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SENTIMENTAL ANALYSIS- USING SOCIAL MEDIA TO PREDICT ELECTION RESULTS

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Abstract – *Our project aims to enlighten the people running an election campaign about how popular they are and how their campaign is, based on reviews fetched from various social media platforms such as Twitter, Facebook, Instagram and so on. The idea behind this project is to give the election contestants a fair idea about how well they are faring and also get an understanding of what they need to work on based on the comments from the social media sites. The project is very user friendly and simple to use as it requires only keywords that must be input into the machine and the algorithm will do the rest. We provide a visual, graphic representation of the output so that it is simpler to understand.*

Keywords — *Machine Learning, NLP*

I. INTRODUCTION

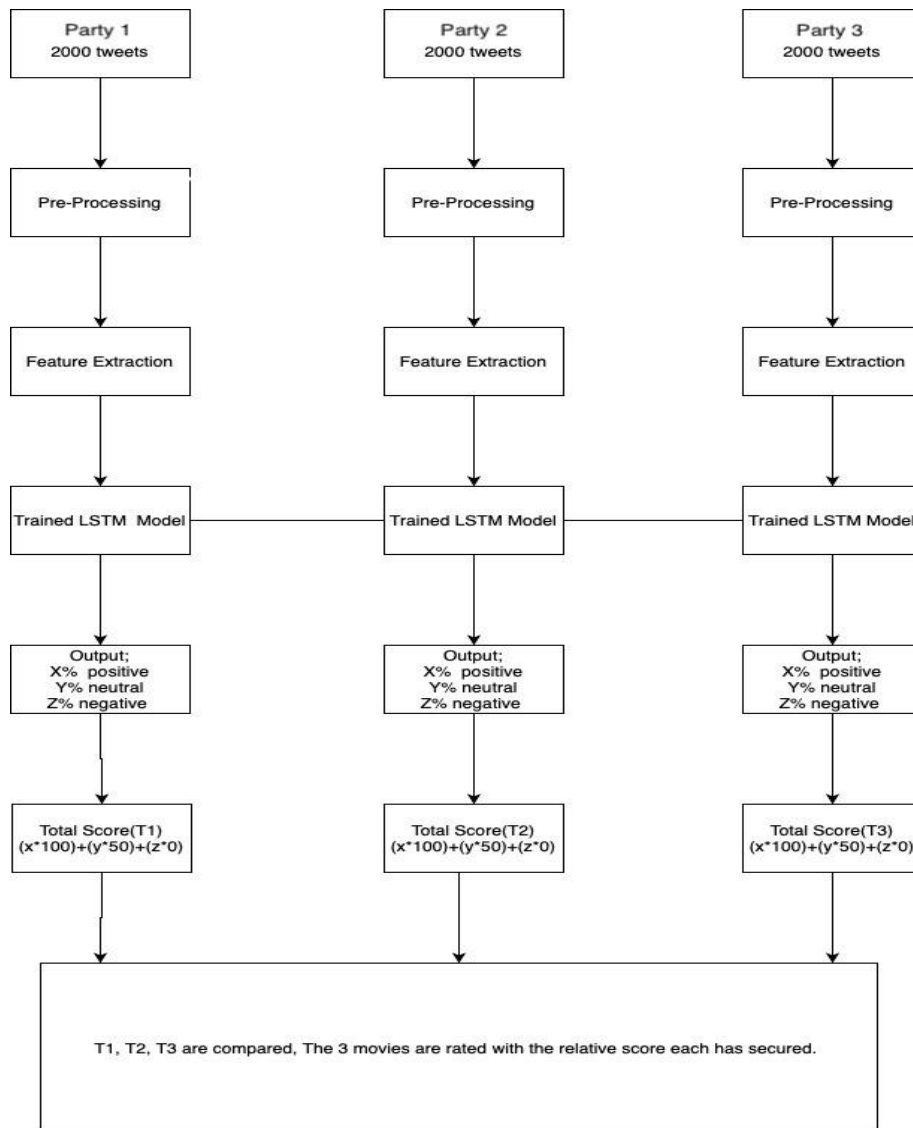
Sentiment information mined using machine learning models is one of the most accurate predictor of election outcomes. Social network information is stable despite sudden surges in political discussions. Methods combining sentiment and volume information, or sentiment and social network information, are effective at predicting smaller vote shares, for e.g. vote shares in the case of independent candidates and regional parties. Millennials are the majority users of all popular social media channels. For example, among the Internet users, the total percentage of Facebook users is 72% of which 82 % of them are within the age group of 18-29. This

fact can help candidates target the millennials. If a candidate can have an impact on this age group, they are most likely to share the message with others in their networks. When candidates share their message supported with photographs and videos, it makes them memorable to this audience.

