

INTRODUCTION

The development of laptops continues to enhance specifications and features to meet the needs of academic, office, and everyday activities [1]. However, these features often make it difficult to select the right laptop, especially for specific needs like programming or graphic design. Therefore, a recommender system is needed to help users find laptops according to their preferences without requiring deep technical knowledge [1]. The goal of a recommender system is to provide efficient suggestions that match user needs.

A recommender system aims to offer recommendations that are efficient and tailored to the needs and preferences of users [2]. A Conversational Recommender System (CRS) is designed to help users find products that fit their needs through conversational interaction [3]. In the recommender system, users will enter their preferences. Based on these preferences, the collaborative filtering model will predict recommendations that align with the user's preferences. However, if users are not satisfied with the recommendations, they cannot provide critique, so CRS is required to interact continuously with the system, and the system will serve users through various questions or request feedback [4]. In terms of feedback, critiquing is used. Critiquing is an approach in recommender systems that allows users to provide feedback or critique the recommendations provided [5].

Previous research that implemented a recommendation system for chatbot-based laptops showed several weaknesses, such as chatbots that only provide recommendations based on limited criteria, so users have limitations when asking for other recommendations [6]. In addition, other research also shows that laptop recommendation systems often do not allow users to provide feedback or interact with the system to get better recommendation results [7]. These weaknesses indicate that current recommendation systems are not yet able to handle complex and dynamic user preferences. In addition to the research mentioned, there have been several studies that developed and evaluated the compound critiquing method in CRS. One of the advantages of this approach is the innovation in compound critiquing, which allows users to provide more relevant feedback compared to unit critiquing. By using compound critiquing, users can express their preferences on multiple attributes at once, which significantly improves the user experience in recommendation systems [8]. In addition, this research also proposes a dynamic approach in critique selection, where the displayed critiques are customized based on previous interactions and remaining products. This increases the relevance of the critiques provided and helps users make better decisions [9]. The use of the Apriori algorithm in generating comp critiques also demonstrates a powerful data-driven approach, which is not only relevant but also reliable, providing a solid foundation for the development of more effective recommendation systems [9].

Therefore, this research proposes a CRS method that uses compound critiquing as a mechanism to obtain feedback from users on the recommendations [10]. Instead of providing feedback on one attribute at a time [11], users can express their preferences simultaneously on multiple attributes in a single critique. This method has been previously tested using compound critiques and the Apriori algorithm [8], [12]. Apriori algorithm is one of the algorithms for finding association rules in data mining [13]. It is efficient in generating compound critiquing and has a significant impact on system efficiency as the feedback provided by users consists of a set of product attributes [14]. For example, in the context of a laptop recommendation system, a user might say, "I want a laptop with more RAM and memory". The system then adjusts

subsequent recommendations based on this combined criticism, reflecting the user's preferences more comprehensively. The innovation of this research is that users can critique the recommendation results from the system not only for one feature, but for more than one feature.

Based on this background, this study proposes a CRS method that uses compound critiquing as a mechanism to obtain feedback from users on the recommendations provided [8]. With this approach, users can express their preferences simultaneously on multiple attributes in a single critique, providing more accurate recommendation results that suit their needs. Based on this background, this research has the following main contributions: To recommend laptops based on compound critiquing that fit the Collaborative Filtering model and evaluate the efficiency of Apriori algorithm in compound critiquing.