

# Valuable Product ForReal World Requirement

Kathiravan Srinivasan, Senthil Kumaran S, Velmurugan P, Srinivasan N



**Abstract:** In this modern age of online shopping, every platform that offers to galvanize their customers with exciting offers sometimes end up delivering the prodigal product. A different set of customer reviews is available on the website of these online shopping portals, but they do not give a proper way of analyzing in terms of statistics. This project will give its contribution in giving a numeric percentage based on the statistics generated by the help of the customer review on a specific product. The customer on websites of Amazon, Flipkart, snap deal and many more, post their thoughts on the product delivery and those data would be the key to the method. The method of approach that will be used to generate the base of benchmark criteria of product relevancy is sentimental analysis. The opinions in terms of text will be computationally identified in order to determine whether the writer's attitude towards a particular product is positive, negative or neutral. The main objective of the project is to give a clear path of fundamentals to work on while choosing a product. The methodology and idea can be used in other fields of work as well.

**Keywords:** sentiment analysis, product reviews, tokens, tweets, experimental, economy

## I. INTRODUCTION

Social media acts as a vast reservoir of the immense amount of data from people all around the world over a wide range of subjects. Online reviews play a vital role for the customers to purchase a product go for a movie, go to a restaurant and for a businessman who has to make critical business decisions.[1] This data can be very crucial to understand trend shifts of public opinion as an entity. Therefore if this data undergoes sentiment analysis it can be beneficial for decision making about anything in the economy. It can be small decisions like choosing amongst two electronics to something as big as predicting stock market shifts. The reservoir of data is so vast that labeling it manually may seem like an insane act, therefore systems to extract or mysentiments from the reservoir about a particular subject is developed and later checked for reliability. This not only gives us rich data but helps us get an insight into the minds of an extensive population reviews on a single topic. These are always attached by star ratings vary from 1-star to 5-star,

Which indicates learning about product reviews of visitors. Figure 1 and figure 2 exhibits an example of a 5-star review on Amazon website, which involves Iphone X .

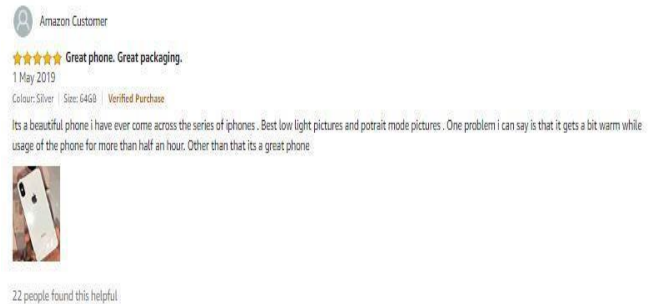


Figure 1: A Product Review From Amazon

However, various types of reviews are spread across various social media website For example



Figure 2: Is A Tweet On Twitter Which Addresses Negative Review Of I-phone

Sentimental Analysis can be used for a wide variety of multi-disciplinary fields. Its primary use is to understand the fundamental polarity of sentences and later classify and evaluates them. There are various ways available on the internet for sentiment analysis [36][25]. These can be classified under the supervised ones and the unsupervised ones. Machine learning languages are used by the supervised ones for their processing. On the other hand, the unsupervised ones use classified algorithms that work under ruling sets on language dictionaries. The reservoir of data under consideration has large pools of information about a wide variety of topics. These maybe personal feelings that help read the mind-set of a considerable population. Alternatively, it can have fundamental characteristics of data about economic and political situations. Getting access to this information can be of enormous benefit while making decisions. These represent the public mood. These help usread trends over the internet in real-time therefore have high potential to affect the economy in various ways [30]. Sentiment analysis and natural language processing are probably the most widely studied upcoming linguistic computation systems in contemporary research fields. A system for sentimental analysis and evaluation amongst the two is developed and experimented.

Revised Manuscript Received on December 30, 2019.

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Much work has been carried out in the field of sentiment analysis primarily in the field of blogs and product reviews. Work has been carried out on detecting sentiment in the text using algorithms like semantic orientation for detecting sentiments. Alec Go has tried to develop an algorithm that can that could precisely classify twitter messages as positive or negative. Their primary focus was to achieve higher accuracy. They have tried to use machine learning techniques in the specific domain of microblogs [2][38]. In this project, we are performing an assessment using a suite of evaluation criteria and data collections using various social media sources. Sentiment analysis is selected so that the customers get to know which product is right for them according to their needs by looking into the pros and cons. By evaluating the results using various aspects and computer language.

