Social Networking sites: A Critical Review

Shagun Mathur
School of Computing and Information Technology (SCIT) Computer Science & Engineering (CSE)
Manipal University Jaipur

Abstract- The main means by which people develop their online personal network in recent years are rapidly developing social networking sites (SNS). To explore the factors that affect user participation in SRS, this study applies network externalities to explain why people continue to join the NHS. The implication of surveys and discussions provides reference to SNS operators in marketing and operation.
Individuals who are insensitive to chat in places of worship, homes when relatives and guests are around, schools, colleges, and social gatherings where they care and absorb their phones that do not even bother to look where they are, resulting in their inability to prioritize what is important and what is not. The attention was then transferred to the virtual world and visible to the invisible friends.

Index Terms- Analysis, media, platform, Social

I. INTRODUCTION

The importance of strategies based on machine learning to give important substance to customers is present in the sphere of business. There are countless applications that use machine learning innovation in social network analytics, incorporating improvements in feeling analysis, user / reviewer analysis, imaging, and that's just the tip of the iceberg. Since its arrival, Social Networking Sites (SNSs, for example MySpace, Facebook, Instagram and Snapchat have attracted a large number of customers, many of these users make excessive use of these sites. Most websites support pre-existing social circles, but also allow users to connect with strangers with common interests, perspectives, or activities.In the way they introduce new information and technologies / tools, for example blogs, photo / video sharing, mobile connectivity etc.[1]

- Traditional techniques of building a good social networkingsite

A list of 8 steps that you need to follow in the process:

1. Identify yourcommunity
2. Define the features andfunctions
3. Choose the righttechnology
4. A must havestructure
5. Design activitystream
6. Create status updatefeatures
7. Quality viewing dataoptions
8. Attract the rightusers

II. APPLICATION OF MACHINE LEARNING INSOCIAL NETWORKINGSITE

Automated sentiment analysis of digital texts uses elements from machine learning such as latent semantic analysis, support vector machines, bag-of-words model and semantic orientation (Turney, 2002). In simple terms, the techniques employ three broad areas:

- Computational statistics—refers to computationally intensive statistical methods including re-sampling methods, Markov chain Monte Carlo methods, local regression, kernel density estimation and principal components analysis.
- Machine learning—a system capable of the autonomous acquisition and integration of knowledge learnt from experience, analytical observation, etc. (Murphy 2012). These sub- symbolic systems further subdivideinto:
- Supervised learning such as Regression Trees, Discriminant Function Analysis, Support Vector Machines.
- Unsupervised learning such as Self-Organizing Maps (SOM),K-Means.

Machine learning aims to solve the problem of huge amounts of data with many variables. It is commonly used in areas such as form recognition (speech, images), financial algorithms (notation, algorithmic analysis) (Nuti et al. 2011), energy forecasting (load, price) and biology (tumor detection, drug discovery). Figure illustrates the two learning types of machine learning and their algorithmcategories.

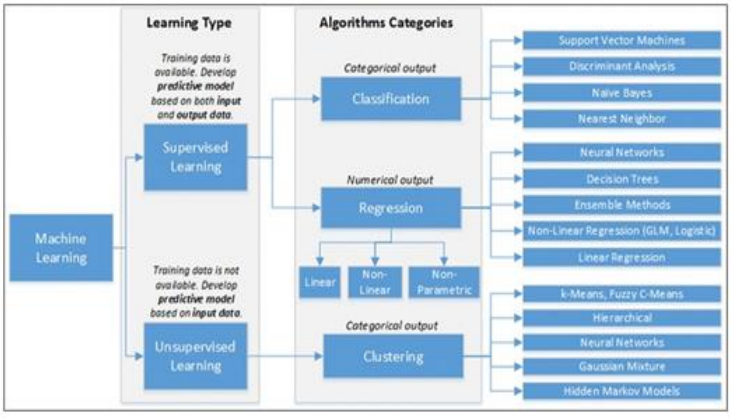

Fig.1: Representation of SentimentAnalysis as a Block Diagram

The feeling is about the extraction of attitudes, emotions, feelings - these are subjective impressions rather than facts. In general, sentiment analysis aims to determine the attitude expressed by the text writer or the speaker in relation to the subject or overall contextual polarity of a document (Mejova 2009). Pang and Lee (2008) provide a comprehensive literature on the fundamentals and approaches to the classification and extraction of feelings, including the polarity of feelings, the degree of positivity, the detection of subjectivity, the identification of opinion features-oriented functionalities and features based on terms other than unigram terms.

