

Ahmed Ayman

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SUMMARY

Backend engineer with 3+ years owning production distributed systems and leading engineering teams. Led and delivered fulfillment infrastructure processing **8K–14K+ daily orders** (2.5M+ total) for 1,500+ merchants, a social commerce platform serving **25K+ merchants** with 1M+ orders, and independently shipped an AI app with **50K+ downloads**. Deep expertise in Node.js/TypeScript, event-driven microservices, GCP, and distributed systems design.

EXPERIENCE

Bosta

Dec 2023 – Present

Software Engineer – Backend (Fulfillment)

Jul 2025 – Present

- Architected B2B fulfillment platform from greenfield for 1,500+ merchants on NestJS/TypeScript microservices (GCP Cloud Run, GKE, Pub/Sub), processing **8K–14K+ daily orders** (2.5M+ lifetime); integrated Shopify GraphQL API for end-to-end order lifecycle management.
- Designed a high-throughput webhook ingestion service processing **2,000+ req/min** across 5+ external systems; implemented Pub/Sub fanout, idempotent event processing with ordering guarantees, retry/failure recovery, per-provider analytics, and a time-range replay API – achieving zero webhook loss and no duplicate events during peak load.
- Implemented Saga orchestration across order, inventory, and shipping services via Pub/Sub-driven compensating transactions, reducing order creation errors by **40%** and eliminating orphaned order states during cross-service failures.
- Built Kubernetes CronJobs for distributed state autocorrection and order aggregation pipelines powering merchant analytics reports; drove zero-downtime rollouts via **Unleash** feature flags across 1,500+ merchant accounts.
- Profiled high-traffic APIs with **clinic.js** to identify and resolve Node.js event-loop stalls; restructured MySQL queries with composite indexes, cutting average order-to-ship cycle time by **30%**.
- Led and mentored 2 backend engineers on distributed systems patterns, API contract design, and production debugging practices.
- Established Jest unit and integration test suites with Supertest achieving coverage on core order workflows; configured test-gated GitLab CI and GCP Cloud Build pipelines enabling safe same-day deployments.

Software Engineer – Backend (Sllr)

Dec 2023 – Jul 2025

- Owned and developed the core multi-tenant e-commerce platform (orders, inventory, products, store builder) serving **25K+** merchants and 1M+ orders; designed the data layer with **MySQL** for relational commerce data (orders, inventory, products, customer records, wallet payments) and **MongoDB** for schema-flexible conversational state; integrated **Elasticsearch** for product and catalog search across merchant storefronts.
- Led architecture and end-to-end delivery of *Sllr Chat* — a unified social commerce inbox integrating Facebook and Instagram Graph API webhooks; designed FSM-based order management bot with dual-state architecture (Redis hot state + MongoDB durable state) and Pub/Sub-driven transitions; grew to **1M+ conversations** and **20M+ messages**.
- Implemented custom **Paymob** wallet integration enabling direct payment settlement at storefront checkout, connecting merchant Paymob accounts to customer-facing checkout flows; participated in multi-tenant isolation refactor with per-tenant context middleware, row-level MySQL scoping, and schema migrations across the full order and inventory stack.
- Participated in customer interviews and feedback surveys alongside the product team, translating user insights into technical requirements for the store builder and catalog modules.

Research & Development Center – Air Defense Forces

Dec 2022 – Dec 2023

Software Engineer

Cairo, Egypt

- Led a team of 5 engineers to re-architect communication middleware and Command & Control backend services to support 50× peak message volume by replacing synchronous RPC with an event-driven Redis ecosystem (Pub/Sub, caching, disk-persistence snapshots, geospatial search), increasing measured throughput by 40%.
- Containerized 8+ services with multi-stage Docker builds on Alpine images (60% smaller); built GitLab CI/CD pipelines with parallel test execution and Docker layer caching, reducing build times by 35%.

PROJECTS

Systems & Protocol Implementations | *Python* | Tiny Git, Tiny Redis, Tiny SQLite

- Implemented Git internals (SHA-1 content-addressable DAG, staging index, diffing, commit traversal), a multithreaded TCP Redis server (RESP protocol, TTL expiration, disk persistence), and SQLite file format parsing with B-tree traversal and SELECT query execution — built from first principles to understand production system internals.

Musheer – AI Arabic Sign Language Tutor | *Python, TensorFlow, FastAPI, React* | Play Store

- Built a custom Arabic Sign Language dataset (600 images/sign, multiple signers), trained an LSTM+CNN on MediaPipe Holistic keypoint outputs achieving **91% accuracy**; **50K+ downloads**, **First Place** at ASU Innovates 2022 & ibTIECar Metaverse.

Standuply | *Node.js, Express, MongoDB, React, Vite* | Live

- Async standup platform for small teams and startups: private workspaces, text and voice update sharing, automated daily digest reports with team analytics; built full-stack end-to-end with a Node.js/Express/MongoDB backend and React/Vite frontend.

Env Box | *Next.js 14, TypeScript, MongoDB, Docker* | GitHub | Live

- Open-source secrets management platform with AES-256 variable encryption, team RBAC, audit logging, and .env import/export across Dev/Staging/Prod environments; Dockerized with a live deployment.

Live Captions – Real-Time Captioning App | *Android, AI* | Play Store

- Designed the audio chunking and streaming pipeline; evaluated on-device models vs. **ElevenLabs** managed transcription (accuracy vs. latency tradeoff), driving the switch to managed service for better quality and latency; **100K+ users** in production.

EDUCATION

Ain Shams University

B.Sc. in Computer Science – Grade: Very Good

2018 – 2022

Cairo, Egypt

TECHNICAL SKILLS

Languages: Node.js, TypeScript, Python, JavaScript, SQL, Bash

Frameworks & Testing: NestJS, Express.js, FastAPI, Jest, Supertest

Databases & Search: MySQL, MongoDB, Redis, Elasticsearch, RabbitMQ, GCP Pub/Sub, TypeORM, Mongoose

Cloud & DevOps: GCP (Cloud Run, GKE, Cloud Build, Cloud Logging, BigQuery, Cloud Scheduler), Docker, Kubernetes, Linux, GitLab CI, GitHub Actions

API & Architecture: REST, GraphQL, Swagger/OpenAPI, Microservices, Distributed Systems, Saga Orchestration, Event-Driven Architecture, Webhooks, Feature Flags (Unleash)

Security & Performance: JWT, OAuth 2.0, RBAC, Rate Limiting, AES-256, clinic.js, Query Optimization, Caching