Reimagine Learning using AI in Learning Management System (LMS)

Mink

Team Members

Mahendran Saeyohn

Xavier lam

Aason Voon

Alastair Theng

Wee Ki Jie

General Brief

- Text should be Tahoma font size 11, line spacing of 1.5
- Ensure you have filled up your team name and team members details
- Keep this proposal to a minimum of 5 pages, maximum of 10 pages excluding cover page, content outline and appendix

Content Outline

Significance of problem

How does the problem impact the area of focus, e.g. how is this problem affecting our society?

1 Problem Introduction

In a homeroom situation, teachers can't work with their instructional practice depending on the learning qualities and difficulties of students, in relationship to their educating, as each student learn differently and at their own pace and teachers are teaching a class as a whole.

This causes some students to be left behind by their fellow classmates academically and often this group of students is turned into a source of trouble and inconvenience, which may cause disruption in the educational process in the classroom or disorder within the school. Ultimately, causing waste of human energies and resources in our society.

Solutions Introduction

2 Introduction

The team has come up with a solution to tackle this problem - The integration of an AI System with a Learning Management System.

The AI Learning Management System will allow students to be able to have an improved learning experience through the use of algorithms and machine learning to better cater questions based on a student's performance, Moreover, allow teachers the ability to better manage students' learning by automating and analyzing and providing data.

2.1 Algorithms to improve student assessment

A primary way in which traditional Learning Management Systems evaluate a student's competency and progression in a certain subject, is through the use of tests and quizzes. However, students learn at different paces, and quiz questions provided by a traditional LMS do not usually adapt and cater to a student's ability.

With the AI learning Management System, we aim to improve the Quiz system through the use algorithms and a point-based system. In this system, questions will be internally grouped into different difficulties, and questions will be presented to students based of their overall performance in a particular subject.

When a student answers a question, the student will gain and lose points based on whether a question is correctly answered. The algorithm will then scale the difficulty of questions using the points garnered as a benchmark for a student's ability. For example, a student with a greater of number of points will face more difficult questions while a student with lesser points will face questions of lesser difficulty.

With algorithms and the point-based system in place, students of any skill level would have better engagement in evaluating their ability as questions would be personalized to each student's ability, reducing redundancy in question difficulty.

2.2 Use of AI to further assist Students and Teachers

With the AI Learning Management System, management of students' learning can be automated and be streamlined to assist Teachers and Lecturers to better improve the student learning experience.

In the AI Learning Management System, Data will be collected from students such as their Quiz scores, Exam Scores and Module/Subject progression, and will be analyzed by the System's Scrapper to search for suitable media such as Lectures and Literature from external sources such as Google or YouTube or

internal resources such as materials provided by Teachers/Lecturers to be recommended to students for further reading and understanding of a particular subject module.

