /api/courses | — | { courses } |

| GET | /api/courses/{id} | — | { course } incl. modules[] |

| GET | /api/modules/{id} | — | { module } (all 5 format fields) |

| GET | /api/progress | — | completed module ids (any shape —
normalizer handles) |

| POST | /api/progress | { moduleId, completed } | { ok } |

| POST | /api/subscribe | { plan } | activates tier (Stripe swap point) |

| PATCH | /api/account | { track?, ... } | updated profile |

| POST | /api/instructor/chat | { moduleId?, messages } | { reply } |

10 · Troubleshooting

| | | |

| - | - | - |

| Symptom | Cause | Fix |

| White flash on reload before theme | init script removed | keep theme-
init Script (beforeInteractive) in layout.tsx |

| Session lost between API routes (dev) | in-memory map per module
scope | confirm globalThis hoist in lib/auth.ts (already applied) |

| "voice not supported" | Firefox/Safari lack Web Speech | use
Chrome/Edge, or type in the \$ input |

| Typewriter/stats don't animate | OS "reduce motion" enabled | by
design (prefers-reduced-motion) |

| Progress not saving | 401 on /api/progress | log in again; check cookie
SameSite in DevTools → Application |

| PDF tab blank | pdfUrl missing / file not in public/courseware/ | add file
+ set pdfUrl, re-seed |

| Locked course won't open | expected | free tier — checkout with test
card or upgrade |

| Theme flips while typing "t" | old theme provider | the new provider

ignores keystrokes in inputs/textareas |

11 · Deployment — cheapest live path (\$0/mo to start)

Push the repo to GitHub.

Neon (neon.tech) → create project → copy the Postgres connection string.

prisma/schema.prisma: change provider = "sqlite" → "postgresql" → npx prisma migrate deploy.

Vercel → import repo → env vars: DATABASE_URL, any auth secret your code uses.

Deploy → seed once against Neon (DATABASE_URL= npx tsx scripts/seed.ts).

Domain: add it in Vercel → Project → Domains; update metadata in layout.tsx; point your registrar's nameservers/A-record per Vercel's instructions.

Swap mock checkout → Stripe keys when ready to charge.

12 · Maintenance schedule

|||

|-|-|

| Cadence | Tasks |

| Weekly | add/refresh a module in seed.ts; skim console errors in dev log

|

| Monthly | npm audit; back up the DB file (dev) or Neon snapshot (prod); test signup→checkout path |

| Quarterly | review pricing vs. market; refresh PHRASES/hero copy; prune old PDFs |

Appendix A · Keyboard & commands

|||

|-|-|

| Input | Action |

| T | cycle dark → light → cyber |

| /explain /quiz /hint /clear /help | tutor console commands (module + voice panels) |

| Enter | send tutor message |

| Tab keys | module content: video / notes.md / lab.ipynb / pdf / code/ |

Appendix B · One-line memory hooks

Content → scripts/seed.ts. Colors → globals.css tokens. Copy → constants atop landing.tsx.

Anything marked ⚠️ ADAPTER = the only lines touching v1 store/API names.

If a color looks wrong in cyber theme → someone hardcoded a Tailwind color; replace with var(--acc).

— end of manual · \$ echo "good luck, engineer" | sudo tee /dev/stdout
text

Appendix C · Phase 2 — Media on Cloudflare R2 See docs/PHASE2-R2-ADDENDUM.md (app on Vercel, videos/PDFs on cdn.latentrag.com, \$0 egress).