Presidential elections to assess whether use of social media for political information promoted endorsement of falsehoods about major party candidates or important campaign issues. Results indicate that social media use had a small but significant influence on misperceptions about President Obama in the 2012 election, and that this effect was most pronounced among strong partisans. Social media had no effect on belief accuracy about the Republican candidate in that election. The 2016 survey focused on campaign issues. There is no evidence that social media use influenced belief accuracy about these topics in aggregate, but Facebook users were unique. Social media use by this group reduced issue misperceptions relative to those who only used other social media. These results demonstrate that social media can alter citizens' willingness to endorse falsehoods during an election, but that the effects are often small.

This paper can help the election candidates understand the effect of not only their own campaign but also the presence of their opposition on social media and how well they are doing. This gives the user a clear view of what is to be done to strengthen their hold in this election and act accordingly.

II. ARCHITECTURE



III. PROCESS

The process can be split into three halves:

- 1) Mining Social Data - Social data is information that is collected from social media platforms. It shows how users view, share and engage with your content. On Facebook, social media data includes numbers of likes, increases in followers, or number of shares. On Twitter, results include numbers of impressions or retweets. On Instagram, hashtag usage and engagement rates are included in the raw data. Once this information is mined, you can begin marking trends, measuring engagement and drawing insights that will help you accurately and efficiently understand the popularity of your campaign. In this project, the mined data is stored in a CSV format.
- 2) Cleaning Social Data – The data which was mined has to be first cleaned before it can be processed. Cleaning includes removing punctuation marks, removing unnecessary spaces and so on. Tokenization is the task of chopping it up into pieces, called tokens, perhaps at the same time throwing away certain characters, such as punctuation. A token is an instance of a sequence of characters in some particular document that are grouped together as a useful semantic unit for processing. We then have to remove stopwords, which are the most common words in any natural language. For the purpose of analysing text data and building NLP models, these stopwords might not add much value to the meaning of the document. We also use Stemming, where words are reduced to their word stems along with Lemmatization which involves resolving words to their dictionary form. In fact, a lemma of a word is its dictionary or canonical form.
- 3) Processing Social Data – We process data using the LSTM (Long Short Term Memory) Algorithm. To be concise, in the LSTM Algorithm we have time steps but we have extra piece of information which is called “MEMORY” in LSTM cell for every time step. This gives a more clearer understanding of the sentiment of the word during processing.

IV. ALGORITHM

1. The required social data is mined using the necessary keywords such as: ‘2020 United States presidential election’, in an Excel sheet in the CSV format.

