A Properly Using LLMs in UIC Homework Assignment Helper System

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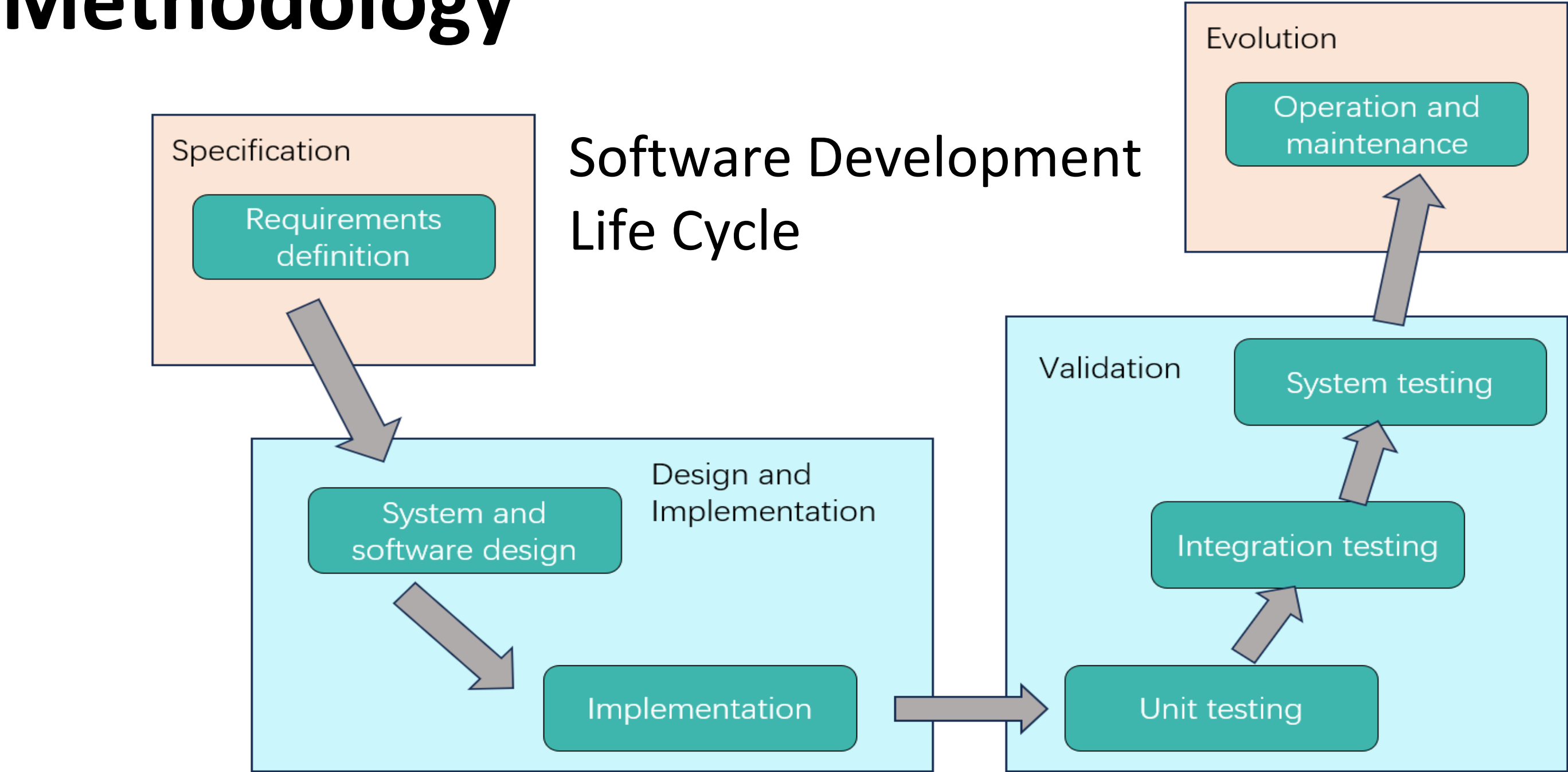*Corresponding Student Author Tel: +86-17783210471, E-mail: r130026037@mail.uic.edu.cn

