Cross Domain Recommendation System

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Abstract: *Recommendation in cross domain is upcoming topic in recommender systems. Its main aim is to reduce/remove sparsity problem in individual collaborative filtering domains by transferring knowledge among related domains. Online shopping is getting trendy by each day. In today's modern world everyone looks for the shortest possible way to buy the best item in the short period of time. Recommendation system is a process in which data is taken according to the interest of user and suggestion is provided according to their choice. But the only drawback is that it deals with only single domain in the classical recommender system. Relationship between two sets of items from various domains are shown under cross domain recommendation system, also provides an extra information about the new users and new item.*

Keywords: Contextual Feature, Prediction, Grouping

1. Introduction

Cross-Domain Recommendation is a new field of study in the field of recommender systems. The goal of this type of recommender systems is to use information from other origin to provide recommendations in destination domains .Generally traditional recommendation system are focused on single domain .In these recommendation system ,the domain of item are used for training and target items sets are within the same domain like music, movies , books etc. In other word we can say Traditional recommender systems suggest items belonging to a single domain .Current systems are r good at recommending items in one domain, but the same algorithms do not work in different domains .Cross domain recommendation system, explains how different domains interact and gather information according to users interest that's why cross domain recommendation system is best approach.

Synergy between cross-domain and contextual recommendations

Cross-domain recommendation gives best result and more varied recommendations leading to the satisfaction of user and solving cold start and sparsity problems but it is less accurate than single domain recommendation system. Also another issue is the lack of contextual features in cross domain recommender system, which when used can be very efficient in recommendation. Thus this paper talks about customers contextual features like, mood, time, place, location, season etc.

2. Body of the Paper

2.1 Purpose

Multi-domain recommendation system:-in this domain item are recommended by both source and target domain, that is item are recommended in Is and It to user in Us.

Linked-domain recommendation:-in this domain items are recommended by taking knowledge from the origin and destination domains.

Cross domain recommendation:-in this domain items are recommended in target domain that is knowledge from source domain.

Multi-domain recommendation:-
- Information are recommended in both origin and destination domains
- Goal: cross-selling, improve diversity, novelty, serendipity
- Approach: sharing knowledge and linking domains

Linked-domain recommendation:-
- Target items are recommended to users in the target domains
- Goal: efficiency of recommendation in target domain is improved (e.g., reduce sparsity)
- Approach: all

Cross-domain recommendation:-
- Items are recommended to users in the target domain in the source domain
- Goal: solve cold-start, new users and new item problem.
- Approach: aggregating knowledge

2.2 Problem Statement

Synergy between cross-domain and contextual recommendations

Cross-domain recommendation gives best result and more varied recommendations leading to the satisfaction of user and solving cold start and sparsity problems but it is less accurate than single domain recommendation system. Also another issue is the lack of contextual features in cross domain recommender system, which when used can be very efficient in recommendation. Thus this paper talks about

customers contextual features like, mood, time, place, location, season etc. paper. Format the page as two column

2.3 Survey Details

2.3.1 Cold-Start Problem: Because of incomplete choice of user detail recommendation system is not able to recommend proper item to user .To solve this problem items are recommended from different domain which is called cross domain recommendation system.

2.3.2 New User problem: In case of new user, recommendation is not possible because their interest and choice are unknown so cross domain is used to solve new user problem in which items from different domain is taken.

2.3.3 New Item problem: In case of new item it is difficult to recommend because new item do not have any rating and review .So in this case cross domain recommendation in which data from different domain is used.

2.3.4 Improving Accuracy: In many field sum of appraisal per customer and information is less which alter the kind of recommendation. Information gathered exterior the destination domain can increase the class and can increase the condition of recommendation

2.3.5 Increasing Medley: Diversity of recommendation can be increase by considering data from different domain which is nothing but cross domain.

2.4 Models

2.4.1 Author Matching: Author matching is one of the approach to build a collaboration graph by linking users among source and target domains and then use a coincidental walk with restore algorithm to rank collaborators in the target domain , thus called as author matching. But there`s an issue with the Author Matching is the scanty connections between authors across two domains. To resolve this problem, the succeeding model is to centralise the interaction between the hidden topics.

2.4.2 Topic Matching: The above method only considers the network structure information, but overlooks the content (topic) information.

2.4.3 CTL: This advance model developed called Cross-domain Topic Learning to miniature topics of the source and the target domain.

2.5 Detailed Design
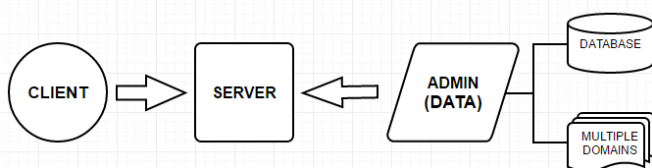
Client pass request to server .Then server go and search in database and fetch related data to client and additional data that is nothing but cross domain

Age is the conceptual feature in our project.

Preferred results are displayed:-
Hotel, Travel, Events, Places

Third party results on unavailability of the request served
Top ten results are displayed based on ranking

2.5 Algorithm and Techniques

In the antipodal years cross domain recommendation system has been arrived to solve the problem of single domain recommendation system .Despite of different cross domain recommendation system used there is lack of contextual features in cross domain recommendation system .In our project we are using context aware approach ,context aware approach uses different contextual information such as age, interest, season, navigation in order to improve recommendation .we describe context aware cross domain recommendation problem and proposed context aware algorithm.

The organization is designed by using anatomy casual case-based reasoning (Taxonomic CCBR), Ford Fulkerson algorithm and technique for hireing preference by similarity to ideal solution (TOPSIS) method.

When using content-based recommendation process using features like the items of users interest or liked by them for predicting the target time which may user like , or by using collaborative -based , finding of similar items liked by them before and suggesting it to other users liked by these users.

Taxonomic CCBR (Taxonomic conversational case-based reasoning), TOPSIS method (technique for ordering preference by similarity to ideal solution) and Ford Fulkerson algorithm is used in development of the system.

Taxonomic CCBR helps in improving personalization, by engaging a user in a set of questions and answers to get and check for the cases that gives a partial definition of the problem by the user and diagnoses the users problem by analyzing and providing to near accurate solution.

Building the gap between the source and target domains of semantic concepts, is done by FordFulkerson algorithm, helps in calculating the accurate maximum flow (weight). Taking into account for more precise and accurate customer's contextual features such as season, place and so plays an important role for better recommendation.

Contextual features plays an important role in finding out the best possible near to accurate result, for such results TOPSIS method comes into play, which gathers recommendations suitable with customer's contextual conditions.

3. Conclusion and Future Work

3.1 Conclusion

Take structured data as input and display the most possible accurate result .Filtering out the best result among all the result and addressing traditional recommendation system issue. Establishing a better distinction from the traditional system to the new contextual system

3.2 Future Work

An innovative approach to assist user for more better and accurate result(it is not accurate since we are involving third party).We can add GPS to make more accurate .Now everything is done by admin in future we may use some tool or technique so that data is fetched automatically from different set of data or domain such as social media site.

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