

AMMAR KHAWAJA

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EDUCATION

LUMS

B.S Computer Science; GPA: 3.28

Lahore, PK

2016 – 2020

Relevant Courses: Distributed Systems, Software Engineering, Advanced Programming, HCI (UI/UX), Data Structures, Algorithms, Network-Centric Programming, Network Security

EXPERIENCE

CTO, Fullstack Software Engineer

Oct 2023 – Current

Firebird Technologies Pte. Ltd.

- **Developed the entire architecture** for a meta search engine startup in hotel travel industry, currently operating in a Sandbox testing stage
- Architected the entire frontend in **Next.js** (React.js) making use of server-side rendering, CDNs and S3 storage buckets for static content (i.e blogs, images) and of **serverless functions** for querying the Backend in a scalable and economical way
- Developed **express API server** in typescript for querying **AWS RDS postgres** database; for secure access deployed in same security group on **AWS EC2** by containerizing using **Docker** and using Github Actions for **CI/CD**
- Designed Postgres **schema and indexes** alongside **performant and atomic** queries for system resilience and reliability
- Used PostGIS for **geo-spatial queries** alongside **R-Trees** for indexing spatial information

Fullstack Software Engineer

Sep 2020 – Sep 2023

Quality Group

- Part of the core team responsible for engineering and developing the express.js (node.js) server meant to replace the legacy Oracle server for management and planning of the company's internal operations
- Developed the system in modules ensuring the original SQL database and new REST API calls work as intended, including making most of the controllers and models in node.js
- Remodeled the schema to 3NF and updated the queries in the codebase resulting in up to 1.5X performance boost
- Designed standardized UI/UX using React for system's frontend after extensive Usability testing
- Designed tests for Frontend, API calls and DB using Jest.js

Computer Science Teaching Assistant

Aug 2018 – Dec 2019

LUMS University

- Engineered CMS website for university society using **MERN** stack for event planning and management
- Taught beginner and intermediate level CS courses to students in C++
- Conducted Labs, tests and office hours

PROJECTS

Chatting App | MERN Stack, Socket.IO, JWT Auth, REST API

Mar 2023 – June 2023

- Developed a full-stack web application using express.js serving REST APIs with React and tailwindcss + daisyUI as the frontend
- Authorization and authentication done using JSON web tokens (JWT) for secure sessions
- Implemented Real-time communication between clients using Socket.IO
- Client information and messages stored in MongoDB instance for faster reads

Peer-to-peer file sharing | Python, sockets

Dec 2019 – Mar 2020

- Engineered a Chord-like p2p node for sharing files with other nodes on request
- Implemented Finger tables for $O(\log N)$ lookup time
- "Stabilization" stage and file redundancy implemented to minimize risk of file loss

TECHNICAL SKILLS

Languages: Javascript/Typescript, Python, Golang, C/C++, SQL (Postgres/MySQL), HTML/CSS

Frameworks: React.js, Node.js, Express.js, Next.js, Astro

Dev Tools: Git, Linux, SSH, vim/neovim, vs code

Testing: Lighthouse, Jest.js

DevOps: Docker, Github Actions, AWS, Cloudflare