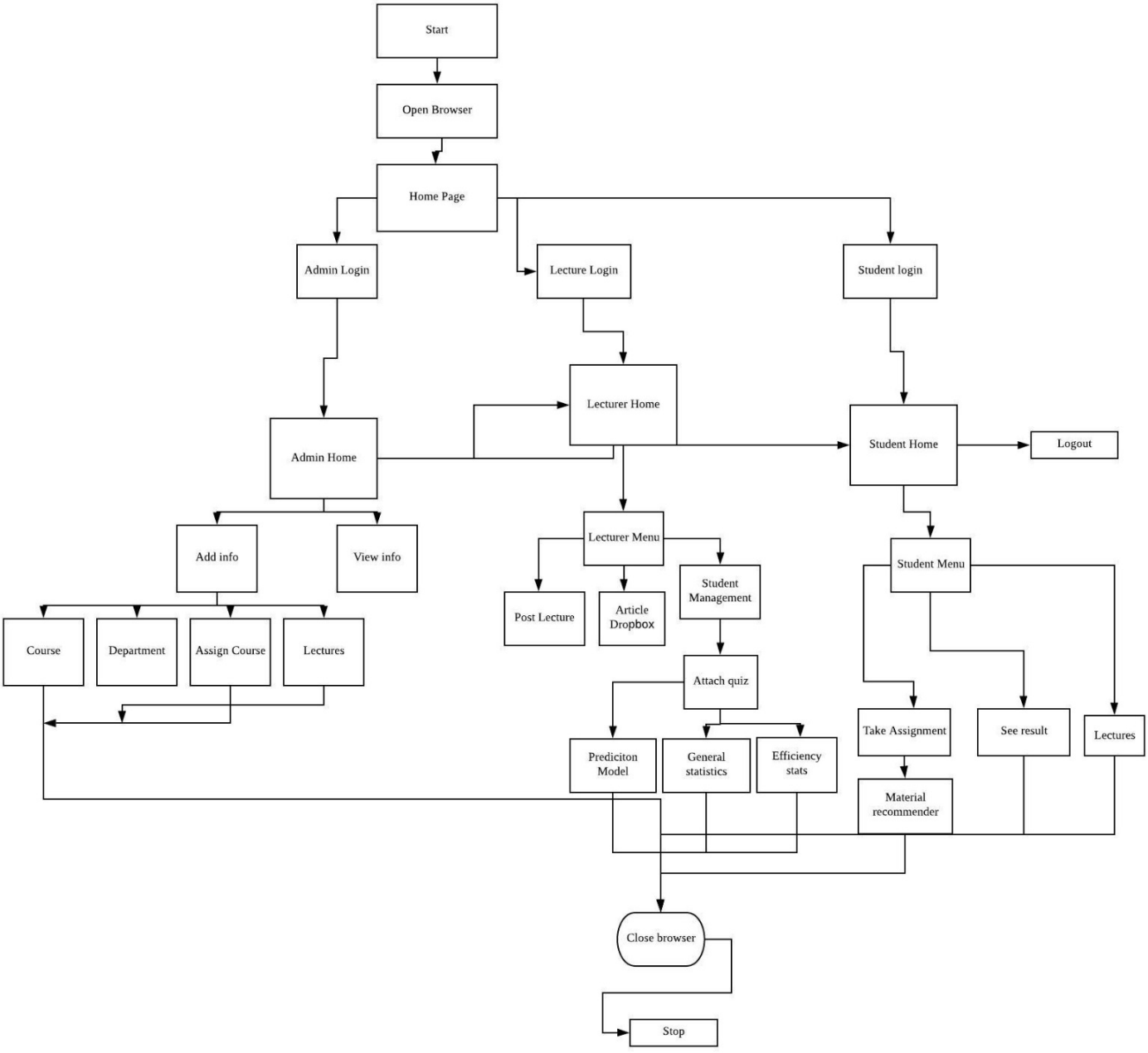
Furthermore, The AI Learning Management System will make use of the aforementioned data collected to perform regression analysis to provide Teachers/Lecturers statistics on a student's projected performance in a subject module. This helps teachers and lecturers an insight on how to better aggregate resources and time to help students based of the statistics provided.

