

A Clustering Technique for Improving Marketing Strategy in Social Media using Data Mining Approach

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Abstract: On-line Social Networks (SNSs) are today one of the most popular interactive medium to communicate, share and disseminate a considerable amount of human life information. Daily and continuous communications imply the exchange of several types of content, including free text, image, and audio and video data. The huge and dynamic character of these data creates the premise for the employment of web content mining strategies aimed to automatically discover useful information dormant within the data which helps marketing. This paper aims to focus on four important works i.e. identifying the target users, designing of market strategy/plan, Building the marketing network (groups) & Statistical analysis of categories. Influentially of target user has been discussed with real time instances. Categories have been found based on their influence by using clustering technique. Finally, concluded with statistical analysis that includes graphical representation of highly influenced users. Further this paper helps to extract emotional feelings of the user so that any related articles, posts or videos can be posted to that user.

Keywords: Social Network, Advertising, Marketing, Clustering.

I. INTRODUCTION

The emergence of the social media phenomenon has been one of the most remarkable developments in the Internet world during the last few years. Internet has given us the ability to connect with people around the globe. Roger Katz, CEO, Friend2Friend, Palo Alto, CA, and Barcelona stated about social media as "What's so appealing about social media is its power to reach not just one consumer at a time, but a huge network of friends through the open graph. Businesses must learn to do this or risk losing their connection with consumer's altogether". Social media refers to a combination of three elements: content, user communities and Web 2.0 technologies. Social media are distinct from industrial or traditional media such as newspapers, television, and film as they are comparatively inexpensive and accessible. Millions of people today are using social networking sites like Facebook, MySpace and Twitter.

Social media marketing is a key component of any successful business initiative. Social media in business allows anyone and everyone to express and share an opinion or an idea somewhere along the business's path to market. It gives marketers a voice and a way to communicate with peers, customers and potential consumers. It personalizes the "brand" and helps you to spread your message in a relaxed and conversational way. Social media marketing refers to the process of gaining website traffic or attention through social media sites. Companies are increasingly using social media for marketing purposes. Content marketing and social media marketing are effective and efficient practices for any type of business. Mobile phones & social networking websites are the two platforms of social networking sites (SNS). Social networking websites allow

individuals to interact with one another and build relationships. When companies join the social channels, consumers can interact with them. That interaction feels personal to users because of their previous experiences with social networking site interactions.

SNS and blogs allow individual followers to "retweet" or "repost" comments made by the product being promoted. By repeating the message, all of the users' connections are able to see the message, therefore reaching more people. Social networking sites act as word of mouth. Because the information about the product is being put out there and is getting repeated, more traffic is brought to the product/company. The most common business model is advertising, where social media has some opportunities: people tell a lot about themselves and their interests, so information is available to precise targeting. Social media is in many areas changing the rules of any business that can be carried out online. There are 3 primary social media outlets that a business uses namely, Facebook, Twitter & Google+.

II. RELATED WORK

One fundamental issue in today On-line Social Networks (OSNs) is to give users the ability to control the messages posted on their own private space to avoid that unwanted content is displayed. Up to now OSNs provide little support to this requirement. To fill the gap, in this paper, we propose a system allowing OSN users to have a direct control on the messages posted on their walls. This is achieved through a flexible rule-based system, that allows users to customize the filtering criteria to be applied to their walls, and a Machine Learning based soft classifier automatically labelling messages in support of content-based filtering. The System gives users the ability to control the messages posted on their own private space to avoid that

unwanted content is displayed. System is a web enabled application (online social networking application) which provides the key OSN service (content based filtering) for the users. System provides an efficient mechanism to prevent unwanted messages on user walls in online social networking environment that is to provide content based filtering for the users to prevent undesired messages. This paper intends to find how social software can be used to improve the marketing and to survey how social software can be used effectively in enterprises. The main focus would be on opportunities and risks in companies used social network in their marketing.

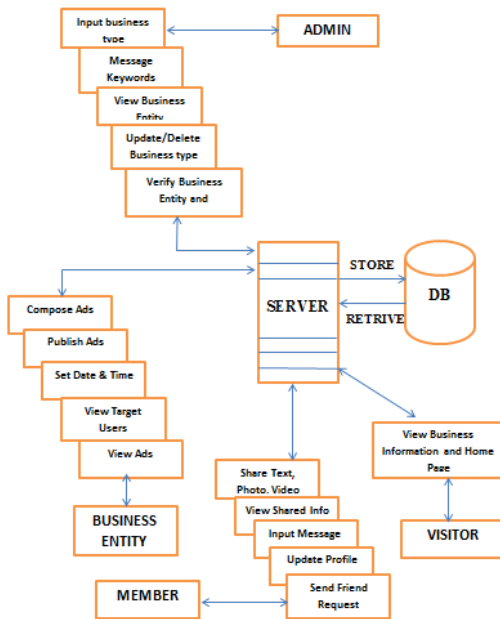


Fig. 1: System Architecture

III. PROBLEM DEFINITION

To improve the business profit, business entities need to make the customers to move towards their product. The question is, how to make users to move towards our product? & how to find who are really interested in knowing our new products, versions, features...?. In this paper we have tried to come up with answers to these questions. For advertising campaigns and product development, discovering the appropriate target markets and audience is an important stage in the market research. Here, we are using Clustering Technique to boost up the advertising way towards identifying target users.

