SARCASM DETECTION

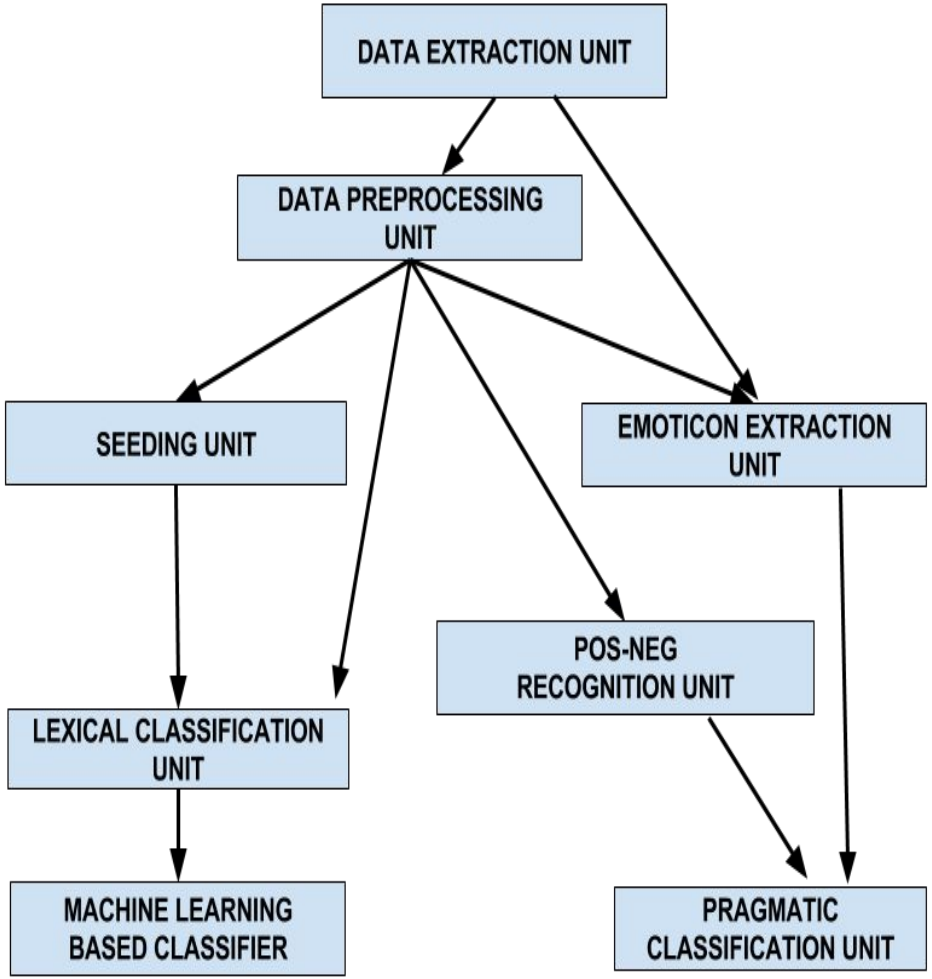
Till now we had worked on generalised forms of abusive content detection . with this project we aim at detecting one of the most common form of abuse - SARCASM

WHAT IS SARCASM?

- For the purpose of this project we follow the following definition of sarcasm - ‘A cutting, often ironic remark intended to express contempt or ridicule’.
- One common form of sarcasm consists of a positive sentiment followed by a negative situation or activity.

