Research Proposal

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Title

Enhancing Search Accuracy for University Regulations

Introduction

In light of a recent incident where I sustained an injury on university property due to adverse weather conditions, I embarked on a search for relevant regulations governing such occurrences. It came to my attention that the existing regulation search system in place is notably deficient. Notably, I discovered that it only yields results when specific keywords like '傷' (injury) are entered, rendering it ineffective for queries involving related terms such as '致傷' (inflict injury).

This experience has served as a catalyst for me to propose the development of an easily accessible and efficient regulation search system tailored to the needs of both university staff and students at National Cheng Kung University (NCKU).

Statement

The primary objective of this project is to enhance the precision and effectiveness of retrieving university regulations, thereby reducing the gap between university staff, students, and the regulatory framework.

Approach/ Methods

To achieve the project's objectives of improving the accuracy of searching university regulations and enhancing accessibility for staff and students, the following approach and methods will be employed:

1. Data Collection:
    - Gather existing university regulations and associated documents, ensuring a comprehensive and up-to-date database of regulations.
2. Named Entity Recognition:
    - Implement NER algorithms to identify and extract key entities, such as regulation titles, dates, and departments, to enhance search relevance.
3. Keyword Expansion:
    - Develop a keyword expansion mechanism to identify synonyms and related terms, allowing users to find regulations even when using variant keywords.
4. Indexing and Search Engine:
    - Create an efficient indexing system to organize and store regulations and metadata for fast retrieval.
    - Implement a robust search engine that incorporates NLP and machine learning techniques to improve the relevance of search results.

5. Machine Learning:

- Explore the use of machine learning models, such as topic modeling or classification algorithms, to categorize regulations into thematic areas for better organization and retrieval.

By implementing these approaches and methods, the project aims to provide a more accurate, efficient, and user-friendly system for accessing university regulations, ultimately bridging the gap between staff, students, and the regulatory framework.

Implications of Research

The successful execution of this project is expected to have far-reaching implications and benefits for National Cheng Kung University (NCKU), its staff, students, and the broader academic community. These implications can be summarized as follows:

1. Enhanced User Experience: The implementation of an advanced and user-friendly regulation search system will significantly enhance the overall user experience for both staff and students. They will be able to quickly and efficiently access the information they need, thereby improving productivity and reducing frustration.

2. Improved Accuracy and Relevance: The use of natural language processing (NLP) techniques and advanced search algorithms will result in more accurate and relevant search results. This will ensure that users can find the regulations they need, even when using variant keywords or synonyms.

3. Accessibility: The user-friendly interface and enhanced search capabilities will promote inclusivity by making it easier for all users.

4. Transparency and Compliance: The project will contribute to greater transparency in regulatory compliance by ensuring that university regulations are easily accessible and understandable. This will assist in ensuring that all members of the university community are aware of and adhere to relevant rules and policies.

5. Data-Driven Decision-Making: The project will generate valuable data on user search behavior and regulatory needs. This data can inform data-driven decision-making processes within the university administration, leading to more informed policy adjustments and improvements.

In conclusion, this project has the potential to positively impact the university's operations, governance, and overall academic environment by improving the accessibility, accuracy, and user-friendliness of its regulatory framework. The implications outlined above reflect the project's broader significance for NCKU and its community.

Reference

Nay, J. (2021). Natural Language Processing for Legal Texts. In D. Katz, R. Dolin, & M. Bommarito (Eds.), *Legal Informatics* (pp. 99-113). Cambridge: Cambridge University Press. doi:10.1017/9781316529683.011