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: Java, Python, JavaScript, C, SQL
Tools/Frameworks: AWS, Git, React, Flask, Docker, Linux/Unix, Pandas, PostgreSQL, Spring/SpringBoot
Courses: Object Oriented Programming, Data Structures, Computation and Programming, Embedded Programming, Real Time Systems, Database Management, Operating Systems

EXPERIENCE

DevOps Software Engineer   May 2024 – Present
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   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

HyperSonic | *Python*
- Developed an Discord music bot in Python, leveraging the Discord API for seamless communication with Discord servers. Utilized asynchronous programming techniques to ensure efficient handling of user requests and responses, enhancing the bot's responsiveness and scalability.
- Implemented REST API integration and utilized the youtube-dl library to enable the bot to parse and play user-requested songs from YouTube in real-time. Employed streaming techniques to ensure smooth playback and minimize latency, enhancing the overall user experience.

Student Support | *REACT, JavaScript, HTML, CSS*
- Developed a student support website using React framework, JavaScript, HTML, and CSS, providing various resources and advice to upcoming engineering students.
- Led the design and development of a user-friendly FAQ section within the website, which served as a valuable knowledge hub for students seeking quick answers to program-related queries
- Collaborated closely with team to integrate an innovative GPA calculator feature into the website, allowing students to track their academic progress and make informed decisions regarding their coursework

UNO Flip | *Java*
- Implemented UNO Flip card game in Java with Graphical User Interfaces (GUIs), incorporating the Model-View-Controller (MVC) design pattern to ensure a modular and scalable structure.
- Developed an AI player with dynamic sizing and implemented sophisticated AI strategies, including random selection of strategies, enhancing the challenge and unpredictability of AI opponents.

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.