Saurav Kumar

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Education

Indraprastha Institute of Information Technology, Delhi M.Tech (CSE) 2024 - present	CGPA: 7.82
University of Kalyani, Kalyani B.Tech (Information Technology) 2019 - 2023	CGPA: 8.12
S.H.G Inter College BSEB (XIIth Board) 2015 - 2017	Percentage: 65.2
Manas Bhumi Senior Secondary School CBSE (Xth Board) 2014 - 2015	CGPA: 9.8

Skills

Area of Interest	Data Structure and Algorithms, Object Oriented Programming, Operating System, Database Management System
Programming Languages:	C++, C, Javascript
Tools and Technologies	Git, MySQL, Docker, MongoDB, Kubernetes, Postman
Core subjects	Object Oriented Programming and Design, Research Method
Technical Electives	Graduate Systems, Graduate Algorithm, Machine Learning
Other Electives	Big Data Mining In Healthcare, Foundation of Finance

Projects

Airline Booking System
Guide: Sanket Singh
Tools: Node.js, MySQL, Express.js, Sequelize ORM, Microservices

(Dec, 22 - May, 23)
Team Size - 1

- Developed a microservices-based airline booking system using Node.js, Express.js, MySQL, Sequelize, and REST API.

- Designed modular services (Flights, Booking, API Gateway, Notification) following MVC pattern for scalability and maintainability.

- Solved critical engineering challenges: (1)Implemented row-level locks to handle concurrent bookings.(2) Ensured idempotent payments using unique idempotency keys.(3)Resolved simultaneous seat booking with multiple-column unique constraints.

- Strengthened system security with a rate limiter to thwart DDoS attacks.

End-to-End Integration and Querying of Heterogeneous Educational Databases Using AI-Assisted Federation

Guide: Dr. Mukesh Mohania

Tools: Python, MySQL, SQLite, SQLAlchemy, Flask, REST APIs, Gemini, Pandas

(Aug, 25 - Dec, 25)
Team Size - 2

- Developed an AI-powered framework enabling natural language queries over distributed, heterogeneous academic databases, with dynamic schema mapping and query decomposition.

- Solved the challenge of integrating semantically related information from different RDBMS systems by federating queries, joining cross-database results, and presenting unified answers to users.

- Learned techniques for NLP-based query analysis, multi-source data integration, schema alignment, and performance optimization in federated environments.

- Used a suite of open-source and cloud tools: Python for backend orchestration, SQLAlchemy for ORM and database federation, Flask for API services, OpenAI GPT for natural language understanding, and Pandas for result aggregation.

End-to-End Profiling and Scalability Analysis of Google Online Boutique

Guide: Dr. Rinku Shah

Tools: Docker, Kubernetes, GKE, Istio, Prometheus, Grafana, Kiali, Locust

(Jan, 25 - May, 25)
Team Size - 3

- Deployed a cloud-native, microservices-based e-commerce application on Google Kubernetes Engine (GKE). Integrated observability tools (Prometheus,Grafana, Kiali, Istio) to monitor service performance and identify system bottlenecks under simulated load using Locust.

- Implemented horizontal pod autoscaling (HPA) based on CPU metrics and request rate to ensure system stability and resilience during peak traffic.

- Conducted failure analysis of key services and proposed architectural improvements including alerting, health checks, and fault-tolerant design.

Positions of Responsibility

- Teaching Assistant - Operating System
- Teaching Assistant - Database Management System
- Teaching Assistant - Advance Programming
- Student's Mentor - Providing Guidance to a group of 1st year students and making them familiar about the academic cultures and policies in IIITD.

Awards and Achievements

- Reached 3* on codechef.
- Solved 500+ DSA questions on different coding platforms.
- Awarded with 1st medal for interclass math olympiad (2013) .
- Availed three times 100% scholarship in coaching class(2015) .
- Interhostel cricket champion and Indraprastha Premier league runner up in 2025(IIITD)

Interests and Hobbies

- Cricket
- Music

Declaration: The above information is correct to the best of my knowledge.

Saurav Kumar

Date: 15/10/2025