

Karthigan Mageswaran

Computer Science Graduate

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PROFILE

Final-year Computer Science student at the University of Leicester, on track for a First-Class degree. Skilled in full-stack development and application security, with hands-on experience building production-grade, multi-user platforms using Java, Spring Boot, React, and Python. Demonstrated ability to independently deliver complex, end-to-end software systems — from algorithmic design and secure backend architecture through to payment integration and AI-powered features. Trilingual in English, Tamil, and Italian.

EDUCATION

BSc Computer Science · University of Leicester

Sep 2022 – Jul 2026 (expected)

First-Class Honours expected · Leicester, UK

Relevant modules: Foundations of Cyber Security · Operating Systems & Networks · Databases & Domain Modelling · Software Architecture & System Development · Algorithms, Data Structures & Advanced Programming · Mobile & Web Applications · Data Analytics · Functional Programming · Internet and Cloud Computing

PROJECTS

University Accommodation Allocation System · Final Year Project

2024 – 2026

Spring Boot 3.2 · React 18 · MySQL · Spring Security · Stripe · OpenAI (Spring AI) · Google Maps · Tailwind CSS · OpenPDF

- Designed and implemented a four-stage hybrid allocation engine (SITS validation, group clustering, greedy preference matching, weighted penalty matrix) processing 25 concurrent applications in under 5 seconds.
- Engineered role-based access control across three user types (Student, Site Manager, Admin) with server-side jurisdictional isolation, BCrypt credential hashing, and JWT-based session management.
- Integrated Stripe Elements with iframe-isolated cardholder tokenisation, achieving PCI-DSS compliance without independent certification — raw card data never crosses the application server.
- Built a GPT-4o-mini conversational assistant using Spring AI function-calling, grounded against a curated knowledge base to prevent hallucinations and enforce institutional policy boundaries.
- Delivered asynchronous event pipelines for SMTP email dispatch, server-side PDF tenancy agreement generation, and automated 72-hour offer eviction sweeps using Spring @Async and @Scheduled.

Personal Cybersecurity Dashboard · Python · Streamlit · SQLite · zxcvbn-python

2024

- Built a standalone security monitoring tool assessing password entropy using the zxcvbn algorithm and simulating email breach threat-intelligence tracking.
- Implemented a local SQLite database for persistent alert logging and security event validation, demonstrating applied information security principles.

Personal Subscription Tracker · Java · Spring Boot · Spring Security · MySQL · Thymeleaf

2023

- Built a secure multi-user web application with Spring Security authentication, BCrypt-encrypted password reset flows, and automated scheduled financial alerts.
- Implemented full CRUD operations with a per-user financial analytics dashboard surfacing spending insights and subscription trends.

IBM SkillsBuild Gamified Learning App · Java · Spring Boot · JavaScript · REST APIs · Agile team project

2023

- Collaborated in an Agile team to design and integrate an external gamification platform with IBM SkillsBuild, developing the backend for user achievement and engagement tracking.
- Responsible for ensuring secure transmission and storage of user metrics, applying RESTful API design principles throughout.

EXPERIENCE

Shift Leader · Tesco · Leicester, UK

Jan 2022 – Present

- Lead and coordinate a team across high-volume shifts, managing task delegation, staff briefings, and real-time escalation handling — building the same decision-making and communication instincts required in technical team environments.
- Hold full keyholder responsibilities including opening/closing procedures, cash reconciliation, and physical security — directly comparable to the operational risk and compliance mindset valued in security and cloud roles.
- Consistently manage competing priorities across customer service, stock operations, and delivery coordination in a time-pressured environment.

- Delivered professional interpretation in high-stakes medical and legal settings, operating under strict confidentiality requirements and professional conduct standards.
- Trilingual (English, Tamil, Italian) — a differentiator for client-facing or EMEA-scope technical roles.

- Provided technical support across software, hardware, and network configuration for local businesses, achieving a 95% client satisfaction rate.

TECHNICAL SKILLS

Languages	Python, Java, JavaScript (ES6+), Bash / Shell, SQL, HTML5 / CSS3
Frameworks	Spring Boot, Spring Security, React 18, Thymeleaf, Tailwind CSS, Streamlit
Databases	MySQL, SQLite, Spring Data JPA / Hibernate
Security	Spring Security, JWT, BCrypt, zxcvbn, PCI-DSS compliance via Stripe iframe tokenisation
APIs & Cloud	REST, Stripe, OpenAI / Spring AI, Google Maps, SMTP / JavaMail
Tools	Git / GitHub, IntelliJ IDEA, VS Code, Postman, Swagger, Gradle, Agile / Scrum
Languages	English (fluent), Tamil (native), Italian (native)

ACHIEVEMENTS

- Winner, Network Rail Diverse IT Competition (2021) — selected as one of 50 winners nationwide for an innovative tech solution.
- Completed BSc degree while sustaining two parallel professional roles throughout all three years.
- Developer portfolio hosted at mkarthi31.github.io — 10+ public repositories across Java, Python, and JavaScript.