Sentiment Classification

Sentiment analysis divides into specific subtasks:

- Sentiment context—to extract opinion, one needs to know the ‗context' of the text, which can vary significantly from specialist review portals/feeds to general forums where opinions can cover a spectrum of topics (Westerski2008).
- Sentiment level—text analytics can be conducted at the document, sentence or attributelevel.
- Sentiment subjectivity—deciding whether a given text expresses an opinion or is factual (i.e., without expressing a positive/negativeopinion).
- Sentiment orientation/polarity—deciding whether an opinion in a text is positive, neutral ornegative.
- Sentiment strength—deciding the ‗strength' of an opinion in a text: weak, mild orstrong.

Supervised Learning Methods

There are a number of popular computational statistics and machine learning techniques used for sentiment analysis.

- Naïve Bayes (NB)—a simple probabilistic classifier based on applying Bayes' theorem with strong (naive) independence assumptions (when features are independent of one another within eachclass).
- Maximum entropy (ME)—the probability distribution thatbestrepresentsthecurrentstateofknowledgeist he one with largest information-theoretical entropy.
- Support vector machines (SVM)—are supervised learning models with associated learning algorithms that analyze data and recognize patterns, used for classification and regressionanalysis.
- Logistic regression (LR) model—is a type of regression analysis used for predicting the outcome of a categorical (a variable that can take on a limited number of categories) criterion variable based on one or more predictorvariables.
- Latent semantic analysis—an indexing and retrieval method that uses a mathematical technique called singular value decomposition (SVD) to identify patterns in the relationships between the terms and concepts contained in an unstructured collection of text (Kobayashi and Takeda2000).[14]

Social media analysis, which is based on social network analysis, machine learning, data mining, information retrieval and natural language processing. Automated analysis of blogs and other social media raises several interesting challenges, which are discussed below. Relevance Search: Depending on the content of blogs, we qualify some articles as relevant or irrelevant and consider relevance filtering as a standard text classification issue. An alternative to these textual techniques is relevance filtering via graph-based methods.

Influence and authority: for example, the authority of a blog can be characterized in terms of PageRank based on the number and authority of other blogs related to it, while the influence of a blog can be measured by Flow Between, that the blog contributes to the flow of information among other bloggers read by others.

Sensing Feelings: Considering that it is virtually impossible to read all user-generated content, it has become crucial to automatically identify negative (and positive) feelings in blogs to enable quick response. The main challenge is that the expression of feelings tends to be specific to a domain and all areas to be monitored frequently. However, the supervision of a feelings classifier can be ensured not only by the labeling of documents, but also by the labeling of words. For example, to call an atrocious word negative is a means of expressing our previous conviction of the feeling associated with it. Such an approach can identify that "Mahatama" and "Gandhi" are words that frequently appear together, and are often mentioned in political blogs.

Opinion Analysis on SocialNetwork

User opinions on social networking sites can be described as discovery and recognition of a positive or negative expression on various topics of interest. These opinions are often convincing and their indicators can be used as a motivation to make choices and decisions concerning the favoritism of certain products and services or even the approval of political candidates in elections. [15], [16]. Different methods have been developed to analyze the opinion arising from products, services, events or personality analyzes on social networks [36].

Aspect-Based/Feature-Based OpinionMining

Aspect-based analysis, also known as feature-based analysis, is the process of exploring the client entity domain examined [17].

According to [18], the issue of opinion based on the aspect is based more on blogs and forum discussions than on product or service reviews. The aspect / entity (which can be a computer) examined is either "head down" or "head down", thumb up being a positive comment while thumb down means a negative comment. It is therefore necessary to identify opinion phrases in each review to determine whether each is positive or negative [19]. Opinion phrases can be used to summarize an opinion based on an aspect that improves the overall analysis of the review of products or services.

