

Friend Recommendation Technique by Improving Marketing Tactics in Social Network

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ABSTRACT: Talking about running and grooming a lasting business, a social media presence is critical. Understanding the interest of all the users & based on it, publishing the required information as per their taste and needs is an important factor, when it comes to establishing a social media or social network presence that makes an impact. For advertising campaign, discovering the relevant target markets and audience is a significant phase in the market research.

Identifying the target users, designing of market strategy/plan, Building the marketing network (groups) & Statistical analysis of groupings are the four vital tasks we intent to focus on. Categories have been found based on their influence by using clustering technique. Further this paper benefits to extract emotive feelings of the user so that any interconnected articles, posts or videos can be stated to that user.

Friend Recommendation is a very general and essential application in social networking.

There are different approaches available to help users making friends online and develop their online social circle.

One of the approach for friend recommendation is based on the similarity of Micro-blog User Model, which can be helpful to the users to the great extent.

Index Terms: Clustering, FCM, K means, Facebook Graph API.

I. INTRODUCTION

For the last few years, social media phenomenon emergence has been one of the most remarkable developments in the world of Internet. Internet is the powerful tool and the ability to connect with people around the world. Social media lets people communicate either directly or via media objects. The year 2006 can be regarded as the break-through year of social media. At that point, the popular early applications like Wikipedia and Myspace had gathered significant numbers of users, while Facebook and YouTube had been introduced to the public. YouTube since early 2006 and Facebook since early 2007 after it opened its doors to anybody to register. Our work is concentrating mainly on Facebook.

II. PROBLEM DEFINITION

Quality improvement is an important factor for any business. But, the question is that how to move the users towards our product? & how to find who is interested in knowing our new products, versions, features, facilities etc.

Social media is used to find the users. Here we have proposed a competent design & a clustering technique to grow up the advertising way towards identifying the key users using Facebook.

III. METHODOLOGY

Fig.1 shows the steps involved in applying clustering algorithm to find the key users i.e.

- A. Preprocessing: Includes Training of the system.
- B. Extraction: Includes Data extraction from Facebook.
- C. Filtering: Includes Tokenization and Cleaning functions.
- D. Clustering: Includes Classification of Post Message and Comment into different categories
- E. Identifying targeted users: Includes finding of influential users.
- F. Design of marketing strategy: Put out the new posts to key users based on their interests.

A. Preprocessing:

Includes training of the system. Targeting potential users on Facebook is not so easy with social networking sites. Without permission nobody can access the user's profiles, but on the fan page we can promote businesses. For good analysis of post we have collected thousands of keywords also called buzz words related to posts'. It is essential to first-rate the substantial keywords that carry the sense, and reject the words that do not contribute to distinguishing between the posts. Keywords are defined as a sequence of one or more words and provide a compact description of a post's content.

B. Extraction:

In the Extraction we include Data extraction from Facebook. A basic token is assigned to any Facebook user and can be used to search any publicly available information. This will still not include a “friends” list. However, we can search for wall posts for any known Facebook IDs as long as we have a basic authentication token and the Facebook user has declined to make this information private. This will allow us to see when people in our list have posted to each other’s walls for a given time range. Facebook allows you to search based on an ID. Basic format for sending HTTP requests to the Facebook API also known as the Graph API is detailed in [6] & [7] for an example of this approach.

