# Yash Agarwal

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**Hiring Manager**

Oracle Corporation

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Dear Hiring Manager,

I am writing to express my strong interest in software engineering opportunities at Oracle. As a third-year Computer Science student at Graphic Era Hill University with hands-on experience building scalable backend systems and enterprise-grade applications, I am excited about the opportunity to contribute to Oracle's mission of delivering robust, high-performance database and cloud solutions.

My passion for backend engineering and database systems has driven me to architect solutions that prioritize scalability, performance, and reliability. During my internship at Arterns Technologies, I developed enterprise-grade backend infrastructure for an Applicant Tracking System handling 1,000+ daily requests. I designed RESTful APIs with Firebase integration and engineered a real-time data synchronization system supporting 500+ concurrent users with sub-100ms latency. Through systematic optimization of database queries and implementation of connection pooling strategies, I improved system reliability by 20% while reducing production incidents.

Beyond my internship, I have independently built three production-ready systems that showcase my technical depth in areas critical to Oracle's technology stack:

**Enterprise Project Management Platform**: I architected a university-wide system currently serving 1,500+ users with planned expansion to 3,000+ across multiple campuses. The platform features normalized database schemas with complex relational modeling for 400+ project teams, achieving sub-200ms query response times through strategic indexing. I implemented enterprise-grade role-based access control (RBAC) with five hierarchical permission levels and built comprehensive audit logging for compliance tracking. The system maintains 99.9% uptime during peak periods through database connection pooling, intelligent caching, and query optimization strategies.

**Distributed Graph Traversal System**: I developed a high-performance backend service implementing graph traversal algorithms to process millions of nodes efficiently. The architecture features a two-tier caching infrastructure with Redis (90% hit rate) and MongoDB with sharding strategy, containerized using Docker for horizontal scaling. Through algorithmic optimization and intelligent caching, I achieved 80% latency reduction

and 65% decrease in database load, enabling the system to handle 10x concurrent requests while reducing infrastructure costs by 40%.

**Collaborative Document Management System**: Built with Spring Boot and MongoDB, this system demonstrates my expertise in building real-time applications with complex concurrency requirements. I implemented JWT-based authentication, session management with Redis, and optimistic locking for handling concurrent edits. The WebSocket-based collaboration infrastructure uses operational transformation algorithms to maintain state consistency across 100+ simultaneous users, with comprehensive transaction management ensuring ACID properties.

Currently, I'm also preparing to launch an **IoT Automatic Plant Watering System**—a commercial product featuring ESP8266 microcontrollers integrated with Firebase cloud backend. The system includes a real-time web dashboard for remote monitoring, token-based authentication, and telemetry tracking. This project has shown 20% improvement in water conservation efficiency and demonstrates my ability to build end-to-end solutions from hardware integration to cloud infrastructure.

What excites me most about Oracle is the opportunity to work on systems that power critical business operations worldwide. Your commitment to database innovation, cloud infrastructure, and enterprise solutions aligns perfectly with my technical interests and career aspirations. I am particularly drawn to Oracle's focus on performance optimization, scalability, and reliability—principles that have guided my own project development.

I am eager to bring my experience in backend architecture, database optimization, and distributed systems to Oracle, where I can learn from industry leaders while contributing to products that set the standard for enterprise technology. My strong foundation in Java, Spring Boot, database design, and system architecture, combined with my proven track record of delivering production-grade applications, positions me well to make meaningful contributions to your engineering teams.

Thank you for considering my application. I would welcome the opportunity to discuss how my technical skills and passion for building robust, scalable systems can contribute to Oracle's continued success. I am available for an interview at your convenience and look forward to the possibility of joining your team.

Sincerely,

**Yash Agarwal**