

# REPUTATION MANAGER

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## Abstract

With the rise of internet in the recent times, the need of managing the image of an organization in this domain has become a crucial practice. This web application is a tool to extract data from various popular social platforms and use sentimental analysis to classify them into positive and negative feedback which will be very useful for the company. This paper highlights the methods of extracting useful data from Twitter, YouTube comments and online news platforms and implementation of sentimental analysis on them using techniques of artificial intelligence and deep learning.

## Introduction

Reputation Manager provides:

- **A secure online environment:** Corporate teams that access and exchange restricted data online should do so confidently without the threat of privacy breaches. This is why roles, privileges and access must be assigned in a secure setting.
- **Single platform/window:** We offer a single dashboard through which users can hand out information. It serves as the single destination for information gathered from Twitter, YouTube comments, and different news sources.
- **Search and monitoring functionalities:** We track emerging stories and conversations and their corresponding origins.
- **Cost-effective and practical:** Conventional methods of monitoring millions of conversations about a single brand is not only tiresome, but very expensive as well. Our tool makes sure that it accomplishes in a cost effective and practical manner.

## Proposed Method

### A. Extraction of Tweets:

Tweets are extracted using the Twitter API offered by Twitter's developer platform and stored in a dataframe for analysis and processing.

### Extraction of YouTube comments:

YouTube comments are extracted using YouTube API, which enables one to search for videos matching specific search criteria.

The extracted comments are stored in a CSV file with various columns extracted like username, description, time stamp, etc.

### C. Extraction of News from Online Platforms

News circulated by various journalists and published by different newspapers which is extracted with the help of News API, which is a simple HTTP REST API for searching and retrieving live articles from all over the web.

## Sentimental Analysis using SIA VADER

VADER uses a combination of a sentimental lexicon is a list of lexical features (e.g. words) which are generally labelled according to their semantic orientation as either positive or negative with a weighted compound score after appropriate and custom normalization.

## Sentimental Analysis using LSTM Model

Layer (type)	Output Shape	Param #
input_1 (InputLayer)	(None, 45)	0
embedding_1 (Embedding)	(None, 45, 50)	20000050
lstm_1 (LSTM)	(None, 45, 128)	91648
dropout_1 (Dropout)	(None, 45, 128)	0
lstm_2 (LSTM)	(None, 128)	131584
dropout_2 (Dropout)	(None, 128)	0
dense_1 (Dense)	(None, 1)	129
activation_1 (Activation)	(None, 1)	0
Total params: 20,223,411		
Trainable params: 223,361		
Non-trainable params: 20,000,050		

