

How to Code Umbil – Developer Setup Guide

Umbil is a web-based clinical co-pilot designed for doctors, students, and allied health professionals. It uses AI to answer clinical queries in real time, summarises evidence-based guidelines, and logs reflective learning for CPD and appraisal.

Recommended Tech Stack:

- Frontend: React (with TypeScript), Next.js (optional SSR)
- Backend: Python (FastAPI or Flask)
- AI Layer: OpenAI API (GPT-4 or GPT-3.5-turbo)
- Database: PostgreSQL (CPD entries, users), Redis (caching)
- Hosting: Vercel (frontend), Railway/Render/Heroku (backend)
- Authentication: Clerk.dev or Auth0 (or Firebase Auth)
- Learning Log & Export: PDFKit / Pandoc / HTML-to-PDF library

Basic Functional Flow:

1. User logs in securely
2. User types a clinical query
3. Query is sent to OpenAI API
4. AI response is summarised using your defined prompt structure
5. Response is shown to user + option to 'Log as CPD'
6. CPD log stored in database with timestamp, tags, and summary
7. User dashboard shows past logs and generates export
8. Optionally suggest PDP goals based on learning patterns
9. Allow user to export logs as PDF/HTML for revalidation or appraisal
10. Backend admin panel for data oversight and user feedback

AI Integration:

Use OpenAI's GPT-4 or GPT-3.5-turbo with carefully crafted prompts to ensure medically responsible summaries.

Example prompt:

"Summarise UK guidelines for managing a 42-year-old woman with elevated FSH levels. Use NICE/CKS guidance."

Log original query and AI output for CPD tracking.

CPD Logging Schema:

- User ID
- Timestamp
- Original Query
- AI Summary
- Tags (e.g., gynaecology, diabetes)
- Optional Reflection
- Export Format (HTML, PDF)

Suggested MVP Milestones:

1. Set up basic frontend (React) + authentication
2. Build query interface connected to OpenAI API
3. Store questions + responses in backend
4. Enable CPD tagging and reflection logging

5. Dashboard to review, edit, and export logs
6. Prepare for user testing with small clinical group

Note: Ensure clinical safety, transparency, and user control. Umbil is designed to support — not replace — professional judgement.