

**E – COMMERCE PRODUCT RECOMMENDATION SYSTEM USING
COLLABORATIVE FILTERING****MS. B. DIVYA**Assistant Professor, Department of Computer Science and Engineering (AIML),
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ABSTRACT

Internet usage has experienced an exponential increase in the last ten years. This increase has provided opportunity for other enterprises that depend on it to develop and flourish as well. One such opportunity is E-commerce. E-commerce is increasing at a very fast pace and with the rise of popularity in E-Commerce, Recommendation has become equally crucial as well. Recommendation is providing appropriate suggestions to the user based on his/her interest and requirement. Recommendations to users can be provided on price, living area, wish listed items, cart items, searched items and previously purchased items. Recommendation systems enhance user experience, increase sales and improve user's participation. Our suggested recommendation system will suggest products for both new users and regular users. This recommendation system applies model based collaborative filtering and recommends items based on rating and purchase history of previous old users. Even new users will receive recommendations of new products, trending products and sale products. Existing users will receive recommendations based on recently viewed items, complementary items, etc. As we are establishing a new online shopping website, at first, there are no ratings by users for various products, and in this situation, recommendations are generated from textual clustering analysis of product description. Model based Collaborative Filtering and Textual Clustering will assist us in high accuracy as well as targeting every category of users. E Commerce is becoming more popular and the recommendation system coupled with E Commerce is like icing on the cake.

INTRODUCTION

In the current landscape of burgeoning e-commerce platforms and emerging unicorns with distinct branding the competition against major players intensifies however many new companies face a significant challenge lacking essential sales booster features like a robust product recommendation system this shortfall becomes crucial for their competitiveness and growth developing such a system demands vast datasets to comprehend customer preferences thoroughly yet for smaller companies with limited sales and resources acquiring and processing such extensive data poses a daunting task moreover the absence of satisfactory open-source solutions exacerbates this challenge existing solutions often fail to address the unique needs and constraints of smaller e-commerce entities nevertheless within the domain of machine learning numerous theories and techniques hold promise for tackling this pressing issue leveraging these methodologies new companies can devise innovative solutions to implement effective recommendation tools tailored to their specific requirements by overcoming these hurdles emerging e-commerce ventures can enhance their competitiveness improve user experience and ultimately propel their growth in the fiercely competitive market

OBJECTIVES

the main objective of this project is to develop and implement an intelligent product recommendation system on e-commerce websites employing collaborative filtering methods based on analysis of user purchase history search activities and interactions the system will provide personalized product suggestions that resonate with individual

