

BIG DATA ANALYTICS FOR E-AGRICULTURAL

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ABSTRACT

Recommending appropriate product items to the target user is becoming the key to ensure continuous success of E-commerce. Today, many E-commerce systems adopt various recommendation techniques, Collaborative Filtering (CF)-based technique, to realize product item recommendation. Overall, the present CF recommendation can perform very well, if the target user owns similar friends or the product items purchased and preferred by target user own one or more similar product items (item-based CF). While due to the sparsity of big rating data in E-commerce, similar friends and similar product items may be both absent from the user-product purchase network, which lead to a big challenge to recommend appropriate product items to the target user. Considering the challenge, we put forward a Structural Balance Theory-based Recommendation approach. In the concrete user-based recommendation: we look for target user's "enemy" afterwards, we determine target user's "possible friends", according to "enemy's enemy is a friend" rule of Structural Balance Theory and recommend the product items preferred by "possible friends" of target user to the target user. Likewise, for the product items purchased and preferred by target user, we determine their "possibly similar product items" based on Structural Balance Theory and recommend them to the target user. At last, the feasibility of SBT-Rec is validated, through a set of experiments deployed on MovieLens-1M dataset.

1. INTRODUCTION:

"E-Agriculture" is an emerging field in the intersection of agricultural informatics, agricultural development and entrepreneurship, referring to agricultural services, technology dissemination, and information delivered or enhanced through the Internet and related technologies. More specifically, it involves the conceptualization, design, development, evaluation and application of new (innovative) ways to use existing or emerging information and communication technologies (ICTs). E-Agriculture goes beyond technology, to promote the integration of technology with multimedia, knowledge and culture, with the aim of improving communication and learning processes between various actors in agriculture locally, regionally and worldwide. Facilitation, support of standards and norms, technical support, capacity building, education, and extension are all key components to e-Agriculture. There are several types of activity related to e-agriculture applications that are widely recognized around the world today. The delivery of agricultural information and knowledge services (i.e. market prices, extension services, etc.) using the Internet and related technologies falls under the definition of e-Agriculture. More advanced applications of e agriculture in farming exist in the use of sophisticated ICTs such as satellite systems, Global Positioning Systems (GPS), advanced computers and electronic systems to improve the quantity and quality of production.

In India agriculture is a major occupation for most part of population. Most rural population depends upon agriculture as their important occupation. Techno legal ICT and cyber law specialist of India and the managing member of „Association for people of India“ (AFPOI), the agriculture development characteristics are analyzed keeping in mind the advent of E-agriculture in India.

2.SCOPE OF PROJECT:

The main objective of this project is as follows

- 1) Insufficient agricultural infrastructure and support facilities,
- 2) Insufficient institutional capacity to deliver farmers specific services,

- 3) Lack of awareness regarding suitable agricultural methods among the farmers,
- 4) Agricultural content development and its up gradations,
- 5) Ownership issues of the public and government generated data,
- 6) Inadequate use of Public-Private Partnerships in India,
- 7) Lack of “Common Platforms” for the farmers in India,
- 8) Absence of an “Agricultural Think-Tank” in India,
- 9) Insufficient use of ICT for agricultural purposes, etc.

EXISTING SYSTEM:

In existing system there is no recommendation system existing. Applications like Justdial, Zomato are anonymous review based system. Deciding a property with a review uploaded by an anonymous user might not be accurate and trust worthy. There is no single platform where a user can recommend to his friends. In facebook we can able to share but mostly it would be missed by the friend to view due to the large news feeds.

PROPOSED SYSTEM:

In this project we propose to develop an e-agriculture platform for the farmers to sell their products directly to the end users. The end users can get the products freshly and the farmers can also earn more. Thus, creating a healthy ecosystem for the agriculture field. In this concept we integrate Structural Balance Theory-based Recommendation approach. The product users may suggest and they may give the reviews for that product, by this review we may get best suggestion, so we may buy the product hopefully.

ADVANTAGES:

- Expos can you save time and money
- A good expo producer does a lot of the legwork for you
- Expos build confidence and trust between you and your customers.

