

Mohammad Hesham Elsayed

Egypt, New Cairo

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Portfolio — GitHub — LinkedIn

EDUCATION

IGCSE certificate, Cairo

Manarat Alfarouk School

Graduated: August 2021

Misr International University (MIU), Cairo

Software Engineer

Focus: Software development (Full-stack development)

Graduated: July 2025

EXPERIENCE

MIU University, Cairo

CodePure – AI-Powered Code Smell Detection Tool (Graduation Project: B grade)

2024-2025

- Developed a Visual Studio Code extension to help QA and testing engineers that automatically detects common code smells such as Brain Class, God Class, and Data Class using static analysis and machine learning techniques.
- Implemented code extraction using **Tree-sitter** to parse Java code and generate structured JSON data for analysis.
- Used **TypeScript** and **JavaScript** to build the extension interface and logic within VS Code.
- Trained a custom **machine learning model** on labeled code smell datasets to enable AI-based predictions and quick fix suggestions.
- Designed visual highlighting of detected smells and displayed context-aware messages to assist developers in refactoring.
- Evaluated the tool on real GitHub repositories and benchmarked prediction accuracy for each smell category.
- Technologies used: **TypeScript**, **JavaScript**, **Tree-sitter**, **Python (for ML)**, **JSON**, **VS Code API**.

Freelancing, Cairo

Shaware3na – Smart Incident Reporting Flutter App

2025

- Developed a mobile and web application using **Flutter** and **Dart** to enable citizens to report real-time road issues such as garbage, cracks, or fires by capturing images and sharing their live location.
- Integrated **Google Maps API** for precise location selection and display, allowing users to accurately report incident positions on the map.
- Implemented a backend using **MongoDB** to store and manage incident reports, including image data, coordinates, and timestamps.
- Used a pre-trained **machine learning model** to automatically detect fire in uploaded images, assisting in faster prioritization and staff assignment.
- Designed a system that assigns reports to appropriate departments (e.g., fire, civil) based on the type of issue, streamlining the emergency response workflow.
- Technologies used: **Flutter**, **Dart**, **Google Maps API**, **MongoDB**, **Machine Learning (image classification)**.

MIU University, Cairo

E-learning Web application Project

2023-2024

- Developed a comprehensive e-learning platform similar to Coursera, leveraging a robust technology stack comprising HTML, CSS, JavaScript, PHP, and MySQL.
- Implemented the project using the MVC (Model-View-Controller) architecture to ensure a scalable, maintainable, and efficient codebase.
- Designed and created a user-friendly interface with HTML and CSS, ensuring a seamless and engaging user experience.

- Utilized JavaScript to add dynamic functionality, enhancing the interactivity and responsiveness of the website.

MIU University, Cairo
E-commerce Web application Project

2022-2023

- Designed and developed a comprehensive e-commerce platform for furniture sales, similar to IKEA, utilizing HTML, CSS, JavaScript, Node.js, Express, MongoDB, and the MVC (Model-View-Controller) architecture.
- Created a visually appealing and intuitive user interface using HTML and CSS, ensuring a positive shopping experience for users.
- Developed a robust back-end using Node.js and Express, handling server-side operations, user authentication, and transaction processing.
- Employed MongoDB for database management, ensuring efficient storage, retrieval, and manipulation of product and user data.
- Structured the application using the MVC architecture to promote code modularity, maintainability, and scalability.

MIU University, Cairo
Football news system (Desktop application)

2021-2022

- Developed a sophisticated Football news management system with a user-friendly interface, utilizing Java and JavaFX.
- Applied Object-Oriented Programming (OOP) principles to design and implement a modular, maintainable, and scalable system.
- Designed intuitive GUI components with JavaFX, ensuring a seamless and engaging user experience for managing sports-related activities.
- Ensured data persistence and integrity by integrating with relational databases and employing robust data handling techniques.

CERTIFICATES

Motorola (Systel telecom) Summer 2024 — On site
Certificate of Training
Learned: Introduction to Telecommunications, Embedded system, Public Safety Communication, Microwave and Broadband Communication, Fiber Optics, Communication, CCTV, Practical Workshop

ITIDA Summer 2024 — Remotely
Certificate of Training
Soft Skills: Communication Skills, Interview Skills, Presentation Skills, Leadership Skills, Teamwork Skills, Decision Making, Problem Solving, Time Management, Freelancing Skills, Introduction to Information Security and Privacy

SKILLS

Languages: Fluent in Arabic & English

Programming Languages & Frameworks

- Frontend:** HTML/CSS, JavaScript, TypeScript, Flutter, Dart, React, Next.js, Angular.
- Backend:** C++, C#, .NET, Python, Node.js, Java, PHP, Spring Boot.
- Databases:** SQL, NoSQL (e.g., MongoDB).
- Concepts:** Object-Oriented Programming (OOP), Design patterns.

Developer Tools

- Version Control:** Git, GitHub, GitLab.
- Containers:** Docker.

Soft skills: Leadership & Team Work, Problem solving, Time management, Communication, Presentations.