Grouping of homophiles in the formation of opinion The opinions of influencers on social networks are largely based on their personal opinions and can not be considered as an absolute fact. However, their opinions may affect the decisions of other users on various topics. The opinions of influential users on social networks often count, resulting in a change in the formation of opinion. The data mining clustering technique can be used to model the formation of opinions by evaluating affected nodes and unassigned nodes. Users who describe the same review are linked under the same nodes and those with opposite views are linked in other nodes (as shown in the figure below). This concept is called homophilia in social networks [33]. Homophily can also be demonstrated using other criteria such as race and sex [19].

-

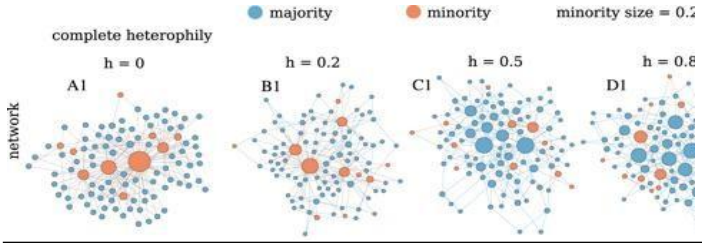

Fig.2: Homophily Showing Influencer and Followers

Opinion in Social Network

The formation of opinion starts from the initial phase when the majority of the participants pay no attention to actions in appeal on important issues at this stage. When convincing information is introduced, the opinion is cascaded and participants begin to make positive or negative decisions. At this stage, the decision of influential participants, who are effective in the field or in communication, attracts the minority audience.

Opinion Definition and Opinion Summarization

Extensive information gives rise to the challenge of automatic summarization. The definition of opinion and the synthesis of opinion are essential techniques for the recognition of opinion. The definition of opinion can be located in a text, phrase or topic in a document; It can also reside throughout the document.

Authors used Support Vector Machine (SVM) with linear kernel to learn the polarity of neutral examples in documents. Their results suggest that polarity complications can be adequately treated as three class complications, using couple pairing and at the same time blending results in remarkable ways.

OpinionExtraction

The analysis of feelings deals with the establishment and classification of subjective information present in a material. This may not necessarily be fact-based, as people have different feelings about the same product, service, topic, event, or person. Extraction of opinion is necessary to achieve the exact part of the document in which the actual opinion is expressed. The opinion of an individual on a specialized subject cannot count unless the subject is an authority in the subject field. In the extraction of opinions, the more the number of people who think about a particular subject, the more important the portion may be worth extracting. Opinion can target a particular article, while, on the other hand, it can compare two or more articles. The first is a regular opinion, while the second is comparative. Extraction of opinion identifies subjective sentences with sentimental classification of positive or negative.

Sentiment Analysis on Social Network

It is noteworthy that the huge opinions of several million social network users are impressive, ranging from very important to mere affirmations (e.g.; the phone does not come in my favorite color so it is a waste of money). Consequently, it became necessary to analyze the feeling expressed in the social network with data mining techniques, in order to generate a meaningful structure that can be used as decision support tools. Several algorithms are employed to determine the feeling that matters for a topic, text, document or personality under review. The purpose of the analysis of feeling in the social network is to recognize the potential tendency in society regarding the attitudes, observations and expectations of the stakeholder or the population. This recognition allows entities to take immediate action and make the necessary decisions. It is important to translate the sentiment expressed into useful knowledge through mining and analysis.

Sentiment Orientation (SO) - Product Ratings and Reviews

Broadly spread products are likely to attract thousands of reviews and this may make it difficult for prospective buyers to track usable reviews that can help in making decisions. On the other hand, sellers make use of the Feeling Guidance (SO)

for their standard rating in others to protect the irrelevant or misleading assessments present to the raters of the 5-star scale rating with five meaning better rank while one means bad rating . In [28. The experiment presented a modular proficiency hierarchical classification technique easily implemented along with OS attributes and machine learning techniques.

Social networking sites, such as Opinions and Ciao, allow users to build a trusted network between them, showing who to trust to offer ratings and product ratings. Most online stores offer their customers the opportunity to evaluate / review the product or service purchased. This process allows potential customers to access first-hand information about these products / services before making a purchase. Data mining tools are used to analyze the concept of product classifications and assessments in the social network. The experiments proposed an advanced matrix factorization method capable of increasing classification predictions and estimating the precise strengths of confidence associations within the same period.