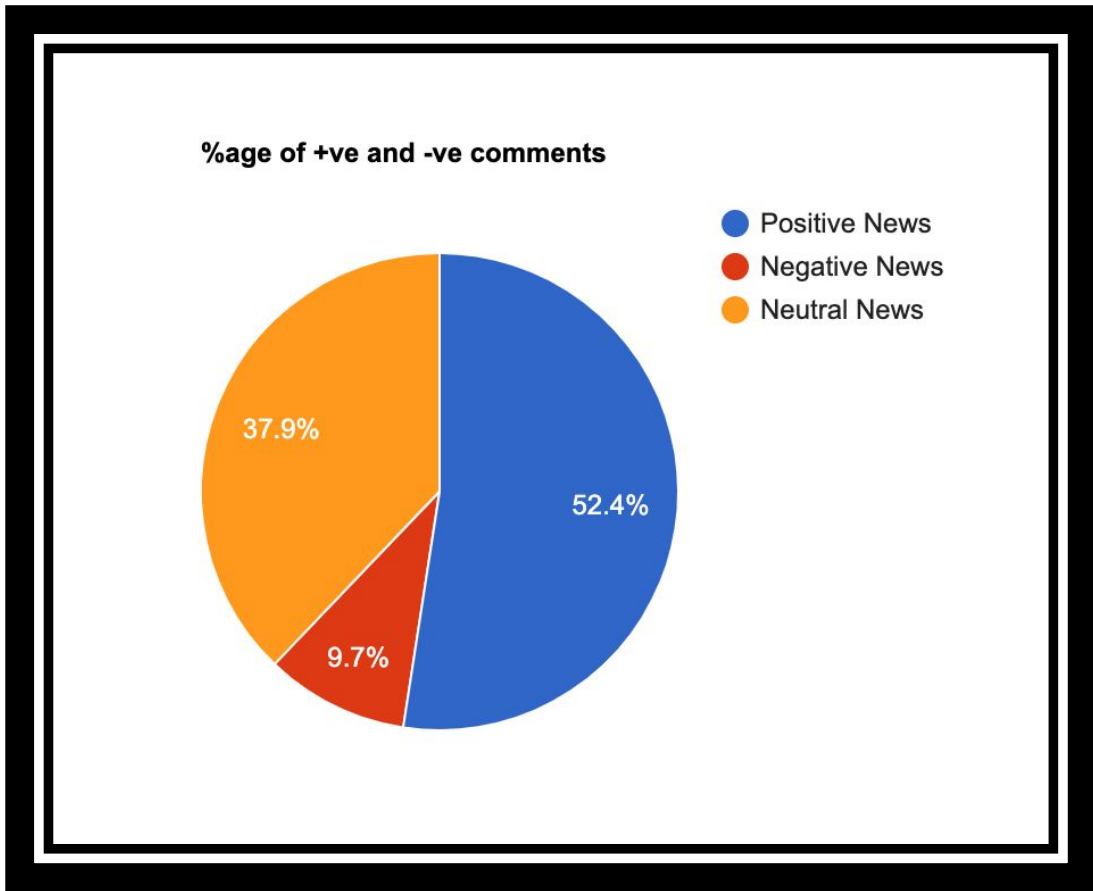
Training Data	Epoch	Learning Rate	Optimizer	Loss Function
1,00,000	50	Default	Adam	Binary Crossentropy

## Experimental Results and Discussion

Fitting was done over 50,000 training example, in batch sizes of 32 for 50 epochs and an accuracy of 76% was obtained on test set.

Here are some most impactful positive and negative comments extracted by our system. You can click on the Author name to view his profile

Positive Comments		Negative Comments	
Name	Comment	Name	Comment
gumdrops	Is the space gray or silver better on the MacBook Pro? and what cover should I use to protect my MacBook Pro ty		
Pstoy's channel 1	Do you like MacBooks or iphones	megagene	It's weird how they made the new MacBook Pro in space grey, yet you can't even buy a matching iPhone 7 in the same colour. Or plug it in without buying a separate \$20 cable. Not to mention no SD card slot and capping a supposedly "pro" machine at 16GB of RAM while charging a ludicrously high price. Apple's really kind of losing their way these days. They haven't been the same since the death of Jobs.
Christopher Johnson	Cool video. the new MacBook pro is awesome! I'm honestly surprised they didn't make a gold and rose gold model though lol!		
Martin Blake	To be honest you can get a high end gaming pc or a better laptop/gaming laptop for the price of this macbook.	Aidan Rittenberg	Xps 15 or 2016 Mac Pro 15 inch? Not operating system wise just the computers them self. I have already bought a xps 15 with 17 16 gb of ram 256 gb ssd, a gtx 960m and a 4k touch screen display. I hear battery life is not great. MacBook battery is always good. Should I give it back and get the MacBook Pro or not?
Rose xo	does imovie come free with macbook air? what is better to edit with pro or air thx		
	I feel like whenever anyone gets a new MacBook		



## Conclusions

Our web application behaves a tool for companies and organizations classify them as positive and negative with a compound score, gauging their impact on the image and reputation of the company. This will help the company to counter and act upon the feedback or comment.

## References

- YouTube Data API Documentation
- Twitter API Documentation
- News API Documentation
- Usage of NLTK-SIA VADER Documentation