

Major Research Project
On
Social Marketing in times of Exigencies (Twitter
Analysis)

Submitted By:

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MBA (2018-2020)

Under the guidance of:

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CERTIFICATE FROM GUIDE

This is to certify that the project titled “**Social Marketing in times of Exigencies (Twitter Analysis)**” is an academic work done by “**APURAV GUPTA**” submitted in partial fulfilment of the requirement for the award of the degree of “**Master of Business Administration**” from **Delhi School of Management**, under my guidance.

To the best of my knowledge and belief, the data and information presented by him in the project has not been submitted earlier elsewhere.

Ms. Meha Joshi

Assistant Professor

Delhi School of Management

Delhi Technological University

DECLARATION

I, Apurav Gupta, student of MBA 2018-20 Batch of Delhi School of Management, Delhi Technological University, Bawana Road, Delhi-42 declare that the Project titled “**Social Marketing in times of Exigencies (Twitter Analysis)**” submitted by me in fulfilment of the requirement for the award of the Degree of Masters of Business Administration is an original work conducted by me.

The information and data given in the report is authentic to the best of my knowledge. The report is not being submitted to any other university for the award of any other Degree, Diploma and/or Fellowship.

ACKNOWLEDGEMENT

The opportunity provided to me by my college, Delhi School of Management, of carrying out my research is one that holds high esteem and a great chance for learning and enhancement of my present knowledge. Therefore, I consider myself in extreme luck that I was offered this opportunity and provided with this unique and enriching opportunity to learn from some of the best in the respective field.

I would also like to use this opportunity to express my deep gratitude and a special thanks to my mentor, **Ms. Meha Joshi** for the unending support.

Sincerely,

Apurav Gupta

2K18/MBA/031

EXECUTIVE SUMMARY

I, Apurav Gupta (2K18/MBA/031) a student of Delhi School of Management- DTU, pursuing Masters of Business Administration has worked on my project titled “**Social Marketing in times of Exigencies (Twitter Analysis)**”.

We all know that Marketing is a social and managerial process; it should have a socio-environmental approach. But, very few organizations cater to it. Social Marketing deals with development of awareness among consumers in order to influence their behaviour and attitude towards a brand, product or service.

In recent years, Social marketing has attracted interests of many organisations, institutions, Non profit organisations. Also, social marketing at times of crisis like natural disasters like floods, pollution and health emergencies has become common. This is because many people believe that social marketing without the intention of just selling your product or service helps to build a positive brand image and a lasting brand value.

We know that, at present we are in a middle of a health pandemic “**COVID-19**” or commonly called corona virus health emergency, which has affected every single institution and business across the globe. My project deals with using **Twitter analysis** on understanding how brands demonstrate social marketing at times of crisis and understand the sentiment of their tweets and engagement among their followers. We also know that Twitter is one of the most powerful social media platforms where there is active participation of some eminent personalities, organisations etc across the globe. People actively display their views and opinion on Twitter, it serves as a medium to help the common people to raise their concerns and have their opinions heard and valued. So this led to my desire on analyzing tweets in real time and check upon the sentiment analysis, word cloud analysis and study the levels of popularity among 4 major organisations.

The organisations taken up for the project are:

1. Hindustan Unilever.
2. Tata group of companies.
3. Zomato.
4. Swiggy.

The analysis is based on using Python to extract live tweets and further analysing their sentiments. Also to check on the followers and likes count I have further used Excel and Tableau for visualisation. The insights made from the project can surely help companies to plan their social media activities at times of various crisis and in general to improve their brand image.

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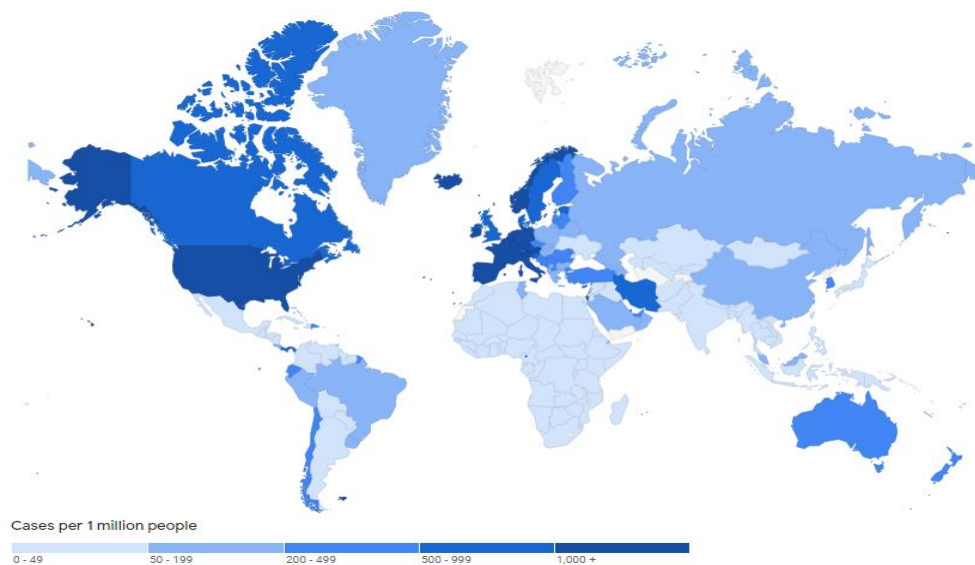
CHAPTER 1: INTRODUCTION