| User_id | Tweets | length | id | fav_count | retweet_count | locato |
|---------|---|--------|---------------------|-----------|---------------|--------|
| 0 | dubbed1963 I hope the do nothing Democrats know that real Americans are eyes wide open and watching every petty political atta https://t.co/EMHWC2Ehmy | 140 | 1245879413541146624 | 0 | 0 | |
| 1 | TSupressed https://t.co/jEtm33chp NEW SURVEY...I WANT THESE STATS NOW...OF ALL THE PEOPLE WHO HAVE DIED OF THE "BIO WEAPON" https://t.co/3qPSiQIdiy | 140 | 1245879028244008960 | 2 | 1 | |
| 2 | RickAKoehn @thatLace @diabits333 @LarryBoorstein @mmpadellan @marcorubio @POTUS @DHSgov Downplayed it like Biden and Sanders? https://t.co/wJk31ZRgQ | 140 | 1245879026151034880 | 0 | 0 | |
| 3 | 3brothers55 @MidwinCharles @JoeBiden Empathy is political speak for not going to do anything about the problem. The only differ https://t.co/wMzhYnlgBT | 140 | 1245878578178215936 | 4 | 0 | |
| 4 | 4trump_patriot @SWHerbert @GailBenda @_ReallAmerican_ @realDonaldTrump Trump is the least political president I have seen in 50 ye https://t.co/7cCBlyXOPr | 140 | 1245878476768456704 | 0 | 0 | |
| 5 | ladydoc2020 @EricTrump Democrats should make themselves useful and spend their time investigating how this China virus got star https://t.co/OkcET5EkuU | 140 | 1245878041991155713 | 1 | 0 | |
| 6 | rightonq32 @tony1977tony This is a godsend to democrats. They don't care who dies. The more the better. They are using it a https://t.co/vf6fsisBkR | 140 | 1245877203058868224 | 1 | 0 | |
| 7 | JustCallMeA13 @Da_Milkman15 @ericmorr3 @dcflk @train87x @YNB @MJlovesCats @Nmonday7 @Alyssa_Milano @BernieSanders @JoeBiden https://t.co/LnMnlfkEf | 139 | 1245876650581073922 | 0 | 0 | |
| 8 | UpinTheTreez @davidsirota The democrats already have their political disaster courtesy of the DNC, his name is Joe Biden. | 108 | 1245876006310645761 | 0 | 0 | |
| 9 | aus_glassblower @sirahirsi Tbh Democrat hypocrisies are not a huge surprise. #BlueMAGA Democrats are accomplished political pretzels! | 119 | 1245875399071944706 | 0 | 0 | |
| 10 | Least_I_Think @CillizzaCNN The last thing we need right now are Democrats and their propagandists in the media trying to use this https://t.co/oa4YTB83L | 140 | 1245875369913257990 | 0 | 0 | |
| 11 | peterbriansfield @BernieSanders Your communist pals had primary responsibility for this disaster. Trump has been working since Janua https://t.co/8H6LGAARfN | 140 | 1245875323121606656 | 0 | 0 | |
| 12 | YvetteSo2 @Jim_Jordan Creating a committee is just another OPPORTUNITY for DemOCRATS to score political points against Presid https://t.co/ZYmyQ3oMRa | 140 | 124587514688621314 | 0 | 0 | |
| 13 | mytimebox @EilzLanders @realDonaldTrump @SenSchumer @AOC I can't wait to cast my vote for this great man @realDonaldTrump . https://t.co/b7IPg9M6W | 138 | 1245874940231876613 | 0 | 0 | |
| 14 | MJRNYS61 @SpeakerPelosi Omg you use this virus for your political rant. How dare you. Americans are sick , Americans are dyi https://t.co/vCR6dYoADS | 140 | 1245874360235233282 | 0 | 0 | |
| 15 | DrEvl63 @RepAdamSchiff What went wrong is Democrats like you seeking to exploit the emergency for political gain at the exp https://t.co/SkoQrAl4ZG | 140 | 1245874323010859008 | 0 | 0 | |
| 16 | BES33065 @JoeBiden Hey @JoeBiden Try and have some class, like many others before you did! On 9/11, Democrats supported Presi https://t.co/3ZhTQnBoZr | 140 | 1245874193968889858 | 2 | 0 | |
| 17 | anna19738 @atrupar Most will think the Democrats are trying for another political score during this pandemic. Watch in Novemb https://t.co/ddin20lwx | 140 | 1245874110246334464 | 0 | 0 | |

2. Punctuation marks are removed

[8]:

| | User_id | Tweets | Tweet_punct |
|---|-----------------|---|---|
| 0 | dubbed1963 | I hope the do nothing Democrats know that real Americans are eyes wide open and watching every p... | I hope the do nothing Democrats know that real Americans are eyes wide open and watching every p... |
| 1 | TSupressed | https://t.co//Etmd3ciwp\nNEW SURVEY...I WANT THESE STATS NOW...OF ALL THE PEOPLE WHO HAVE DIED ... | httpstcojEtmdciwp\nNEW SURVEYI WANT THESE STATS NOWOF ALL THE PEOPLE WHO HAVE DIED OF THE BIO W... |
| 2 | RickAKoehn | @thatLace @diablita333 @LarryBoorstein @mmpadellan @marcorubio @POTUS @DHSgov Downplayed it like... | thatLace diablita LarryBoorstein mmpadellan marcorubio POTUS DHSgov Downplayed it like Biden and... |
| 3 | 3mbrothers55 | @MidwinCharles @JoeBiden Empathy is political speak for not going to do anything about the probl... | MidwinCharles JoeBiden Empathy is political speak for not going to do anything about the problem... |
| 4 | 4trump_patriot | @SWHerbert @GailBenda @_ReaalAmerican_ @realDonaldTrump Trump is the least political president I... | SWHerbert GailBenda ReaalAmericanrealDonaldTrump Trump is the least political president I have ... |
| 5 | ladydoc2020 | @EricTrump Democrats should make themselves useful and spend their time investigating how this C... | EricTrump Democrats should make themselves useful and spend their time investigating how this Ch... |
| 6 | rightonq32 | @tony1977tony This is a godsend to democrats. They don't care who dies. The more the better. ... | tonytony This is a godsend to democrats They dont care who dies The more the better they are ... |
| 7 | JustCallMeA13 | @Da_Milkman15 @ericmorrel3 @dcffk @ltrain87x @YNB @MJlovesCats @Nmonday7 @Alyssa_Milano @BernieS... | DaMilkman ericmorrel dcffk ltrainx YNB MJlovesCats Nmonday AlyssaMilano BernieSanders JoeBiden I... |
| 8 | UpInTheTreez | @davidsirota The democrats already have their political disaster courtesy of the DNC, his name i... | davidsirota The democrats already have their political disaster courtesy of the DNC his name is ... |
| 9 | aus_glassblower | @israhirsi Tbh Democrat hypocrisies are not a huge surprise. #BlueMAGA Democrats are accomplishe... | israhirsi Tbh Democrat hypocrisies are not a huge surprise BlueMAGA Democrats are accomplished p... |

