FARHAN ZAKIR

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SUMMARY

I am a motivated Computer Science graduate with strong skills in full-stack development, embedded systems, and AI solutions. My experience includes building scalable web apps with Django and React, developing ARM-based embedded software, and forecasting stock prices using LSTM and ARIMA. Proficient in Python, C/C++, Kotlin, and JavaScript, I'm skilled with Git, TensorFlow, and Linux. I've shown leadership as a student representative and equality officer, and I'm eager to contribute to innovative, growth-oriented tech teams.

EDUCATION

University of the West of England **Sep 2022 – July 2024**
Bachelor of Science in Computer Science Bristol

TECHNICAL SKILLS

Languages: Python, C/C++, HTML/CSS, Kotlin, PHP, MySQL

Libraries: pandas, NumPy, Matplotlib, GPIO, Websockets

Frameworks: React, Node.js, Django, Jetpack Compose

Developer tools: Git,Visual Studio, gdb, Makefile, Linux

EXPERIENCE

Ali Sanad Agarwood and Perfumes Trading **June 2021 – Nov 2021**
Sales Manager Dubai

- Oversaw sales campaigns for Oudh and Arabic oils, often surpassing sales goals by combining strategic planning with client interaction
- Created and put into practice successful sales strategies that increased market penetration along with product visibility

The Perfume Shop **Nov 2024 – Dec 2024**
Seasonal Sales Assistant Bristol

- Experienced sales assistant skilled in luxury fragrance sales, customer engagement, and exceeding sales targets.

CODING PROJECTS

Operating System

- Acquired advanced proficiency in core operating system concepts, including concurrency control, memory management, virtualisation, and secure computing, with practical experience in designing and optimising OS components.
- Developed and implemented multi-threaded utilities, security protocols, file systems, with a focus on real-world applications in operating systems.

Keypad and OLED Raspberry Pi Zero

- Developed an embedded RPN calculator using Raspberry Pi Zero, integrating an OLED display and 4x4 keypad matrix through GPIO, and implemented custom Python modules for hardware control, expression parsing, and stack-based computation.

Embedded Systems

- Gained advanced expertise in secure, low-powered embedded systems, including ARM Cortex-M architecture, cross development, and memory management.
- Developed and optimised software for embedded devices, focusing on booting processes, data communication protocols (SPI, I2C), and file system configuration

Cooperative Scheduler

- Developed a fiber-based cooperative scheduler inspired by the Naughty Dog engine, designed to manage context switching between jobs.
- Implemented and optimized job allocation/deallocation for lightweight tasks, with a priority queue system to handle user-based and free list tasks.

Functional E- commerce website

- Architected and developed a high-performance E-commerce platform with a Django backend and ReactJS frontend, integrating the OpenAI API for AI-driven customer support and dynamic content generation. Implemented advanced algorithms for product recommendations based on user behaviour and optimised search functionality using Elasticsearch.
- Enhanced scalability and security by implementing real-time inventory management, secure payment gateways with multi-factor authentication, caching strategies, and load balancing. Adopted a microservices architecture to ensure fault tolerance and seamless shopping experiences under high-traffic conditions.

Mobile Application

- Designed and implemented a BMI calculator application using Kotlin and Jetpack Compose, leveraging modern Android UI development practices for an intuitive and responsive user interface.

Internet of Things (IoT) and Network Protocol Development

- Developed a UDP client to decode and validate messages from a remote IoT server, implemented Base64 decoding, and calculated checksums for error-checking, ensuring data integrity and efficient packet processing.
- Built an encoder/decoder for Morse code using a binary tree structure, extending it to support Ham Radio communication protocols and integrating unit testing for reliability.

Samsung Stock Price Forecasting Using Advanced Models

- Designed and implemented a comprehensive stock price forecasting system utilising ARIMA, SARIMA, Prophet, and LSTM models.
- Developed LSTM-based deep learning models with TensorFlow/Keras to forecast future stock prices, achieving high predictive accuracy ($R^2 = 0.92$).
- Evaluated model performance using metrics such as Mean Squared Error (MSE), Mean Absolute Error (MAE), and R-squared, comparing results across different methodologies.
- Presented future price predictions with visualisations using Matplotlib to demonstrate model insights and trends.

CERTIFICATIONS

- Santander Open Academy
- CoPilot
- Santander Open Academy
- Generative AI
- Samsung Innovation Course
- Samsung Stock prediction