1.1 Background

Over the years, there have been times when humanity is faced with challenges that have disrupted the global social, environmental and economic ecosystem. We have had health pandemics like the Cholera outbreak in 1800s affecting more than a million people; we have had Spanish Flu in 1918 affecting a mammoth 50 million people; then we had SARS and Swine Flu in 2000s affecting thousands of people. We have also had environmental disasters like the Chernobyl disaster of 1986, the Bhopal Gas Tragedy 1984, Gujarat Earthquakes in 2001, the terrible Tsunami of 2004, the floods in 2000s; all have them have had a severe death toll and a toll on the normal functioning of society.

Even today we are faced with a similar challenge and threat in the name of **COVID-19** or commonly known as the corona virus which has caused widespread anxiety and disruption. It goes without mentioning the human impact, the actual world scenario, direct health concerns of the pandemic, are the biggest concerns, but for those institutions and businesses trying to keep up with their activity, in synchronisation with this outbreak, there are many key considerations to be kept in mind.

Fig 1.1 – COVID-19 Cases globally



Source – www.google.com

As it is said by Kotler that “Marketing is not something you do or don’t do”, “it is something you well or you do poorly”. This clearly explains the need of marketing even at the time of such crisis.

But, the usual marketing techniques can have some side effects too, people today generally tend to see the social side of an organisation, how well an organisation understand the plight of people, how much an organisation works on the social and environmental side of the world and how much does an organisation, an institution or a famous brand thinks beyond just the economic gains. This is where the concept of **Social Marketing** comes into play. Social marketing depends on intentional compliance rather than legal, economic or other forms of influence.

Social marketing is concerned with the application of marketing knowledge, concepts and techniques to enhance social as well as economic ends. It is also concerned with analysis of the social consequences of marketing policies, decisions and activities.

Many a times Social Marketing has been successful in achieving a positive behavioural change in the consumer decision. Consumer behaviour generally include the following key elements.

- Analysis of the factors which influence behaviour.
- The role of motivation and attitudes.
- Consumer behaviour models.

All the factors on which the consumer decision making depends can be classified into four major categories:

1. Psychological(Motivation, beliefs and attitudes)
2. Personal(Occupation ,personality and lifestyle)
3. Social(Reference groups)
4. Cultural (Social Class systems and traditions)

Now there are many forms of Social Marketing – Newspapers, print ads ,internet etc and what comes handy today most of the times is social medial social marketing. Be it the

vast reach of videos, larger engagement of audience there are many factors which makes analysis of sentiments of users online more feasible.

1.2 Objectives of Study

Following are the things studied in the project.

1. Twitter Analysis – Sentiment Analysis and Word Cloud Analysis of live tweets of 4 major brands.
 - Hindustan Unilever.
 - Tata group of companies.
 - Zomato.
 - Swiggy.
2. Use of Python programming language to extract live tweets.
3. Use of Excel and Tableau for quantitative analysis and visualization of tweets.

CHAPTER 2: LITERATURE REVIEW

A Systematic Literature Review is defined by Kitchenham as, “A systematic literature review is a means of identifying, evaluating and also interpreting the available research which is relatable to a phenomenon or topic.”

To gather literature of interest, different resources and databases were gathered which were available for free on the internet.

Works of various researchers were studied and analyzed to gain insight on various topics like Social Marketing, Social Media analysis, Twitter analysis and help to put forward the project “**Social Marketing in times of Exigencies (Twitter Analysis)**”.

As we know we are all amidst a health crisis **COVID-19**. Starting from Wuhan in China it has affected a million people around the globe. Now let’s see social marketing role in health crisis.

2.1 Social Marketing in Health

Social marketing is a strategy that is used in global health and crisis. Social marketing programmes have the ability to sell subsidized products through commercial sector outlets, dispense appropriately priced products, distribute health services and products through social franchises and promote loyal behaviours voluntarily and not dependent upon a product or service.

The use of social marketing by governments and other upstream celebrities within a systemic approach to provoke social change is referred to as **macro-social marketing**.

2.2 Social Media Analysis

Today people more and more look at social media platform as an imperative part of their daily life and more likely to move their exchanges to the virtual platforms (i.e. Facebook, Instagram, LinkedIn and Twitter). They can easily express their views, get feedback and engagement over the internet. This in turn, positively reflect on their orientations and behaviours toward all kinds of social media technology.

