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# DESIGN AND DEVELOPMENT OF WEB-BASED CHATBOT WITH NATURAL LANGUAGE PROCESSING METHOD AND KNUTH-MORRIS-PRATT ALGORITHM (CASE STUDY: UNIVERSITAS INTERNASIONAL BATAM)

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## ABSTRACT

As an educational institution, there will be many people seeking information about Universitas Internasional Batam (UIB), whether the students, alumni, prospective students, colleagues, nor the wider community. Currently, information services at UIB are still carried out manually by humans or through the website which users need to take several steps by using the text-based search feature. Software Development Life Cycle with Waterfall methodology is used in developing the chatbot. This research uses Web Scraping technique to collect and extract the required data from the official website of UIB before being processed using Natural Language Processing approach and Knuth-Morris-Pratt algorithm. The chatbot was built using Python programming language with the expectation of having ability to answer questions correctly in real-time and ease users to obtain information without visiting college. The data set for chatbot training consists of 193 questions and statements which are grouped into 18 tags. Whilst Black Box Testing technique is implemented for chatbot testing using 100 questions. This web-based chatbot is successfully built with an 86% accuracy rate in answering user questions.

**Keyword**: *Chatbot, Artificial Intelligence, Machine Learning, Natural Language Processing, Knuth-Morris-Pratt.*