3. Tokenization is performed

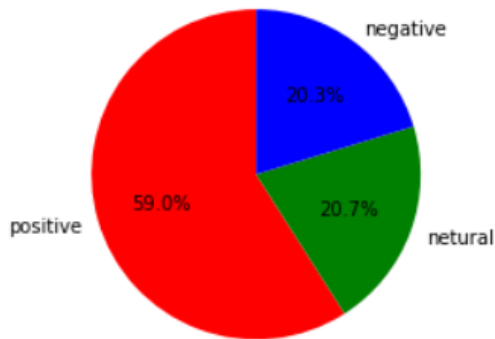
[9]:

| | User_id | Tweets | Tweet_punct | Tweet_tokenized |
|---|----------------|---|---|--|
| 0 | dubbed1963 | I hope the do nothing Democrats know that real Americans are eyes wide open and watching every p... | I hope the do nothing Democrats know that real Americans are eyes wide open and watching every p... | [i, hope, the, do, nothing, democrats, know, that, real, americans, are, eyes, wide, open, and, ... |
| 1 | TSupressed | https://t.co//Etmd3ciwp\nNEW SURVEY...I WANT THESE STATS NOW...OF ALL THE PEOPLE WHO HAVE DIED ... | httpstcojEtmdciwp\nNEW SURVEYI WANT THESE STATS NOWOF ALL THE PEOPLE WHO HAVE DIED OF THE BIO W... | [httpstcojEtmdciwp, new, surveyi, want, these, stats, nowof, all, the, people, who, have, died, ... |
| 2 | RickAKoehn | @thatLace @diablita333 @LarryBoorstein @mmpadellan @marcorubio @POTUS @DHSgov Downplayed it like... | thatLace diablita LarryBoorstein mmpadellan marcorubio POTUS DHSgov Downplayed it like Biden and... | [thatlace, diablita, larryboorstein, mmpadellan, marcorubio, potus, dhsgov, downplayed, it, like... |
| 3 | 3mbrothers55 | @MidwinCharles @JoeBiden Empathy is political speak for not going to do anything about the probl... | MidwinCharles JoeBiden Empathy is political speak for not going to do anything about the problem... | [midwincharles, joebiden, empathy, is, political, speak, for, not, going, to, do, anything, about... |
| 4 | 4trump_patriot | @SWHerbert @GailBenda @_ReaalAmerican_ @realDonaldTrump Trump is the least political president I... | SWHerbert GailBenda ReaalAmericanrealDonaldTrump Trump is the least political president I have ... | [swherbert, gailbenda, reaalamerican, realdonaldtrump, trump, is, the, least, political, preside... |