DATASET USED

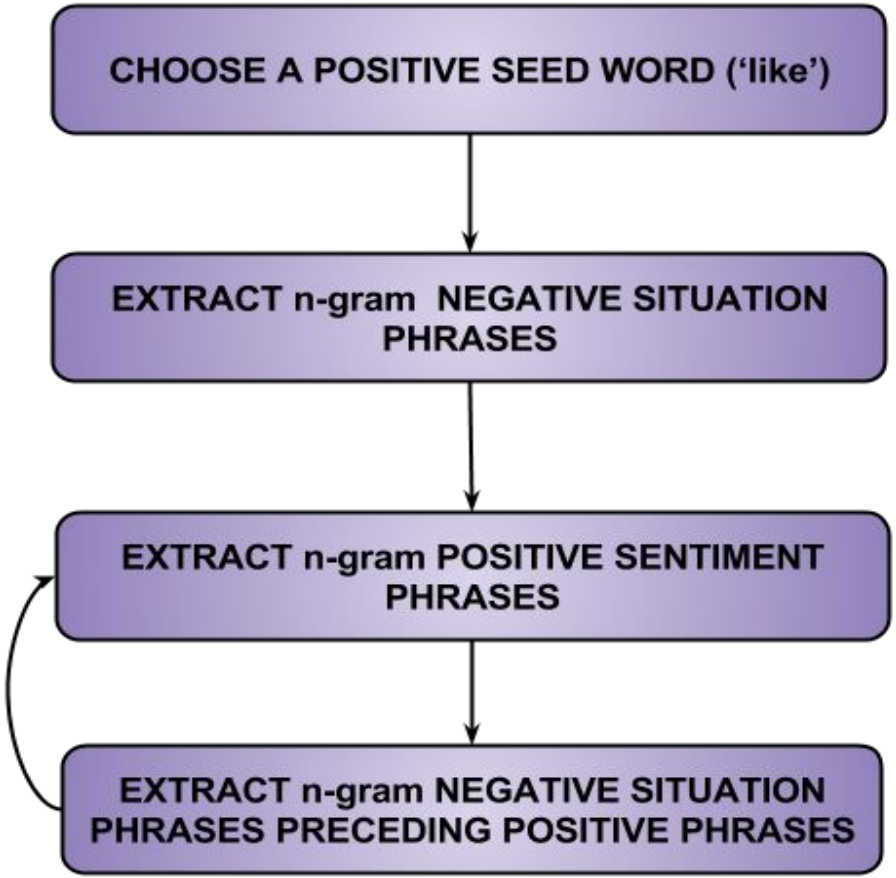
We used tweets and posts about donald trump as our dataset



