**ABSTRACT**

**ON**

**PRODUCT RECOMMENDATION SYSTEM FOR E-COMMERCE USING COLLABORATIVE FILTERING AND TEXT CLUSTERING**

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**ABSTRACT**

Recommender system is the most important technology in e-commerce .It is used to suggest valuable products for the customer and improve their business intelligence. Since they learn from the customer’s browsing habits to come up with recommendations, they tend to recommend products more from categories that the user has visited and purchased from before. Collaborative filtering is a technique which is used to suggest information from similar kinds of users. Scalability is the biggest challenge in collaborative filtering recommender system. When more number of users is increasing in the site the system should provide accurate recommendations for the super user. We use divisive hierarchical clustering approach to overcome this scalability issue when more number of users increases in terms of neighborhood size. Session based collaborative filtering tries to solve major drawbacks offered by these algorithms and obtains relevant recommendations for users.

**INTRODUCTION**:-

In the past decade internet usage has seen an exponential growth. This growth has given opportunity for other businesses which rely on it to grow and prosper too. One such avenue is E-commerce. E-commerce is growing rapidly and with increase in popularity of E-Commerce, Recommendation has become very important too. Recommendation means providing relevant suggestions to the user as per his/her interest and need. Recommendations to users can be given based on price, area of living, wish listed items, cart items, searched items and previous purchased items. Recommendation systems improve user experience, boost sales and enhance user's engagement. Our proposed recommendation system will recommend products both for new users and existing users. This recommendation system uses model based collaborative filtering and recommends products based on rating and previous purchase history of the old users. Also the new users will get recommendations of new products, trending products and products on sale. Existing users will get recommendations based on recently viewed products, complementary products, etc. Since we're setting up a new e-commerce website, initially there are no user ratings for different products, so in this case, recommendations are made based on the textual clustering analysis of product description. Model based Collaborative Filtering along with Textual Clustering will help us in improving accuracy and targeting all types of users. E Commerce is gaining popularity and the recommendation system with E Commerce is like an icing on the cake.

**EXISTING SYSTEM**:-

Recommender systems are used quite extensively these days. As a result of this, this topic has caught the attention of many researchers over the past couple of years. The first recommender systems dates back to 1998. This focused on using implicit feedback in place of explicit ratings given by individual users. The 2003 industry report on amazon.com recommendations by Greg Linden, Brent Smith and Jeremy York from Amazon.com focuses on the algorithms the shopping website employed in order to recommend products to their customers. This covers collaborative filtering and clustering models. However, this gives rise to a number of irregularities and inaccurate results as it assumes that the customers purchase sparse items or rate only a few selected categories. In a real world scenario this is not true. Though this model is scalable, the task of clustering and categorizing the user base is computationally difficult when the user base is constantly changing and expanding. This also explains Item to Item collaborative filtering. Here the items from the user’s shopping cart are used for recommendations. We focused here mainly on the collaborative filtering algorithm. “Recommender Systems Based on Consumer Product Reviews”. The reviews are given by the user to generate a rating for the product. It also rates the quality of the review and tries to extract information from the review to find how likely someone else is going to buy the product. It uses opinion quality metrics to get these results. We then proceeded to look at other approaches such as hybrid methods which used both collaborative filtering, user based and item based filtering to give product recommendations. This faced the drawbacks similar to collaborative filtering and thus we looked for other better approaches towards collaborative filtering.

**PROPOSED SYSTEM**:-

The idea of an incremental session based collaborative filtering technique with forgetting mechanisms. This approach uses sessions instead of the entire user history. This reduces the use of old and stagnant data and uses the data generated in the current and most recent sessions to generate user profiles. This gives the more accurate representation of the user and thus it is able to give much better user recommendations. Another highlight of this algorithm was the forgetting mechanism. The approach used here is that of using sliding windows. In sliding windows, a sliding window of a fixed size is maintained. We use a sliding window with the user’s sessions with a first in first out (FIFO) data structure. Once a new incoming session arrives and the sliding window is reached the old session is discarded and the new session is incorporated into the sliding window . In this scenario there exists a small possibility that the old important data may be lost with the deleted session. In order to tackle this problem we use the concept of fading factors. The fading factor approach is a gradual fading or full fading approach which slowly decreases importance of the older sessions by reducing their weight.

**CONCLUSION**:-

On the Internet, where the number of choices is overwhelming, there is need to rank ,filter, and efficiently supply applicable information to alleviate the information overload problem , which has generate a potential problem to many Internet clients. RS solve this problem via exploring large volume of dynamically generated information to supply clients with personalized content and services. The plurality of approaches and RF algorithms can be employed for diverse kinds of recommendations depending upon the domain for which they are submitted,. The choice of specific technique to employ in a RS is depend on the required recommendation outcomes. Therefore the improvements of a recommendation technique must be Supported by the corresponding assessment measure. This paper is presenting the outcomes of each category of RS techniques and discusses several proposals that have been submitted to overcome the limitation of each type. Most modern e-commerce systems are directed towards adding recommendation systems because they increase the efficiency of the commercial site by displaying the most popular products, which makes it easier for the customer to choose the most suitable product for him and thus increase the demand for these sites and thus increase commercial profits