EDUGUIDE SRI LANKA – EVALUATION DOCUMENT

A Personalized A/L Stream Recommendation and University Guidance Chatbot

Thenuka Dinujaya

Undergraduate,

BEng (Hons) Software Engineering,

Informatics Institute of Technology Affiliated with the University of Westminster.

thenuka.20201025@iit.ac.lk

DISCLAMIR

This is NOT the Final Thesis!!

This document serves as an introductory overview of the project, providing evaluators with initial insights and impressions before proceeding to complete the evaluation form.

1. Introduction to EduGuide Sri Lanka

Selecting an appropriate A/L subject stream and a suitable university degree pathway is one of the most important, yet challenging decisions faced by Sri Lankan students after completing their O/L examinations. Many students make uninformed choices due to a lack of proper guidance, limited awareness about available streams and university courses, peer pressure, or parental influence. This often results in dissatisfaction, low academic performance, or even career mismatches in the long run.

EduGuide Sri Lanka is a smart guidance platform designed to address this gap by offering students a personalized and well-informed recommendation on both A/L stream selection and higher education opportunities. The system is built to consider the individual interests, academic strengths, and career aspirations of students—ultimately acting as a virtual mentor that guides them in making life-defining academic decisions.

Using the power of machine learning and semantic search, EduGuide Sri Lanka analyzes user input through surveys, interest-based questions, and career preferences to recommend the most fitting A/L streams and university degree options (both government and private). The chatbot feature allows interactive support, making academic and career planning more accessible and user-friendly.

2. Importance of the Project

Choosing the right A/L stream sets the foundation for a student's future academic and career journey. However, many students make choices without fully understanding the consequences or aligning them with their interests. This misalignment can lead to regret, course switching, or even abandoning higher education altogether.

Table 3 : G.C.E.(A.L.) Examination - 2023(2024)
Performance of Candidates - All Island

	School Candidates						All Candidates					
	Male		Female		Total		Male		Female		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
No. Applied	115,742		166,017		281,759		142,521		204,881		347,402	
Number Sat	94,047	81.26	135,010	81.32	229,057	81.30	109,808	77.05	159,805	78.00	269,613	77.61
Eligible for University Entrance	54,038	57.46	97,305	72.07	151,343	66.07	61,500	56.01	111,944	70.05	173,444	64.33
Obtained 3A's	3,277	3.48	6,577	4.87	9,854	4.30	3,495	3.18	6,989	4.37	10,484	3.89
Passed in 2 Subjects	15,555	16.54	17,352	12.85	32,907	14.37	18,066	16.45	21,409	13.40	39,475	14.64
Passed in 1 Subject	12,448	13.24	10,653	7.89	23,101	10.09	14,747	13.43	13,805	8.64	28,552	10.59
Failed in All subjects	11,958	12.71	9,612	7.12	21,570	9.42	15,419	14.04	12,551	7.85	27,970	10.37

Percentages of the "Number Sat" are calculated according to the "Number Applied" in corresponding category
Percentages of "Eligible for University Entrance", "Obtained 3A's", "Passed in 2 Subjects", "Passed in 1 Subject", "Failed in All Subjects" are calculated according to the "Number Sat" in corresponding category

Figure 1: Performance of candidates 2023

Recent statistics from the **G.C.E. A/L Examination 2023(2024)** reveals a concerning reality:

- Over **27,000 students (10.37%)** failed **all three A/L subjects**.
- Only **64.33%** of candidates are eligible for university entrance.
- More than **14%** passed just **two subjects**, and **10.59%** passed only **one**.

These figures highlight the serious need for better academic guidance at the A/L entry point. EduGuide Sri Lanka addresses this issue by equipping students with the tools and insights they need to make informed decisions that align with their true interests and capabilities.

3. Proposed Solution

Dataset Collection:

Due to the lack of publicly available datasets tailored to A/L stream and university selection in Sri Lanka, the author created custom datasets using surveys distributed via Google Forms. These forms collect responses on academic preferences, career goals, and subject interests from current students and high-performing past students. This data serves as the foundation for training the recommendation system.

A/L Stream Recommendation Generation:

The A/L stream recommender uses keyword matching, interest mapping, and student responses to suggest streams that best align with their academic strengths and aspirations. This module analyzes text inputs to extract relevant keywords and applies ML techniques for accurate recommendation.

University Guidance Chatbot:

To support post-A/L decisions, the chatbot leverages natural language processing (NLP) using Sentence-BERT and semantic search to recommend suitable private and government universities based on the student's Z-score, interests, and career preferences. It also provides career suggestions, helping students explore options aligned with their personality and academic profile.