IV. METHODOLOGY TO PREDICT THE TARGET USER

A. Constraint-based Method

In this method, the clustering is performed by the incorporation of user or application-oriented constraints. A

constraint refers to the user expectation or the properties of desired clustering results. Constraints provide us with an interactive way of communication with the clustering process. Constraints can be specified by the user or the application requirement.

1. Pre-processing: It includes training of the system. In this application, from the posted data it is important to select the significant keywords that carry the meaning, and discard 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. Keywords are often used to define queries within information retrieval (IR) systems because they are easy to define, remember and share.

Example: Keywords like: Sports, Software, Smart Phone, Laptops, Quality, and Offers...

2. Extraction: We are going to extract only the shared/posted information of the user from SNS warehouse based on the user Id. Hence this shared information is most important data for application to predict the target user.

3. Filtering: It includes Tokenization & Cleaning function. Filtering is done based on the list of stop words & keywords. Most frequently used words in English are useless in Information Retrieval (IR) & text mining, such words are „Stop Words“ – which carries no information & keywords which are meaningful words in Information retrieval & text mining.

Examples: Stop Words: above, after, again, because, between, can, can't, here,

4. Clustering: Clustering is the process of making a group of abstract object into classes of similar objects. Here, we are going to use Constraint- based Clustering Method. In this method, the clustering is performed by the incorporation of user or application-oriented constraints. A constraint refers to the user expectation or the properties of desired clustering results. Constraints provide us with an interactive way of communication with the clustering process. Constraints can be specified by the user or the application requirement.

5. Identification of Target users: Based on the shared information the users who are interested in related categories like Sports, Electronic items, Entertainment, Clothing, Jewellery etc.. Are identified. The process involves the extraction of users who shared the post in those categories & prepare the database of users interested in each category.

6. Design of Market Strategy: Based on the target user's shared information, the marketing plan is design & the business entities going to display/post the advertisement on those user's walls.

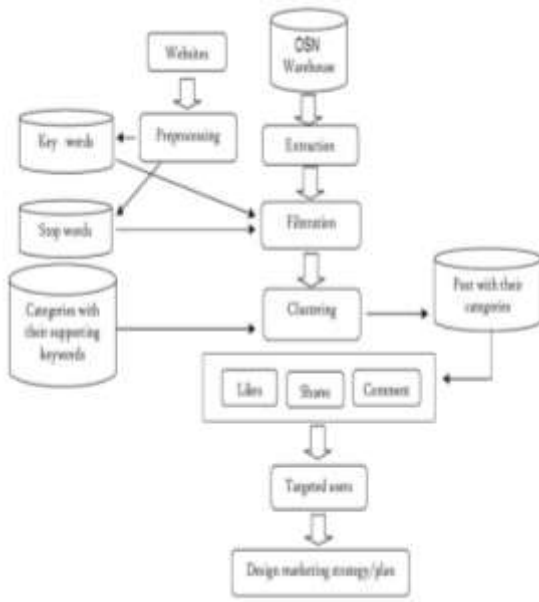


Fig.2: Proposed Methodology

V. CONCLUSION

In this paper mainly emphasizes on finding target users depending on their lifestyle and creation of marketing group and analysis of data. Olden days marketers uses offline media to advertising. It contains lot of constraints like not user friendly, manual process, unable to predict the target users etc. This paper mainly focused on identifying the target users, designing of market strategy /plan, building the marketing networks and statistical analysis. The main problem is to maintain the good quality and improve the quality is very critical for social media over business marketing. This paper proposes a competent design and a

clustering technique to boost up the advertising towards identifying the key users. It is based on content based, it works on users rating and likes based on their interest. The main methodology is used is clustering technique to find the key users. Initially training the system collect data from different sources. Data can be extracted from social media like Facebook. Basic authentication techniques are used. In this paper we focus on the Text/Keywords information of shared messages in order to identify the target users. we can also consider the Photos & Videos information to identify the target user.

REFERENCES

- [1] Assaad, Waad; Jorge Marx Gomez. Social Network in marketing (Social Media Marketing) Opportunities and Risks 2 (1). Retrieved 7 February 2013.
- [2] "A System to Filter Unwanted Messages from OSN User Walls" Marco Vanetti, Elisabetta Binaghi, Elena Ferrari, Barbara Carminati, Moreno Carullo, Department of Computer Science and Communication, University of Insubria.
- [3] Jessica Bosari "The developing role of social media in the modern business world", 2012.
- [4] Toni Ahlqvist, Asta, Minna Halonen & Sirkka Heinonen "Social Media Roadmaps Exploring the futures triggered by social media", VTTTIEDOTTEITA- Research Notes 2454, ESPOO 2008.
- [5] V. Shrividhya , R.Anitha "Evaluating Preprocessing Techniques in Text Categorization" International Journal of Computer Science & Application Issue , 2010.
- [6] Jones S. and Paynter G. "Automatic extraction of document keyphrases for use in digital libraries: evaluation and applications" Journal of the American Society for Information Science and Technology Volume 53, Issue 8, pages 653–677, 2002.
- [7] Gutwin C, Paynter G, Witten I, Nevill-Manning C and Frank E. "Improving browsing in digital libraries with keyphrase indexes", Decision Support Systems 27(1–2), 81–104, 1999.
- [8] Hulth A "Combining machine learning and natural language processing for automatic keyword extraction" Stockholm University, Faculty of Social Sciences, Department of Computer and Systems Sciences, 2004.