

Aditya Raghuvanshi

Education

- 2022–Present **B.E. in Computer Engineering**, *Institute of Engineering and Technology, DAVV, Indore*
CGPA: 8.0/10
Relevant Coursework: Advanced DSA, Operating Systems, DBMS, Computer Networks, OOP, System Design
- 2021 **Class XII**, *Mansarovar Academy, Vidisha*
Percentage: 92%
- 2019 **Class X**, *Vatsalya Sr. Sec. School, Vidisha*
Percentage: 92.4%

Projects

- Dec 2024 **Smart Power Distribution Optimization**, *C++, Data Structures and Algorithms*
○ Engineered an end-to-end **Dynamic Programming** pipeline to predict maximum grid instability under constrained line-tripping scenarios.
○ Designed a computationally efficient **3D state DP model** to simulate temporal dependencies across multiple cascading power failures.
○ Optimized infrastructure cost by integrating **Minimum Spanning Tree (Kruskal) + DSU** to compute the lowest-cost power network topology.
○ Reduced overall runtime by **40%** through pruning strategies, memoization, and structural compression of DP states.
- Jan 2025 – Apr 2025 **Disaster Management & Refugee Camp Coordination System**, *MERN Stack, Leaflet.js, DSU, Algorithms*
○ Built a scalable **full-stack emergency response platform** enabling real-time camp monitoring, evacuation routing, and resource allocation.
○ Integrated **Leaflet.js GIS maps** with custom markers, route overlays, and geospatial clustering for intuitive situational awareness.
○ Implemented **DSU-based graph clustering** and optimized BFS/DFS traversal to compute nearest-resource paths **2x faster**.
○ Developed high-throughput **REST APIs (Node.js + Express)** for camp logistics automation, cutting manual workload by **80%**.
○ Ensured system reliability using token-based authentication, modular service architecture, and MongoDB index optimization.
- 2025 **Flowledger**, *MERN Stack (React, Node.js, MongoDB)*
○ Developed a scalable **full-stack expense tracking application** with authentication, CRUD operations, category management, and responsive UI.
○ Implemented **JWT-based user authentication**, secure sessions, and protected API routes.
○ Designed optimized **MongoDB schemas and indexes** for fast filtering, querying, and monthly aggregations.
○ Added support for **date-range filtering**, category-wise analytics, and monthly expense summaries.
○ Built structured and maintainable **REST APIs** in Node.js + Express with proper validation and error handling.

Technical Skills

- Languages C++, JavaScript (ES6+), SQL
- Frontend React.js, HTML, CSS, Axios, Leaflet.js
- Backend Node.js, Express.js, REST APIs, MongoDB, Mongoose
- Core CS Data Structures & Algorithms, Operating Systems, DBMS, Computer Networks, OOP, System Design Basics
- Tools Git, GitHub, VS Code, Postman, Figma, Linux (basic)

Competitive Programming & Achievements

- **Codeforces Specialist** (Peak: 1623) and **CodeChef 5** (Max: 1900); solved **1000+** algorithmically challenging problems covering DP, Graphs, Greedy, and Data Structures.
- Ranked **Global 204** in CodeChef Starters 164, demonstrating strong competitive coding and pressure-solving skills.
- Selected for **Smart India Hackathon 2024 – Round 2**, placing in the **top 1%** of teams nationally.