## II. SIGNIFICANCE OF THE STUDY

The most common up-surging economical issue is the sudden trend-shifts; thus, there is a need for mining sentiments from the financial documents and news articles and contrasting them to historical data to extrapolate the shifts or reoccurrences of several possible financial scenarios. The recent approaches to this problem massively depend on vast sets of data that are specific to several domains of the study [8][38]. Newer methods need to be introduced as dictionary-based evaluation gives lower reliability as it fails to provide an exact opinion concerning all the texts in the study. Social media platforms have become an essential platform for political conversations throughout the world. Past studies of political sentiment on social networks have been either post-hoc and carried out on small and static prototypes. To analyze instant election trends they focused on generating an automated real-time sentiment analysis of this user-defined data that can provide fast shreds of evidence of changes in opinion [35]. The system developed a method for perceiving the words that may stun a nearby speaker by differentiating the divvying up of the impressive number of words in a social occasion of discretionarily assessed fiscal compositions with that of comparable words in a reference social event of works. Progressively [6]. Beneficial quotes in related cash compositions, the expectations are that such a word will be less beneficial when all is said in regular language compositions [41]. When system has recognized catchphrases, in light of quantifiable criteria in our willing conglomeration of jobs, by then the system looks at the zone of these catchphrases, and by then looks at the zone of the two-word pair, and so forth. Figure 3 shows the growth of sentimental analysis against customer feedback over the years. This zone, developed on strict quantifiable criteria, yields information-bearing sentences in the money related space and, it turns out, sentences that ordinarily pass on exact knowledge. These models are then used to fabricate a constrained state machine. This machine is then taken a stab at a subtle game plan of works – and the results versus evaluation analysis are extraordinary. The system has itemized our decision analysis structure elsewhere in detail.

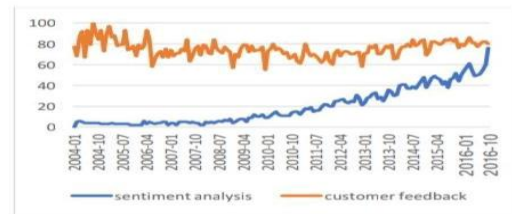


Figure 3: Google trends, data showing the relative popularity of search trends of Sentimental Analysis and customer feedback

## III. RELATED WORK

Sentiment analysis and natural language processing are probably the most widely studied upcoming linguistic computation systems in the contemporary research fields [7]. A system for semantic analysis and evaluation amongst the two was developed, and experimented. Sentimental analysis was used in real-time during the election campaign of president Trump [37]. Amazon Mechanical Turk was used to create baseline sentimental model. Turkers described their gender, age, political orientation. On showing some tweets, they were asked to understand the sentiment of those tweets (positive, neutral, negative, or unsure), whether the tweets were funny or sarcastic in nature, the review on a scale from positive to negative, and the tweet author's political view on a scale from old school to easy [2][10]. Their sentiment model is based on the sentiment label and the sarcasm and funny labels. Data Source for this was micro-blogging service Twitter as the data source because it is the main source of political commentary and discussions. All related tweets in real-time were gathered from entire twitter traffic via Gnip Power Track, commercial twitter data provider [15]. The processing of the tweets was an important task. The text of tweets differs from the text in articles, books, or even spoken language. As standards of NLP practices, the text is tokenized for after processing. Using certain rules to handle the special cases for the tweets was done. Comparing several Twitter-specific tokenizers was carried out, such as TweetMotif and it was found that Christopher Potts' basic Twitter tokenizer was found to be appropriate with the base. In conclusion, the tokenizer perfectly handled common emoticons, URLs, calling numbers, hashtags, HTML tags, and twitter mentions, numbers with decimals and fractions, repetition of Unicode characters & symbols. A System for Sentiment Analysis of Arabic Using Human Computation. The main problem was finding and analyzing simple words from Arabic websites to know the nature of their meaning [4][17]. Their source should be informal or colloquial in popular areas. The challenging part here becomes the in-formalness of the colloquial Arabic used on websites as this may differ across a range of dialects and geographies. In order to overcome this issue, human-based computing is used to deliver the required results. Arabic language got compelled thought and rejected in terms of the ordinary language dealing with research. Arabic is a Semitic language, and its linguistic structure and lexis are significantly different from those in the Indo-European family (for instance English, German, French, Hindi) [31]. The structure of Arabic words is continuously amazing and appeared differently about English for instance.

Arabic words are made through a mix of root (in any event 3 consonants) with a model, in this manner, a root-and-model morphology. In order to test the practicality of the count system needed, the general language corpus likewise, a phenomenal language corpus: their cash related corpus contained 8,815 compositions and 1.48 million tokens circulated from March to August 2005 and posted by Reuters Arabic organization [20]. Not in the least like English anyway a general language corpus is not available to hand - as the matter of making 'delegate corpora' of a language is inconvenient, which was appeared by the creators of the British National Corpus. The system expected to arrange the universal language of Modern Standard Arabic. The MSA corpus manages around 2.6 million tokens in compositions created someplace in the scope of 1980 and 2005.