LIMITATIONS:

- Maintenance problems.
- Lesser security.
- Users could not acquire data always from us.

3.SYSTEM STUDY:

FEASIBILITY STUDY:

- A Feasibility Study is the analysis of a problem to determine if it can be solved effectively.
- The results determine whether the solution should be implemented.
- This activity takes place during the project initiation phase and is made before significant expenses are engaged.

TECHNOLOGY AND SYSTEM FEASIBILITY:

The assessment is based on an outline design of system requirements in terms of Input, Processes, Output, Fields , Programs, and Procedures. This can be quantified in terms of volumes of data ,trends, frequency of updating, etc. in order to estimate whether the new system will perform adequately or not this means that feasibility is the study of the based in outline.

ECONOMIC FEASIBILITY:

Economic analysis is the most frequently used method for evaluating the effectiveness of a new system. More commonly known as cost/benefit analysis ,the procedure is to determine the benefits and savings that are expected from a candidate system and compare them with costs. If benefits outweigh costs, then the decision is made to design and implement the system. An entrepreneur must accurately weigh the cost versus benefits before taking an action. Time Based.

LEGAL FEASIBILITY:

Determines whether the proposed system conflicts with legal requirements, e.g. a data processing system must comply with the local Data Protection Acts.

4.MODULES:

1. **Authentication**
2. **Agriculture products**
3. **User to User Interaction & Product to User Interaction**
4. **SBT (Structural based Theory) & CF (Collaborative Filtering)**
5. **Recommendation**

AUTHENTICATION:

In this module the User have to register first, then only he/she has to access the data base. After registration the user can login to the site. The authorization and authentication process facilitates the system to protect itself and besides it protects the whole mechanism from unauthorized usage. The Registration involves in getting the details of the users who wants to use this application.

AGRICULTURE PRODUCTS:

In this module farmer will upload the agriculture products for sell. User can buy the agriculture product to directly on farmer page. In this module provide the farmer updated address also on this module.

USER TO USER INTERACTION & PRODUCT TO USER INTERACTION:

A user is a person who uses in this system. Users generally use a system or a software product without the technical expertise required to fully understand it. User can make it satisfied for himself. In this module mainly interact between user and user to required product details. The product details updated by the farmer.

SBT (STRUCTURAL BASED THEORY) & CF (COLLABORATIVE FILTERING):

- In the psychology of motivation, balance theory is a theory of attitude change, proposed by Fritz Heider. It conceptualizes the cognitive consistency motive as a drive toward psychological balance. ... In social network analysis, balance theory is the extension proposed by Frank Harary and Dorwin Cartwright

- Collaborative filtering (CF) is a technique commonly used to build personalized recommendations on the Web. ... In collaborative filtering, algorithms are used to make automatic predictions about a user's interests by compiling preferences from several users.

RECOMMENDATION:

In this recommend the product items preferred by “possible friends” of target user to the target user. (II) likewise, for the product items purchased and preferred by target user, we determine their “possibly similar product items” based on Structural Balance Theory and recommend them to the target user. At last, the feasibility of SBT-Rec is validated, through a set of experiments deployed on MovieLens-1M dataset.

5.CONCLUSION:

According to the big rating data in E-commerce, a novel product item recommendation approach named SBT-Rec is brought forth in this paper, for dealing with the specific recommendation situations when the target user has no similar friends and the product items preferred by target user have no similar product Rec items. On one hand, SBT-makes full use of the valuable structural balance information hidden in user-product purchase network for precise recommendation, by considering “enemy’s enemy is a friend” rule and “enemy’s friend is an enemy” rule in Structural Balance Theory; on the other hand, SBT-Rec integrates both user-based CF recommendation and item based CF recommendation, so as to improve the recommendation recall. Through a set of experiments deployed on MovieLens-1M, we further validate the feasibility of SBT-Rec.

In the upcoming research, we hope to analyze and investigate automated similarity threshold setting method, to accommodate the personalized requirements from different E-commerce users. Besides, we will take the time aware user ratings into consideration, so as to improve the applicability of our proposal in dynamic recommendation applications.

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