

SHUBHAM SHARMA

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OBJECTIVE

Engineering student specializing in Data Science with a strong interest in software development, backend systems, and building real-world applications. Focused on developing scalable software, working with databases, APIs, and modern development tools. Seeking opportunities to apply technical skills in practical engineering environments.

EDUCATION

Lokmanya Tilak College of Engineering

Bachelor of Computer Science and Technology (Data Science)

November 2024 - July 2028

Navi Mumbai, India

Narayana eTechno School

Maharashtra Higher Secondary Certificate (12th)

February 2024

Navi Mumbai, India

Lodha World School

Indian Certificate of Secondary Education (10th)

July 2022

India

PROJECTS

HelpMate (Pratham Sahay) — Multilingual Emergency & First-Aid Assistance System

Technologies: React Native (Expo), TypeScript, Python (FastAPI), MongoDB, Expo Speech (TTS), Expo Location, Native Android SMS Bridge

- Engineered an offline-first emergency assistance mobile application tailored for low-literacy users and high-stress scenarios, featuring high-contrast pictorial guidance, step-by-step first-aid protocols, and dynamic CPR pacing.
- Built a native-language accessibility engine supporting 11 regional languages (Hindi, Bengali, Tamil, Telugu, Marathi, Gujarati, Kannada, Malayalam, Punjabi, Odia, English) combining pre-recorded localized audio cues and Text-to-Speech (expo-speech) voice narration.
- Developed a one-touch SOS dispatch system with a 3-second hold-to-trigger safety mechanism, real-time GPS coordinate geocoding (expo-location), and automatic multi-recipient emergency SMS alerting via a custom native Android SMS module.
- Implemented an intuitive Symptom Checker & Emergency Triage flow with local caching (AsyncStorage), ensuring 100% offline access to critical life-saving guides without internet connectivity.

NotesHub — Full-Stack Collaborative Note-Sharing & Social Platform

Technologies: MERN Stack (MongoDB, Express, React, Node.js), Socket.io, Redux Toolkit, SSE, Recharts, Cloudinary

- Built and deployed a full-stack MERN-based collaborative note-sharing and social learning platform enabling users to create, organize, and share study materials through hierarchical folder structures and rich note management.
- Implemented real-time direct messaging with Socket.io, supporting live typing indicators, read receipts, and online/offline presence tracking.
- Developed a social timeline and notification system using Server-Sent Events (SSE) with aggregated feeds based on user network relationships and activity.
- Created an interactive analytics dashboard using Recharts to visualize engagement metrics, note activity, and user interaction trends.
- Integrated secure authentication using bcrypt, media handling via Multer and Cloudinary, and optimized global state management with Redux Toolkit and Redux Persist.

Codebase RAG Engine & Dashboard — AI-Powered Repository Intelligence System

Technologies: Python, FastAPI, Tree-sitter, ChromaDB, Sentence-Transformers, React, Vite, NVIDIA NIM, FileLock

- Built a high-performance Retrieval-Augmented Generation (RAG) system for indexing, analyzing, and querying software codebases in real time through Web UI, TUI, and CLI interfaces.
- Implemented AST-aware semantic parsing using Tree-sitter to extract functions, classes, and imports across TypeScript, JavaScript, Python, and Java codebases.
- Designed an incremental indexing pipeline using SHA-256 file hashing to avoid redundant reprocessing and automatically prune deleted or modified files.
- Developed repository-local vector storage using ChromaDB with isolated .rag/chroma directories and process-safe concurrency control via file locking.
- Engineered a 1-hop call-graph expansion system to resolve cross-file dependencies and eliminate retrieval blind spots in multi-file projects.
- Built an interactive 2D force-directed codebase graph visualizer using React and react-force-graph-2d, and integrated NVIDIA NIM (Llama 3.1 8B Instruct) for context-aware, streaming, token-budgeted responses.
- Provided multiple interfaces including a modern React dashboard, a terminal-based TUI (Textual), and a CLI tool for indexing and querying repositories.

TECHNICAL SKILLS

Languages: Python, TypeScript, JavaScript, C++, C, Java

Frontend: React, Vite, HTML, CSS, Nextjs

Backend: Node.js, Nestjs, FastAPI, REST APIs

Databases: SQLite, ChromaDB, Postgres, MySQL, Redis, MongoDB

DevOps & Deployment: Nginx, PM2, GitHub Actions, CI/CD, SSL/TLS

Tools: Git, GitHub, VS Code, Neovim, Xcode

RELEVANT COURSEWORK

- Foundational Data Structures & Algorithms
- Object-Oriented Programming (OOP)
- DBMS & SQL
- OS Architectures
- Networking Fundamentals
- Software Engineering Principles

ACHIEVEMENTS & ADDITIONAL EXPERIENCE

- Solved programming and Data Structures & Algorithms problems across competitive programming and coding platforms.
- Built and deployed multiple software projects involving frontend development, backend systems, databases, Linux servers, and automation.
- Experienced with Git-based workflows, debugging production environments, CI/CD, and server deployment.