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EduGuide Sri Lanka

A Personalized A/L Stream Recommendation and University Guidance Chatbot

A dissertation by

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ABSTRACT

Problem: Sri Lankan students face significant challenges in selecting A/L streams and university programs due to a lack of structured guidance and accessible information. The current educational system prioritizes examination performance over aligning students' personal interests with career goals or offering viable options for those who do not meet Z-score thresholds, are given little to no attention. As a result, students often lack direction in choosing academic paths that suit their abilities and career aspirations, leading to uninformed decisions and missed opportunities.

Methodology: To address this issue, EduGuide Sri Lanka was developed as a personalized recommendation platform that assists students in selecting A/L streams and university programs. The system employs machine learning techniques, such as ensemble models, to predict suitable A/L streams based on a dataset of student preferences, academic performance, and career trends. Additionally, a Natural Language Processing (NLP) powered chatbot provides personalized university and career guidance by analyzing user queries and offering tailored recommendations. The platform is built with React.js for the front end and Node.js for the back end, ensuring a seamless and scalable user experience.

Initial Results: Preliminary evaluations demonstrate that the A/L stream recommendation model achieves an accuracy of 78%, effectively aligning student choices with their academic strengths and career aspirations. The NLP powered chatbot successfully answers user queries, providing insightful guidance on university programs and career options. Usability testing with some students revealed that the platform is intuitive and beneficial for their decision-making process.

Keywords: Machine Learning, Natural Language Processing (NLP), Educational Recommender System, Student Guidance, A/L Stream Selection, University Recommendation, Career Planning, Z-score Based Prediction, Personalized Learning

Subject Descriptors:

Information systems → Decision support systems → Educational recommender systems

Computing methodologies → Machine learning → Applications of machine learning