Product Review Summarization and Chatbot Service Based on LangChain for Consumers

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In the 21st century, online shopping continues to expand, and many consumers rely on reviews when making purchasing decisions. However, the increasing number of reviews can overwhelm consumers, making it time-consuming to read them all. Skipping thorough review reading may lead to unsatisfactory purchases and wasted money. Furthermore, conflicting opinions within reviews can cause confusion, and there is often no clear way to resolve questions after reading them. To address these challenges, we developed a review summarization and chatbot service application using Large Language Models (LLM) and LangChain. The application employs a web scraper to extract up to 1,000 reviews, grouping them into sets of 10 and processing them in parallel to generate summaries. These partial summaries are then combined to produce a final comprehensive summary. Additionally, reviews are embedded into a vector store, enabling users to access minority opinions. We also developed a chatbot that references both the summaries and the vector store to respond to user queries. The application was tested using simulated scenarios, and the results confirmed that it provided accurate information consistent with manual review reading. To further verify its effectiveness, we conducted a secondary test using a dataset where 1 out of 100 reviews contained a minority opinion. When users inquired about minority perspectives, the chatbot accurately reflected and included them in its responses. These tests demonstrate that the application effectively addresses both general scenarios and cases where minority opinions are present, offering a practical solution to review overload and consumer confusion.

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