Abstract and Motivation

Recently Large Language Models (LLMs) such as ChatGPT by OpenAI have taken the world by storm. Bill Gates said the ChatGPT demonstration he saw was, "the most stunning demo I've ever seen". Some education institutions such as New York City public schools and UIC banned, at least temporarily, the use of ChatGPT in the classroom, fearing students could do homework assignments using LLMs without learning the class material.
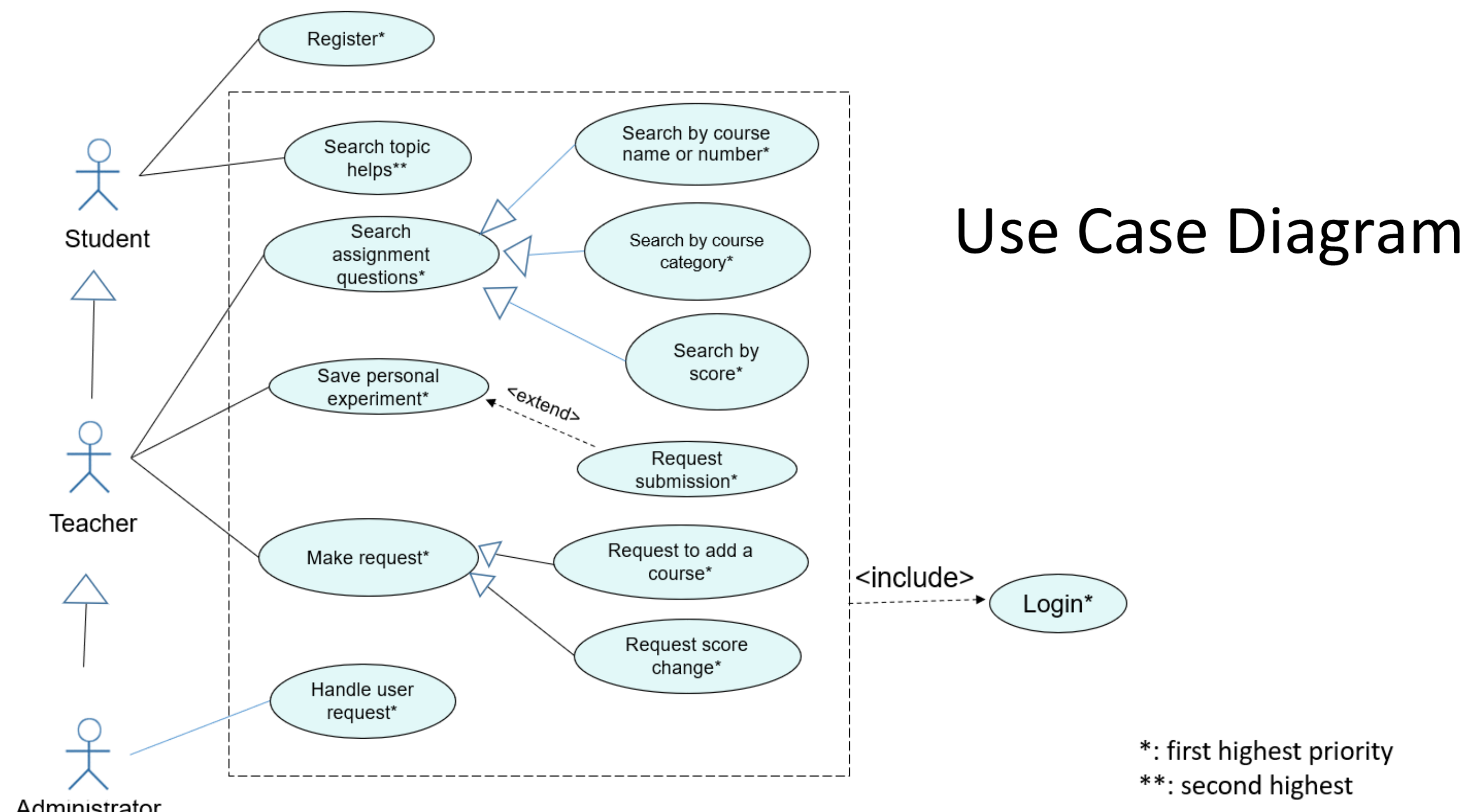
An app is needed to help teachers to create homework assignments that could not be easily done using LLMs without the students learning the class material. This app is sorely needed because few teachers are aware of what LLMs could and could not do. Furthermore, if used properly, LLMs can actually help students to learn the course material.

