

MAHESH NIBE

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SUMMARY

Incoming SDE Intern with a strong foundation in **Systems Engineering (C++)** and **Full Stack Architecture (MERN)**. Passionate about building performant systems, evidenced by engineering a custom **Compiler** from scratch and deploying **Dockerized** web services. Proficient in optimizing low-level memory operations and handling database concurrency.

EDUCATION

Dr. D. Y. Patil College of Engineering <i>Bachelor of Engineering in Information Technology; CGPA: 8.7</i>	Pune, India July 2023 – May 2027
P. V. P. College of Arts Science And Commerce <i>HSC (Maharashtra Board); Percentage: 76.17%</i>	Pravaranagar, India June 2021 – Feb 2023

TECHNICAL SKILLS

Programming Languages: C++, C, JavaScript (Node.js), Java, SQL, HTML5/CSS3

Technologies & Frameworks: Express.js, React.js, MongoDB (Mongoose), REST APIs, Swagger/OpenAPI

Database Management: MySQL, MongoDB (Indexing, Aggregation), 3NF Normalization

Systems & Developer Tools: Docker, Docker Compose, Linux (Bash), Git/GitHub, GCC, Makefiles

Core CS Concepts: Operating Systems, Compiler Design, OOP, Data Structures & Algorithms

KEY PROJECTS

SimpleLang Compiler (8-bit Architecture) <i>C++, Assembly, System Design</i>	Jan 2026
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- Engineered a custom compiler from scratch to translate high-level code into optimized **8-bit Assembly**, demonstrating deep understanding of memory management and parsing.
- Implemented a **Lexer** and **Recursive Descent Parser** to construct an Abstract Syntax Tree (AST) without external libraries.
- Designed a Code Generator using **static memory mapping** to manage variable storage on a constrained stack architecture.
- Utilized Object-Oriented Programming to modularize AST node processing, ensuring scalability for future language features.
- [Link: GitHub Repository](#)

ShortURL Microservice <i>Node.js, Docker, Swagger, MongoDB</i>	Sept 2025 – Present
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- Architected a production-ready URL shortener using the **MERN Stack**, handling high-concurrency requests with sub-millisecond latency.
- **Containerized** the application and database using **Docker** and Docker Compose to ensure consistent deployment environments.
- Integrated **Swagger/OpenAPI** to auto-generate interactive API documentation, improving collaboration with frontend teams.
- Implemented **Atomic Database Operations** with MongoDB indexing to prevent **Race Conditions** during concurrent alias allocation.
- [Link: GitHub Repository](#)

E-Commerce Database System <i>MySQL, SQL, Database Design</i>	April 2025
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- Designed a relational database schema normalized to **Third Normal Form (3NF)** to eliminate data redundancy.

- Implemented **Stored Procedures** and **Triggers** to automate inventory updates and enforce data integrity constraints.
- Modeled complex entity relationships (E-R Diagrams) for Customers, Orders, and Sellers to optimize query performance.
- [Link: GitHub Repository](#)

EXTRACURRICULAR & CERTIFICATIONS

NPTEL Elite Certification in DBMS: Achieved top 2% rank nationwide; awarded by IIT Kharagpur (Jan - May 2025).

MERN Stack Technologies: Completed comprehensive training covering MongoDB, Express, React, and Node.js with hands-on project implementation.

Data Structures & Algorithms: Solved 150+ coding problems across LeetCode and GeeksForGeeks, establishing strong problem-solving logic.

Core Certifications: C++ Programming, Database Management Systems, MongoDB Basics.