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Profit Based Products Recommender System for Seller Zone

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ABSTRACT
Finding Common Patterns in Transactional Databases MLP algorithms are considered one of the most important. The MLP algorithm is a good association rule mining algorithm. As the potential for multi-core processors increases, algorithms and applications need to be updated to take advantage of the computing power of multiple cores and find sets of items more frequently in terms of computational resource utilization and CPU performance. Algorithms for parallel mining of sets of frequent elements provide directions for solving the problem of candidate distribution across processors. The dynamic and skillful use of algorithms to recognize common patterns is important in data mining research. The purpose of MLP algorithms is to find connections between different data sets. Each unique record has a set of elements, called a transaction. MLP functionality consists of a set of rules that indicate how often an item appears in a record. In order to find more valuable rules, our underlying goal is to implement the MLP algorithm using a multi-threaded approach. This allows you to intelligently and effectively use the power of your system hardware to improve your algorithms and extract more valuable information. Serial mining consumes time and reduces mining performance. In the proposed system, the MLP algorithm is implemented in serial and parallel manners, and comparisons of both are made based on various support counts and times using parallel programming techniques.

Keywords: *MLP Algorithms, Association Rules, Data Mining, Parallel MLP Algorithms, Parallel Implementations.*

INTRODUCTION
Data mining is an important research area today that focuses on the discovery of knowledge in databases. This is where data is mined from databases so that useful data is generated and used effectively and efficiently by people. Your goal is prediction and explanation. One aspect of data mining is associated rule mining. This he consists of two processes. It first finds a set of frequent items in the database with minimal support and builds an association rule from the set of frequent items with a specified confidence level. This refers to matching items where B occurs for every occurrence of A. This mining is more suitable for market basket analysis. This application helps customers to purchase specific items. For each item they purchased, what items could have been combined with the purchased item. The MLP algorithm is the most widely used association rule mining algorithm.

As there is large amount of data present for mining in fields like marketing, sales, customer supports e-commerce. The databases having a size in GB and TB need a fast processor. Serial mining can consume time and reduce performance. To solve this issue, we are proposing parallel systems to reduce time, increase performance and fast processing. For fast processing multi-core processors are used.

For finding useful knowledge an algorithm is required. MLP is an algorithm for mining data from databases which shows items that are related to each other. Elaborate techniques, e.g., compressing the data, eliminating the redundant information within or between files i. e, reduplication, storing only updated parts of data, have been developed to effectively address the original objective of reducing the data size. File chunking and duplication detection are two essential components in the DE duplication. In this work, we focus our efforts in eliminating the performance overhead in variable size chunking. Numerous techniques have been proposed for faster duplication detection. There are two type of parallelism are used single and multiple. In this work, we exploited the multiple cores in modern CPUs for file chunking. Most of the commercially available CPUs have two or more cores.

Data mining focuses on a process of extracting knowledge from the original data which has some particular form. Data is the source of knowledge creation. It is well known that in modern information systems only 3% of the data is newly added to memory and 5% of the existing data is updated. Data size reduction plays an important role in file systems, backup systems, web proxies, and even small storage devices. In computer science and data mining, MLP is a classic algorithm for learning association rules. MLPs are designed to work with databases containing transactions, such as collections of items purchased by customers or details of a website visits. Our main focus is the concept of multithreading, where threads run serially and in parallel. A multithreaded program contains two or more parts that can run simultaneously. Each part of such a program is called a thread, and each thread defines a separate path of execution. Each thread in a multithreaded process can be sent to another processor in a multiprocessor system. Association Rule Mining is a significant technique of data mining. This technique has more attention on finding interesting relationships. For understanding these relationships, a technique called Market Basket Analysis has been popularized in Data Mining. This helps in understanding the business organizations. This paper shows that how addition of new parameters improves the efficiency of MLP algorithm by comparing the results of improved algorithm with the results of serially implemented algorithm. The improved algorithm will utilize the multiple core of processor for finding the association among the item sets.

