

I. INTRODUCTION

One of the most important resources available to humans for physical protection is the skin. The epidermis, dermis, and hypodermis are the three main layers that make up the structure of the skin. Each of these three layers has a different purpose. Skincare, commonly referred to as skin therapy, is still increasingly popular in Indonesia. Many factors, such as increasing skin problems, technological developments, in-depth research on skincare ingredients, and increasing awareness of the need to maintain healthy skin, have driven the development of various types of skincare products.

However, there are a number of methods for finding information regarding skincare products. It is crucial to determine the state of one's facial skin before choosing skincare products. Because each person has a different type of skin, so do the skin problems they encounter. Customers must exercise caution when selecting skincare products due to a lack of knowledge and comprehension of them. The performance of Recommender systems has been enhanced by the application of several artificial intelligence-based technological techniques, most notably machine learning.

In recent years, many studies have focused on skincare product Recommender systems. Chen et al. [1] developed a system using computer vision technology to classify skin types, detect acne, and recommend suitable skincare products. Similarly, Hsiao-Hui Li et al. [2] utilized selfies and supervised approaches with dermatologists to classify skin types and detect acne. Additionally, in a study by Gupta et al. [3], content-based filtering was applied to recommend skincare products by identifying the chemical components of products and finding alternatives with similar compositions. Zhang et al. [4] integrated deep learning technology into Recommender systems to improve the precision and personalization of Recommenders, demonstrating that this approach can yield more accurate product Recommenders.

However, that studies have not fully integrated in-depth analysis of skincare product ingredients to ensure ingredient compatibility with user skin needs. Therefore, there is a need to develop a content-based filtering recommender system capable of accurately evaluating product ingredients using techniques such as TF-IDF and cosine similarity algorithms to improve the relevance of skincare product recommendations. In order to help skincare users choose products that suit their individual needs, this project will concentrate on creating a Recommender system for skincare products utilizing a content-based filtering approach.