

Heba Ghazali Senior Software Developer

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Portfolio Website

Summary

Senior Python Developer with over 3 years of experience building scalable backend systems, data-driven platforms, and cloud-based solutions. Experienced in Python, JavaScript, SQL, AWS, and modern web frameworks, with a strong focus on performance optimization, system reliability, and delivering impactful solutions. Interested in Generative AI and intelligent applications, with hands-on experience integrating LLM-powered features and AI workflows.

Education

BSc. in Computer Science, 2016 – 2020
Modern University for Technology & Information
Graduation Project: Class Attendance System by Face Recognition [🔗](#)

Work Experience

Senior Python Developer, Nagwa May 2026 – Present
Led performance optimization initiatives for the reporting platform, introducing a DuckDB and Parquet-based query execution path to improve report loading efficiency and reduce reliance on traditional processing pipelines.

Python Developer, Nagwa Apr 2025 – May 2026
Responsible for designing and owning internal data, reporting, and workflow platforms used across business, operations, and content teams. Led the development of scalable backend systems focused on performance, reliability, and cost efficiency, supporting organization-wide decision-making and operational workflows.

Key Impact & Responsibilities:

- Led the end-to-end design and development of a centralized Business Intelligence & Reporting platform serving **15+ dashboards and 100+ reports** across multiple departments
- Enabled **50-100+ internal users** to access analytics without direct SQL usage, reducing ad-hoc data requests and manual reporting overhead
- Designed and implemented RESTful backend services for managing educational resources and internal workflows across multiple services
- Reduced serverless execution costs by **30-50%** by optimizing AWS Lambda logic and introducing conditional execution patterns
- Designed a multi-layer caching architecture that eliminated redundant queries and improved response times for concurrent users

JavaScript Developer, Nagwa Dec 2022 – Mar 2025
Contributing to educational platforms and internal engines supporting live sessions, interactive content, and automated workflows. Worked across core rendering systems, authoring tools, and automation pipelines with a focus on performance, stability, and long-term maintainability.

Key Impact & Responsibilities:

- Improved user engagement and usability across interactive web applications, contributing to a **~25% increase in user retention**
- Reduced technical debt by **~30%** and improved code maintainability by **~40%** through refactoring and consolidation of legacy codebases
- Contributed to and maintained core rendering engines supporting **200+ active weekly live sessions**
- Automated content generation and operational workflows, significantly reducing manual intervention and error rates
- Actively participated in architectural discussions and cross-team collaboration to improve system reliability and developer productivity

Skills

Programming Languages – Python, JavaScript

Frontend – HTML5, CSS3, Sass, TypeScript, React.js, Redux, RESTful API

Backend – Firebase, Node.js, Express.js, Django, FastAPI, PostgreSQL

Cloud DevOps – AWS S3, AWS SQS, AWS Lambda, AWS CloudFront, AWS Step Functions, CI/CD, Docker, Infrastructure as Code (IaC)

Tools & Platforms – GitHub, GitLab, Azure DevOps, Postman, Cursor

GenAI – Large Language Models (LLMs), Prompt Engineering, Retrieval-Augmented Generation (RAG), Vector Databases, Conversational AI, Structured Outputs, AI API Integration

Projects

Nagwa Key Projects

- **Python:**
 - **Reporting & BI Platform:** Django-based system aggregating data from 4+ PostgreSQL databases and a Redshift data warehouse, supporting RBAC, progressive loading, and cached report execution
 - **Session Workflow Orchestrator:** AWS Step Functions state machine coordinating parallel Lambda execution across multiple branches, skipping idle paths to reduce cost and latency
 - **Educational Platform Admin Dashboard:** Internal Django-based admin platform managing thousands of educational content items with complex hierarchical structures, editorial workflows, and batch operations with retry logic and status tracking to ensure data integrity and operational reliability.
- **JavaScript:**
 - **HTML Rendering Engine:** Core engine powering session content rendering across Nagwa Classes, integrating activities, coding, and picture book engines and reducing rendering issues by **~25%**
 - **Activities Engine:** Unified multiple interactive activity types (Pronunciation, Spelling, Dictation, Missing Words) into a single maintainable codebase
 - **Coding Engine:** Built an in-browser IDE using Monaco Editor and Skulpt, enabling Python execution with turtle graphics support
 - **HTML Screenshot Engine:** Automated screenshot generation using AWS Lambda + Puppeteer, generating **1,000+ assets/day** and reducing manual effort by **~80%**
 - **CodeBites:** Built backend services using Express.js and TypeScript, integrated payment providers (Fawry, Paymob), asynchronous processing via AWS SQS, and AI-powered features using LLM APIs
 - **MathLive Fork:** Improved stability and fixed bugs in a customized MathLive engine for web-based mathematical rendering

Professional Training & Certifications

Advanced Cloud DevOps Nanodegree  Udacity

Mar 2022 – May 2022

Frontend & Cross-Platform Mobile Development Track, Information Technology Institute (ITI)

Nov 2021 – Mar 2022