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Theme-Explanation Structure for Table Summarization using Large Language Models: A Case Study on Korean Tabular Data

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Theme-Explanation Structure for Table Summarization using Large Language Models: A Case Study on Korean Tabular Data

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Keywords: Table Summarization, Theme-Explanation Structure, Adaptive Prompt Engineering, Table-to-Text Natural Language Generation
TL;DR: Theme-Explanation structure table summarization leveraging adaptive Chain-of-Thought prompting for enhanced interpretability and scalability in low-resource contexts
Abstract:
Tables are a primary medium for conveying critical information in administrative domains, yet their complexity hinders utilization by Large Language Models (LLMs). This paper introduces the Theme-Explanation Structure-based Table Summarization (Tabular-TX) pipeline, a novel approach designed to generate highly interpretable summaries from tabular data, with a specific focus on Korean administrative documents. Current table summarization methods often neglect the crucial aspect of human-friendly output. Tabular-TX addresses this by first employing a multi-step reasoning process to ensure deep table comprehension by LLMs, followed by a journalist persona prompting strategy for clear sentence generation. Crucially, it then structures the output into a Theme Part (an adverbial phrase) and an Explanation Part (a predicative clause), significantly enhancing readability. Our approach leverages in-context learning, obviating the need for extensive fine-tuning and associated labeled data or computational resources. Experimental results show that Tabular-TX effectively processes complex table structures and metadata, offering a robust and efficient solution for generating human-centric table summaries, especially in low-resource scenarios.

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