A Survey on Recommendation System Used in E-Commerce

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Abstract: Nowadays many major e-commerce websites are using recommendation systems to provide relevant suggestions to their customers. The recommendation could be based on various parameters such as items popular on the companies websites. Consider buying a book where reader usually goes to book store personally and selects a book, it takes so much time to go through all the books and select one book out of it. This is very time consuming process and after that also there is no guarantees that the person will get the book he really wanted. There is requirement of system which consumes less time and gives higher probability of what reader wants. Hence we are proposing a web recommendation system for book readers, which will recommend book depending upon previous choices made by reader and readers profile. The proposed recommendation system will give its users the ability to view and search books as well as novels which will be use to draw out conclusions about the stream and genre of the books liked by the user. The system will analyse the user behaviour by using multiple recommendation techniques like content based algorithm, Time sequence based collaborative filtering.

Keywords: Books**,** Content based algorithm, Time sequence based collaborative filtering.

I. INTRODUCTION

There are multiple ways which are used to recommend products by the multinational company like Amazon. Multiple algorithms like collaborative filtering are used to personalize the online store for each customer. The store radically changes based on customer interest, like showing programming titles to a software engineer and baby toys to a new mother.

The e commerce recommendation algorithm operate in a challenging environment as the scenarios change with respect to new customer. Most recommendation algorithms typically start by finding a set of customers whose purchased and rated items overlap the user's purchased and rated items.

The algorithm aggregates items from the similar customers, eliminates items that the user has already purchased, and recommends the remaining items to a user. These algorithms are typically seen in multiple company based E-commerce websites. The most primary examples are Amazon, Flipkart.

II. REVIEW OF RELATED LITERATURE

A. Survey of E-commerce websites
Amazon.com uses recommendation as a target marketing tool in many e-mail campaigns and on most of its website pages including the high traffic amazon.com home page. Clicking on the "Your Recommendations" link leads customers to an area where they can filter their recommendations by product line and subject area, rate the recommended products, rate the previous purchases.

Amazon.com extensively uses recommendation algorithms to personalize its websites to each customer interest. The shopping cart recommendation offer customers product suggestions based on the items in their shopping cart.

The feature is similar to the impulse items in the Super Market check outline. But, in Amazon, the impulse items are targeted to each customer.[1]

Flipkart.com gives recommendation based on multiple usage instances. Primarily, it focuses on customer's searched keywords, previous purchases and the wish list and similar products. It is also seen that Flipkart recommends products last viewed by the user. The viewing history is stored in the form of cookies on the user's machine.

B. Conceptual Framework
Need of personalization:
Personalization is used in many fields of online marketing but the underlying ideas is the same collect as much information as possible about the potential customer and use this knowledge to create content that is tailored to him or her. Personalization must have for many e-commerce websites.[2]

Several studies have been made about internet user's attitudes towards personalization in the last few years and results are quite similar. The majority of users like personalized shopping experience and believe it is easier to find interesting products on e-commerce websites that use some kind of recommendation systems.

74 percent of users feel frustrated when content or advertisement is presented to them and it's not related to their interest. At the same some users are not comfortable with the methods some e-commerce websites.

The majority said, they are against sharing the browser history or current location with the retailers and would like to have an option to control how the data is used.[4]

III. RESEARCH METHODOLOGY

In our research we interacted with shoppers across Maharashtra, to know the concerns and the requirements of the customers and how leading e-commerce websites are fulfilling the same. The popularity of personalization is not surprising.

The average conversion rate for e-commerce is between 2 percent and 4 percent globally. For most site owners a small uplift in sales could justify the efforts needed to personalize certain areas of their sites.

A. Web shop visitors survey:
The vast majority of web shop visitors arrived at product or category pages and leave immediately if they can't find what they were looking for. Capturing their attention at this point could be game changing.

No matter how much data a website collects about visitors one can't predict what they would like at the exact moment they arrive on the website. Even if visitors land on the subpage of the product they search for on Google, it is possible they would want to know more about the company or see some unrelated products before ordering from a company.[3]
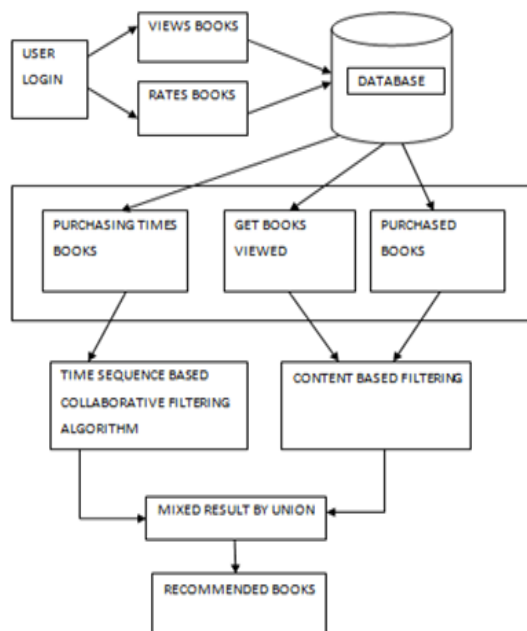

Fig System Flow

B. Importance of Web personalization:
In simple words, personalization is not a substitute for logical navigation and it's better to always leave some choices to the visitors.
But apart from sensitive services or products, a more personalized experience is very likely to increase conversions on the website.

Multiple websites segment their subscriber list and create e mails triggered by a visitors action and shut up re-targeting campaigns.

IV. DISCUSSION

A successful e-commerce business needs personalized recommendation system to effectively gather requirements of the users and effectively target the same in comprehensive manner. In the recent years we can see the explosive growth of the shear volume of information.

We need technology to help us wade through the information to find items we really want and need and to rid us of the things we do not want to be bothered with.

The common and obvious approach used to tackle the problem of information filtering is content based filtering.

This type of filtering recommends items for users consumption based on correlations between the content of items and the user's preferences. We have seen some issues with content based filtering:

1. Either the items must be some machine parsable for (e.g. text) or attributes must have been assigned to the items by hand. With current technology media such as sound, photograph, art or videos cannot be analysed automatically.
2. Content based filtering cannot filter items based on quality ,style, points of view.[5]

There by, usage of multiple algorithms gives us results which are much more accurate and will actually give better ratings and recommendations to multiple products.

Finally our research suggests four important points about online retailers like Amazon:

1. Any retailer looks at aggregate data for many transactions and many people, this allows them to recommend products pretty well for anonymous users on their site.
2. Any retailer is keeping track of behaviour and purchases of anyone that is logged in and using that to further refine on top of mass aggregate data.
3. Often there is a means of overriding the accumulated data and taking editorial control of suggestions for product managers of specific line.
4. Often promotional deals cause certain suggestions to rise to the top than others.[6]

V. CONCLUSION

A web based recommendation system with content tailored to the visitors is actually a better and efficient to extensively market multiple products by understanding the exact requirements of the customers. Personalization creates a huge impact such that customers will be much attracted and the website will have many hits. The previous purchases and interest categories are taken into account to explicitly notify the clients about the latest products for their liking. The micro enterprises which are using multiple algorithms to give customers a better and attractive content according to their preference. This actually creates businesses to be more competitive yet more profitable.

ACKNOWLEDGMENT

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