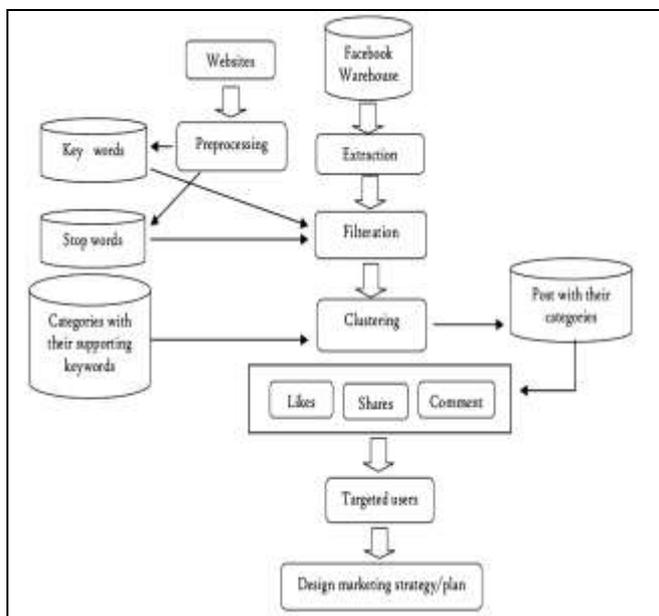


Fig.1 System Architecture

C. Filtering:

As the extracted information are stored in a separate database as knowledge source, which is retrieved for further tasks. Filtering includes Tokenization and Cleaning functions. Filtering is done based on the list of stop words and stemming words, which are analyzed or mined by examination from the training corpus. Stop-words, which are language-specific functional words, are frequent words that carry no information. Stemming techniques are used to find out the root/stem of a word. Stemming converts words to their stems, which incorporates a great deal of language dependent linguistic knowledge. These stop words and stem words are stored in Stop Words table and Stem Words table of databases respectively in the preprocessing phase for providing assistance in the process of filtering the contents

of message. A sample of collected stop words and stem words are shown in Table I and Table II. [8][9][10]

D. Clustering:

Clustering partitions the data set into clusters or equivalence classes. We have clustered users into different categories based on the posts made by them on Facebook. For comparative analysis of the results, we have made use of two clustering algorithms, Fuzzy C-Means & K-Means respectively.

E. Identification of Targeted Users:

Identify the people who are interested in information related to a particular category like Advertisement, Sports, Politics, Entertainment, Social awareness, etc.

The process uses selection of category to identify the interested users from the posts. The process involves Extraction of users who have liked or shared or commented the post/s in that category. Prepare the database of users interested in each category.

F. Design of Market Strategy:

To promote the new post to a set of users, first find the category of the post. Then select the targeted users of that post. Thus, Multicast the post to only interested users.

G. Types of Recommendation system

- 1) Content Based filtering
- 2) Collaborative filtering

Content-based filtering, also referred to as cognitive filtering, recommends items based on a comparison between the content of the items and a user profile. The content of each item is represented as a set of descriptors or terms, typically the words that occur in a document. The user profile is represented with the same terms and built up by analyzing the content of items which have been seen by the user.

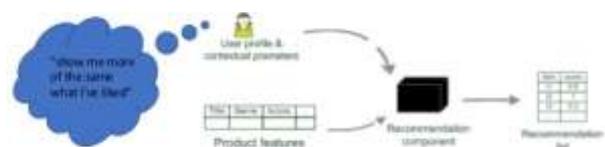


Fig 2 :- Content Based filtering

- 2) Collaborative filtering

Collaborative filtering is a method of making automatic predictions (filtering) about the interests of a user by collecting preferences or taste information from many users (collaborating)

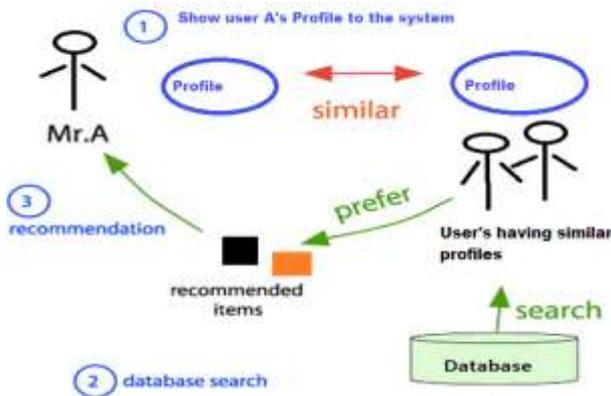


Fig 3 :- Collaborative filtering

H. State-of-the-art techniques

1) Technique 1- Potential Friend Recommendation in Online Social Network[15]

