

# Abhay Agrawal

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## Education

### Dr. APJ Abdul Kalam Technical University (AKGEC, Ghaziabad)

Oct 2023 – June 2027

- B.Tech in Information Technology
- GPA: 8.74/10.0

## Experience

### Backend Developer Intern, BDCOE

Oct 2024 – Dec 2024

- Developed and deployed scalable backend systems using Node.js, Express.js and MongoDB for internal applications.
- Designed and integrated RESTful APIs, improving backend–frontend communication efficiency by 20%.
- Collaborated with cross-functional teams (frontend, ML) to ensure seamless application integration.
- Gained hands-on experience in backend architecture, API optimization, data modeling, and GCP cloud services.

## Projects

### ChatFlix | *Node.js, Express.js, Socket.io, Passport.js, MongoDB*

GitHub - [Link](#)

- Built a scalable real-time messaging system with WebSocket-based communication, supporting private/group chats and user presence tracking.
- Integrated **OAuth 2.0** alongside JWT for secure and seamless user authentication.
- Reduced latency in message delivery by **30%** through Socket.io optimizations and connection pooling.

### TuneCentral | *Node.js, Express.js, ML Model Integration, JWT, MongoDB*

GitHub - [Link](#)

- Built a REST API serving **1000+** requests/minute with **< 200ms** response time.
- Integrated Python ML model via Flask microservice, reducing recommendation latency by **25%**.
- Optimized MongoDB queries and introduced indexing, improving search speed by **40%**.

### Payload CMS Approval System | *Payload CMS, TypeScript, Next.js, MongoDB*

GitHub - [Link](#)

- Engineered a content approval workflow with role-based access control (**Author → Reviewer → Admin**) in Payload CMS.
- Implemented custom hooks to enforce business logic, reducing manual review time by **50%**.
- Designed RBAC system supporting **100+** concurrent users with audit logging.

## Technical Skills

**Languages:** C++, C, JavaScript, TypeScript, SQL, Python, PostgreSQL, HTML, CSS

**Technologies/Frameworks:** Node.js, Express.js, React.js, Socket.io, Payload CMS, Mongoose, JWT, Passport.js, WebSockets, MVC Architecture, RBAC, RESTful APIs

**CS Fundamentals:** Operating System, DBMS, Data Structures and Algorithms, OOPs, System Design

**Developer Tools:** Git, GitHub, Docker, Kubernetes, Postman, Linux, Redis, Google cloud platform, AWS, ChatGPT

## Achievements

- Won **3rd Place** at **Pradhyut Hackathon** for building an SDG-aligned tech solution under 24 hours — blending innovation, impact, and teamwork.
- **Smart India Hackathon (SIH) – Internal Team Selection**  
Selected among top teams from **AKGEC** to represent the institute in the **national-level innovation challenge**.
- Completed over **300+ problems** across CodeChef, LeetCode, and Codeforces.