SONAL SINGH

📞Mobile: +91 6372202800

✉Email: sonal1201kumar@gmail.com

in LinkedIn: sonalsingh1201

GitHub: github.com/sonal1201

Skills

Languages:	C++, Python, JavaScript, TypeScript.
Frameworks:	HTML and CSS, React, Node.js.
Databases:	MongoDB, MySQL.
Core CS Concepts:	Algorithms Analysis, Operating System(OS), Data Structures, Networking, Database (DBMS).
Miscellaneous :	Linux, Shell (Bash), Git, Vs code, Prompt Engineering, Docker.
Soft Skills:	Problem-Solving, Teamwork, Leadership, Time Management.

Projects

Coding Platform Backend System. [LINK]   **Jan 2025**
- **Microservices Architecture:** Engineered a scalable, high-availability platform deployed on AWS with auto-scaling and load balancing.

  Problem Management: Developed a Problem Admin Service (JavaScript, Express, MongoDB) for efficient problem CRUD operations with test cases and code stubs.
- **Executor Service:** Conceived a multi-language code execution service (TypeScript, Docker) using Strategy and Factory patterns for optimized execution environments and TLE handling.
- **Asynchronous Communication:** Implemented a high-performance Submission Service (Fastify) with Redis queues and WebSocket integration for real-time feedback.

  AWS Deployment: Ensured reliability and performance through monitoring, fault tolerance, and auto-scaling.
- **Tech Stack:** Node.js, Express.js, TypeScript, Fastify, MongoDB, Redis Queue, Docker, WebSocket, JWT Authentication.

Uber Ride Booking Backend. [LINK]   **Nov 2024**
- **Scalable Architecture:** Designed a high-performance backend supporting real-time ride booking and driver notifications.
- **Distance-Based Ride Matching:** Devised a progressive radius expansion algorithm that prioritizes drivers within 5 km and gradually extends the search up to 50 km if no driver is available.
- **Location-Based Matching:** Utilized driver coordinates and leveraged geospatial queries to efficiently match riders with nearby drivers.
- **Secure Authentication:** Implemented JWT authentication with RBAC to regulate access for customers and drivers.
- **Performance Optimization**: Improved API response time through caching, indexing, and optimized database queries.
- **Tech Stack:** Node.js, Express.js, MongoDB, Redis, Socket.io, RESTful APIs.

Certification

- Certification in Cloud Computing (NPTEL)   **Nov 2024**
- Design and Analysis of Algorithms (Coursera)   **May 2024**
- Generative AI for Everyone (Coursera)   **May 2024**

Extracurricular Activity

GitHub Student Club | Active Member:
- Contributed to 5+ open-source projects and participated in coding workshops.

DSA Contests & Coding Challenges:
- Tackled 350+ LeetCode problems, consistently participated in contests to enhance efficiency and algorithmic skills.

Active Participant in Campus Sports Events:
- Showcased strong sportsmanship and commitment by participating in college-level tournaments.

Education

Lovely Professional University   **Punjab, India**
- *Branch: B.Tech Computer Science and Engineering* | **CGPA:7.07**   *Aug 2022 – Jul 2026*

Narayani Junior College   **Jeypore, Odisha**
- *Higher Secondary Education (Class 12)*   *Apr 2019– Mar 2021*

Bapuji Public School   **Nabarangpur, Odisha**
- *Secondary Education (Class 10)*   *Apr 2017 – Mar 2019*