4. User Interface Designs

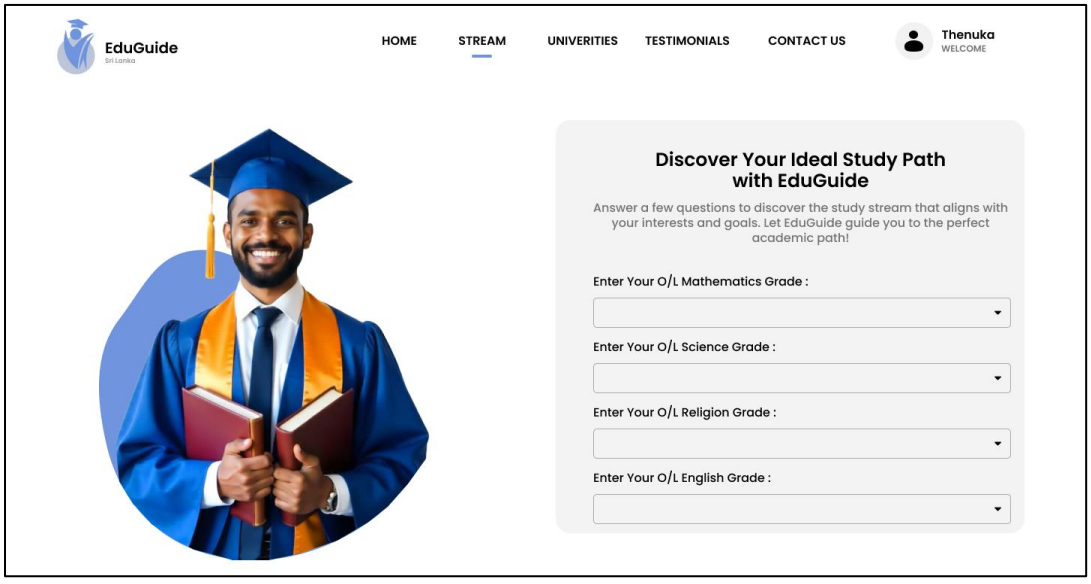

Figure 2: A/L Stream Recommendation Page

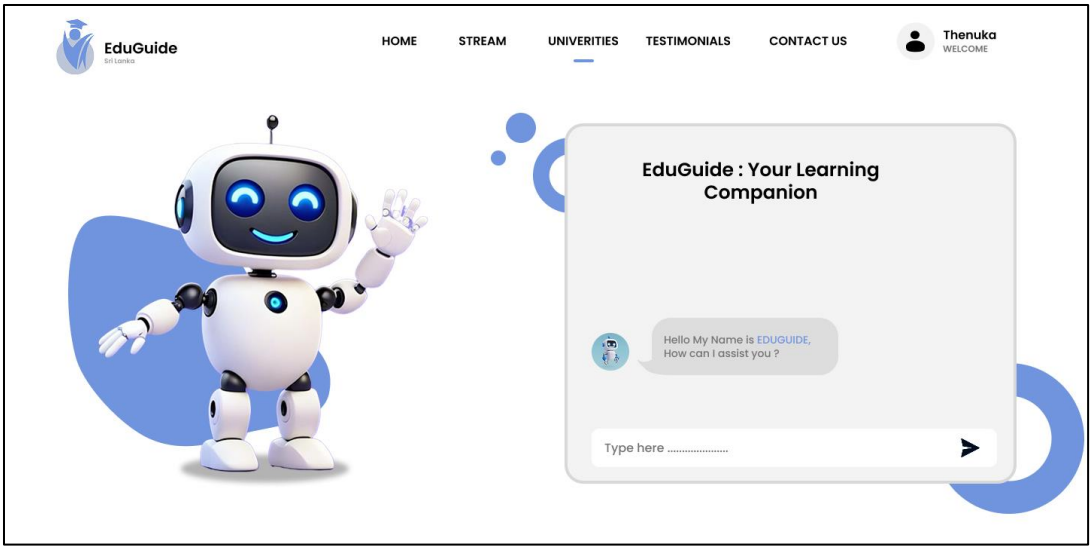

Figure 3: University Guidance Chatbot Page

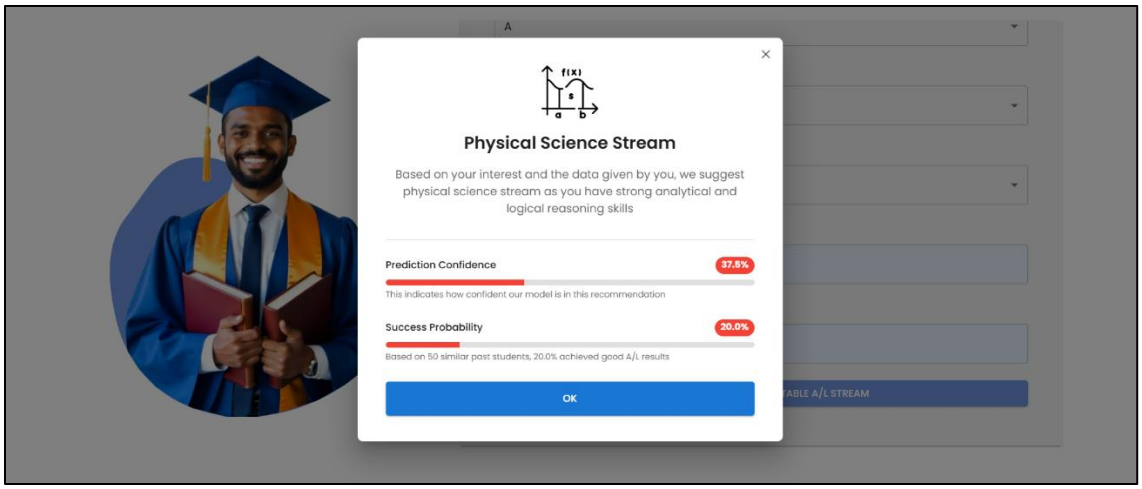

Figure 4: Sample prediction for A/L Stream

5. Future Enhancements

The current version focuses primarily on core A/L streams and common IT-related university degrees. However, future versions aim to expand the system to include more advanced ML models, a wider range of subject streams and degree programs, and enhanced personalization features.