MODULE IDENTIFICATION
Algorithm: Collaborative Algorithm
Input: Item database and user or customer database
Output: Product Suggestion
Module 1: Website
Creating the first user interface creates a product website.
Module 2: Product Details
User should be able to navigate to products> product details
The user should get the required product details
User should be able to get a recommendation.
The user must be able to filter the products according to his needs.
Module 3: Cart Page
User should be able to navigate to the cart page.
The user must be able to add / remove products to the cart.
The user must be able to navigate in order to continue the purchase button.
User should be able to navigate to exit
Module 4: Exit
User should be able to navigate to the exit page.
The user should be able to explore different payment options

The user must be able to evaluate their products with relevant information

LITERATURER SURVEY

There are various fields related to the recommender system. Dhilip Subramanian's Book recommendation system March 2020 recommends the similar books of interest to its users. This system works with content-based filtering. A system that recommends similar books based on description and name. Based on Xiang Liu, October 2017, fashion evaluation method for clothing recommendations recommends clothing items. The system works on a support vector machine (SVM) and uses the SVM algorithm. This is a recommendation system that evaluates the customer's fashion level and recommends fashion that suits the customer according to the result of that fashion level.

In the authors propose to incorporate the temporal variation in the equation, leading to a time-conscious recommendation system. This enables us to track the emergence of user preferences over time. This is especially important in the field of music recommendation, where users' preferences vary greatly. To overcome this problem, the authors propose a basic measurement model based on the standard deviation of user characteristics in the central nervous system. This approach to specific recommendations is also evaluated in . In this paper, the authors propose to add an additional layer of understanding to the standard prediction model. The function of this layer is to identify users the same depending on their understanding steps. In, the authors propose to introduce information graphs in RS, proposing a novel model called Neighbourhood Aggregation Collaborative Filtering (NACF). It uses the information graph to spread and generate potential user interest, and re-injects them into the user's features by diverting attention.

SYSTEM ARCHITECTURE

Collaborative filtering process based on user history in the form of measurements provided by the user to the object as their source of information. It can be done by creating interactions between users or between objects. Collaborative sorting is divided into three types: user-based, object-based, and model-based.

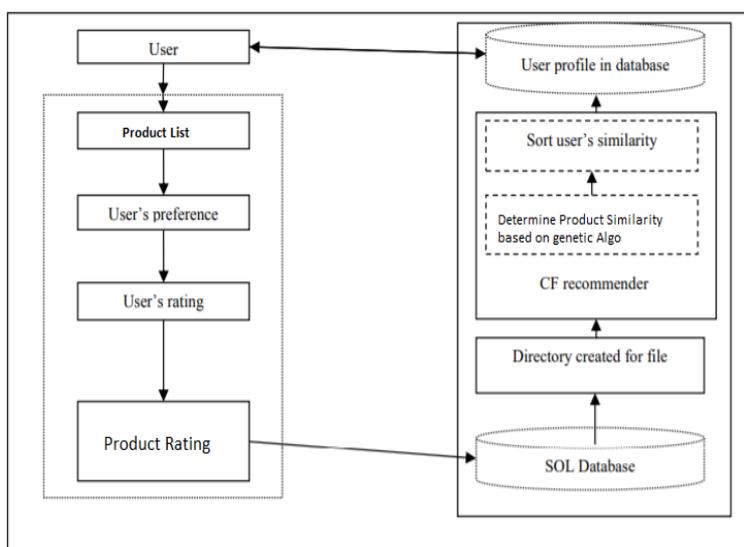User-based approach: A user-based approach creates a user-based recommendation with similar tastes.

Fig.1:-*Architecture Diagram*

WORKING OF THE PROJECT

For a new member he will register on the website by providing the necessary details If already registered, then the user can directly login to the system. The system will differentiate as per the login as either

a. Admin b. Seller c. Customer

A.   Admin Console:

Once admin is logged in, admin is given below options:

•   Add Product: Admin can add product. Admin had to enter the details of product and data will be store in database. Product price and product category will also be store.