#### IV. SYSTEM RECOGNITION

When we talk about Sentiment Analysis as a system, one of the basic problems that the system faces are the different forms of the colloquial language used in the data. The system being human-made cannot detect emotions of the reviewer, therefore also fails to recognize sarcastic comments and slangs present in comments. Jokes and sarcasm are a major part of communication and are so widely used that the system needs some adaptability to them. They are so common that BBC has a specific site for people who do not speak English language to learn the use of sarcasm in English. The oxford dictionary states that jokes are sharp or cutting remarks or unsavory jeers. These days it is regularly used when people "state something as funny or downright obvious, or something that opposes to their genuine feelings in a way to be sharp or to reach an important resolution," as described on the BBC joke site page referenced already [22][26]. (Bousfield, 2007) delineates it as "the use of frameworks that, externally have all of the reserves that require being reasonable to the situation, also are planned to be taken as which means the opposite with regard to be taken upto the officials. So the system loses the ability to recognize such abnormalities. We often come across jokes or slangs written by reviewers on websites and even in documents. These statements may carry sentiment defining adjectives that the system is supposed to recognize. Once the system recognizes the sentiments in the sarcastic statements it groups the sentiment as per its polarity. What the system fails to recognize is the partial sarcasm intended by the writer which turns the polarity of the statement. Once grouped in the wrong polarity this would result in the wrong sentiment scores while evaluating. A similar problem arises when the data consists of slangs from the English language or any of the locally spoken language. Many slangs define sentiments and also many slangs are used as both positive and negative sentiments. So, therefore, these cannot be included under the sorting dictionaries as their polarity is not defined clearly. So, either the system chooses to ignore the slang sentiment, or it may have a high possibility of putting it into the wrong polarity group. In all, according to the Data of public opinion it fails its sole purpose of mining the right sentiment expressed in the statement. This reflects in the sentiment scores, therefore, reducing the reliability of the system results. With the boom of social media Hashtags are of the most commonly used symbols followed by a wide variety of

emoticons. The system can be loaded with dictionaries that read the emoticon and know their polarity as positive, negative or neutral. Thus the system can accurately access emoticons and this ability increases the reliability of the results achieved. However, when we talk about the hashtag symbols we might be looking at another major issue for the system. The hashtag symbol is used along with a word that combines define a popular sentiment that the reader should be able to understand. They reduce the need to specify in detail the subject or keywords of the statement. So these statements also are of high value as they carry major sentiments. Now that they are so popularly used they form an essential reading. However, as of the technologies and limitations of artificial intelligence the system is unable to pinpoint the emotion or action that the hashtags define. This lack of reading causes the sentiment that was defined to be unreadable therefore opted out of the data. Thus reducing the reliability of results given by the system. A similar case if faced when the data under consideration has catchphrases or pop culture slogans or dialogues. These may define an emotion that cannot be read by the system thus causing similar issues. Nevertheless, to overcome all these issues, special case zones are defined as the sorting dictionaries as zones. Because the human coder has information on the subject on which the system is supposed to run these special case zones can be customized and loaded. This would give the system the ability to form and relate such scenarios to its custom additions and therefore record the sentiment. Once recorded the sentiment would give its contribution to the sentiment score. The zones may be referred to as constrained state models as they need to be changed with every change is subject or topic switch. The system thus itemizes the decision of the sentiment that was recorded from the statement in data.

#### V. STUDY OF OPINION MINING

The examination is not new, it would even have non-sentimental accents of uncertainty of the strategy, of course, really Plato expanded this investigation of the cleverness to the illustrativetechniques of the pundits, which would finally place language in a comparative carton as the framework, system could state. The dispute is known anyway its broad explanation as often as possible shields one from seeing how it might be right and how it will in general beguile. The unchanging nature of language to any customized taking care of takes to the exclusion of everything else humanistic accents, which consider as obvious that the machines are not human, suggestion somewhat dangerous in light of the way that individuals are accessible at all periods of their creation, paying little mind to whether a nice social gathering ends up conveying this effect of self-administration of the procedure. In all honesty, it is then a matter of accepting a political position to deflect mechanization/digitization from impeding the world and diminishing us to being "submitted" by advancement, as Heidegger said. The realities exhibit that the regular daily practice concerning voice servers would be adequate to incite the least humanist customers, who feels the impression of talking with a divider rather than a machine, which ecosystems the customer to seek after his arrangements while his The requesting is, by definition, stand-out to him and he can't convey in the language of those groupings constrained upon him.

This capability among language and PC code is fundamental since it makes it possible to grasp the perplexities kept up between the two arrangements of this present reality. It is in light of the fact that product designing diminishes all phonetic material to code that it renders it measurable and that it can by estimation, real or something different, restore a bit of the understandability of the explanations accumulated. Regardless, it is furthermore in light of the way that it diminishes the language to code that it will reliably decay on "need to-mean" since the language does not work at all, as shown by comparable benchmarks. Usually, people use acronyms that are not found in dictionaries and are to be mentioned separately. Table 1 shows some commonly used acronyms. It is not a code yet a system of structure of correspondences between record (sound) and suggesting that are once in a while outstanding. As such, most would concur that language is nonsensically amazing for a machine contingent upon the essential that the unconventionality isn't futile: there are two substances (the PC code and the formal combinatorics of language) that are not the smallest piece proportionate, additionally the issues of vernaculars (issues of complexities and social correspondences) and of talk (issues of needs and points). In any case, it is a direct result of the ecosystem of its figurings, by virtue of this agreeable detour which contains decreasing everything to a comparable code, that enlisting makes it possible to register by gauge suggestions which are finally critical for a human observer, the one of the Turing test, which can not separate. On account of its inadequacy of improvement, figuring builds a computational ecosystem and can find out everything and "go about as if" it oversees suggestions while it knows the only arrangement of characters. For the inclination assessment, this point is noteworthy, in light of the way that it infers that system ought to expect a lot the extent that the ecosystem of figuring essential substances and enunciations yet that the suggestions will never be controllable except for by individuals. The upside of this enlisting ecosystem and the frameworks of TAL is that they do not leave anything potentially aside, both the substance and the particular circumstance, both the scientific works and the abstract compositions, yet their peril. is to imagine that their ability incapacitates the significance and that their results can be taken really, without knowing the conditions of their creation and in this manner the essential reductions that made the phonetic material quantifiable. The system ought not fear the force of PCs yet fear the great ticket to ride that would take him to complete the duty instead of human interpreters.