We in the CST program are in better position than other programs in UIC to understanding the ability and limitation of LLMs. So, we build a website to help teachers and students to use LLMs properly and avoid their misuse.
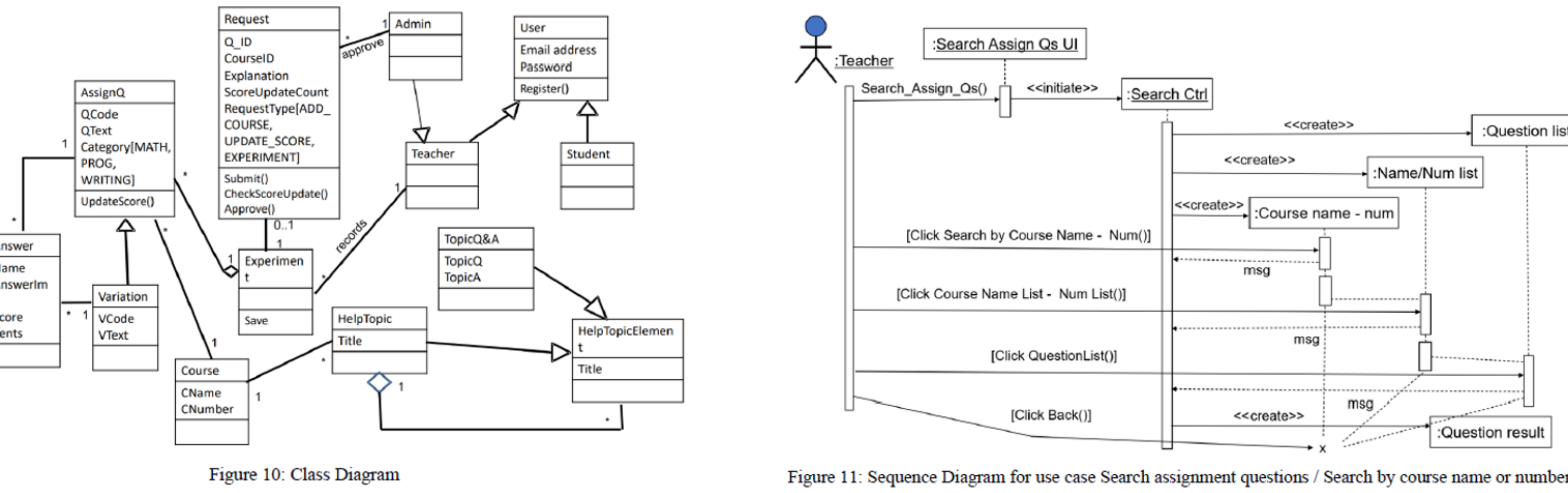
Methodology

