

# Youssef Mohamed Hussien

## Backend Software Engineer

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### PROFESSIONAL SUMMARY

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Backend Software Engineer specializing in database-centric design and high-performance architecture. Proven expertise in building structured .NET solutions using Clean Architecture and optimizing SQL Server queries for scalability. Skilled in handling complex business logic, ensuring data consistency, and delivering maintainable backend systems. Committed to engineering best practices with a strong foundation in algorithmic problem solving.

### TECHNICAL SKILLS

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**Languages:** C#, C++, Java, SQL

**Frameworks & Architecture:** .NET Core, ASP.NET MVC, Clean Architecture, CQRS, Vertical Slices, Layered MVC

**Data & Storage:** SQL Server, PostgreSQL, Entity Framework (EF) Core, Redis (Caching)

**Design Patterns:** MediatR, Repository Pattern, Unit of Work, Specification Pattern, Result Pattern, SOLID

**DevOps & Tools:** Docker, Docker Compose, Git, GitHub, Swagger/OpenAPI, Background Services, JWT

### PROFESSIONAL EXPERIENCE

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**Freelance Backend Developer**  
**UNIS Store**

July 2025 – Oct 2025

- Architected the complete backend infrastructure for online and in-store sales, implementing complex order workflows and reservation systems.
- Engineered a robust inventory management system supporting product variants, image processing, and QR-code integration for desktop search.
- Developed real-time analytics dashboards to track revenue, profit, and top-selling products, enabling data-driven comparisons between online and offline channels.
- Guaranteed data integrity under high-concurrency traffic by implementing SQL Server row-level locking mechanisms.
- Designed and deployed comprehensive admin features including RBAC (Role-Based Access Control), category management, and user moderation workflows.
- Integrated Firebase Cloud Messaging (FCM) to deliver targeted and broadcast notifications with read-status tracking.
- Optimized system performance by implementing caching strategies for high-traffic endpoints (homepage, dashboards, tokens), significantly reducing latency.
- Developed background services for automated tasks including token cleanup, cache rehydration, and loyalty-point expiration.
- **Tech Stack:** .NET Core, Clean Architecture, MediatR, EF Core, SQL Server, Caching, Background Services.

## PROJECTS

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### EShop Modular Monolith

Personal Project

*Tech: .NET 8, ASP.NET Core, Entity Framework Core, PostgreSQL, Redis, MassTransit, RabbitMQ, MediatR, Clean Architecture*

- A .NET 8 e-commerce backend built with the Modular Monolith architectural pattern, where three independently deployable modules (Catalog, Basket, Order) run in a single process but own their own database schemas and domain models.
- Implemented cross-module communication using in-process MediatR for synchronous queries and asynchronous integration events via MassTransit and RabbitMQ for eventual consistency.
- Applied the Outbox pattern to guarantee reliable message delivery with at-least-once semantics, with Redis caching for basket reads and centralized price authority in the Catalog module.
- Utilized Carter for minimal API routing, FluentValidation for request validation, Keycloak for JWT authentication, and Serilog for structured logging.

### E-Commerce Bookstore Platform

Personal Project

*Tech: C#, ASP.NET MVC, Entity Framework, SQL Server*

- Developed a full-featured bookstore platform utilizing Layered MVC Architecture to ensure separation of concerns between Controllers, Services, and Repositories.
- Implemented secure role-based authentication and authorization systems for Admins, Vendors, and Customers.
- Optimized database performance through strategic indexing and query tuning within SQL Server.
- Designed and exposed RESTful APIs to facilitate seamless frontend integration and data consumption.

## EDUCATION

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### Bachelor of Computer Science

University of Cairo, Egypt

## ACHIEVEMENTS

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- **Algorithmic Problem Solving:** Solved 1,000+ problems on Codeforces and LeetCode, demonstrating strong data structure and algorithm proficiency.
- **Database Optimization:** Completed 150+ SQL optimization challenges focused on query performance and schema design.