**Table 1: Common acronyms found in opinions and their explanation used to formulate opinions in sentimental analysis**

ACRONYM	EXPLANATION
gr8,gr8t	great
LOL	laughing out loud
ROFL	rolling on the floor lauging
Ryt	right
Nyc	nice
Gud	good

**VI. RELEVANCE OF SENTIMENT ANALYSIS IN ECONOMY**

One of the forthcoming issues in the economy are the sudden trend shifts; this offers to ascend to the need of mining sentiments from the money related archives and news stories and contrast them with notable information to foresee the movements or reoccurrence of different financial Economic scenarios. As of now most ways to deal with this issue significantly rely upon humongous sets of dictionaries that are explicit to domains of the study. More up to date strategies needs to be introduced as word reference-based analysis gives lower dependability as it neglects to furnish careful extremity concerning every one of the writings in the study[30]. Composing on money-related, cash related angles and human investigation of financial markets recommends that 'the measure of things of quantitative and unique data accessible to a particularly organized entertainer is, in reality, unbounded, yet the purpose of repression of any agencement (humans, machines, calculations, location) to check and to decipher that information is constrained. Both the theoretical and quantitative data are sent and got in various modalities - numerical, graphical and, consistently unformed substance and in talks for occasion. An exceptional bit of the data about exchanging an entire degree of business parts presently truly streams in through exchanging terminals and through areas. One can get unrefined numerical information about any budgetary instrument and render the information into a period course of action. The time plan can, on a fundamental level, be then imagined and controlled utilizing system based frameworks that system from the beginning conveyed for use in various authentic and developing applications: The characteristic parallel arrangement of cross-section preparing structures accumulates that the strategies made for contemplating univariate and multivariate information on back to back structures can expediently be ported over: discrete and unflinching changes going from Fourier changes to wavelet examination, and different assortments of auto-in turn reverse models, can be parallelized with essentially no effort. Numerical information evaluation is extending, yet in a backhanded way, reviews the information that most likely will not have its causes in numerical information like the cost and volume of a monetary instrument [39]. Granger and Engle created a key model on the unconventionality appraisal of high-repeated cash related information. The GARCH assessment bases on the asymmetry in the designation of headways - the mistakenly called abstract bit of strangeness of an as frequently as conceivable exchanged budgetary instrument. Engle (referring to Nelson) has battled that 'eccentrics could react unevenly to past guage goofs [...] negative returns had all the earmarks of being more basic pointers of eccentrics than positive returns. Epic cost decays check more critical eccentrics than also high cost fabricates.' Engle has shown the possibility of the news effect curve- negative news has a more extended influence on budgetary instruments than the positive news. Regardless, the term 'news' in 'news effect turn/assessment's is utilized in an unobtrusive and underhanded way - an arrangement of data conciliators are used here. The middle individuals fuse timings of the statements of different full-scale monetary pointers: net private thing, non-farm subsidies, local deals [40][42].



Anderson et al. have seen that the representatives can be rendered as a period course of action and contrasted and the time course of action of cardinal estimations of prices, volumes, etc. The producers have drawn six interesting closes depending on their assessment: (i) news proclamations matter and generally have a brief impact; (ii) the arranging of the disclosure matters; (iii) insecurities acclimates to news bit by bit; (iv) 'unadulterated explanation impacts are available in insecurity; (v) the impacts of the declarations for the most part are 'upside down' in that the reactions (or enhancements) differ with the 'sign' of the news; and, (vi) the impact on exchanged volume proceeds on more extended than on costs. The acknowledgment from the news impact twist have been examined in a socio-direct setting and the question here is that sentiment might be passed on through development, explicitly that (an) alert acquiring and selling of budgetary instruments by the money related specialists and merchants, also, (b) the sometimes graceless mood of the controllers, are certified events of financial, social and political action by people [42]. It is not cleared by Engel and others whether the substance of a news report system isolated consequently or to ensure analyzed utilizing all methods.

A novel approach to sentiment analysis is given to take under inquest the money budgetary and non-budgetary pointers of performance of the subjected economy to help get a dependable result for understanding the pattern shifts [30]. The polarity of the sentiments is characterized by the digger working under standards of a sentiment classifier that works on hierarchy. The sentiments after later assessed under the grouping by the name positive, negative, or neutral. The aftereffects of the paper give a benchmark that characterizes a model for budgetary datasets. This model can be contrasted with other contemporary language calculation frameworks for atrial of dependability Valuable insights from the framework helps us comprehend the different factors that characterize the significant trend shifts or occurrences in the economy.