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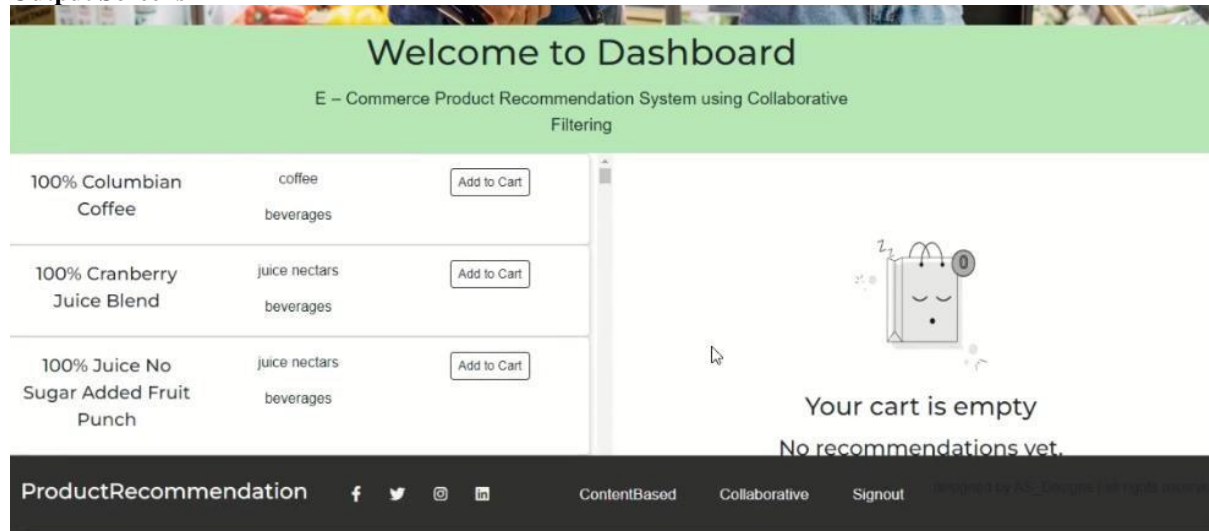
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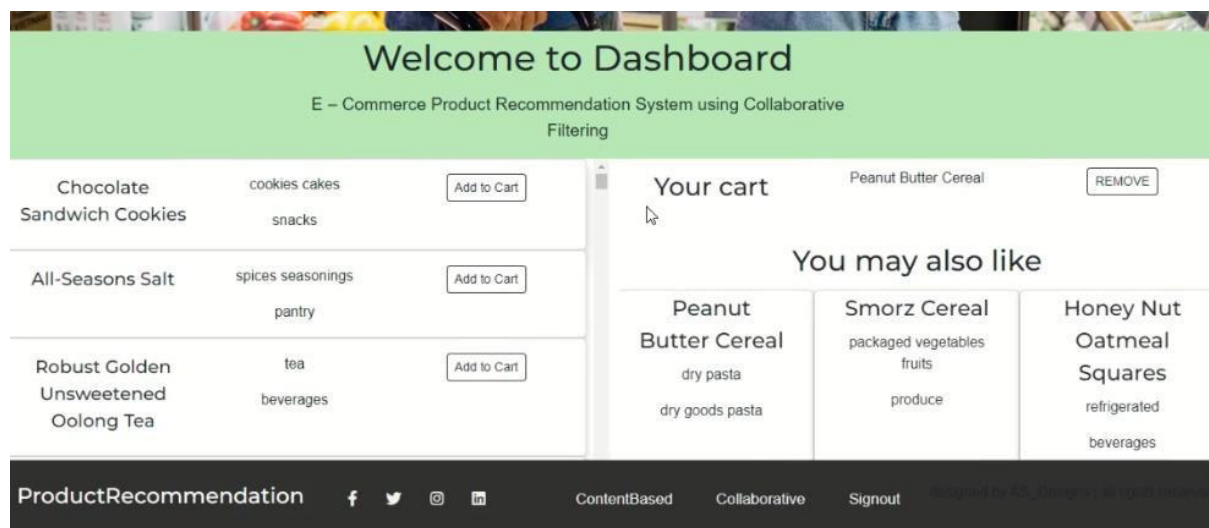
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tastes this project also employs content-based filtering to augment collaborative filtering thus enhancing diversity and relevance of recommendations the key objective is to enhance user experience by offering personalized suggestions that can further increase user engagement and satisfaction besides the system assists e-commerce companies in generating more sales and customer retention rates by providing more accurate and user-relevant product suggestions eventually the project facilitates more intelligent data-driven shopping choices for consumers

Output Screens



Product recommendations



Similarly we can see other recommendations also

CONCLUSION

In summary, this research effort has successfully created an all-embracing e-commerce product recommendation system, filling the urgent void in personalized and correct suggestions in the aggressive online business community. By utilizing both Content Based and Collaborative Filtering methods, the system guarantees a balanced approach to recommendation, suitable for various user tastes and habits. By deep investigation and preprocessing of the Cart Product Dataset, coupled with the deployment of recommendation models, the system becomes capable of optimal performance in recommending products related to user needs. In terms of

collaborative filtering, it is especially notable for its capacity to perceive patterns and similarities between users, thus contributing towards more precise predictions. On the other hand, content-based filtering further adds a layer of recommendation diversity by taking into account product features and descriptions. The ultimate result, an intuitive interface, shows the effectiveness of the recommendation system, having users experience a hassle-free and customized shopping experience. By maximizing user interaction and satisfaction, the system generates more sales and customer loyalty for e-commerce websites. However, AlexNet CNN and SVM outperformed Affdex in recognizing "anger", achieving an accuracy of 96.77% compared to Affdex's 70.97%. Meanwhile, FER-CNN, despite having the lowest overall accuracy, performed notably well in recognizing "sadness," achieving 81.82% accuracy, which is comparable to Affdex CNN's 84.85%. For future research, we aim to expand the study by including a larger group of volunteers and extending the classification beyond the four basic emotions to explore the model's robustness in recognizing a broader range of facial expressions.

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