MD SAMIUL ISLAM

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Experiences

Software Development Engineer 2   **IQVIA (Fortune 500 Company)**   *Dhaka, Bangladesh*   **10/2023 - Present**

- Engineering a hierarchical **multi-agent** system using **LangGraph**, featuring a centralized orchestration layer and specialized **sub-agents** integrated with **MCP Servers** and **Knowledge Graphs** for high-precision, structured reasoning.
- Architected a high-throughput summarization workflow utilizing **LangGraph** and **Map-Reduce** algorithms to process and aggregate **10,000+** unstructured records in parallel; leveraged recursive chunking and the **LangGraph Send API** to bypass context limits and provide structured, actionable context for multi-agent decision systems.
- Engineered a resilient data ingestion layer handling **700k+** events daily; utilized FastAPI and distributed **jitter** to resolve **thundering-herd** bottlenecks and ensure high-availability operational excellence.
- Scaled data infrastructure through PostgreSQL sharding and Snowflake Data Mart; implemented **batch processing** and strategic **indexing** to streamline data ingestion and enhance query performance for millions of records.

Software Engineer   **Brain Station 23**   *Dhaka, Bangladesh*   **01/2021 - 10/2023**

- Led the design and development of enterprise-level microservice applications utilizing cutting-edge technologies such as Go, MongoDB, Redis, PostgreSQL, Elasticsearch. Realized a 15% cost reduction through effective caching implementations and concurrency.
- Designed and implemented scalable APIs and background workers for ETL tasks using Python, Django, AWS, Celery, and Elasticsearch, processing millions of license requests daily. Achieved a notable 20% performance optimization through optimized DB queries.
- Led end-to-end development of various products, encompassing system requirement identification, partner dependency management, workload balancing, software implementation, engineering, testing, and configuration of metrics, alarms, monitors, and dashboards.

Skills

- Python | Django | FastAPI | LangGraph | Golang | Gin
- PostgreSQL | Snowflake | Elasticsearch | MongoDB | Redis | RabbitMQ | SQLite
- Docker | Celery | AWS Bedrock | AWS SageMaker | Serverless | Grafana | Git | CI/CD | Unit Testing
- Microservices | Distributed System Design | LLM Orchestration | ETL | Backend Engineering | Leadership

Education

Bachelor of Science   **BRAC University**   *Dhaka, Bangladesh*   **01/2017 - 06/2021**

- Major in Computer Science

Projects

- **AI Assistant (Python, LangGraph, FastAPI, Langsmith, LLMs, MCP Server):** Architected an enterprise-grade Agentic AI platform using a hierarchical multi-agent architecture to automate complex decision-making and data analysis. The system transforms massive unstructured datasets into actionable insights, significantly reducing manual overhead and streamlining workflows. Deployed on a scalable FastAPI and Kubernetes foundation, the platform delivers production-grade reliability and high-fidelity observability for data-intensive, enterprise-scale operations.

- **Distributed URL Shortening Service (Python, Django, PostgreSQL, Hashing Algorithms, JavaScript):** Engineered a high-availability, low-latency URL management system designed to handle millions of concurrent requests. Developed a distributed ID generation strategy utilizing transactional counter-range allocation to eliminate database contention and ensure lock-free concurrency. Implemented a multi-tier caching architecture and optimized indexing to achieve sub-millisecond redirect latency while maintaining strict data consistency across distributed nodes.

- **Product Compliance Monitoring Software**(*Django-rest-framework, PostgreSQL, Elasticsearch, Amazon Open Search, Celery, Amazon Simple Queue Service, React*)**:** *Developed a Django-rest-framework backend and React frontend, empowering 360-degree monitoring of global health, safety, and environmental regulations for diverse products. Utilized Elasticsearch for robust full-text search capabilities and PostgreSQL as the primary database. Implemented a sophisticated system for enhanced regulatory compliance.*

Leadership & Mentorship

- Received **Silver** recognition from IQVIA for demonstrating strong leadership by ensuring high-quality deliverables and actively mentoring junior team members.
- Facilitated advanced technical training in Python, Django, and Backend Engineering, fostering a culture of continuous learning and accelerating the professional development of junior engineers through industry-aligned instruction.

Achievements

- Secured **Champion** title at the BRACU Intra University Programming Contest in 2017 and 2018.
- Ranked 5th Nationwide (Bangladesh) in the IEEE Xtreme 13.0 global 24-hour programming marathon (2019).
- Twice recognized on the Vice Chancellor's List for achieving a perfect 4.00 CGPA.