Introduction

In an era of vast information and fast-paced technology, people face increasing challenges in finding good, high-quality services. In addition, users' opinions and recommendations can influence users' decisions to choose or use a service. The restaurant industry is growing as the economy recovers after the pandemic. According to the Indonesian Ministry of Industry, the restaurant industry experienced a growth rate of 3.68% in 2022. This represents an increase from the 2.95% growth rate recorded in 2021. On the one hand, this is encouraging, but on the other hand, it makes consumers confused about choosing a place to eat that suits their tastes and preferences [1][2].

In this research, we developed a recommender system that is designed to help users recommend dining options that meet their specific preferences and needs. Previous researchers have built recommender systems using various approaches, including sentiment analysis [1], [3], [4], collaborative filtering [5], machine learning[6], [7], and even hybrid [8], [9]. Numerous studies have been conducted and developed regarding ontology-based conversational recommender systems [10], [11], including one by Baizal et al.[12] who built a Conversational Recommender System (CRS) to recommend tourist destinations using ontology in the tourism sector. The system works with navigation by asking (NBA) and navigation by proposing (NBP) strategies to engage users so that users can answer questions about their preferences to get personalized recommendations. Fakhri et al.[5] developed a recommender system by utilizing the user-based collaborative filtering method, which relies on user ratings. The limitation of this research is in the reliance on user ratings which may not always accurately reflect each user’s preference. Dubey et al. [8] developed a hybrid recommender system for movies utilizing sentiment analysis from user reviews to improve recommendation accuracy, using item-based collaborative filtering as the method. A limitation of this research is the potential sentiment inaccuracy, where positive comments can be classified as negative and vice versa. Therefore, there is a need for a method that can overcome the limitation of user rating dependency by considering more personalized user preferences. A conversational recommender system can offer a solution by generating more personalized recommendations through a sequence of interactions that cater to the user's needs and preferences.

In this study, we propose a conversational recommender system based on ontology designed to adjust user preferences to generate more personalized recommendations matching the user functional requirements and sentiment analysis rating results to improve user satisfaction results.