Software Development Life Cycle
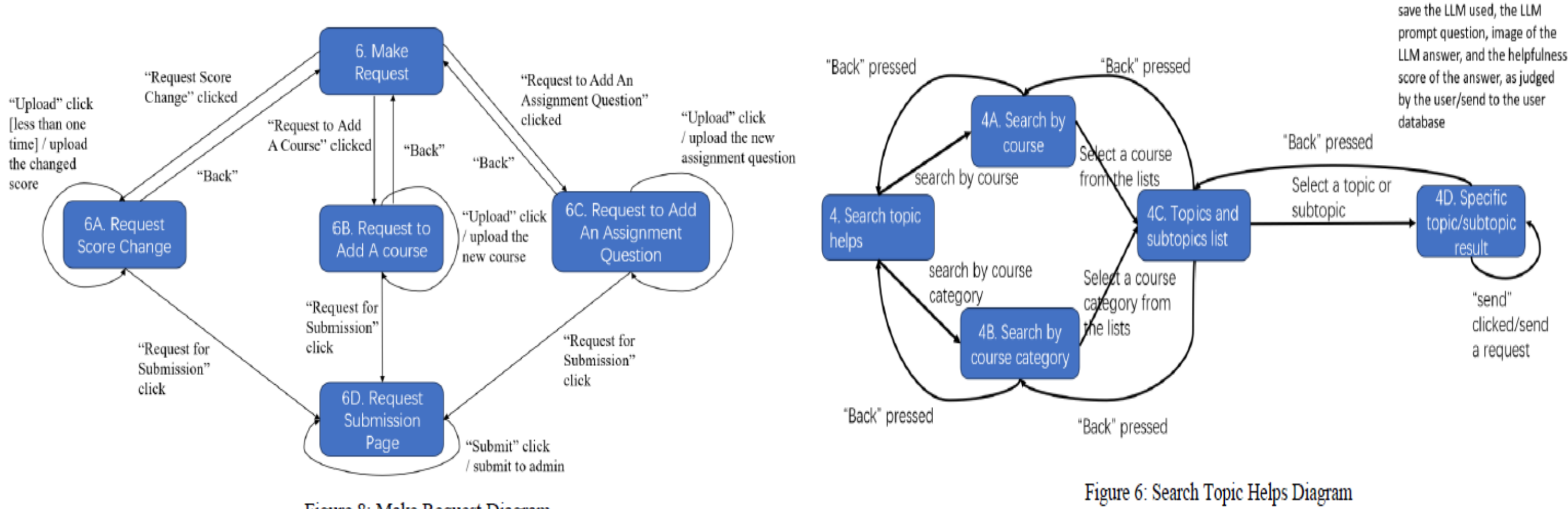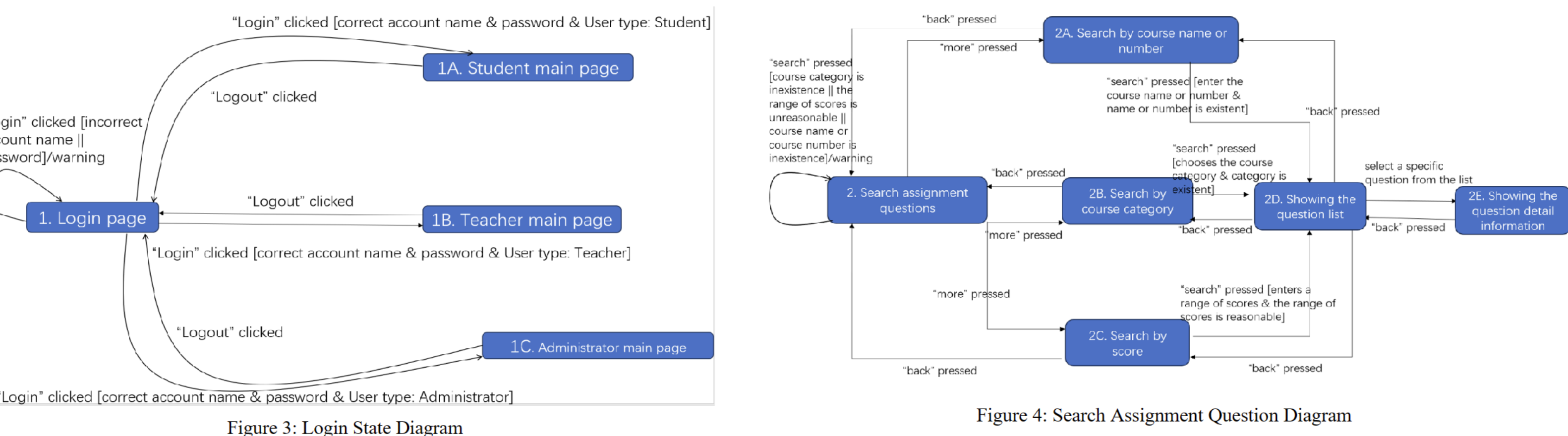

➢ Specification

Use Case Diagram

*: first highest priority
**: second highest

Requirements definition

➢ Task: 2. Write a detailed Software Requirements Specification (SRS)

Figure 10: Class Diagram

Figure 11: Sequence Diagram for use case Search assignment questions / Search by course name or number

Structural View ➡ Behavioral View

➢ Design and Implementation

Figure 3: Login State Diagram

Figure 4: Search Assignment Question Diagram

Figure 8: Make Request Diagram

Figure 6: Search Topic Helps Diagram

➢ Validation: Integration testing

Database

Chat GPT-3.5, Chat GPT-4, Claude 2, Baidu's ERNIE
Example:

Short Summary					
Each question for different model has different mark.					
UIC Class	Homework Problem	LLM Model and version	Solution and score	Scores	Comments
Calculus (Math problems)	Evaluate the integral: $\int_{1}^{9}\frac{4}{5}x^3 - \frac{3}{4}x^2 + \frac{2}{x}\,dx$	ChatGPT4.0	See figure 1	3/3	In few seconds. Correct answer, Detailed explanation
		Claude 2.0	See figure 2	1/3	In few seconds.
The second page in DatasetC.docx					

