DESIGN OF RECOMMENDER SYSTEM BASED ON CUSTOMER REVIEWS

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Abstract

Recommendations play a significant role in every human life. People choose their ideas based on other's recommendations since they trust the recommendations more. For giving recommendations there emerged a system called Recommender system. Recommender systems play a important role in E-Marketing. Many companies adopt recommender systems to increase in their sales in the market. They can establish their products such that they can attract more customers by giving offers. Many ranking approaches have emerged to rank the top product recommendation to give to user. Ratings calculated can be an explicit or impliocit rating. Popular sites are Amazon.com, Netflix.com, and Movielens.com etc. These sites help the customers to find relevant product to their interest. They play as a place where customers can find all kinds of items. They do so because recommendations given by other customers have been published after they have used the product. Those customers will have experience about the product. From the customers their view of how is the product usage has been collected. This is used in recommendations. In the Proposed system, customer's views are used for recommendations. While new customer search products, old users views are published for the particular product. On getting the customer views, one user can trust it since common people have more confidence on words-of other people. Based on product, users are given form to fill their views.On getting views, Ratings are calculated from it. These kind of recommender system give useful recommendations since we collect views of people who are familiar with the item or product.

Index Terms: Recommender system, E-Commerce, collaborative filtering, Customer reviews

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1. INTRODUCTION

People search for products eagerly to buy good product. This is due to enormous production of large number of products in the world. Their decision to choose a product highly depends on word-of-mouth. Customers greatly observe the views of different people to make decisions. For this, new system emerged called Recommender systems (RS). They help people to get products of their interest. Many people perform more search operation to choose right products. Many people don't know the right way to get products of their interest. Recommender Systems helps consumer to choose the product among so many options.

RS finds relevant items from number of attentions. It has a high commercial value. This has been used by popular website like Amazon.com, Netflix, Movie lens and Facebook etc. It provides personalized recommendations to users. Firms adopt these systems to increase benefits of the company. Companies can explain their popularity at online sites (web sites). These systems analyze databases of customer interactions with the web and produce useful recommendations. Data is usually in the form of purchase information (i.e., what items customer has purchased), ratings given by user, purchase behavior of other customers etc. This makes recommender system to help in E-commerce sites use this system to attract customer to earn benefits. Their work is shown in figure 1..

Customers can sit from their workplace and can get whatever products they want. They can use electronic modes for that. They approach some websites and search for products. E-Commerce sites give a pool of resources for the customer to choose [1]. Customers select products and pay the amount through their cards such credit cards
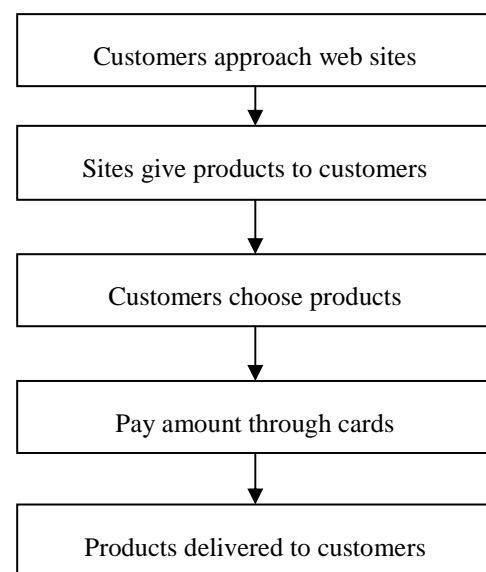

Fig -1: Process of E-Commerce

2. RECOMMENDER SYSTEMS IN

E-COMMERCE

RS gives good recommendations to users or customers. These recommendations are used in E-commerce for the customers to choose best or right products to which they are interested [2]. By implementing RS in E-commerce sites people will know more products related to their area of search. This will lead to more persons approaching the web sites. They give personalized recommendations to users. It allows users to weed out items which they want from huge set of choices. These personalized recommendations gather high importance since it allows user to get items from variety of products without loss in their taste.

Firms adopt these systems to provide increase in benefits and their popularity can be explained in the online world. If a customer adopts an RS and purchases a product and finds he does not like the products then he is unlikely to use the system again.
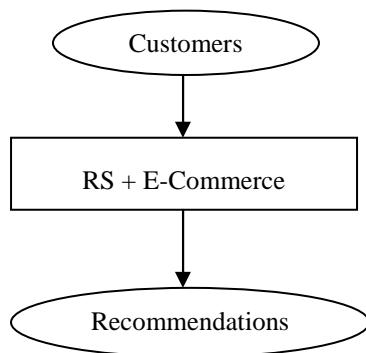

Fig -2: Recommender System in E-Commerce

3. APPROACHES OF RECOMMENDER SYSTEM

There are three popular approach in recommender systems for giving recommendations [3]. They are:
1. Content Based Filtering
2. Collaborative Filtering
3. Hybrid Approach

For this approach, user space and item space is used where user space consists of set of users and item space consists of set of items or products.