4. Stemming and Lemmatization is done to the cleaned data

| | User_id | Tweets | Tweet_punct | Tweet_tokenized | Tweet_nonstop | Tweet_stemmed | Tweet_lemmatized | Tweet_cleaned |
|---|------------|---|---|---|---|---|---|---|
| 0 | dubbed1963 | I hope the do nothing Democrats know that real Americans are eyes wide open and watching every p... | I hope the do nothing Democrats know that real Americans are eyes wide open and watching every p... | [i, hope, the, do, nothing, democrats, know, that, real, americans, are, eyes, wide, open, and, ... | [hope, nothing, democrats, know, real, americans, eyes, wide, open, watching, every, petty, poli... | [hope, noth, democrat, know, real, american, eye, wide, open, watch, everi, petti, polit, atta, ... | [hope, nothing, democrat, know, real, american, eye, wide, open, watch, every, petty, politic... | ['hope nothing democrat know real american eye wide open watching every petty political atta htt... |
| 1 | TSupressed | https://t.co//Etmd3ciwp\nNEW SURVEY...I WANT THESE STATS NOW...OF ALL THE PEOPLE WHO HAVE DIED ... | httpstcojEtmdciwp\nNEW SURVEYI WANT THESE STATS NOWOF ALL THE PEOPLE WHO HAVE DIED OF THE BIO W... | [httpstcojEtmdciwp, new, surveyi, want, these, stats, nowof, all, the, people, who, have, died, ... | [httpstcojEtmdciwp, new, surveyi, want, stats, nowof, people, died, bio, weapon, httpstcoqstqidiy] | [httpstcojEtmdciwp, new, surveyi, want, stat, nowof, peopl, die, bio, weapon, httpstcoqstqidiy] | [httpstcojEtmdciwp, new, surveyi, want, stats, nowof, people, died, bio, weapon, httpstcoqstqidiy] | ['httpstcojEtmdciwp new surveyi want stats nowof people died bio weapon httpstcoqstqidiy'] |
| 2 | RickAKoehn | @thatLace @diablita333 @LarryBoorstein @mmpadellan @marcorubio @POTUS @DHSgov Downplayed it like... | thatLace diablita LarryBoorstein mmpadellan marcorubio POTUS DHSgov Downplayed it like Biden and... | [thatlace, diablita, larryboorstein, mmpadellan, marcorubio, potus, dhsgov, downplayed, it, like... | [thatlace, diablita, larryboorstein, mmpadellan, marcorubio, potus, dhsgov, downplayed, like, bi... | [thatlac, diablita, larryboorstein, mmpadellan, marcorubio, potu, dhsgov, downplay, like, biden,... | [thatlace, diablita, larryboorstein, mmpadellan, marcorubio, potus, dhsgov, downplayed, like, bi... | ['thatlace diablita larryboorstein mmpadellan marcorubio potus dhsgov downplayed like biden sand... |

5. The result is published in a graph



V. EXPERIMENTAL RESULTS

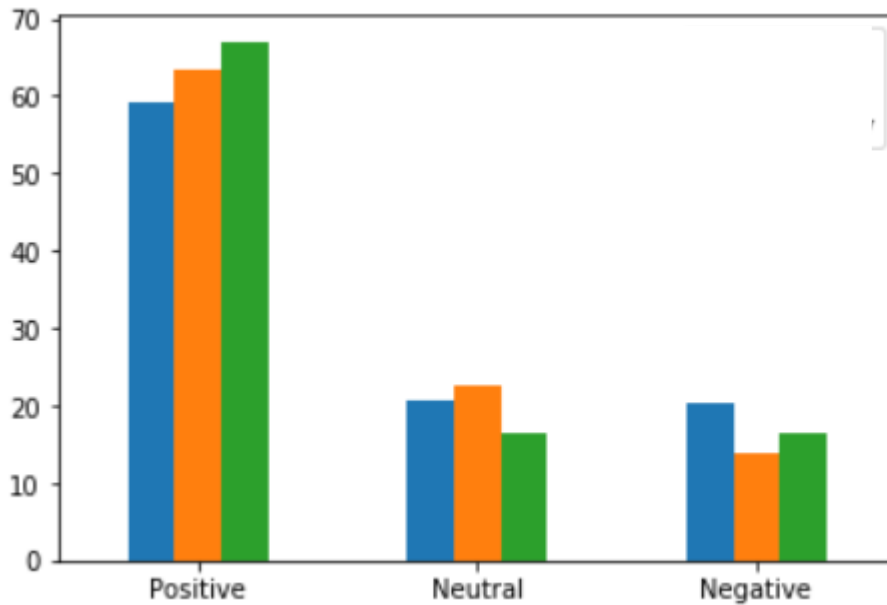


Figure 1: The comparison between three different election candidates.

VI. FUTURE ENHANCEMENT

We can enhance this project in the future by allowing the comparison of election results of the candidate from different years and compare it to the current campaign to show the strengths and weaknesses that they have picked up over the years. We can implement AI to make the project smarter and proactively keep giving the candidates tips on how to strengthen their campaign. Another enhancement will be the ability to understand social media posts of different languages and use them to add onto the total effectiveness of this project.

VII. CONCLUSION

This paper can affect how campaigns are run in the future. Candidates will start to look at exploiting their strengths, addressing their shortcomings and it can have a huge impact on their end result. Sentimental analysis can be used not only in predicting election results but also in a variety of other fields that can make a difference. Although, we cannot assure that the prediction by this machine is a 100% accurate as the people can portray a mixture of emotions through their social media handles and those can be difficult to analyse, we can say with certainty that this paper can be a huge boost to all election candidates around the global.

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