Nilesh Rana

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🌐 nileshrana.me ‹/› LeetCode

Education

Lovely Professional University, Jalandhar   **August 2023 – Present**
B.Tech in Computer Science and Engineering   *CGPA: 8/10*

Projects

Optisense AI | *Next.js, Node.js, Typescript, Prisma ORM, Clerk, Gemini API*   ⌽ **GitHub**

- Developed a full-stack AI assistant platform, enabling users to create, customize, and manage personalized AI assistants with real-time conversational interfaces powered by Google Gemini API, handling context-aware multi-turn conversations with markdown-formatted responses.
- Implemented **15+** RESTful API routes for assistant management, chat processing, and user authentication (Clerk), integrated MongoDB with Prisma ORM to manage 3 normalized data models supporting concurrent user sessions and token-based usage tracking.
- Developed an ecosystem of **50+** pre-configured AI specialists (Fitness Coach, Code Writer, Bug Finder, etc.) with role-specific instructions, plus custom assistant creation with unique personalities, avatars, and duplicate name validation.
- Built a secure payment system using Razorpay with webhook verification, supporting automated subscription management and credit allocation (100,000 tokens per upgrade) with real-time usage monitoring.
- Engineered a responsive UI with Tailwind CSS, Radix UI, and shadCN support, implemented React Context for state management, optimistic updates, and mobile chat with auto-scroll and Framer Motion animations.

Syntaxist - Online Compiler | *Next.js, Express.js, Docker, WebSocket, Gemini API*   ⌽ **GitHub**

- Built a full-stack online compiler supporting 10+ languages (Python, Java, C++, Go, Rust, etc.) with WebSocket-based real-time code execution and interactive terminal using xterm.js.
- Implemented Docker containerization with isolated sandboxes for secure code execution with resource limits (256MB memory, 0.5 CPU), preventing malicious operations.
- Integrated Google Gemini API for automated Big O complexity analysis and intelligent code optimization suggestions with instant performance insights.
- Developed production-ready application with Monaco Editor, achieving real-time bidirectional communication and deployed on custom domain with **100+** users.

BitLinks - URL Shortner | *Next.js, JavaScript, MongoDB*   ⌽ **GitHub**

- Built a URL shortener using Next.js with RESTful APIs, custom slug generation, database-backed link storage, and dynamic route-based redirection for fast and reliable URL handling.
- Implemented duplicate URL validation, error handling with proper HTTP status codes (201/409/500), and MongoDB connection pooling for database optimization.
- Designed responsive UI with Tailwind CSS, featuring real-time URL validation, mobile-first design, and SSR for improved SEO performance.

Technical Skills

Languages: HTML, CSS, JavaScript, TypeScript, Java, SQL
Frameworks & Libraries: React.js, Next.js, Node.js, Express.js
Databases: MongoDB, MySQL
Developer Tools: Git, Github, Postman, Docker, Compass, MySQL Workbench, VS Code
Core CS Topics: Data Structures & Algorithms, Object-Oriented Programming, Operating Systems, Computer Networks, Database Systems (DBMS), System Design

Achievements

- Semifinalist, Tata Imagination Challenge 2025 - selected among **7054** shortlisted candidates across India.
- Scored **75%** in the NPTEL Cloud Computing course, a proctored national-level exam.
- Achieved a LeetCode Contest Rating of **1660** with global rank **1836** in Weekly Contest 472, demonstrating strong algorithmic knowledge and coding proficiency.
- Solved **500+** coding problems across LeetCode, CodeChef and Codeforces, showcasing strong problem-solving skills.
- Secured a position in the Dean's List, representing the **top 10%** of the college for academic excellence.
- Member of GitHub Club, LPU.