Plans are also underway to:

- Improve the dataset by collecting more extensive student data from different regions and academic backgrounds.
- Extend the chatbot to answer FAQs, provide career guidance tips, and simulate real academic counseling sessions.
- Introduce multi-language support to ensure accessibility across Sinhala, Tamil, and English-speaking users.
- Integrate visual dashboards to help students and parents understand recommendations more clearly and interactively.

6. System's Context Diagram

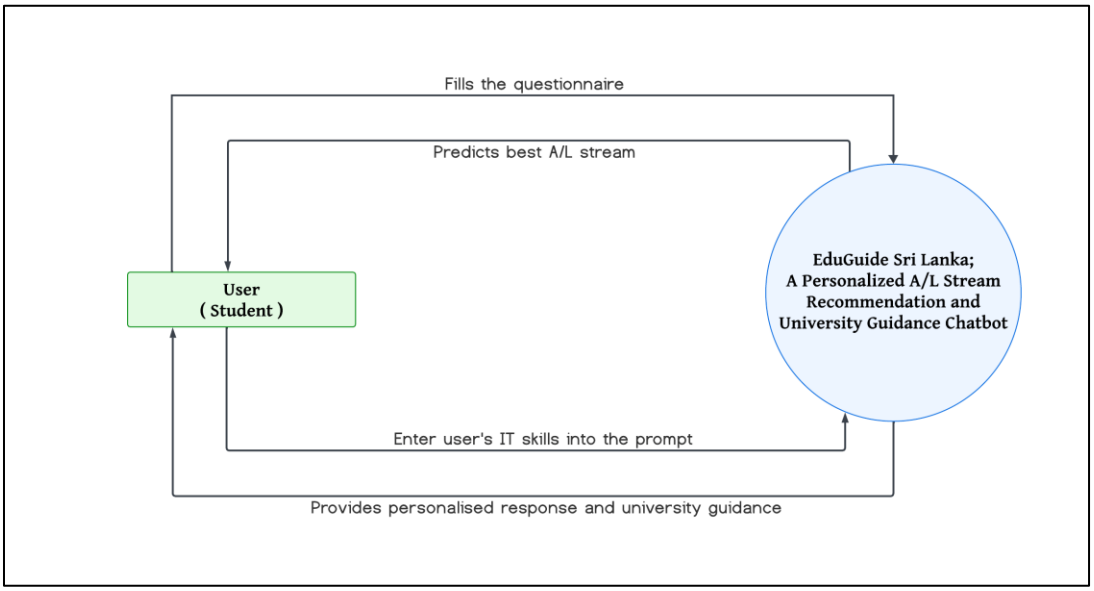

Figure 5: Context Diagram