Reviews and Ratings (RnR) Architecture (Rahayu,2010)

RnR is a conceptual architecture created as an interactive structure. It is the user-oriented input that develops relatively new revisions. The user provides the name of the product or service whose performance has been previously reviewed online by customers. This system checks the history of what has already been checked to find out if it is stored in the local system cache of the architecture for the latest revisions. If it is found that the data supplied is recent, they are used later. If it is obsolete, the crawl is done at a secondary site such as TripAdvisor.com and Expedia.com.au. The data retrieved from these sites are built locally to discover the required justification. The use of the word neighbor (words around appearance appearances) also helps reduce computational overload.

Aspect RatingAnalysis

It makes use of small phrases and their modifiers, for example, good product, and excellent price. "Each aspect is extracted and classified by probabilistic latent semantic analysis (pLSA), which can be used instead of the structure of the sentence of aspects is a word that means in common an aspect in which users are concerned and comment.The approach of Latent Aspects Classification Analysis (LARA) tries to analyze the opinion of different reviewers doing a text mining at the point of appearance. This allows the determination of the latent score of each reviewer in each aspect and the relevant influence on them when arriving at an affirmative conclusion.

SentimentLexicon

The feeling lexicon is a list of common words that improve data extraction techniques when the extraction feeling is used in the document. For example, sentimental words used in sports are often different from those used in politics. The expansion of the appearance of the lexicon of feeling helps to focus more on analyzing the occurrence of a specific topic, but with the use of high labor [32]. Lexicon-based approaches require analysis to work with conditional, comparative, compound, and simple sentences [30].The lexicon of feeling can be expanded through the use of synonyms. However, the expansion of the lexicon through the use of synonyms has the disadvantage that the wording loses its main meaning after some recapitulations. The lexicon of feeling can also be improved by getting rid of neutral words that do not represent positive or negative expressions.

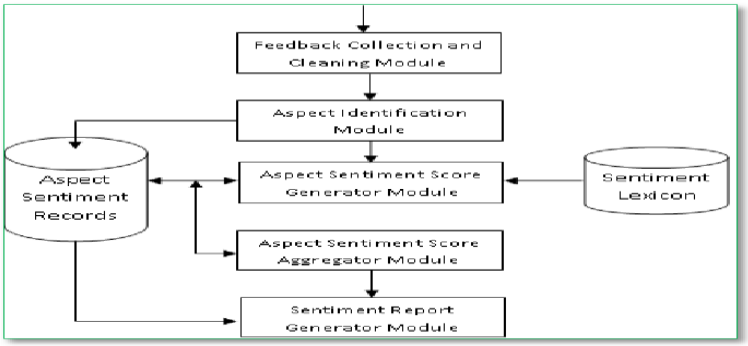

Fig.3: Overview of the Sentiment Module

Unsupervised LearningTechniques

Unsupervised machine learning is the automatic learning task of inferring a function to describe a hidden structure from untagged data. The problems of classification or categorization are not included in this observation. Because the data in those problems are not labeled, it is not possible to measure the accuracy of the model output by the relevant algorithm, which is a difference between supervised and unsupervised machine learning algorithms.

Hierarchicalclustering

Unsupervised machine learning is the automatic learning task of inferring a function to describe a hidden structure from untagged data. The problems of classification or categorization are not included in this observation. Because the data in those problems are not labeled, it is not possible to measure the accuracy of the model output by the relevant algorithm, which is a difference between supervised and unsupervised machine learning algorithms.

III. METHODS AND TECHNIQUES WHICH GOES INTO BUILDING A SOCIAL NETWORKINGSITE

The steps to creating a social networking site are how, first and foremost, to define your target audience - get to know your community. Defining your audience using as many filters as possible will help you establish your social media network on a solid foundation later. How to effectively define

your target audience [10,11]. Search online on any platform like Google should be your starting point, which will take you whenever you need to go to pick up this valuable information. Online research can be time-consuming, but it is reliable and simple. Identifying the preferences and dislikes of your community will help you better understand the psychological factors that affect you as a consumer and what you can do to get their attention. We need a test and learning approach, organizing test people, preparing several interview questions, and providing test equipment. The downside is that it has costs associated with it, the good thing is that you will get 100% reliable results. Then we define the features and functions as the overview of your site is crucial. The macro scan that will split things into categories like user roles, administrative functions and advertising is a mandatory thing to do. Develop your growth strategy based on your users. Our target audience is set, you have all the important data but now you need to make them aware of your service. There are two things we should focus on, how to first start Small, and slowly expand your base. Remember that Facebook started small and local. They used the information available in their high school yearbook. And secondly, go ahead and focus our efforts on large demographic groups and on our marketing on a larger basis from the beginning. Twitter used this strategy and it became a huge success.