## VII. TRACKING PUBLIC OPINION AS TRENDSETTERS

Social media acts as an enormous reservoir of vast quantity of knowledge from folks all around the world over a large variety of subjects. This knowledge is often terribly crucial to know trend shifts of belief as associate degree entity. So if this knowledge undergoes sentiment analysis, it is often terribly useful for deciding regarding something within the economy. It is often small selections like selecting amongst two physics to one thing as massive as predicting stock exchange shifts. The reservoir of knowledge is thus vast that labeling it manually could seem like an associate degree insane act, so systems to extract or my sentiments from the reservoir a couple of bound subjects are developed and later checked for responsibility [30]. This not solely offers US-made knowledge; however, it helps US get associate degree insight into the minds of an oversized population reviews on one topic. Since system has tokenized (by so much most of) the hashtags correctly, system will use the data contained within them for analysis acknowledgment. As an example, system will see individual words that may be wont to show joke, and system will see positive and negative words within a hashtag. As associate degree underlying advance, system primarily pivoted the limit of a supposition at no matter purpose. A deriding clarification was found. To understand

taunting declarations, system physically assembled an outline of wry hashtags from a corpus of discretionary tweets, and at the moment, comprehensive this by means that of afterward aggregation sets of hashtags wherever one hashtag contained a gift joke hashtag (for instance #sarcasm).

For an essential course of action, these primary results area unit fulfilling. One screw up maybe a direct result of the closeness of cloud named substances (people, regions, and affiliations) close some little bit of the hashtag. Whereas a section of those area unit seen by our dictionary question (especially regions), a formidable parcel of them area unit dark. The named part affirmation half in GATE cannot acknowledge these till they need being exactly tokenized. Thus the system has associate degree complicated issues. Regardless, as a bunch with the SemanticNews project5, system are braving a response for disambiguating client names in <http://semanticnews.org.uk> Twitter by techniques for DBpedia; system area unit about to investigate varied roads with regard to modifying this method to hashtags in like manner, so such substances are often seen There are two or three progressing works trying to acknowledge joke in systems and different client created content. Tsuret al. (Tsuret et al., 2010) use a semi-controlled strategy to request sentences in on-line issue reviews into completely different scornful categories and report an F-extent of eighty two.7% Right away joke space task (despite the means that preciseness is far beyond Recall). Liebrecht et al. (Liebrecht et al., 2013) use the Balanced Winnow algorithmic rule to assemble Dutch systems as rude or not, with seventy-fifth truth, preparing over an excellent deal of systems with the #sarcasm hashtag. Pablo Neruda et al. (Reyes et al., 2013) use an analogous strategy on English systems to acknowledge unforeseen systems, victimization the #irony hashtag, with the seventieth truth. Davidov et al. (Davidov et al., 2010) use Tsur's calculation for joke acknowledgment and bring home the bacon eighty two.7% F1 on systems and seventy eight.8% on Amazon overviews. Interrogatively, they make sure that the joke hashtag is not used once in an exceedingly whereas in their corpus; in any case, presumably this use has complete up being ceaselessly typical over the most recent three years [16]. It makes the sensation that none of those techniques go past this movement: despite once a declaration is thought to be wry, one cannot usually anticipate however this can impact the top expressed.

## VIII. METHODOLOGY

The preparing of the framework occurred in a progression of steps. Right off the bat, the undertaking was to make a broad set of information. This information comprised of SMS messages and tweets, news stories and diary messages, and even different wry substances to be tried. In the future this information by and large is said to be articulations. Every one of these announcements has an extremity. They might be affirmative or negative while characterizing or speaking to a few of the other intrigue referenced in the announcements or statements. Later these announcements are stacked into a supposition investigation calculation, and all the comparable notions are gathered and prepared to be stacked into a characteristic language handling framework.

At the point when every one of the estimations from a broad scope of conclusions is clubbed into gatherings or classes according to their extremity concerning a specific subject the assessment happens. This assessment gets a smart thought of the accessible assessment of the subject under thought. The framework puts center to feelings exhibited inthe tweets in type of descriptive words. Every descriptor is painstakingly characterized under 72 classes of agent and engaging modifiers, so the framework perceives the class for everyone and gathers them together. This activity is embraced by the Inert Dirichlet Allotments strategy. The outcomes discovered after the processing are partially sensitive to daily trend shifts but require more massive study sets. A framework is isolated into two sections. One for examining the assumptions mined and the other one for game segment. Later both these parts work at the same time in understanding one another to help recover the ideal outcomes. Introductory tests were done on eatery audit site with a wide assortment of commentators that were separated by the game part. Inactive Dirichlet allotment is utilized on a full scope of suppositions that have been mined from an enormous number of tweets on the web. Equation 1 is an example of a sorting rule used. These aides in contrasting day by day accepted sentiments with the conveyed sentiments from the framework and apply these outcomes to different fields in the economy [30][12]. This, in turn, causes us to catch patterns and trends and let them influence our activities.It assumes that each feature is conditional independent of other feathers in the set.

$$P(c | t) = \frac{P(c)P(t | c)}{p(t)} \tag{equation (1)}$$

Where c is a particular class, and t is content we need to characterize. P(c) and P(t) are the prior probabilities of this class and this content. P(t | c) is the likelihood of the content that seems given this class. For this situation C can either be affirmative or Negative, and T is the announcement.