3.1 Content Based Filtering
In Content-Based Methods, User will be recommended items similar to those they preferred in the past. Here details of items are collected and compared.

3.2 Collaborative Filtering

In Collaborative Method, recommender systems recommend items to users based on similarity with other user and not using similarity between items. Its central idea is comparing one user with other user having his same taste.

3.3 Hybrid Approach
Both content-based and collaborative jointly applied to get recommendations.

4. LITERATURE SURVEY

Recommender System has it's starting from information retrieval and to consumer choice finding in marketing. RS emerged in 1990's in order to overcome overload in information. This system wholly relies on rating concept. For acquiring true ratings, product rating acquisition problem [4] is one of the problem developed.

The key input to RS is rating which can be implicit or explicit [2]. Many Techniques have been developed for giving recommendations. One is, extensions were made to above approaches by understanding users and items, pursuing multicriteria rating are used [3]. Graph based approaches are also used [5]. Many ranking techniques have been developed such as standard ranking approach, item-popularity approach [6]. Many other ranking approaches are also developed namely Reverse Predicted Rating value, Item Average Rating, Item Absolute Likeability, Item Reduce Likeability etc. Cross-Check approach is also used which divides products based on its category. It has a disadvantage of user may not know about products belonging to category. Many aim is to rank products to give useful recommendations to users.

5. PROPOSED SYSTEM

Recommending products is a interesting and keen job.

5.1 Customer-Oriented Reviews

In this proposed system, we recommend products or items based on reviews from expert in those product or item usages. Experts are chosen in the way that they are persons who were Long-Being using those products. Long-Being in the sense that if they use the product number of times only when they are more interested about using the product. They will know about the product's characteristics well. They will know about the updating characteristics of products then and there if they were interested about the products.

Based on the experience with the product or item they will give their views which have been taken as review. They also can rate the product. From their views, people who were searching products (called customers) can be recommended with the recommendations about which products they can use. Those customers can have view on all reviews and can be able to decide about using the product or not.
By using this kind of recommendations, customers may be able to have knowledge on products from the persons who were using those products often.

They know about what the advantages with the product are and how to use the product and when to use and especially what the problems with the product are. Since, experts can give both positive an negative things about a product. Another thing, not all persons are selected as experts for a product. This selection process can be done by the providers

of recommendations e.g., Amazon.com for Books, MovieLens.com for movies etc. Products or items (here referred) can be books, movies, articles, groceries, soft wares, presentations on websites, web sites etc.

Here, customer views are collected as feedback. In the feedback, their idea of whether to use the product or not can be known. Only experience of customers about the product is given. Expert's personal profile is not established. The below framework gives a framework of how reviews have been collected from reviews is given in figure 3.
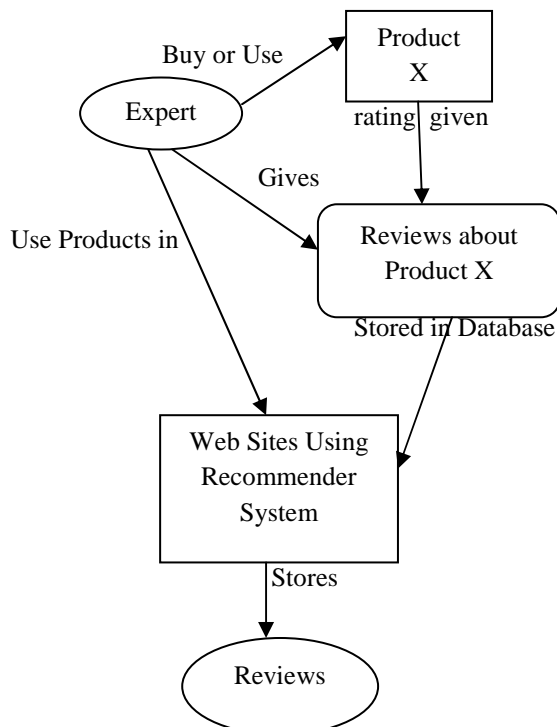

