INCLUSION OF NATURAL LANGUAGE PROCESSING IN CHATBOT DEVELOPMENT FOR EFFECTIVE DIGITAL LEARNING

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1. RESEARCH PURPOSE

Chatbot is the new way of interaction between humans and computers and can be of help in digital learning. Just like any classroom, a chatbot can facilitate seamless live communication and offer a great personalized learning process. It reduces teacher-to-student physical meetings as it can be available anytime. Natural Language Processing(NLP) allows a computer to understand natural language as a human. It takes input, processes it, and communicates it in codes to the computer. This research aims at designing an efficient NLP implemented chatbot for digital learning to create a conversational and personal experience rather than just implementing computer technologies.

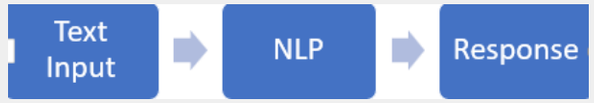
RESEARCH QUESTION: How effective would a natural language processing integrated chatbot be as a digital learning tool?

2. BACKGROUND CONTEXT

As Technology evolves and expands, there is an increase in expectation and more demand in the aspect of learning. Digital learning is the new face of learning embraced around the world, a situation where you can learn from the comfort of your home. In a case where a student is taking different modules in a semester, it can be stressful and time-consuming with little result to keep pace and process various information at the same time, but a bot puts a student in charge of creating the schedule they want and provides a better-personalized learning experience. From the Literature review, an NLP implemented chatbot is more effective as compared to a structured chatbot, natural language implemented is directly proportional to the chatbot's performance.

3. RESEARCH METHODOLOGY

Python programming language would be used to develop the chatbot. Developing a Natural language processing chatbot is challenging because computers understand programming language and codes. Natural Language Toolkit is an effective platform for building Python programs to work with human language data. The development process involved include, importing the necessary library, data processing, and generating chatbot response. A key strategy used is the secondary research strategy by looking to previous works and coming up with a more efficient product.



4. EVALUATION METHODOLOGY

Conducting Quantitative and Qualitative Online Surveys: A survey helps to gather information, the final product would be tested across a small group of students with personal differences in terms of age, gender, course of study, and so on for some time, this is to capture a different perspective on online learning. After which an online survey form tailored to check the effectiveness of the chatbot is given to each of the respondents to fill. Information gathered is carefully analyzed to check the usefulness and effectiveness of the product. Microsoft forms would be used for the survey because of its flexibility and survey outcome tabulation for easy analysis.

5. SCHEDULE AND PUBLISHING

The task would be divided into 5 phases: Literature review for two weeks, product development for six weeks, product test for two weeks, product deployment for a week, and the final documentation for the last week. The final paper would be prepared for the Data Science Journal.

ACTIVITIES	DURATION	1	2	3	4	5	6	7	8	9	10	11	12	13
LITERATURE REVIEW	3													
PRODUCT DEVELOPMENT	6													
PRODUCT TEST	2													
DEPLOYMENT	1													
FINAL DOCUMENTATION	1													

6. PROFESSIONAL, LEGAL AND ETHICAL ISSUES

An ethical online survey is conducted primarily to obtain information about the efficiency of the product. Necessary security measures will be taken to protect the survey data. The data collected will only be used for evaluation purposes and will be secured within the product environment according to the European Union GDPR (General Data Protection Regulation) and the United Kingdom DPA (Data Protection Act) 2018.
Users should be informed on how their data will be used and they decline to consent to this.

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