Support Vector Machines were likewise tried utilizing programming called Weka. SVM can be tried dependent on different element extractors like Unigram, Bigram, Some portion of Speech (POS) highlight, and so forth. Utilizing unigram extractor, they accomplished a precision of 73.913%. It was presumed that AI principals/strategies could help in accomplishing higher exactness for sentimental analysis. To expand the precision considerably further the accompanying things were proposed:Utilization of more semantics to characterize articulation which relies upon whose point of view we see the tweet. Utilization of Area explicit tweets for present progressively exact outcomes because of the impediment of jargon size. A single classifier cannot be utilized to get higher exactness. Joining different classifiers together can help in accomplishing that. The most concerning issue looked here is the inaccessibility of information from a single source. The information is inadequate, spread wide over the web. A way to deal with an assessment investigation with a semi-administered framework is proposed. This methodology utilizes the principles of a dictionary-based technique. The vocabulary strategy uses AI. This improves execution from the assumption investigation framework as the outcomes will, in general, be progressively solid and delicate to everyday shifts. As it were the framework gets the capacity to ponder

a unique arrangement of statements to be contemplated. Standards from the SentiWorldNet are acquired when thinking about the notions or sentiments. This gains admittance to an enormous pool of numerical models like the addition and cosine similitude framework that helps record the supposition scores in a powerful way.For a superior understanding, the framework can be partitioned into two separate segments. The first is known as the gatherer. This can be an effectively existing site or a massive pool of comprehensive reviews. As the name proposes its job is to accumulate a considerable measure of statements.These announcements convey information that characterizes assumptions about the subject. The estimations can be sure, negative or unbiased(neutral).These estimations are separated from the announcements based on decision from the word references utilized.The subsequent segment is the analyzer. This chips away at a decision from the dictionary technique. Every one of the assessments assembled experience isolation in this framework based on their extremity. A predefined framework for the assessment of the sentiments helps record opinion scores. These scores give us essential data for essential decision making. The subject under consideration is of differed significance. It very well may be as large as following financial movements or something as little as to recording review and getting a rating framework foronline products. Both the frameworks work in coordination, the result of one is utilized as a decisive contribution to the next one.As Rsentiment is a newer tool there might be better results in later versions. For more advanced and accurate results machine learning can be used which will improve itself from mistakes. Figure 4 shows quality control in Sentimental Analysis tools. There is still room for improvement in this field. The system has coordinated an essential manual appraisal and found the precision of extraction to stretch out between 60-75%. More work is required in this one of a kind situation.

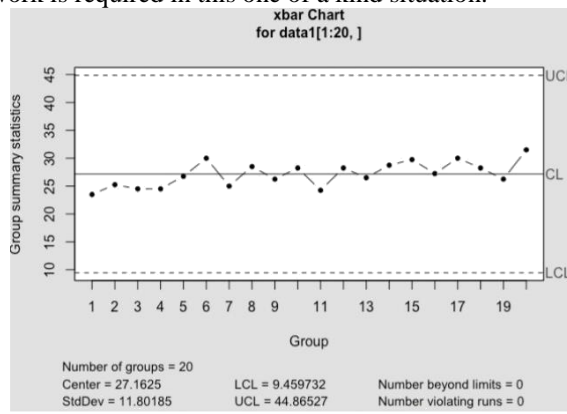


FIG 4: The figure explains the data and how effective the sentiment analysis is if it follows the data represented in fig-1.

IX. CONCLUSIONS

Humans have always tried to computerize the works that seem tedious but relevant. Sentimental analysis has increased the sample space taken for the analysis causing the result to be more accurate. Unlike opinion mining it can recognize the emotion in big sets of texts.

It is so effective in many fields like politics, where it shows the effects of social media opinions; journalism, where it can give the propaganda of a text and marketing, where it can show how the trend is. It can even detect sarcasm that even most humans find. From an input of raw unstructured text, the system segregates a bunch of needful keywords and then ranks them. The ranks are then summed up to understand the actual opinion. Although this can find a person sentiment about a product or service, it can not show how it changes with time. It cannot cope dynamic changes, like the opinions on stocks in stock market which are unpredictable and rapid. This can be bettered by using lexicon-reduction method. By this method similar keywords are grouped. This helps in finding the trend in dynamic study. However it was found from research that sentimental analysis cannot be used as the only factor for predicting the market. Sentimental analysis tools like NLTK can check 10,000 of them in 3.3 seconds at precision and recall of 0.56 and 0.49. Whereas for the same sample space, another tool named Rsentiment has a precision of 0.31 and recall of 0.29 and takes 41 minutes.

