Opinion Mining and Sentiment Analysis on Social Media

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Abstract- *With the increasing popularity of social media, the way of expressing opinion and sentiments by the people have changed a lot in the past few years. There is lot of unorganized and unstructured information available on the internet. It can be a major factor for many organizations to collect this raw and unstructured data and use it for the benefit of their organization. Opinion mining and sentiment analysis is the study which automatically extracts the opinion of users from internet. Many researchers are active in this area since last few years. This paper discusses about the various aspects of OM and SA on Social media.*

Keywords- Opinion Mining, Sentiment Analysis, Applications, SA, OM, Social Media.

I. INTRODUCTION

What is other's opinion" has always been a center of attraction before any decision making process. Before the popularity of web, people generally used to ask their friends or family members for any opinion but with the availability of smart phones and that too with economical internet connections, people spend most of their time on internet [1] and as a result the social media are being flooded with opinions even from strangers. People have the anxiety to check their social media contents very often during the day [2]. Even to an extent they share their sorrows and joys on social media. As a result of this, there is abundant data available on internet which is very unstructured and unorganized. Before buying any product, people generally look for the reviews/ opinion given by other users on web. Hence in turn these opinions resulted as boom for the organizations in improving their product and framing and implementing decision policies like when to offer discounts?

II. ARE THEY DIFFERENT?

Sentiment Analysis (SA) is sometimes also known as Opinion Mining (OM) and also both being used as synonyms. The two expressions SA or OM are interchangeable. They express a mutual meaning. However, some researchers state that OM and SA have slightly different notions. Opinion Mining extracts and analyses people's opinion about an entity while Sentiment Analysis identifies the sentiment expressed in a text then analyses it [3]. Therefore, the target of SA is to find opinions, identify the sentiments they express, and then classify their polarity.

In the procedure of Sentiment Analysis, whether a piece of text carries the positive, negative or neutral sentiments is considered. In the domain of text analysis SA combines Natural Language Processing (NLP) and Machine Learning (ML) techniques and assign weighted sentiment scores to the entities.

III. WHY SA IS IMPORTANT?

Millions of data is produced online within a very short span of time. The data produced is so vast and scattered that it is of no use if not used and organized properly. Hence Big data, Data Mining, Data Analytics have become a popular field of study for the researchers as well as various organizations to remain in the market competition where people are always eager to know that what others are thinking [4].

There are so many online media available which not only give the opinion of a particular product but also provides the comparison of products. It helps users in decision making effortlessly while sitting at home. It gives the ability to clench the attitude of a consumer towards any product or any event and accordingly take the decision upon positive, negative or neutral feedback. According to Accenture research, 87% of enterprises believe that Big Data will reshape the industry in the next years.

IV. APPLICATION DOMAIN

With the popularity of social media and the explosion of internet people's perception has been changed towards information gathering. Now they are more interested in "what others are saying" [5]. Opinion mining has many application domains including science and technology, entertainment, education, politics, marketing, accounting, law, research and development.

They are as follows-

Policy Making: Feedback from the people plays an important role in framing policies for policy makers, organizations, police departments, law makers. It helps the various policy decision

makers of an organization study their existing policies based on the customer reviews [6], make changes accordingly and in launching new policies. It helps government in modifying and/or implementing various policies. It also helps government to know the feedback of people towards their governance.

Decision Making: Reviews plays an important role in decision making process [7]. Organizations may take decision about when and how much to propose discounts on various products. How their product is performing based on the consumer reviews? The product popularity can be known from social media whether it is movie, consumable, policy or any promotional scheme. It has helped various political parties to win elections and form their government. The best examples are when US President Barack Obama's presidential campaigns used the power of social media to know the attitude of people towards him and finally won. Another strong example of Modi government when in 2014 Lok Sabha elections massively used social media and finally BJP won and formed the government.

Service Industry: It helps organizations to improve their service level based on the opinions collected from people [8]. Even various government sectors e.g. railways, police departments have used social media effectively to improve their services and run various campaigns. Today almost every metro city police department have their own strong social media presence to spread the awareness among the people of their city. They use social media to connect with the people and have cracked various crime cases with their help.

Spam Detection: Not all the contents available on internet is authentic and always useful. People are free to write anything which gives birth to the spam contents. SA and OM may be used to differentiate between the two- spam or not spam. The same concept works for mail spam or no spam detection.

Product Reviews: Organizations may collect reviews and opinion of people in various decision making process e.g. quality of their product [9, 10], whether it needs improvement, right time of the launch of their product and how their product is different from others.

Approval System: opinion may be collected from people, employees or particular communities in the form of Yes or No for a particular task in the system [11].

V. DIFFERENT LEVELS OF SENTIMENT ANALYSIS

In general the SM tasks has been broadly classified into three levels [12].

- Document level: At this level a whole document is classified with sentiments as either positive, negative or neutral with the assumption that document talks about a single entity. Hence it is generally known as document level sentiment classification. For example a product review is given in the form of a document and the task of the system is to determine whether the review expresses an overall positive or negative opinion about the product.

- Sentence level: The task at this level is to find the positive, negative, or neutral opinion of the sentences only. This method works well for the short messages on social media like twitter or WhatsApp. Neutral usually means no opinion. The subjective information is usually extracted from the objective sentences in this analysis.

- Entity and Aspect level: Although the above two levels are useful still they both do not ascertain what exactly people liked and disliked. Fine-grained analysis is performed at this level. Hence analysis at this level is mandatory. This level was earlier known as feature level (feature-based opinion mining and summarization).

VI. CONCLUSION

As we can see from section 4, Opinion Mining and Sentiment Analysis has a wide range of applications and thus has become an interesting field of study for many researchers. Although there have been many changes in perspective of the research in this area still it is an interesting field of study because of many challenges in this area as to work with the Natural language processing is still a challenging area. Also another challenge comes from the aspect of whether study is to be done at entity level, document level or sentence level.

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