

Abstract

Various approaches have been used to develop car recommender systems, but there are still limitations in personalizing information. Existing recommender systems often provide less relevant and flexible recommendations because the systems do not better understand users' needs. Therefore, there is a need for a car recommender system that can offer more personalized recommendations, understand user needs better, and allow for more flexible interactions between the system and the user. This research aims to address these limitations and open up opportunities to enhance the performance and personalization of recommender systems in the automotive field. We developed a car recommender system named Carfin, which utilizes a Large Language Model (LLM) based Conversational Recommender System (CRS) to provide more accurate recommendations that align with user preferences and allow more flexible interactions between the system and the user in the process of getting car recommendations. We performed fine-tuning on the GPT-4 model and prompted engineering to generate accurate recommendations. After fine-tuning, the model was implemented to interact with users through the Telegram platform. We then evaluated the model using BERT Precision, BERT Recall, BERT F1-Score, and Cosine Similarity metrics. The evaluation results showed a significant improvement in performance before and after fine-tuning. The evaluation of each BERT Precision metric increased from 0.8048 to 0.8541, BERT Recall from 0.8639 to 0.9183, BERT F1-Score from 0.8332 to 0.8850, and Cosine Similarity from 0.6590 to 0.8372. Based on these performance improvements, Carfin can provide personalized and relevant car recommendations through conversational interactions while focusing on the automotive domain.

Index Terms: Car Recommender System, Large Language Model, Conversational Recommender System, Preferences Elicitation