Fig -3: Framework for Reviews

Above figure 3 gives the framework of how the experts are giving the reviews. Those reviews are stored in the database of recommender systems. Selection of products by Customers which were given by recommender system with reviews is shown below (Figure 4).
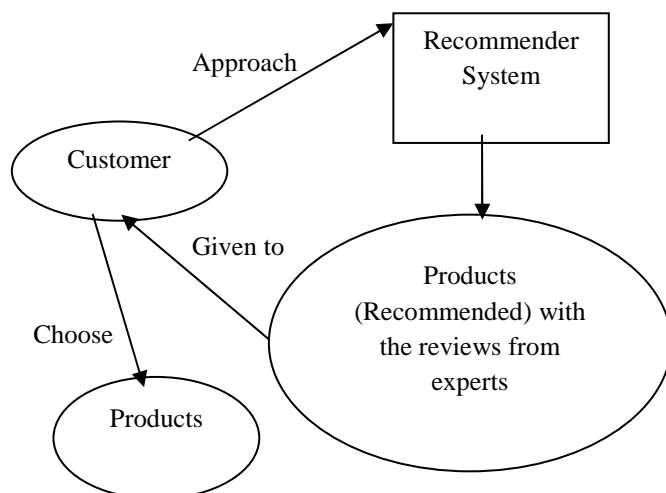

Fig -4: Customer Selection of Products from Reviews

6. RECOMMENDATION PROCESS

Reviews of experts are collected by the Recommender system and given to other customers searching for recommendations. Recommender System gets reviews and gives recommendations by following process:

1. Experts are selected at first. Experts also approach RS for purchase. RS chooses customers as experts if they often (say more than specified number of times, it is based particular Recommender systems) arrive at RS and purchase products.
2. These customers arrive at RS and purchase products. After purchasing products, they were given a form called feedback form. This form is to get knowledge about how much the product is useful to customers.
3. In the form, based on the product type purchased by them, they were given a set of questions to answer.
4. From feedback, ratings can be calculated.
5. Along with feedback expert's name and designation is also gathered. Their personal profile is not stored.
6. When new customers approach RS and search for products, they were given the list of feedback about the product.

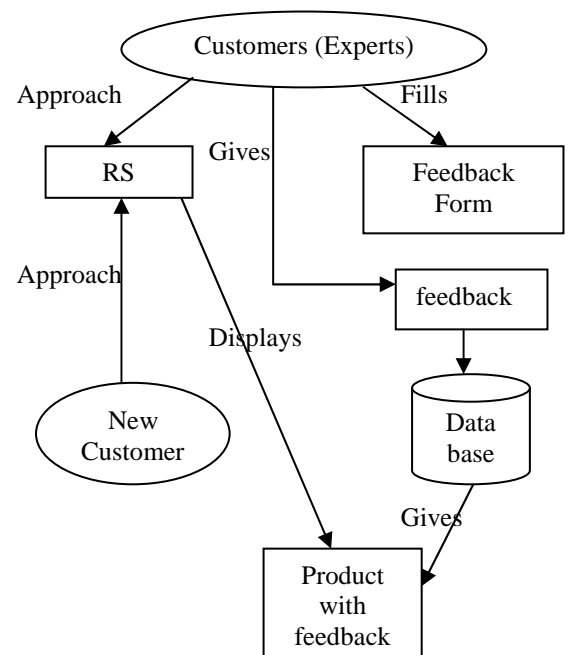Hence, they can choose their interested product.

Fig -5: Customer –Oriented Review Recommendation

Figure 5 shows the flow of how recommendation given to customers using reviews.

7. SOLUTION ANALYSIS WITH EXAMPLE

Let us consider the following websites which provides free code for projects:
1.   www.planet-source-code.com

2.   www.vbcode.com
3.   www.a1vbcode.com
4.   www.sourcecodesworld.com/project-bank/
5.   www.codeguru.com

Person approaching RS for the site to download project code is given the above websites. Those persons can enter any site and can download code. After download process, he is given a feedback form to rate the website. His name and designation also gathered along with feedback form.

7.1 Example code

If [Person A enters RS and search for project code]
        Give=> sites to download code
If [download process==end]
        Give=>feedback   form   with   name   and
        designation
If [form==submit]
     Calculate rating
If any other customer comes for same process, old customer's view for the above websites is given with rating.

7.2 Example feedback form

For website www.vbcode.com
    1. Whether website is easy to reach download
        process?
        a. Good   b. Very good   c. poor
    2. Whether the code in this website is useful to you?
        a. Yes   b. No
    3. Is this website attractive?
        a. attractive   b. more attractive   c. good

CONCLUSION & FUTUREWORK

Main purpose of recommender system is to give relevant products to customers. Here, we gained more experience from other customers. From this knowledge the product can be rated. The views are not collected from normal persons. Only expert's views are collected. Customers can have dilemma to trust other's views or not. So, to solve their dilemma we give expert's name designation. These systems can good recommendations. In the future, manufacturers are also included as experts to rate products. Their views also can be collected.

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