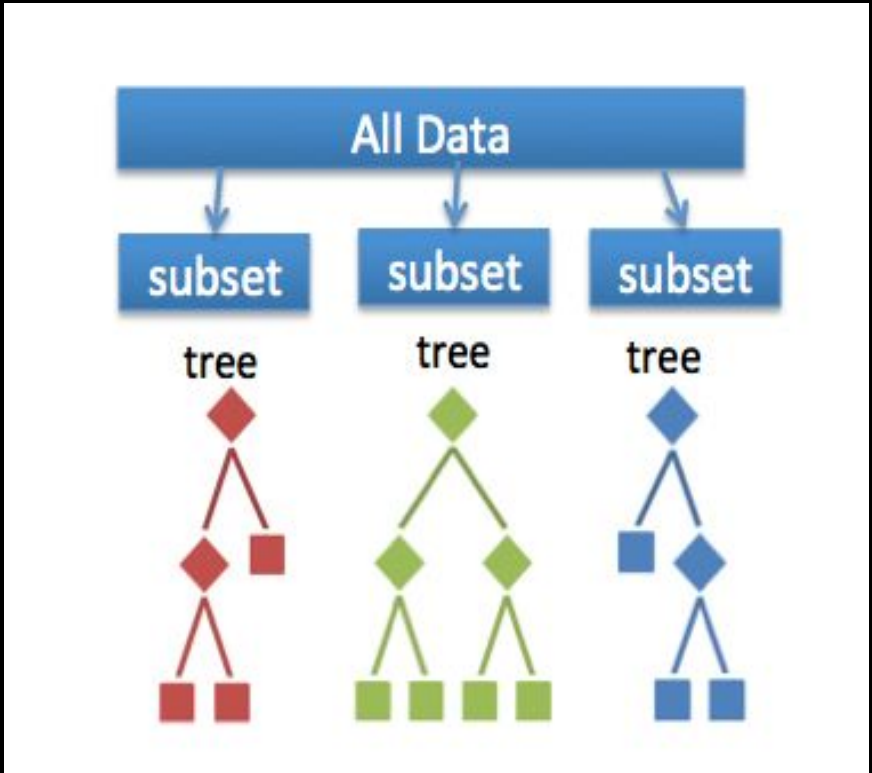
SYSTEM DESIGN

SEEDING ALGORITHM

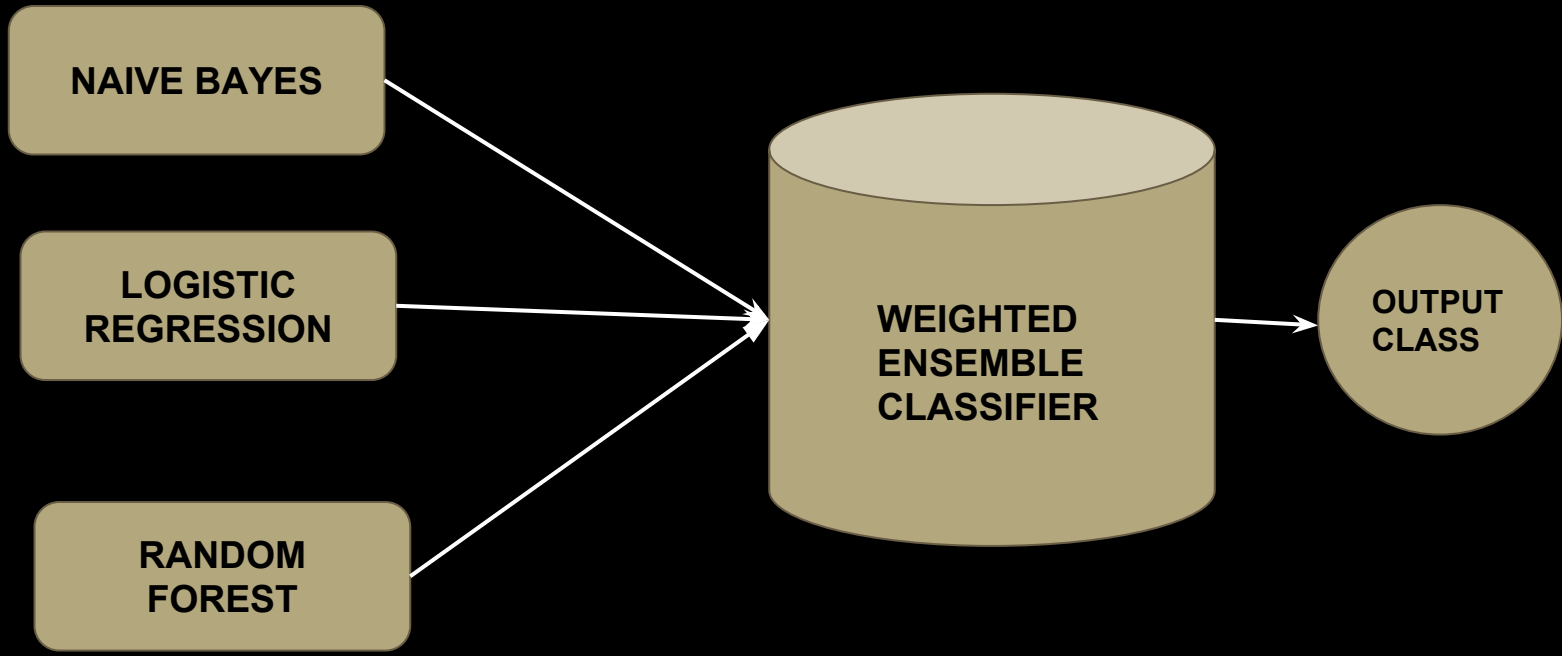
POSITIVE N-GRAMS	POS RULES
1-GRAM	ADJECTIVES, ADVERBS
2-GRAM	[ADJECTIVE,ADJECTIVE],[ADVERB,ADJECTIVE],[NOUN,ADJECTIVE],[
NEGATIVE N-GRAMS	**POS RULES**
1-GRAM	VERBS
2-GRAM	[VERB,VERB], [VERB,ADVERB], [ADVERB,V] , [“to”+VERB], [VERB,NOUN],[VERB,PRONOUN], [VERB,ADJECTIVE]
3-GRAM	['ADVERB','VERB','NOUN'],['VERB','VERB','VERB'],['to','VERB','VERB'],['VERB','CC','VERB'],['to', 'VERB', 'NOUN'], ['to', 'VERB', 'ADJECTIVE'], ['PRONOUN', 'ADJECTIVE', 'NOUN'], ['VERB', 'to', 'NOUN'], ['to', 'VERB', 'ADVERB'], ['VERB', 'ADJECTIVE', 'NOUN']


CHOOSE A POSITIVE SEED WORD ('like')
EXTRACT n-gram NEGATIVE SITUATION PHRASES
EXTRACT n-gram POSITIVE SENTIMENT PHRASES
EXTRACT n-gram NEGATIVE SITUATION PHRASES PRECEDING POSITIVE PHRASES