•   Update Product: Product Price, Image Name can also be updated by admin.

•   Delete Product: Admin can delete product if it is no longer sold.

•   Apply Algo: Admin can start the recommendation process, Once user purchase the product for the day than by EOD Admin can run the batch which will apply collaborative filtering.

Below is the portal of admin:

B.   Customer Login

Once member is registered by registration page. Member can logged in.

1.   Order Product: Customer can order the product by using add option this will do addition of product into the cart. User can add multiple product into the cart. If user logout still it will present in cart.

2.   View History: Once order is placed than customer can check order history.

3.   View Recommendation: If user want to see recommendation than link will be open.

C.   Collaborative Filtering:

We have used two types of collaborative filtering.

1.   User Based:

A technique used to predict which items that a user is likely to like based on ratings given to the item by the other users with similar tastes to the target user.

a.   Identify the target user (in this example Jack is the target his user)

b.   Find the same user rated as the target user.

c.   Examine interacting elements.

d.   Predict the ranking of invisible things of the target user.

e.   Suggest to the target user if the predicted ranking is higher than the threshold.

2.   Item Based:

People who like the product will enjoy the same product in the future.

a.   Identifies the target user.

b.   Finds matching items that have the same rating as the item rated by the audience.

c.   Predicted ranking for the same item.

d.   Suggest to the target user if the predicted ranking is higher than the threshold.

APPLICATION

Recommendation systems have grown in popularity in recent years and are used in a variety of areas including movies, music, news, books, research articles, search queries, social tags, and general products.

The majority of today's e-commerce sites, such as eBay, Amazon, Alibaba, are primarily used in the digital realm and use their own recommendation algorithms to determine which products.

ADVANTAGES

•   This Improved Average Order Value (AOV)

•   Better user engagement.

•   Higher conversions.

•   Reduces cart abandonment.

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- Optimized inventory.
- Saves you time.

LIMITATIONS
User should have internet and pc to access the website. Payment gateway is not there.

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.

FUTURE SCOPE
This project could further improved by proposing to develop an algorithm that solves the limitations faced by the recommender system develop above. Generation of recommendation technology.

REFERENCE
1. Sánchez-Moreno, D.; Zheng, Y.; Moreno-García, M.N. Time-Aware Music Recommender Systems: Modeling the Evolution of Implicit User Preferences and User Listening Habits in A Collaborative Filtering Approach. Appl. Sci. 2020, 10, 5324.
2. Tan, Z.; He, L.; Wu, D.; Chang, Q.; Zhang, B. Personalized Standard Deviations Improve the Baseline Estimation of Collaborative Filtering Recommendation. Appl. Sci. 2020, 10, 4756.
3. Nguyen, L.V.; Hong, M.S.; Jung, J.J.; Sohn, B.S. Cognitive Similarity-Based Collaborative Filtering Recommendation System. Appl. Sci. 2020, 10, 4183.
4. Zhang, D.; Liu, L.; Wei, Q.; Yang, Y.; Yang, P.; Liu, Q. Neighbourhood Aggregation Collaborative Filtering Based on Knowledge Graph. Appl. Sci. 2020, 10, 3818.
5. Burke, Robin. "Hybrid recommender systems: Survey and experiments." User modeling and user-adapted interaction 12.4 (2002): 331-370.
6. Hu, Jianfeng, and Bo Zhang. "Product Recommendation System." CS224 (2012).
7. Schafer, J. Ben, Joseph Konstan, and John Riedl. "Recommender systems in ecommerce." Proceedings of the 1st ACM conference on Electronic commerce. ACM, 1999.
8. Shaya, Steven A., et al. "Intelligent performance-based product recommendation system." U.S. Patent No. 7,809,601. 5 Oct. 2010.
9. Cho, Yoon Ho, Jae Kyeong Kim, and Soung Hie Kim. "A personalized recommender system based on web usage mining and decision tree induction." Expert systems with Applications 23.3 (2002): 329-342.
10. Hwang, San-Yih, et al. "Dynamic web service selection for reliable"