Recommender System for Enterprise Resource Planning Package Components using Language Models

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内 容 梗 概（1ページ目に収めること）

An enterprise resource planning (ERP) package consists of software to support day-to-day business activities and contains multiple components. System engineers combine the most appropriate software components for system integration using ERP packages. Because component selection is a very difficult task, even for experienced system engineers, there is a demand for machine-learning-based systems that support appropriate component selection by reading the text of requirement specifications and predicting suitable components. However, sufficient prediction accuracy has not been achieved thus far as a result of the sparsity and diversity of training data, which consist of specification texts paired with their corresponding components. The author implemented round-trip translation at both training and testing times to alleviate the sparsity and diversity problems, adopted pre-trained models to exploit the similarity of text data, and utilized an ensemble of diverse models to take advantage of models for both the original and round-trip translated data. After that, re-ranking using large language models (LLMs) further improved the recommendation accuracy. Through experiments with actual project data from ERP system integration, the author confirmed that round-trip translation alleviates the problems mentioned above and improves prediction accuracy. Furthermore, the accuracy was improved by re-ranking using the LLM. As a result, our method achieved sufficient accuracy for practical use.