Page Showcase
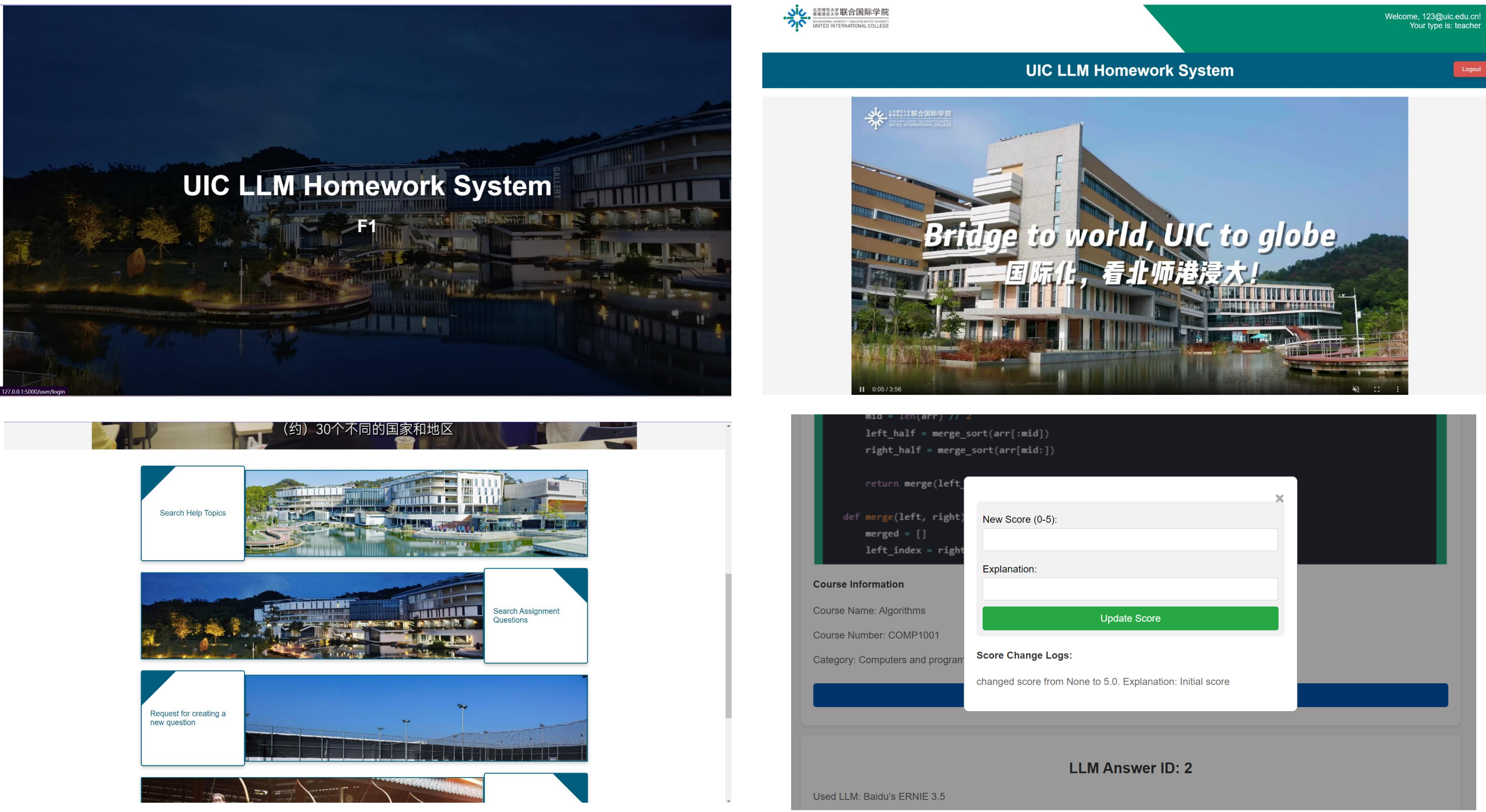
Conclusion

For teacher: Reduce the likelihood of students relying on LLM to complete assignments by designing assignment questions that cannot be answered through superficial understanding alone.

For student: Help students learn course material and better understand course content by using LLM to generate more explanations and examples for course topics.

Open-source

We have open sourced the project to github, feel free to download it. 🙌

Guo, Yuchen. A Properly Using LLMs in Homework Assignment Helper System. GitHub, Sep. 2024, https://github.com/Eurekaarrow/UIC_LLMs_Helper.