RANDOM FOREST

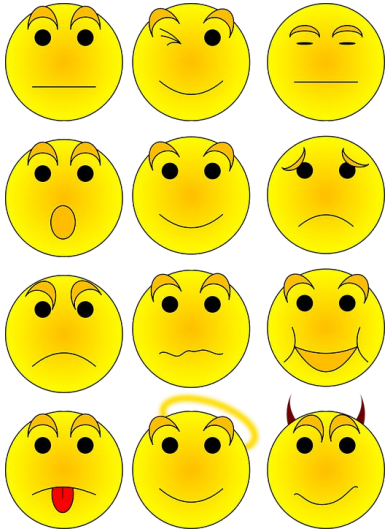


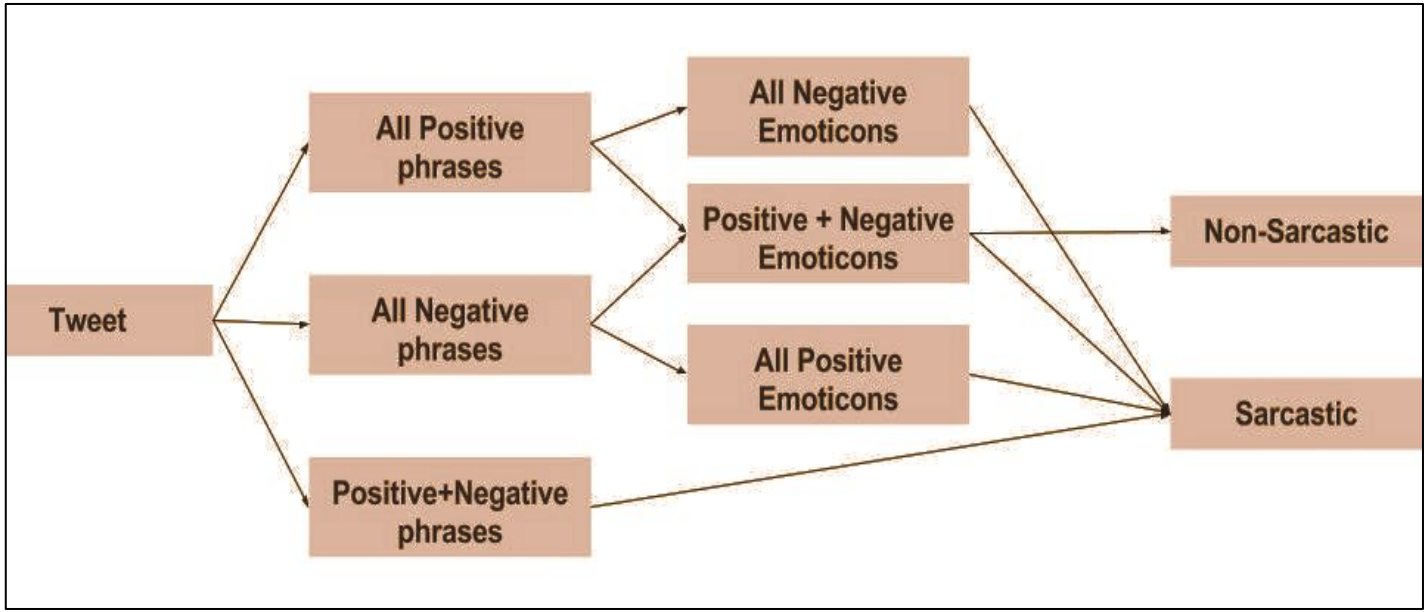
WEIGHTED ENSEMBLE



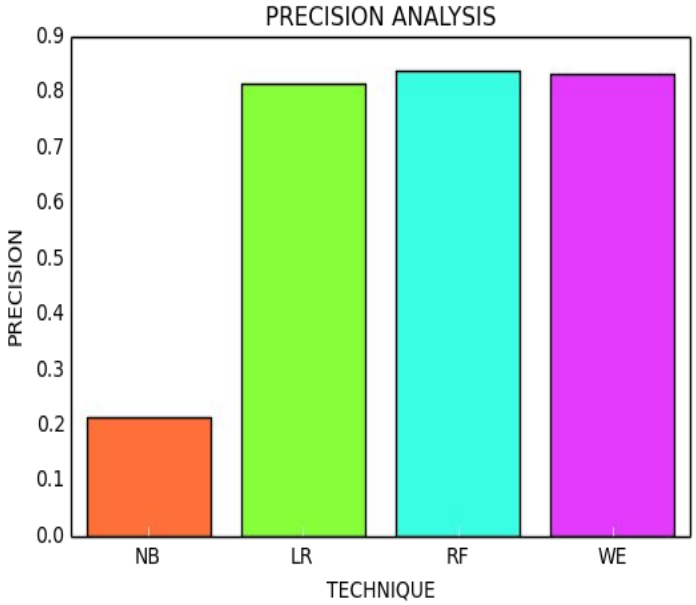
PRAGMATIC CLASSIFIER

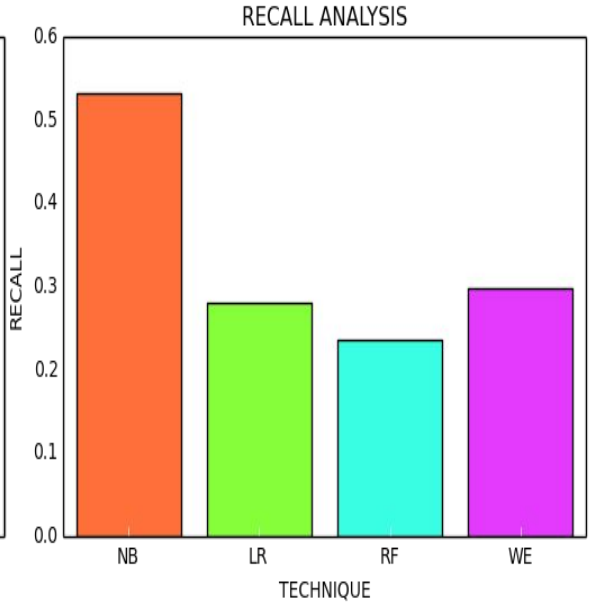
- Detecting sarcasm based on the emoticons used in the text.
- If the emoticon used in the text is in contrast with the overall sentiment of the text, then the text is categorised as sarcastic.

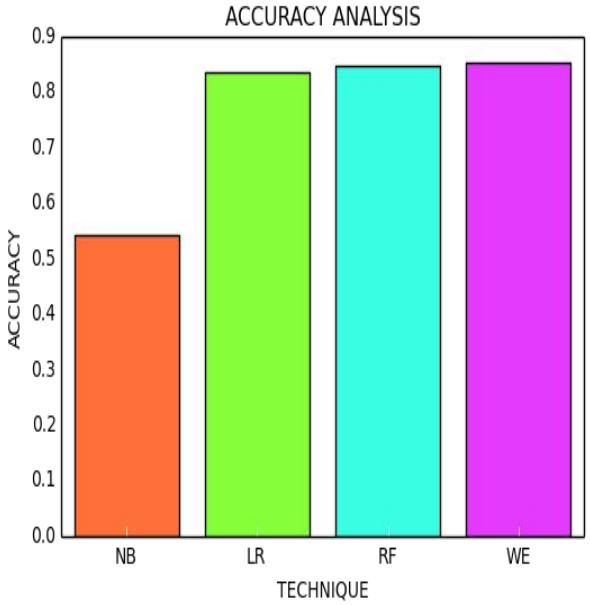




RESULT
(MACHINE LEARNING CLASSIFIER)





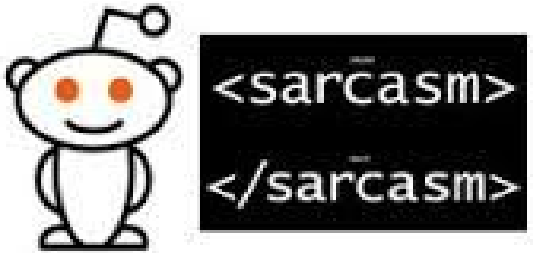


RESULT
(PRAGMATIC CLASSIFIER)

- It was found that from the whole dataset nearly 1000 tweets were containing emoticons, and nearly **1/8th of them were sarcastic**.
- Thus results are dependent on -
  - Associated meaning of emoticons- used standard emoticon data
  - Classification of emoticon sentiments- manual based on common nlp category suggested by wikipedia
  - Phrases sentiments detection in text tweets- from the seed method used in machine learning approach
  - Overall polarity calculations- based on the count of pos-neg sentiments in both text and emoticons data.

BENEFITS OF THE PROPOSED MODEL

- Extensive preprocessing and cleaning of data has been carried out
- The model can be applied to any type of OSN and is highly scalable.
- The corpus for feature generation can be updated at any instant and new words and phrases can be easily added to it.
- The model presents a novel approach for training corpus generation
- Better outcomes on taking text as well as emoticons into account.



LIMITATIONS OF PROPOSED SOLUTION

- Though the overall processing time of the proposed solutions has decreased several folds, but it is still considerably large.
- The proposed model only takes in consideration one form of sarcasm i.e a positive sentiment followed by a negative activity or situation phrase but there are various other forms of sarcasm as well.
- The efficiency of seeding algorithm depends on the POS rules used. At present the algorithms works using only limited POS rules. There is a possibility that various other rules may exist and need to be considered.

FUTURE SCOPE

- Another important form of Sarcasm that arises during conversation between two persons. This paper does not account for this type of Sarcasm but can be extended to user-level Sarcasm.
- On social networking sites such as facebook the data in form of images have increased several folds. Deeper machine learning algorithms can be used to detect such sarcasm.
- Once the dataset is increased including all the forms, we can apply contextual or predictive methods to pragmatic classifier for both sentiment association and polarity judgement processes.