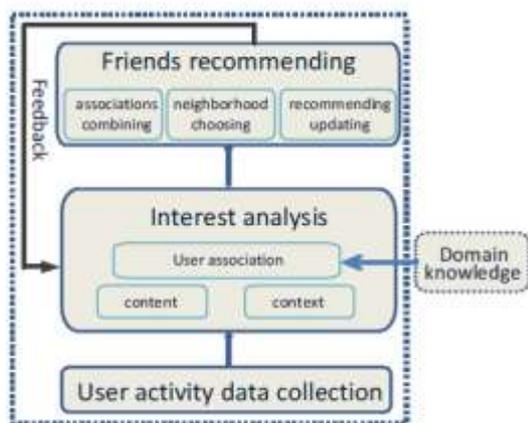
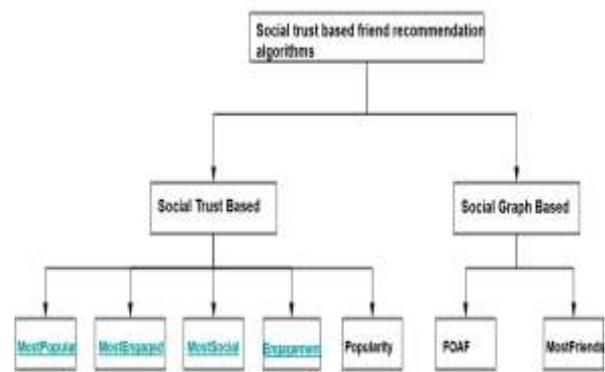


Fig 4 :- Potential Friend Recommendation in Online Social Network

The friend recommendation framework characterizes user interest in two dimensions: context and content, as well as combining domain knowledge to improve recommending quality

Accuracy in acceptance of recommended friend degrades for high user base

2) Technique 2 -A Social Trust Based Friend Recommender for Online Communities [16]



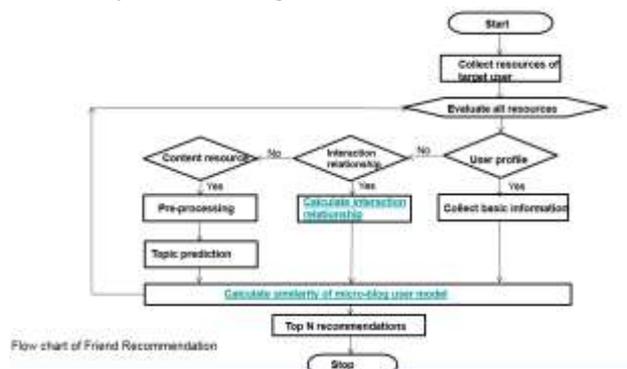
Tree Diagram for Social Trust Based Friend Recommendation Algorithms

Fig 5:- A Social Trust Based Friend Recommender for Online Communities

Social trust algorithms are good during the bootstrapping stage of the community

Social trust algorithms give good performance only when there are not mutual interactions in the community

3) Technique 3- Friend Recommendation Based on the Similarity of Micro-blog User Model [17]



Flow chart of Friend Recommendation

Fig 6 :- Friend Recommendation Based on the Similarity of Micro-blog User Model

The micro-blog user model can reflect user's interest and relationship in online social network

Topic prediction problem is treated as a text classification problem which greatly simplifies the problem. More interaction information is required to

Calculate similarity

IV. CONCLUSION

This research successfully classifies the Facebook users into specific category based on their data from the Facebook. The application makes the right use of Facebook Graph Api, to fetch user's personal information with his permission & allowing the application to perform clustering algorithms on the user's data to classify him into a specific category.

The research can be a great boost to the business world. It can help businesses, market their products & services to the targeted customers only. This will surely improve their marketing tactics & help them reach to their desired group of customers directly. As Facebook is the most used social media in today's world, this research will definitely be a boom to all the businesses who wish to create their identity in the online marketplace.

Here, the experimental results are promising: Performance of Facebook Graph Api is simply amazing. It ensures to fetch all the user's desired data within few steps. The performance of K-Means algorithm is better compared to the Fuzzy C-Means algorithm. Hence, classification is faster and more efficient.

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