VIP Textbook Chatbot Recommender
Spring 2023 Project Proposal

Group Membership:

Member		
Dorsa Ajami	Skills	Java, Python, some HTML and CSS
	Credits	1
	Responsibility	Improve the chatbot by adding a textbook reference system.
Yueqiao (Christina) Chen	Skills	Java, Python, C, HTML, CSS
	Credits	2
	Responsibility	Research to combine the chatbot system with the textbook reference and also the Q&A system before.
Dennis Tsui	Skills	Java, Python, C/C++, SQL, Javascript, D3
	Credits	2
	Responsibility	Implement/improve textbook analytics into ChatBot algorithm.

Project Goals:

The Textbook Chatbot-Recommender is seeking a fusion of previous work in chatbot and improvement in the analysis of the Chatbot analysis. The current chatbot system is a bit chaotic as every algorithm stands itself. By merging them together there could be a much more collaborative system. With the textbook reference algorithm, it could get information from the textbook in a much more efficient way. We are also looking for other methodologies to improve the existing system and contribute to a better system.

Project Timeline:

Week 1-3: Team formation, proposing project ideas, and planning the project.

Week 4-5: Research how ChatBot and textbook reference works and make a plan for project implementation.
Week 6-7: Research appropriate approaches to combine and improve the system.
Week 8: Gather Piazza and textbook datasets to be fed into the algorithm.
Week 9-10: Create the combined system.
Week 11-12: Improve the textbook analysis.
Week 13: Look for other improvements to add.
Week 14: Implement the project into the ChatBot.
Week 15: Testing, adjusting and optimizing accordingly.
Week 16-17: Final Presentation.

Milestones:
We can start with one paragraph and try to summarize its main idea and compare it with the keywords from textbook references at first. We can also check the similarity between keywords to see the performance. For future work, we will check our progress with each other and meet regularly to report our progress and the work we have done during the week.

Project Description:

Currently, the Chatbot primarily uses piazza data to fuel its recommendation algorithm. While this may be helpful in providing direct answers to a student's questions, we believe that we should leverage more of the textbook as another data point to pull relevant information from in order to facilitate a more complete understanding of the textbook.

To do so we will implement many of the QuizApp Question Reference functionalities into the Chatbot recommender.

The first is to improve keyword extraction using Monkeylearn. This will allow us to more accurately interpret the meaning of the sentence. From there, we can create a connection between the textbook and piazza questions. For instance, if we have a question that is relevant to a piazza answer, if a student wants to learn more about the topic that the answer is about, they can be redirected to the textbook.

Foreseeable Challenges

Group Challenges: We have a mix of new and returning members so coordinating gaps in knowledge and experience may be a challenge.

Dorsa: lack of experience in working with app design. Working on a team project for the first time.Don't have much experience in front end hope to gain some while working on this project.Reading through the last year projects can help understanding the project and will enable us to effectively improve the chatbot by adding a new feature to it.

Christina: Combining the textbook reference algorithm with the current chatbot recommender can cause some incompatibility. As long as we understand the systems' codebase and collaborate with each other, the combination could be easier.

Dennis: Understanding the existing ChatBot codebase to be able to meaningfully contribute to it. Understanding where the shortcomings of ChatBot lie and how we can better understand how the system works. Possibly learning machine learning frameworks to better understand and solve the problems.

Implementation and Teamwork
In addition to the Thursday 12:30-1:30 meeting we will also meet virtually from 3-4pm every Sunday. If a team member cannot make this meeting then they should notify the team as soon as possible and catch up on the work that they missed.

Implementation Tools/resources/file management
We will use the textbook and Piazza dataset for our new system. We will be using python for writing our codes, and we are going to use GitHub to share and contribute our work with each other and implement the algorithm we are working on. We can also create GUI or some visuals to present our work at the end. We plan to tie everybody's work together by the end of the project. Once we are done with our rather individual parts, we plan to spend some amount of weeks combining our work together into a single demonstrable product.