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Online Recommendation System Using Collaborative filtering

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ABSTRACT: DATA mining is an important research domain nowadays that focuses on knowledge discovery in databases. It is where data from the database are mined so that informative data can be generated and used effectively and efficiently by humans. Its objective is prediction and description. One of the aspects of data mining is the Association Rule mining. It consists of two procedures: First, finding the frequent itemset in the database using a minimum support and constructing the association rule from the frequent itemset with specified confidence. It relates to the association of items wherein for every occurrence of A, there exists an occurrence of B. This mining is more applicable in the market basket analysis. That application is helpful to the customers that buy certain items. That for every item that they bought, what would be the possible item/s coupled with the purchased item. MLP and genetic algorithm is the most widely used association rule mining algorithm.

KEYWORDS: Genetic algorithm, Collaborative filtering, Recommender System

I. INTRODUCTION

Collaborative filtering is a technology to recommend items based on similarity. There are two types of collaborative filtering: User-based collaborative filtering and Item-based collaborative filtering . User-based collaborative filtering algorithm is an effective way of recommending useful contents to users by exploiting the intuition that a user will likely prefer the items preferred by similar users. Therefore, at first, the algorithm tries to find the user's neighbours based on user similarities and then combines the neighbour user's rating score by using supervised learning like genetic algo. Item-based collaborative filtering algorithm fundamentally has the same scheme with user-based collaborative filtering in terms of using user's rating score. Instead of the nearest neighbours, it looks into a set of items; the target user has already rated items and this algorithm computes how similar items are to the target item under recommendation. After that it also combines the customer's previous preferences based on these item similarities.

To enhance the customer experience and to boost up the sales of products, almost all of the companies are trying to make some sort of mechanism that is nothing but a recommendation system. So to finalize this task recommender system comes into the light. The system works in two steps, first, it analyses the user search for an item and simply user interests, and secondly, it tries to find a similar set of items that the user may be interested in. This in turns lead to better choices among the products.

II. LITERATURE SURVEY

In [1], the authors propose to include the temporal variable into the equation, giving rise to a time-aware recommender system. This able totrack the evolution of the preferences of users with time. This is particularly relevant in the domain of music recommendation, where preferences of the users are very mutable.To overcome this problem, in [2] the authors propose a unified baseline estimation model based on the standard deviation of the user's features from the average system's features. This path toward specifically tailored recommendation is also explored in [3]. In this paper, the authors propose to add an extra cognitive layer to the standard predictive model. The task of this layer is to identify similar users according to their cognitive footprint. In [4], the authors propose to import knowledge graphs to RS, proposing a novel model called Neighborhood Aggregation Collaborative Filtering (NACF). It uses the knowledge graph to spread and extract the user's potential interest, and iteratively injects them into the user features with attentional deviation.

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III. PROBLEM DEFINITION

The drastic increase of websites is one of the causes behind the recent information overload on the internet. A recommender system (RS) has been developed for helping users filter information. We will propose hybrid algorithm combination of genetic algorithm and Collaborative Filtering.

IV. ARCHITECTURE DIAGRAM

Collaborative filtering technique based on user's history in the form of rating given by the user to an item as their information source . It can be accomplished by making relation between the users or between items. Collaborative filtering is categorized into three types: user-based, item-based, and model-based.

User-based Approach: user based approach makes recommendation based on the interest of the user having the similar taste.

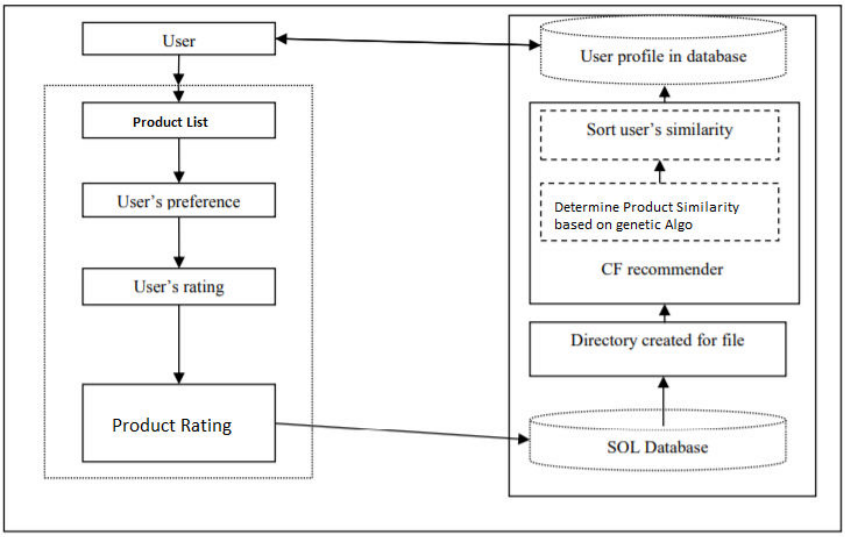

Fig 1. Architecture Diagram

V. MODULE DESCRIPTION

The proposed system developed a new recommendation system based on the two RS; one is collaborative and genetic algo for effective product recommendation on the ecommerce application. Item based collaborative filtering is a technique of finding similar items for a given item in a list of items present in the database. This technique uses the method of finding the neighbourhood of items that are similar to the item that is selected by the user.

Algorithm: Proposed Recommendation System
Input: Item and customer dataset
Output: Product suggestion
Module 1:Database
Building initial user interface creating product database.

Module 2:Product Details
User must be able to navigate to products > product details
User must get required product details
User must be able to get the recommendation.
User must be able to sort the products in his/her requirements.

Module 3: Cart Page
User must be able to navigate to cart page.
User must be able to add/remove the products from cart.

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User must be able to navigate to continue shopping button.
User must be able to navigate to checkout

Module 4: Checkout
User must be able to navigate to checkout page.
User must be able to check different payment options
User must be able to check his/her products with correct details

Module 5: Implement the Algorithm
Step1. Read Product catalogue Pd. For each item in product catalogue, Pdi
Step 2. Read customer data Cd. For each customer Ci who purchased Pdi
Step 3. For each item Pdi purchased by customer Cdi
Step 4. Calculate similarity between Pdi and CdiSim(Pdi, Cdi)
Step 5. recommended products filtered
Step 6. Use genetic classifier to classify the product suggested in step 5
Step 7. Display recommendation

VI. CONCLUSION

The proposed work, the customers can be assured with a better satisfaction as the related products are suggested as soon as they select a product to purchase as the recommendation algorithm contains various techniques of finding the similar products.With the help of this system, the ecommerce platform can successfully increase the sales and also improve customer experience.
It will give customers a better choice of options which are based on their own personal adjustments, like tailor-made shopping experience.The system can work for any type of platform which requires an individualistic-approach to the user experience.

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