Recommendation Systems have presented a new paradigm to content-based systems. They allow for the optimization of user interest generation and can certainly present justifiable positive result in an organization’s based on the business perspective. Moving with this certainty, skincare recommendation system utilizes content as well as collaborative based filtering to present a solution for making user recommendations based on the items they like, the ratings provided and the ingredients which the products hold. This work suggested an approach to represent users and items using natural language processing techniques, nearest neighbours and decision trees. The results are promising and indicate that effective opinion mining of text user feedback can be used to understand user preferences. The model can benefit e-commerce companies by increasing revenue and customer satisfaction.

Content based filtering utilizes NLP by using Tf-idf vectors to process a combined feature of product brand, category and their ingredients. Since Tf-idf vectorization computes the similarity of the products based on the number of occurrences of the term in the list of products, this combined features suites for the needs of computing cosine similarity between items on the list. Items of the same category and brand are undoubtedly to contain similar characters as in the item picked by the user, and same goes from the ingredients perspective where products can contain the same chemical components due to the desired effect of the product. To compute the similarity level cosine is the perfect metric since it can evaluate the vectors based on a rising format, meaning the higher the value the better the similarity for the feature.

Item-based collaborative filtering requires items to be suggested based on a criterion of the products themselves, hence the name. With the data obtained product ratings can help users find similarly rated product. This approach uses 3 features on a 2D plane for making recommendations in which case K Nearest Neighbours suits the requirement. These consist of the product ID, user ID and the respective rating provided by the user to the product. This returns with a model that can classify items’ rating and suggest the user similar products based on that product’s rating.

User-based collaborative filtering uses similarity between a user and the products that they have opted. The features used to define this similarity can consist of users’ characteristics such as skin type, skin colour, hair colour and desired effects which required the person to choose this specific product. Making this a multi dimension problem which can be fitted to a decision tree, a gini index and pruning criteria was used for implementing this model.