

Sushanth Musham

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CodeChef: codechef.com/SushanthMusham

Education

Indian Institute of Technology, Bhubaneswar

B.Tech in Electrical Engineering

GPA: 8.04

Aug. 2023 - present

Narayana Junior College, TSBIE

Telangana State Board of Intermediate Education

Percentage: 95%

Narayana High School, TS SSC

Apr. 2021 - Mar. 2023

April 2020 - March 2021

Projects

Realtime Collaborative Document Editor [🔗](#) | [Website](#)

Full Stack Development

- Built and deployed a **Google-Docs**-style realtime collaborative text editor enabling multiple users to edit the same document simultaneously with **instant live sync** using **Socket.io**.
- Developed a scalable **room-based WebSocket** architecture, ensuring **isolated collaboration** per document and **near-zero latency synchronization** across clients.
- Integrated **PostgreSQL (Neon)** + **Prisma ORM** to persist document state, implemented **fault-tolerant upsert logic**, and handled edge cases like missing documents and **DB conflicts**.
- Designed a modular **Node.js + Express** backend with **secure routes** for authentication and document management; implemented lifecycle events like load-document, send-changes, and receive-changes.
- Built a responsive **React + Vite** frontend with **dynamic routing** /doc/:id, efficient socket lifecycle handling, and smooth editing UI.
- Successfully deployed backend on **Render** and frontend on **Vercel**, resolved deployment failures, Prisma build issues, environment configuration, and **CORS + WebSocket compatibility**.
- Ensured **data consistency**, reliability, and **production stability**, achieving seamless realtime collaboration with persistent storage and **automatic recovery**.
- Tech Stack: **React, Node.js, Socket.io, PostgreSQL, Prisma, Vercel, Render**

Codeforces Tracker [🔗](#) | [Website](#)

Full Stack Development

- Developed a **full-stack Codeforces Tracker** web app that allows users to log in, connect their CF handle, and view rating history, max rating, current rating, and total problems solved in a **structured dashboard**.
- Built the backend using **Node.js, Express.js, and MongoDB**, implementing **secure JWT authentication**, protected routes, middleware, and request interceptors for **persistent sessions**.
- Integrated **Codeforces APIs** and implemented robust **data processing logic** to: fetch user submissions, **deduplicate solved problems**, compute total solved count, categorize problems by rating & tags, fetch and process rating history timeline.
- Implemented **smart caching with MongoDB** to reduce external API calls by storing computed stats with refresh capability (6-hour cache expiration + manual refresh option).
- Designed an **interactive dashboard** using **React, Tailwind CSS, and Recharts**, including: Rating trend line chart, Rating-wise solved bar chart, Tag-wise problem analytics pie chart, Stats cards with key performance metrics.
- Added UI features like **Dark Mode**, smooth UX, secure redirection flow, and mobile responsiveness.
- Deployed backend on **Render** and frontend on **Vercel**, configured environment variables, routing fixes, and **production build optimizations** for seamless live deployment.
- Tech Stack: **React, JavaScript, Tailwind CSS, Recharts, Node.js, Express.js, MongoDB, JWT Auth, Axios, Render, Vercel**

Key Skills

- **Programming Languages:** C, C++, JavaScript
- **Technical Skills:** Object-Oriented Programming (OOP), Data Structures Algorithms (DSA), REST API Development, **WebSockets, Realtime Systems, JWT Authentication**
- **Frameworks / Libraries:** React, Node.js, Express.js, **Socket.io, MongoDB, PostgreSQL, Prisma ORM, Vite, Tailwind CSS, Recharts**
- **Tools:** VS Code, Sublime Text, Git, GitHub, Postman, Vercel, Render

- **Soft Skills:** Problem-Solving, Communication, Teamwork, Time Management

Achievements

- Qualified **JEE Advanced 2023** with **AIR 9641** (Top ~1.04% among ~1,00,000+ candidates).
- Secured **Top ~0.5% rank** (Under 1900) in **AP EAMCET 2023** among ~3,00,000+ candidates.
- Secured **Top ~1% rank** (Under 2900) in **TS EAMCET 2023** among ~3,00,000+ candidates.
- **2*** Coder on CodeChef.

Extra-Curricular Activities

- Took part in many cleanliness drives as an NSS member in first year, helping keep IIT Bhubaneswar and nearby Brunei Hills clean.