Impact of Solution

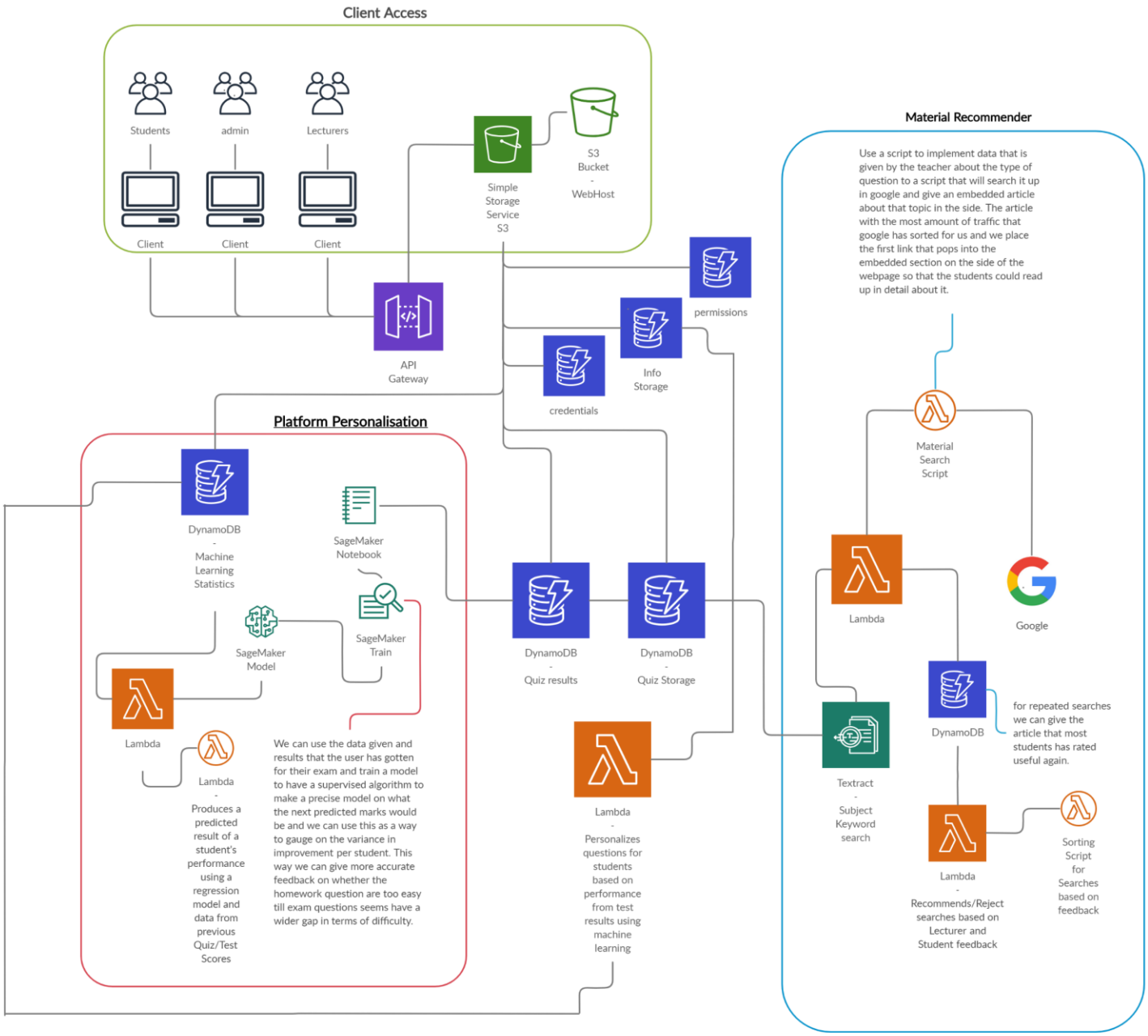
3 Solution Impact

How does your solution benefit the society / the target audience?
The solution would help teachers reduce the workloads for the teachers making them less stress. This is through the LMS giving the data of how the students are performing on a more accurate scale compared to a normal quiz. This prepares teachers help give the appropriate amount of attention. Students will also benefit as they would have a more personalized learning. Personalized learning allows student to move at their own pace with little to no assistance from the teacher. This gives the student less stress as he/she need not compete with his/her/it peers. Students will be able to do self-directed learning and learn topics through doing questions and slowly improving through their mistakes. Students will also be more interested in learning as technology engages them.

Deep Dive into Solution



Architecture of Solution



Going further

4 Going Further

Discuss the possibility of future development. Given more time or financial resources, how will you improve your solution to make it better?

Improve the UI and Responsiveness of the platform, making changes according to feedback provided by users. We also aim to add more functionality if possible, to help both teachers and students by providing more information about the student's learning. If we can gather more data about the institution-performance increase per student after the AI-integrated LMS, we can predict possible outcomes for each student using regression models to assist teachers in identifying student performance. Furthermore, also provide suggestions about the difficulty of the assignments when provided with ample data to the lecturers to match the future exam questions so that students are better equipped.