

# SUMIT SINGH RANA

Almora, Uttarakhand

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## Education

**Graphic Era Hill University, Bhimtal**

**2022 - Present**

*B.Tech in Computer Science & Engineering*

*8.04/10 CGPA*

## Relevant Coursework

- Data Structures
- Algorithms
- DBMS
- Operating System
- Web Development

## Experience

**JPMorgan Chase Software Engineering Virtual Experience (Forage)**

**Remote**

*Software Engineering Simulation*

*Dec 2025*

- Engineered a Java Spring Boot microservice with Kafka consumers, REST APIs, and H2 database for transaction processing.
- Implemented transaction validation, balance updates, and incentive API integration.
- Exposed REST endpoint for querying user balances and completed all 5 tasks successfully.

**We Code - Coding Club, Graphic Era Hill University**

**Bhimtal, Uttarakhand**

*Mentor*

- Mentored and guided over 100+ students in Data Structures and Algorithms (DSA), providing personalised support and structured learning paths.
- Conducted coding challenges, doubt-solving sessions, and code reviews to improve students' logical reasoning and coding proficiency.

## Projects

**Realtime Chatroom Platform** | *HTML, CSS, JavaScript, Node.js, MongoDB, Socket.io*

- Built a full-stack real-time chat application with secure login, public/private rooms, and WebSocket-based messaging using Socket.io, enabling 100ms message delivery.
- Implemented JWT-based authentication and room-level access controls, enhancing user data security and session management by 70%.
- Deployed scalable, cross-device compatible frontend and backend on Vercel and Render, achieving 99.9% uptime and seamless browser accessibility.

**Bus Allocation System** | *React, Node.js, MongoDB*

- Designed and composed a bus allocation system to streamline college transportation, enabling students to search for buses by plate number or location, reducing search time by 40%.
- Integrated MongoDB for real-time data management and optimized UI/UX with React and Tailwind CSS, improving system performance by 35%.
- Implemented high-performance route filtering and time-based bus availability, enhancing efficiency and user convenience by 50%.

**AST-Based Syntax Checker and Visualizer** | *Python, C, PyQt6, Graphviz, MongoDB*

- Programmed a desktop tool for Python and C syntax analysis with AST visualization, reducing debugging effort by 60% through real-time parsing.
- Integrated Python ast module and pycparser for C to detect syntax errors and visualize code structure using Graphviz.
- Developed a modern PyQt6 GUI with language selector, dark mode, and scrollable AST output for improved usability.

## Technical Skills

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

**Frontend:** React.js, Tailwind CSS, HTML, CSS, Bootstrap

**Backend:** Spring Boot, Node.js, Express.js, Kafka

**Cloud & Databases:** AWS, MongoDB, PostgreSQL, MySQL

**Web Technologies:** Socket.io

**Developer Tools:** VS Code, Postman, Git, GitHub

## Extracurricular

- Solved 150+ problems on competitive coding platforms; organized inter-campus BGMI Esports Tournament with 240+ participants; coordinated a hackathon with 50+ participants.