Mahad Ahmed

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Education

Carleton University — Ottawa, ON, Canada
Bachelor of Engineering in Software Engineering — Sep. 2021 – April 2026

Technical Skills

Languages: C, Java, Python, JavaScript, Typescript, SQL
Tools/Frameworks: Linux/Unix, AWS, Google Cloud, Azure, Docker, Git, React, Flask, Pandas, Spring/SpringBoot, GitHub Workflows (CI), Kubernetes
Courses: Operating Systems, Embedded Programming, Object Oriented Programming, Network and Software Security, Real Time Systems, Database Management

Experience

DevOps Software Engineer Intern — May 2024 – August 2024
Communications Research Centre Canada — Ottawa, ON, Canada

- Implemented a Python Flask API across company applications to capture and transmit real-time JSON usage data to an SQS queue, enhancing data collection efficiency and accuracy.
- Engineered an AWS Lambda function to autonomously process queued messages, dynamically appending insights to annual CSV and QuickSight reports stored in S3 buckets for comprehensive usage analytics and reporting within S3 buckets.
- Developed cloud applications in form of AWS CDK projects to implement infrastructure as code (IaC) principles, ensuring seamless deployment and reproducibility of cloud resources.

R&D Software Engineer Intern — January 2024 – April 2024
Communications Research Centre Canada — Ottawa, ON, Canada

- Spearheaded a research initiative aimed at democratizing spectrum licensing in Canada by developing an innovative Python-based automated environment type classification tool
- Leveraged advanced spatial analysis techniques such as geohashing and GeoPandas to design and implement a robust software solution capable of classifying environmental types based on geographic coordinates.
- Employed QGIS and Matplotlib for comprehensive data collection, processing, and visualization of shapefiles, enabling the accurate representation of geospatial information and further enhancing the interpretation of environmental characteristics

Projects

Chat Application | *Python, Typescript*

- Designed and implemented a chat application with a modular architecture, featuring a Typescript React front end, Python Django back end, and PostgreSQL database.
- Deployed the application using Docker, with separate containers for the front end, back end, and database to ensure scalability and maintainability.
- Engineered back end APIs in Django for real-time communication and seamless data management, integrated with a PostgreSQL database.

Amazon Online Bookstore | *Java, JavaScript*

- Deployed a Spring Boot web application on both Azure App Services and Google Cloud App Engine, ensuring high availability and scalability.
- Designed and integrated a PostgreSQL database hosted on Google Cloud, optimizing data storage and retrieval for a seamless user experience.
- Developed back end functionalities, including secure user authentication and order processing, while leveraging cloud-based tools to enhance performance.
- Implemented Continuous Integration (CI) pipelines using GitHub workflows to automate builds and ensure code quality for cloud-deployed applications.

Health and Fitness Club Management System | *Java, SQL*

- Engineered a Health and Fitness Club Management System with PostgreSQL integration for streamlined data storage and management, enabling efficient user registration, profile management, and scheduling functionalities.
- Implemented JDBC connectivity within the system, ensuring seamless interaction with PostgreSQL databases for robust user data handling, facilitating essential features for club members, trainers, and administrative staff