We have to follow the Social Network Development Check Points

The Money – The development process is all about the money. Instagram had a $ 300.000 development budget and Facebook around $500.000. It depends on the complexity of the features you are trying to develop. If you are going for a simple functionality then your cost will be lower, around $ 100.000.

The Platform – Is it going to be web-based only social network or are you planning on developing a mobile app too? Use the data from your market research to decide what to do. How to launch a social network on the market is tightly related to the preferences of your target audience.

Data Base Volume – Traffic Estimation – It's not possible to estimate your traffic with a 100% accuracy. The estimated number that will be close to what will happen in reality will be a valuable info to your development team. Here are some database options you can use:

– Use MySQL or PostgreSQL for your structureddata.

– NoSQL databases, such as MongoDB for a high-load and high trafficsurges

Base your choice on your estimation.

1. Use Minimal and Simple Social Network UX Design

There are basic elements that you must think of before you start defining your social network front end:

- The elements of a standardprofile
- Chat options andfeatures
- News Feeddesign
- ConnectButtons
- EngagementButtons
- Comment SectionAreas
- Social Groupsoptions
- Setup Page Design

2. A must havestructure

There are three must have pillars that you need to incorporate if you want your social media network to be successful and profitable.

• Customer service.
• Security.
• Scalability.

3. Design ActivityStream

Facebook introduced this feature first and since he sets the standards on the market, the concept went main stream and affected everyone. Joomla 's plug ins or Drupal's activity stream module can be used that accomplishes this very well

4. Promote Your Social NetworkEffectively

Follow the AIDA marketing model. It's an acronym used in marketing and it stands for attention, interest, desire, and action Implementing the basics of this model in your digital marketing strategy can do wonders. It may even have some AI within, as we are confidently moving to the computer powered world.

IV. METHODOLOGIES ADOPTED IN BUILDING SOCIAL NETWORKS

This paper proposes a methodology based on the traditional system development life cycle, with a view to help the developers in implementation of applications.

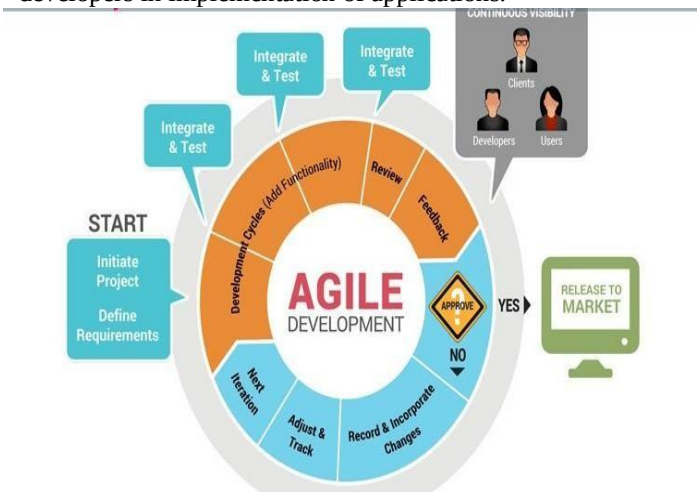

Fig.3: Know Agile methodologies-used in software development

- Steps for Agile Software DevelopmentProcess

1. Design theProgram
2. DocumentingDesign
3. Do It TwoTimes
4. Plan, prepare, and put an Eye onTesting
5. Connect the Client [13]

V. CONCLUSION

On social media sentiment analysis is a set of methods, usually (but not always) implemented in computer software, that detect, measure, report, and exploit attitudes, opinions, and emotions in online, social, and corporate information sources. (As an aside, what "analysis" does is that you're doing it systematically, with some purpose in mind). We can say that the analysis of feeling is much more than a simplistic underestimation of the number of "negative" words of the number of "positive" in a document or message to produce a score. In this article, we conclude that data and sentiment analysis mean a lot to marketers and marketers. We also find that it not only analyzes social media conversations or has broader applications. Yes, this can involve social conversations as well as direct and indirect feedback (such surveys, contact center notes and warranty and insurance claims), online news, presentations and even scientific papers: any source of information that captures subjective information. This information can be used to help improve services for humans and make life much simpler.

