

# Mariam Moula

Software Engineer

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Portfolio: <https://68f6c14f7f66476b76b560ab-mariam.netlify.app/>

## Summary

Software engineer with a strong focus on scalable solutions and efficient programming. Skilled across a diverse set of programming languages, frameworks, and DevOps tools. Ready to apply my skills in a hands-on, project, where I can contribute to impactful projects and grow through teamwork and real-world experience.

## Education

**Engineering Degree in Computer Science**, Faculty of Science of Tunis (FST)

2022-Present

Relevant Courses: Statistics, OOP, Algorithms and Data Structures, Operating Systems, Databases, Conception and Foundations.

**Integrated Preparatory Cycle for Engineering Studies**, Faculty of Science of Tunis (FST)

2020-2022

## Experience

**Fullstack Intern**

February 2025 - August 2025

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- Contributed to the CLI development in Rust with authentication management using role-based access control (RBAC).
- Designed and implemented Lambda functions for personal access token (PAT) lifecycle: creation with privileges, validation, and revocation.
- Enhanced the authentication layer to integrate PAT authorization with RBAC policies.
- Implemented a schema extraction feature as a production-ready solution by updating existing Nomad jobs and Lambda functions to automate schema capture and storage in Supabase.
- Developed a Docker image to validate preconditions for schema extraction, ensuring robust deployment workflows.

**Data Science Intern**

June 2024 - August 2024

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- Leveraged YouTube's API to extract relevant travel vlogs based on user-input destinations.
- Integrated DeepGram (speech-to-text API) to automatically transcribe vlog audio into clean text data.
- Applied Natural Language Processing (NLP) and Named Entity Recognition (NER) to extract essential information from transcripts, including cities, activities, categories, durations, and budgets, enabling structured travel data generation.
- Conducted data analysis and visualization to explore activity distributions across countries, cities, budgets, and traveler types, providing meaningful insights for personalized travel planning.

**Web Developer Intern**

June 2023 - August 2023

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- Created a Hotel Reservation System with Spring Framework, facilitating online room search, booking, and management. Ensured API reliability through Postman testing and implemented secure authentication and user management for both users and administrators.
- Implemented secure and scalable APIs to support web platform features.

## Projects

**RAG-Based Documentation Assistant**

Built a Retrieval-Augmented Generation system for intelligent QA over technical documentation using LangChain, FAISS, Llama3, and Streamlit. Implemented semantic search with vector embeddings and local LLM inference for accurate, source-cited responses.

**DevOps Pipeline for Spring Boot Application**

Developed and deployed a Spring Boot application as part of a comprehensive DevOps pipeline. Utilized Docker for containerization, published images on Docker Hub, and orchestrated multi-container setups with Docker Compose. Integrated Prometheus and Grafana for monitoring and Nexus for artifact storage. Automated deployment on

AWS Kubernetes (EKS) using Terraform. Ensured code quality with SonarQube and conducted API testing using Postman. Streamlined CI/CD workflows using Jenkins for efficient automation and deployment processes.

#### **Authenticated MCP Server with PostgreSQL Stytl Integration**

Developed a TypeScript-based Model Context Protocol server featuring passwordless authentication (Stytch), PostgreSQL database with Prisma ORM, and AI-powered user generation via Google Gemini. Architected a comprehensive security system with JWT token validation, role-based permissions, audit logging, and Express.js OAuth callback server. Built interactive CLI client with menu-driven interface using Inquirer.js, supporting CRUD operations, resource management, and real-time database queries with type-safe validation (Zod).

#### **Housing Price Analysis**

Performed exploratory data analysis on a housing dataset, employing correlation analysis and regression modeling to identify key variables impacting housing prices. Addressed biases like omitted variable bias and outliers, proposing refinements through stratified analysis, using both Python and R.

#### **Scholarship Management Project**

Developed Scholarship Management, a Spring Boot web application that streamlines educational institution administration through robust user authentication, authorization, and course management. Implemented comprehensive user role controls and course functionalities including creation, search, update, and enrollment features. Utilized Java and Maven to design a scalable and secure solution that enhances administrative efficiency and access management.

#### **Power BI Data Visualization and KPI Dashboard**

Pre-processed and cleaned datasets to ensure data quality, established relationships between tables, and designed interactive dashboards using Power BI. Leveraged visualizations and KPIs to provide actionable insights and enhance data-driven decision-making.

## **Skills**

- **Programming Languages:** Java, Python, JavaScript, C/C++, TypeScript, Rust
- **Frameworks & Libraries:** Spring Boot, Express, Next, React
- **Databases:** PostgreSQL, Microsoft SQL Server, MySQL, Supabase , Prisma
- **DevOps & Cloud:** AWS, Docker, Jenkins, Terraform, Nomad
- **Tools & Technologies:** UML, Power BI, Stytl, Streamlit, HuggingFace

## **Languages**

- **English:** Advanced
- **French:** Advanced
- **Arabic:** Native