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AI-BASED ONE-STOP CAMPUS SERVICE CHATBOT USING NATURAL LANGUAGE PROCESSING

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This thesis was prepared under the supervision of the project supervisor, Satria Arjuna Bin Julaihi. It was submitted to the College of Computing, Informatics and Mathematics and was accepted in partial fulfilment of the requirement for the Bachelor of Computer Science (Hons.).

Approved by,

…….

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ABSTRACT

Students at UiTM Samarahan often struggle to find information about campus services because it is spread across many separate websites and portals for course registration, fees, the academic calendar, the library, convocation and more. This slows the time it takes to complete simple jobs and contributes to the load on the service counters. This project created an AI Chatbot that combines these services in one place for the student to ask a question in everyday language and get a clear answer. The chatbot uses a method called Retrieval-Augmented Generation (RAG): instead of guessing, it first searches a collection of official UiTM information and then uses an AI language model to write an answer based only on what it found, always showing the source link. The system was developed step by step, deployed online, and built with modern web tools using an Agile approach. It was tested in three ways: checking that each feature works, measuring how well it answered a set of 30 questions, and asking 50 students to rate how easy it was to use. The chatbot found the correct source and gave a correct answer 90% of the time, rarely made up information (10%), and replied in about 13 seconds, at a total running cost of only around RM 40. Students rated its usability at 56.65 out of 100 which is acceptable, but with room to improve, mainly because of the response speed. Overall, the project demonstrates that a low-cost, source-based chatbot is a viable and reliable solution for students to reach out to campus services, and can be expanded in the future with faster responses and more languages.

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