

# Mostafa Mahmoud Software Engineer

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## WORK EXPERIENCE

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### Flutter Developer [Volunteer]

*Lothga - Task Based* 

Aug 2024 – Aug 2024

Jeddah, Saudi Arabia, SA

During the development of the "LothgaTablet" project:

- Developed the project's core and kernel features.
- Constructed a foundational system to support the application.
- Implemented an audio system to enhance user experience.
- Created a central database to integrate all games into a cohesive system.
- Enabled parental oversight of children's progress and provided extensive control over game content, including questions and visuals.

## PROJECTS

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### Radix\_Plus

Oct 2025 – Present

*Dart Package*

- Blazing Performance: Sorts 1,000,000+ numbers in ~312ms (ints) / ~916ms (doubles) / ~1,621ms (BigInts), up to 5.9x faster than Dart's standard List.sort().
- Memory & CPU Efficient: In-place sorting with buffer reuse and parallel processing using Isolates for very large datasets.
- Multi-Type Support: Handles int, double, and BigInt with stable, accurate sorting for all numerical data.
- Developer-Friendly: Simple Dart/Flutter API with zero-copy operations and hybrid optimizations for optimal performance across data sizes.

### FP-Growth

Nov 2025 – Present

*Dart Package*

- High Performance: Processes 1,000,000+ transactions in ~2.7s, enabling lightning-fast data analysis.
- Scalable & Efficient: Uses parallel processing and stream-based mining for large datasets with minimal memory usage.
- Powerful Insights: Generates frequent itemsets and association rules with key metrics like support, confidence, and lift.
- Developer-Friendly: Easy-to-use Dart/Flutter library with CLI support, CSV/JSON/Stream input, and optimized FP-Tree algorithm.

### GoPix

Jun 2025 – Present

*Image Conversion CLI Tool*

- Blazing-Fast Conversion: Processes thousands of images in parallel across all CPU cores, drastically reducing batch processing time.
- Multi-Format Support: Converts between PNG, JPG, JPEG, WebP with custom quality, compression, and smart backup options.
- Robust & Reliable: Handles recursive directories, interrupted jobs, rate limiting, and safe defaults to prevent data loss.

- Developer-Friendly CLI: Feature-rich terminal tool with YAML config, progress bars, logging, and easy integration into workflows.

## Tadamon ✨

May 2024 – present

### Flutter

- Empowering Cause-Driven Consumers: Helps users make ethical purchasing decisions supporting the Palestinian cause.
- Offline-First & Cloud Sync: Local Objectbox database with seamless Firebase Firestore synchronization for reliability anywhere.
- Smart Product Scanning & Reporting: Fast barcode scanning via Google ML Kit, PDF exports, and user-driven product reporting.
- Robust & Scalable Architecture: Built with Flutter using BLoC, Repository pattern, and dependency injection for maintainable, modular code.

## Motivational Quotes ✨

Nov 2025 – Nov 2025

### Flutter

- Interactive Motivation App: Delivers random motivational quotes triggered by device shake gestures.
- Native Integration: Uses Flutter platform channels with Kotlin to handle accelerometer-based shake detection.
- Enhanced User Experience: Smooth scaling and fading animations for an engaging and responsive UI.
- Clean Architecture: Well-structured Flutter project ensuring separation of concerns and maintainable code

## Move App ✨

Nov 2025 – Nov 2025

### Flutter

- Movie Discovery App: Enables browsing popular, top-rated, and upcoming movies with detailed views.
- Clean Architecture: Feature-driven Flutter project using BLoC for scalable and maintainable state management.
- Offline & Efficient: Hive for local caching, cached\_network\_image for smooth scrolling and image loading.
- Modern Dev Practices: Dependency injection with GetIt, network handling via Dio/Retrofit, responsive UI with ScreenUtil, and error monitoring using Sentry

## EDUCATION

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### Benha University ✨

Oct 2022 – May 2026 | Benha, Egypt

Bachelor of Computer Science

## TECH SKILLS

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**Languages:** Dart | Go | Kotlin | Python

**Frameworks:** Flutter | Gin

**Tools & Others:** Linux | Git | Docker | CI/CD

## CERTIFICATES

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The Complete Dart Development Guide ✨ | The Complete Flutter Development Guide ✨

## **LANGUAGES**

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**Arabic** — Native

**English** — Fluent

**Japanese** — Basic