# Leveraging AI to Enhance Hong Kong Education City Limited Services COMPUTER SCIENCE **& ENGINEERING**

# INTRODUCTION

Hong Kong Education City Limited (EdCity) is a premier educational organization established in 2000, dedicated to enhancing learning experiences through innovative technology and resources. As the primary professional education portal in Hong Kong, EdCity provides a digital platform that connects educators, students, and parents, supporting diverse educational initiatives. To maintain its leadership in educational technology, EdCity recognizes the necessity of modernizing its systems and integrating advanced AI capabilities. By addressing the challenges posed by outdated infrastructure and leveraging large language models (LLMs), EdCity aims to improve its services, enhance user engagement, and adapt to evolving curriculum needs.

## OBJECTIVE

The co-op project at EdCity focused on two main objectives

- Enhancing Edcity AI Services Capbabilities Integrating LangChain into current internal API to enable seamless switching between various language models such as Azure GPT, SparkLLM and open source LLM and explore the capability of set up On-premises LLM.
- Revamping Mainsite Infrastructure Design a framework that automating the migration of a legacy PHP 5.2 codebase to PHP 7 and PHP 8.

### ENHANCING EDCITY AI SERVICE CAPABILITIES REVAMPING MAINSITE INFRASTRUCTURE

The Artificial Intelligence Large Language Model Application Programming Interface (AI-LLM API) initially relied on the Azure native SDK to interact with Azure GPT, providing efficient natural language processing capabilities for EdCity's application, Parents APP.



After the integration of LangChain, the API has evolved to facilitate seamless switching between various LLMs, including: 1. SparkLLM from iFLYTEK(科大訊飛) 2. Azure OpenAI Service 3. Open source LLM (such as Llama3.2) via Ollama This enhancement increases EdCity's flexibility in vendor neutrality and cost control when selecting AI solutions.





The mainsite revamp involved the comprehensive design of a migration framework aimed at modernizing EdCity's existing PHP codebase from version 5.2 to 7 and 8, addressing security vulnerabilities and enhancing performance. The framework encompasses several critical components, including

The framework is designed using Python and LangChain. First, the PHP source code will be scanned to check its encoding method, ensuring it is UTF-8 instead of Big5. Next, any hardcoded passwords in the source code will be masked and placed in a .env file. After that, the source code will be converted using Azure GPT-40 mini with a specific prompt. Once the converted code is received, the framework will perform a series of tests to verify its correctness. Finally, the source code will be zipped with a password and sent back to the developer.