

ABDALLA BAKR

Software Engineering Student · Full-Stack Developer · AI Tooling

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PROFILE

I'm a final-year Software Engineering student at the University of Greater Manchester (London), tracking a First-Class Honours degree (70%+ across modules). I like shipping end-to-end: my public AI-tooling product PromptForge is live at promptforge.uk, I'm building a multilingual booking site for a small London clinic, and a self-hosted finance tracker with an AI assistant that turns plain-English questions into structured data filters. I'm most comfortable across Python (FastAPI, Flask), TypeScript (Next.js, React), and Postgres, and I try to leave every project with a decision log, tests, and a clear hand-off note so the next person doesn't have to guess. My work is at abdallabakr.dev. I'm looking for a software engineering role where I can keep building like this with people I learn from.

TECHNICAL SKILLS

Languages: Python, TypeScript / JavaScript, Java, C#, SQL

Web: Next.js (App Router), React, FastAPI, Flask, Astro, Tailwind CSS

Tools & Platforms: Git / GitHub, GitHub Actions, Vercel, Railway, Supabase (Postgres + Auth), Stripe, Anthropic Claude API

Testing & QA: pytest, unit + integration testing, end-to-end browser testing, manual QA across role flows

Concepts: Agile / Scrum, REST + structured-error JSON contracts, OOP, MVC, GDPR + secrets hygiene, CI/CD, SDLC

EXPERIENCE & UNIVERSITY INVOLVEMENT

Peer Programming Mentor

Oct 2023 – June 2024

University of Greater Manchester (London). Informal Academic Support

- Provided weekly one-to-one and small-group coding support to first-year students struggling with Python and Java modules, improving their understanding of OOP fundamentals.
- Helped peers debug coursework assignments, reducing average time-to-resolution from several days to under 48 hours across a group of 8 regular mentees.
- Created short written walkthroughs for recurring problem types (linked lists, recursion), shared via the course Discord. used by 30+ students.

Active Member, Computing & Technology Society

Oct 2023 – June 2024

University of Greater Manchester (London)

- Attended and contributed to monthly technical workshops covering topics including cloud fundamentals, ethical hacking introductions, and software architecture.
- Participated in society-run coding challenges and internal hackathons, using these as a platform to refine collaborative development workflows under time constraints.
- Assisted in organising a 2-hour intro-to-Python workshop for 20+ non-CS students, co-delivering live demonstrations and Q&A alongside a senior committee member.

Developer & Designer. QIC Hackathon

May 2025

AI Gamification Insurance App | Multidisciplinary Team Event

- Built an AI-powered insurance app concept designed to boost engagement through gamification mechanics, collaborating across a multidisciplinary team of 5.
- Took ownership of front-end UI/UX implementation and a core back-end feature, delivering a working prototype within the competition deadline.
- Designed a backend scalability roadmap proposing K6 load-testing strategies to validate performance for a projected 500+ concurrent users.
- Presented the solution to a panel of industry judges, defending technical decisions and demonstrating awareness of real-world deployment constraints.
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Software Engineering Intern

May 2026 – Present

TwelveTech Systems (twelvetechsystems.co.uk). Part-time placement, just started

- Just joined the team part-time. Helping them bring AI integration into the software they build.

PROJECTS

PromptForge. promptforge.uk · abdallabakr.dev/projects/promptforge 2026

- I built and shipped a public web product that turns a project brief into a paste-ready meta-prompt for Claude Code, Cursor, Codex, Windsurf, Aider, or Copilot. Every recommendation is a hoverable citation back to a source row in a curated knowledge base. Live at promptforge.uk.
- I designed the retrieval pipeline: pgvector (HNSW, cosine) and Postgres full-text-search both run against the project brief, reciprocal rank fusion merges them, an optional CrossEncoder reranks the top six, and hard-fired dependency rules (£0 + payments = HARD BLOCK) inject separately. Anthropic Haiku 4.5 synthesises the final meta-prompt with a server-side citation validator that strips any sentence whose [chunk:id] isn't in the retrieval set.
- Stack I chose and wired up: Next.js 16 on Vercel, FastAPI on Railway, Supabase Postgres + pgvector in Frankfurt, Voyage AI for embeddings, Anthropic Haiku 4.5 for synthesis. The knowledge base is ~500 atomic YAML rows across nine corpora; ingest is idempotent on content_sha256 so a single edit re-indexes cleanly.
- I own the CI and the eval discipline: GitHub Actions runs ruff, mypy strict, ~1,900 backend tests, the frontend production build, plus a deterministic RAG eval (recall@6, precision@6, citation accuracy, expected-claims) on a fixed-seed harness with 15 golden fixtures. Per-component ablations are documented in docs/ABLATIONS.md.

Hijama Business. abdallabakr.dev/projects/hijama 2026

- I'm building a trilingual (English, Bangla, Arabic) booking site for a family-run clinic in East London, including a small operator console for managing bookings and content.
- Right-to-left support for Arabic isn't only a translation problem. the layout, icons, padding, and scroll direction all mirror. I built each component to read both directions cleanly.
- Stack I'm using: Next.js 15 (App Router) with TypeScript strict mode, Postgres on Neon (Frankfurt) with Drizzle ORM, Stripe under SAQ A, Auth.js v5 with magic-link + TOTP, Resend for transactional email.

Personal Finance Tracker. abdallabakr.dev/projects/finance-tracker 2026

- Self-hosted finance tracker (accounts, categorised transactions, CSV imports) with an in-app AI assistant that turns plain-English questions into validated filter specs over your own data.
- The trust boundary I designed: the model emits a structured JSON filter, not SQL. the application is what runs the parameterised query. The model never sees raw rows, and the database never sees raw model output.
- Stack: Python, Flask + Jinja, SQLite, Pydantic for validation, Anthropic Claude for natural-language interpretation.

Game Jam Lead. abdallabakr.dev/projects/game-jam (top 17 of 100+) 2025

- I led a five-person team. one artist, one designer, three developers. through a month-long competitive game jam. We shipped a complete playable game on itch.io and placed 17th out of 100+ entries.
- I ran the source-control workflow (feature branches with a nightly merge window so conflicts surfaced early), reviewed every PR into main, and made the scope call mid-jam to cut one level so we shipped three polished levels rather than four half-baked ones.
- Stack: Unity, C#, Git. Discord for sync work, Trello for tracking.

EDUCATION

BSc Software Engineering. Predicted First-Class Honours

2023 – 2027

University of Greater Manchester (London)

- Achieving 70%+ in all modules to date, consistent with First-Class classification.
 - Key modules: OOP · Databases · Data Structures & Algorithms · Applied Software Engineering · Advanced Software Concepts · System Analysis · Computer Systems · Logical Analysis · Maths for Computing · Computing Infrastructure
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