## REFERENCES:

1. Kouloumpis, E., Wilson, T. and Moore, J., 2011, July. Twitter sentiment analysis: The good the bad and the omg!. In Fifth International AAAI conference on weblogs and social media.
2. Wang, X., Wei, F., Liu, X., Zhou, M. and Zhang, M., 2011, October. Topic sentiment analysis in twitter: a graph-based hashtag sentiment classification approach. In Proceedings of the 20th ACM international conference on Information and knowledge management (pp. 1031-1040). ACM.
3. Ravi, K. and Ravi, V., 2015. A survey on opinion mining and sentiment analysis: tasks, approaches, and applications. Knowledge-Based Systems, 89, pp.14-46.
4. Paltoglou, G. and Thelwall, M., 2010, July. A study of information retrieval weighting schemes for sentiment analysis. In Proceedings of the 48th annual meeting of the association for computational linguistics (pp. 1386-1395). Association for Computational Linguistics.
5. Wang, H., Can, D., Kazemzadeh, A., Bar, F. and Narayanan, S., 2012, July. A system for real-time twitter sentiment analysis of 2012 us presidential election cycle. In Proceedings of the ACL 2012 system demonstrations (pp. 115-120). Association for Computational Linguistics.
6. Mullen, T. and Collier, N., 2004. Sentiment analysis using support vector machines with diverse information sources. In Proceedings of the 2004 conference on empirical methods in natural language processing (pp. 412-418).
7. Kasper, W. and Vela, M., 2011, October. Sentiment analysis for hotel reviews. In Computational linguistics-applications conference (Vol. 231527, pp. 45-52).
8. Guzman, E., Azócar, D. and Li, Y., 2014, May. Sentiment analysis of commit comments in GitHub: an empirical study. In Proceedings of the 11th Working Conference on Mining Software Repositories (pp. 352-355). ACM.
9. Bae, Y. and Lee, H., 2012. Sentiment analysis of twitter audiences: Measuring the positive or negative influence of popular twitterers. Journal of the American Society for Information Science and Technology, 63(12), pp.2521-2535.
10. Basile, V., 2013, June. Sentiment analysis on Italian tweets. In Proceedings of the 4th Workshop on Computational Approaches to Subjectivity, Sentiment and Social Media Analysis (pp. 100-107).
11. Duwairi, R.M., Marji, R., Sha'ban, N. and Rushaidat, S., 2014, April. Sentiment analysis in arabic tweets. In 2014 5th International Conference on Information and Communication Systems (ICICS) (pp. 1-6). IEEE.
12. Hao, M., Rohrdantz, C., Janetzko, H., Dayal, U., Keim, D.A., Haug, L.E. and Hsu, M.C., 2011, October. Visual sentiment analysis on twitter data streams. In 2011 IEEE Conference on Visual Analytics Science and Technology (VAST) (pp. 277-278). IEEE.
13. Liu, B. and Zhang, L., 2012. A survey of opinion mining and sentiment analysis. In Mining text data (pp. 415-463). Springer, Boston, MA.
14. Cambria, E., Poria, S., Bajpai, R. and Schuller, B., 2016, December. SenticNet 4: A semantic resource for sentiment analysis based on conceptual primitives. In Proceedings of COLING 2016, the 26th international conference on computational linguistics: Technical papers (pp. 2666-2677).
15. Maynard, D.G. and Greenwood, M.A., 2014, March. Who cares about sarcastic tweets? investigating the impact of sarcasm on sentiment analysis. In LREC 2014 Proceedings. ELRA.
16. Pang, B. and Lee, L., 2008. Opinion mining and sentiment analysis. Foundations and Trends® in Information Retrieval, 2(1-2), pp.1-135.
17. Wilson, T., Wiebe, J. and Hoffmann, P., 2005. Recognizing contextual polarity in phrase-level sentiment analysis. In Proceedings of Human Language Technology Conference and Conference on Empirical Methods in Natural Language Processing.
18. Pak, A. and Paroubek, P., 2010, May. Twitter as a corpus for sentiment analysis and opinion mining. In LREc (Vol. 10, No. 2010, pp. 1320-1326).
19. Pang, B. and Lee, L., 2004, July. A sentimental education: Sentiment analysis using subjectivity summarization based on minimum cuts. In Proceedings of the 42nd annual meeting on Association for Computational Linguistics (p. 271). Association for Computational Linguistics.
20. Liu, B., 2010. Sentiment analysis and subjectivity. Handbook of natural language processing, 2(2010), pp.627-666.
21. Kouloumpis, E., Wilson, T. and Moore, J., 2011, July. Twitter sentiment analysis: The good the bad and the omg!. In Fifth International AAAI conference on weblogs and social media.
22. Wang, X., Wei, F., Liu, X., Zhou, M. and Zhang, M., 2011, October. Topic sentiment analysis in twitter: a graph-based hashtag sentiment classification approach. In Proceedings of the 20th ACM international conference on Information and knowledge management (pp. 1031-1040). ACM.
23. Ravi, K. and Ravi, V., 2015. A survey on opinion mining and sentiment analysis: tasks, approaches and applications. Knowledge-Based Systems, 89, pp.14-46.
24. Paltoglou, G. and Thelwall, M., 2010, July. A study of information retrieval weighting schemes for sentiment analysis. In Proceedings of the 48th annual meeting of the association for computational linguistics (pp. 1386-1395). Association for Computational Linguistics.
25. Wang, H., Can, D., Kazemzadeh, A., Bar, F. and Narayanan, S., 2012, July. A system for real-time twitter sentiment analysis of 2012 us presidential election cycle. In Proceedings of the ACL 2012 system demonstrations (pp. 115-120). Association for Computational Linguistics.
26. Mullen, T. and Collier, N., 2004. Sentiment analysis using support vector machines with diverse information sources. In Proceedings of the 2004 conference on empirical methods in natural language processing (pp. 412-418).
27. Go, A., Bhayani, R. and Huang, L., 2009. Twitter sentiment classification using distant supervision. CS224N Project Report, Stanford, 1(12), p.2009.
28. Kaji, N. and Kitsuregawa, M., 2007, June. Building lexicon for sentiment analysis from massive collection of HTML documents. In Proceedings of the 2007 Joint Conference on Empirical Methods in Natural Language Processing and Computational Natural Language Learning (EMNLP-CoNLL) (pp. 1075-1083).
29. Abdul-Mageed, M., Diab, M.T. and Korayem, M., 2011, June. Subjectivity and sentiment analysis of modern standard Arabic. In Proceedings of the 49th Annual Meeting of the Association for Computational Linguistics: Human Language Technologies: short papers-Volume 2 (pp. 587-591). Association for Computational Linguistics.
30. Mittal, A. and Goel, A., 2012. Stock prediction using twitter sentiment analysis. StanfordUniversity, CS229 (2011 <http://cs229.stanford.edu/proj2011/GoelMittal-StockMarketPredictionUsingTwitterSentimentAnalysis.pdf>), 15.
31. Brooke, J., Tofiloski, M. and Taboada, M., 2009, September. Cross-linguistic sentiment analysis: From English to Spanish. In Proceedings of the international conference RANLP-2009 (pp. 50-54).
32. Neethu, M.S. and Rajasree, R., 2013, July. Sentiment analysis in twitter using machine learning techniques. In 2013 Fourth International Conference on Computing, Communications and Networking Technologies (ICCCNT) (pp. 1-5). IEEE.

