Wael Bakir

wael.wsb6@gmail.com | 01270873833 | Heliopolis, Cairo, Egypt
https://www.linkedin.com/in/waelbakir1 | https://github.com/waelbakir

ABOUT ME

I am a dedicated student pursuing a bachelor's degree in computer science at SUT in the Data Science Program. Fluent in English, French, and Arabic, with a good understanding of German, and equipped with a solid foundation in programming. I've gained proficiency in languages like Python, Java, SQL and more. My passion for technology and commitment to academic excellence drive me to excel in both my studies and practical projects, eager to contribute to the ever-evolving field of computing.

WORK EXPERIENCE

Orange Egypt – Student Intern; Smart Village, Cairo, Egypt   February 2019 - March 2019
- Explored and comprehended various company departments.
- Required to deliver a project and present it to 2 juries.
- Project results contributed to final grades, attained a flawless score on the project presentation.

E-finance - Student intern; Smart Village, Cairo, Egypt   June 2024 - August2024
- **Backend Development:**
- Managed Oracle SQL/PL databases: designed, optimized, and performed CRUD operations.
- Developed and deployed RESTful APIs with Node.js, Express.js, and Oracle DB integration.
- Implemented repository patterns, token-based authentication, and input validation.
- **Frontend Development:**
- Built responsive web pages with Angular, focusing on components, routing, and form validation.
- Integrated frontend and backend for seamless data flow.

EDUCATION

El Sewedy University of Technology| Faculty of Computer Science Technology   Cairo, Egypt
Bachelor's degree   October 2023 – Present
- Relevant Coursework: Object Oriented Programming, Database Management Systems, Network Basics, - Object Oriented Programming, Database Management Systems, Network Basics, Data Structures & algorithms, Probability and statistics, Web Programing, Data visualizations, Data Analysis , Artificial Intelligence, Cloud database

Collège De La Salle   Cairo, Egypt
- *French baccalaureate*

SKILLS & COURSES

- **Programming Languages:** Python, Java, C++, SQL, HTML, CSS.
- **Frameworks & Libraries:** Jswing, Matplotlib, Numpy, smtplib, SSL, tkinter, huggingface, postman, seaborn, powerBI, casandra.
- **Languages:** Arabic native proficiency, English & French fluent proficiency, German conversational proficiency.
- **Certificate: IELTS: 6.5 overall**

PROJECTS

Library Management System   *Java*
Object Oriented Programming   April 2024 - May 2024
- Designed and implemented a library management system for my OOP Class.
- The system manages a book library and allows customers to borrow/return books from the library. The project utilizes OOP concepts such as inheritance and polymorphism.

Breast Cancer Risk Prediction   *Python*
Data analysis / Machine Learning   December 2024-May 2025
- Developed a comprehensive machine learning pipeline in Python to estimate breast cancer risk using the RiskFactorEstimation.csv dataset.
The solution tackled class imbalance (~14.58% positive cases) using techniques such as SMOTE and random undersampling, and evaluated multiple classifiers including Random Forest, XGBoost, Logistic Regression, and others. Model performance
- was optimized via hyperparameter tuning and threshold adjustment, with a focus on maximizing recall for minority class detection. Feature importance was analyzed using SHAP to enhance explainability.
- Additionally, built user-friendly graphical interfaces using Flask and Streamlit to allow interactive risk prediction and model exploration.

- The project is deployable via both script (breast_cancer_risk_estimation.py) and Jupyter Notebook (breast_cancer_risk_estimation.ipynb).

Candy Match Game   *C++*
Data Structures Project   December 2024-January 2025
- Developed a console-based puzzle game similar to "Candy Crush" using C++.
- The game features a 30x30 grid implemented with a linked node-based structure. Players match three or more candies in a row or column to score points, while collecting stars to win.
- The game incorporates key data structures (linked lists, 2D traversal, custom grid management) and logic for swiping, validating moves, scoring, time tracking, and automatic grid refilling. Designed as a timer-based challenge with constraints on star movement and move limits.

File Compression and Decompression Tool   *Python*
Operating Systems Project   December 2024-January 2025
- Built a graphical file compression and decompression utility in Python as part of an Operating Systems course.
- Implemented Huffman coding using a custom binary tree structure (heapq, collections.Counter) to compress files efficiently.
- Developed a user-friendly GUI with **CustomTkinter** for seamless file selection, compression, and decompression.
- Used **Pickle** for serializing encoding maps and integrated dynamic extension handling for multiple file types (e.g., .txt, .pdf, .jpg). The tool supports compression ratio reporting and is designed to handle binary data robustly.

SMTP   *Python 3*
Networks   April 2024 - May 2024
- Developed a user-friendly desktop application using Python and Tkinter for sending emails with attachments, featuring an intuitive GUI for inputting email details and managing attachments.
- Integrated file attachment functionality and utilized the smtplib library for secure email sending with robust error handling.
- Styled the application with Tkinter's ttk widgets and custom themes, ensuring a visually appealing and responsive design.
- Collaborated effectively with team members, incorporating secure handling of user credentials and dynamic attachment management.

Student Management System   *Python 3*
CSV File Handling, User Authentication, User Interface, JSON, Web Pages   January 2024 - January 2024
- Designed and implemented a menu-driven console application in Python to manage students, courses, and grades, incorporating CRUD operations for each module.
- Utilized modular programming by importing and organizing functionalities from separate utility, student, course, and grade modules.
- Integrated data visualization using Matplotlib to generate bar charts of student grades and enabled HTML report generation for student results.
- Employed robust error handling and user input validation to ensure a smooth and reliable user experience.

❖ You can access all the project details, including source code and documentation, within my GitHub repositories:
https://github.com/waelbakir?tab=repositories