SK ASIF

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Experience

Wells Fargo **September 2023 – Present**

Software Engineer *Bengaluru, India*

- Designed and developed a high-performance **Trade-Processing (STP)** system for financial securities, with a peak **throughput of 45K events/second**, ensuring seamless trade execution and settlement.
- Engineered the system for **high resilience and scalability**, incorporating **elastic scaling, fault tolerance, and redundancies**, ensuring uninterrupted operations for critical financial transactions.
- Replaced a vendor-licensed trade-processing product, eliminating **recurring multi-hour downtimes** and **saving over 10% in licensing costs**, while enabling **zero-downtime** operations and enhancing system resiliency.
- **Modernized** a legacy system by rewriting a critical **VBScript module** in Java using **SOLID principles**, reducing processing time from over **30 seconds to 2 seconds** and improving maintainability.
- **Migrated** critical trade-processing microservices from **on-premise VMs** to the **OpenShift Kubernetes platform**, enabling **CI/CD automation**, **horizontal auto-scaling**, and reducing **deployment time** by over **70%**.

Projects

End to End Encrypted Collaboration System |

* Built a **real-time collaboration platform** enabling multiple users to simultaneously edit documents with **end-to-end encryption**, supporting **live cursor tracking**, **conflict-free editing**, and **secure synchronization**.
* Developed a **custom encryption protocol** using **Extended Diffie-Hellman** and **Sesame**, with **secure local storage** over **IndexedDB**, ensuring **end to end encryption.**
* Implemented document conflict resolution using **Conflict-free Replicated Data Types (CRDTs)**, eliminating **server-side dependency** for document edits, along with a custom **awareness layer** to track active participants.
* Achieved **low-latency, real-time updates** across distributed users via a **Kafka-based event system** and **Redis pub/sub** over **WebSockets**.
* Tech Used – **React, Redux, NodeJS, ExpressJS, Apache Kafka, SocketIO, Signal Protocol, YJS**.

Memory Management Engine for Databases (CMU 15-445) |

* Built a high-performance **memory-management engine for a database** ensuring **correctness and consistency** under **multi-threaded, high-contention** workloads.
* Implemented a custom **LRU-K eviction policy** with a **heuristic** balancing **frequency and recency** for smarter page replacement.
* Designed a **lock-free disk I/O scheduler** to batch and pipeline requests, improving throughput by **40%**.
* Achieved **180K reads/sec** and **120K writes/sec** through fine-grained synchronization and latch optimization.
* Ranked **top 5 globally**, with over **200 tuning iterations** for performance and correctness.
* Tech Used – **C++, STL, Multithreading, LRU-K, Lock-Free Queues, Synchronization Primitives**.

Education

Jadavpur University **2019 – 2023**

*B.E Information Technology - **CGPA - 8.0***

Lal Bahadur Shastri Convent School

*12th - AISSCE - **Percentage - 90.6%***

Technical Skills

Languages: Java, C, C++JavaScript, SQL, Golang
Technologies/Frameworks: git, ReactJS, NodeJS, ExpressJS, gRPC, proto-buffers, Spring

ACHIEVEMENTS

* Reached a **1700+ rating on Leetcode (Leetcode Profile)**
* Ranked **3rd**(peak) globally on the **CMU Database Implementation Leaderboard** with one of the fastest database storage engine implementations.
* Received a **Spot Award** at **Wells Fargo** for exceptional ownership and delivery of a critical trade-processing system.
* Won the **OpenShift Cloud Hackathon** for successfully **migrating core services to the cloud** with proper **auto-scaling** and **end-to-end observability**.