33. Wöllmer, M., Weninger, F., Knaup, T., Schuller, B., Sun, C., Sagae, K. and Morency, L.P., 2013. Youtube movie reviews: Sentiment analysis in an audio-visual context. *IEEE Intelligent Systems*, 28(3), pp.46-53.
34. Zirn, C., Niepert, M., Stuckenschmidt, H. and Strube, M., 2011, November. Fine-grained sentiment analysis with structural features. In *Proceedings of 5th International Joint Conference on Natural Language Processing* (pp. 336-344).
35. Poria, S., Cambria, E., Winterstein, G. and Huang, G.B., 2014. Sentic patterns: Dependency-based rules for concept-level sentiment analysis. *Knowledge-Based Systems*, 69, pp.45-63.
36. Yu, Y., Duan, W. and Cao, Q., 2013. The impact of social and conventional media on firm equity value: A sentiment analysis approach. *Decision Support Systems*, 55(4), pp.919-926.
37. Mullen, T. and Malouf, R., 2006, March. A Preliminary Investigation into Sentiment Analysis of Informal Political Discourse. In *AAAI Spring Symposium: Computational Approaches to Analyzing Weblogs* (pp. 159-162).
38. Tan, S., Cheng, X., Wang, Y. and Xu, H., 2009, April. Adapting naive bayes to domain adaptation for sentiment analysis. In *European Conference on Information Retrieval* (pp. 337-349). Springer, Berlin, Heidelberg.
39. Guzman, E. and Maalej, W., 2014, August. How do users like this feature? a fine grained sentiment analysis of app reviews. In *2014 IEEE 22nd international requirements engineering conference (RE)* (pp. 153-162). IEEE.
40. Zhang, Y., Lai, G., Zhang, M., Zhang, Y., Liu, Y. and Ma, S., 2014, July. Explicit factormodels for explainable recommendation based on phrase-level sentiment analysis. In *Proceedings of the 37th international ACM SIGIR conference on Research & development in information retrieval* (pp. 83-92). ACM.
41. Bautin, M., Vijayarenu, L. and Skiena, S., 2008, April. International sentiment analysis for news and blogs. In *ICWSM*.
42. Boiy, E., Hens, P., Deschacht, K. and Moens, M.F., 2007, June. Automatic Sentiment Analysis in On-line Text. In *ELPUB* (pp. 349-360).
43. Abdul-Mageed, M., Diab, M.T. and Korayem, M., 2011, June. Subjectivity and sentiment analysis of modern standard Arabic. In *Proceedings of the 49th Annual Meeting of the Association for Computational Linguistics: Human Language Technologies: short papers-Volume 2* (pp. 587-591). Association for Computational Linguistics.
44. Go, A., Bhayani, R. and Huang, L., 2009. Twitter sentiment classification using distant supervision. *CS224N Project Report, Stanford*, 1(12), p.2009.
45. Li, F., Huang, M. and Zhu, X., 2010, July. Sentiment analysis with global topics and local dependency. In *Twenty-Fourth AAAI Conference on Artificial Intelligence*.
46. Zhang, Y., Lai, G., Zhang, M., Zhang, Y., Liu, Y. and Ma, S., 2014, July. Explicit factor
47. models for explainable recommendation based on phrase-level sentiment analysis. In *Proceedings of the 37th international ACM SIGIR conference on Research & development in information retrieval* (pp. 83-92). ACM.

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