VI. REFERENCES

[1]. Danah m. boyd Nicole B. EllisonSocial Network Sites: Definition, History, and scholarship, Journal of Computer-Mediated Communication, 2007, Volume 13, Issue 1, 1 October 2007, Pages 210– 230

[2]. Kizza, J. M. (2010). Cyberspace, Cyberethics, and Social Networking. In Ethical and Social Issues in the Information Age (pp. 221-246). Springer London.

[3]. Kizza, J. M. (2013). Ethical, Privacy, and Security Issues in the Online Social Network Ecosystems. In Ethical and Social Issues in the InformationAge (pp. 255-280). SpringerLondon.

[4]. Reznik, M. (2013). Identity Theft on Social Networking Sites: Developing Issues of Internet Impersonation. Touro L. Rev., 29,455-485.

[5]. https://www.brandignity.com/2012/11/6-reasons-why-social-networking-is-so-popular-these-days/

[6]. Dr. Shree Bhagwat1 ,Ankur Goutam2 1(Asst. Prof. Dept. of Business Management, Dr. H.S. Gour Central University Sagar (M.P.), India) 2 (Faculty, Dept. of Business Management, Dr. H.S. Gour Central University Sagar (M.P.), India), Development of Social Networking Sites and Their Role in Business with Special Reference to Facebook, ISSN: 2278-487X. Volume 6, Issue 5 (Jan. - Feb. 2013), PP15-28

[7]. http://historycooperative.org/the-history-of-social-media/https://www.quora.com/What-are-all-the-different-categories-of-social-networking-sites

[8]. https://socialnetworking.lovetoknow.com/What_Types_of_Social_Networks_Exist

[9]. https://www.inc.com/john-rampton/how-to-create-powerful-social-network-platform-in-.html

[10]. https://socialmediaweek.org/blog/2017/11/create- social-network-platform-5-steps/

[11]. https://www.inc.com/john-rampton/how-to-create-powerful-social-network-platform-in-.html

[12]. https://www.hyperlinkinfosystem.com/blog/know-agile-methodologies-used-in-software- development-to-support-various-company-for- unpredictable-action

[13]. https://link.springer.com/article/10.1007/s00146- 014-0549-4

[14]. Kaschesky, M., Sobkowicz, P., Bouchard, G.: Opinion Mining in Social network: Modelling, Simulating, and Visualizing Political Opinion Formation in the Web. In: The Proceedings of 12th Annual International Conference on Digital Government Research,2011.

[15]. Pang, B. and Lee, L.: Using very simple statistics for review search: An exploration,‖In: Proceedings of the International Conference on Computational Linguistics (COLING) (Poster paper),2008.

[16]. Hu, M., Liu, B.: Mining and Summarizing Customer Reviews. KDD '04. In: Proceedings of the tenth ACM SIGKDD International Conference, 2004.

[17]. Liu, B.: Sentiment analysis and opinion Mining. AAAI-2011, San Francisco, USA,2011.

[18]. Jackson, M. O. Social and economic networks. Princeton University Press,2010

[19]. McPherson, M., Smith-Lovin, L., Cook, J. M.: Birds of a feather: Homophily in social networks. Annual review of sociology, 415-444,2001.

[20]. Kaschesky, M., Sobkowicz, P., Bouchard, G.: Opinion Mining in Social network: Modelling, Simulating, and Visualizing Political Opinion Formation in the Web. In: The Proceedings of 12th Annual International Conference on Digital Government Research,2011.

[21]. Ku, L.-W., Liang, Y.-T., Chen, H.-H.: Opinion extraction, summarization and tracking in news and blog corpora. In Proc. Of the AAAI- CAAW'06,2006.

[22]. Dave, KL.,Pennock, D.: Mining the peanut gallery: Opinion Extraction and Semantic Classification of Product Reviews. In: Proceedings of WWW 519-528,2003

[23]. Morinaga, S., Yamanishi, K., Tateishi, K., Fukushima, T.: Mining product reputations on the web. ACM SIGKDD 2002, 341- 349,2002.