

# Mohammed Walid

Full-Stack Software Engineering Student

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## SUMMARY

Software Engineering student at the German International University, building full-stack applications across the MERN and NestJS ecosystems. Currently working on a Study Buddy Matcher platform using Event-Driven Microservices Stack, plus I built booking and reservation systems handling concurrent writes. Backend-focused — REST API design, schema modeling, authentication, and microservice integration.

## TECHNICAL SKILLS

**Languages** TypeScript · JavaScript · Python · Java · C++ · SQL · HTML/CSS

**Backend** Node.js · NestJS · Express · REST APIs · Microservices · Kafka · GraphQL

**Frontend** React · Next.js · Vue.js · Angular

**Databases** MongoDB (Mongoose) · PostgreSQL (NeonDB) · Prisma

**Tools** Git · Postman · npm · aws · Docker

## PROJECTS

**HR System — Payroll-Tracking Service** NestJS · TypeScript · Next.JS [\[source\]](#) Sep – Dec 2025

- Built the payroll-tracking service inside a 7-microservice HR platform — owning salary computation, tax and deduction logic, and REST contracts with the Employee and Attendance services.
- Implemented role-based access control to protect sensitive salary data, integrated with the platform's shared JWT authentication service.
- Developed the Next.js admin interface for submitting, viewing, and auditing payroll runs.
- Coordinated API contracts with teammates building the Employee and Attendance services; worked in a Git feature-branch workflow with pull-request reviews.

**Restaurant Reservation System** MongoDB · Express · React · Node.js [\[source\]](#) Sep – Dec 2025

- Built a full-stack reservation platform with JWT authentication, time-slot availability checks, and double-booking prevention using atomic MongoDB updates (findOneAndUpdate).
- Modeled reservation, table, and user schemas in Mongoose; added compound indexes on (date, table\_id) to speed up availability lookups.
- Enforced server-side validation for time-slot conflicts so clients cannot bypass availability rules; built a responsive React booking UI.

**Online Ticketing System** MongoDB · Express · React · Node.js [\[source\]](#) Mar – Jun 2025

- Built a ticket booking platform with authentication, seat-selection UI, and Stripe-integrated payment flow (test mode).
- Implemented optimistic concurrency control on seat reservations to prevent two users from booking the same seat under load.
- Optimized API performance by replacing nested queries with MongoDB aggregation pipelines and adding compound indexes on (event\_id, seat\_id).

**Also build:** *Memory Match Card Game* (C++, OOP) — randomized card distribution, match validation, game-state management. *Tower Defense — Attack on Titan* (Java, JavaFX, SceneBuilder) — enemy AI state machine and wave-based level progression. **Currently Building:** *Study Buddy Matcher* (Prisma - NeonDB - GraphQL - Kafka - Docker - React)

## EDUCATION

**B.Sc. Software Engineering**, German International University (GIU)

Since Oct 2023

Faculty of Informatics & Computer Science • New Administrative Capital, Egypt

**Relevant coursework:** Data Structures & Algorithms, Databases, OOP, Software Construction & Testing, Cloud Computing

## LANGUAGES

**Arabic** (Native) **English** (C1) **German** (B2) **Spanish** (A1)