It is essential to differentiate between the term of social media and social networking. According to Wikipedia, social networking services could be acknowledged as “an

electronic service, application, platform, or site used by people who have a common culture, beliefs, attitudes, interest, activities. Wikipedia addressed the concept of social media as tools which enable individual to broadcast as well as to approach more people and more influence on them. Thus, Wells measured social networking as the use of social media means to directly contact and have interaction with personnel whom that one have a real relationship with or he or she would like to have a contact with.

We got an idea about social marketing now let us have a look on some for the commonly sought after definitions.

- **Social Media** - It is the technology or platform that facilitates development and sharing of content, views, opinions among organisations, government agencies and individuals.
- **Social Networking** – Using social media as a means to interact and contact someone and create a good lasting relationship.
- **Social Media Marketing** - This refers to use of Social Media technologies, platforms, channels or softwares to create, deliver and exchange offerings in terms of product or service that holds value for an organisation.

Social Media and Relationship Management

It is said the more competent organizations are to build and maintain social and emotional ties among their customers and with their brands, the more such organizations could have a close and solid relationship with those customers. In this regard, social media applications are important and are largely considered by firms worldwide to contribute to both customers experience and customer relationship management. While Facebook can play an important role in brand awareness, enhancing customer experience whereas Twitter plays an important role in achieving more interactivity and content management.

Social Media and Brand

Brand is basically a unique name, term or symbol that distinguishes a seller's products or services from its competitors. It becomes the identifying feature of a company, product etc. Use of social media for branding is gaining a lot of interest from marketers all over the world. Social media finds its use in mostly creating brand awareness and helping in brand loyalty by better customer relationship management. It is found that brands exhibiting **Social Marketing at times of crisis** or disasters result in more brand loyalty. However, if the results are long lasting is still a question.

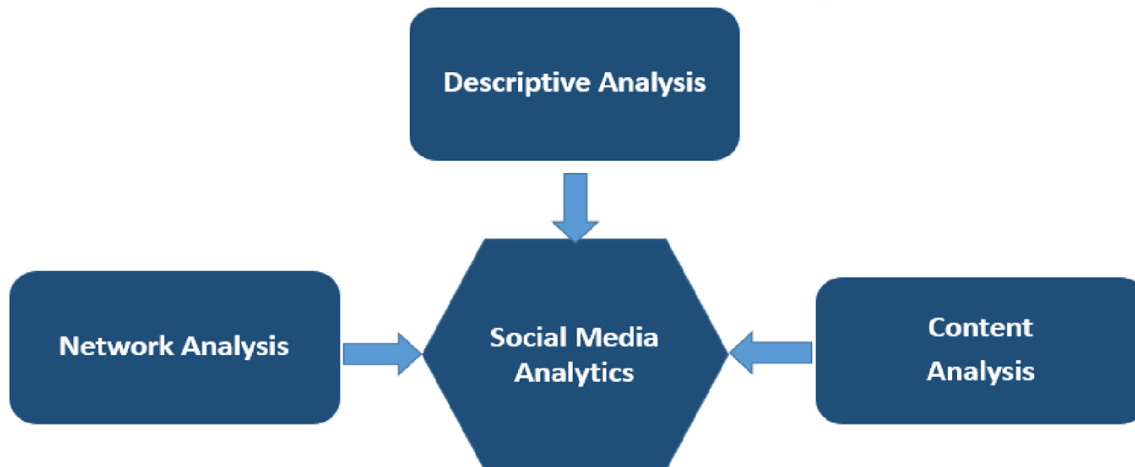
Most organisations globally have started thinking strategically how they can gain from social media to make sure that they reach their consumers actively as well as significantly contribute to their customer experience. In comparison to the traditional modes of marketing and communication (TV, Newspapers, ads), social media portrays a more innovative, convenient and cost effective communication channel providing consumers with greater personalisation and interaction.

Analysis

Social media analytics is being widely used by companies to gain insights regarding products, the culture their organization has and used for decision making and planning the strategies. It is also widely used for product launch, establishing a good market place, reviewing your strengths, opportunities, weaknesses and competition. The fast paced growth in the users of social media is making it important to share the information online. It works as a great medium to gather information and feedback on products and services from its consumers. The most challenging part is to come to some proper and useful results and conclusions from the content.

Types of Social Media Analysis include:

Fig 2.2



Source - *J. Global Business Advancement, Vol. 12.*

Descriptive Analysis – This is used for comprehensive analysis of social media data. This include metrics like total count of followers, number of likes, number of hashtags, re-tweets(In case of twitter) etc. This type of Analysis provide basis for other metrics and also for analysis both from business as well as research perspective.

Content Analysis - Content Analysis talks about the semantic understanding from the content generated by the users. Word cloud analysis, Hashtag analysis , Sentiment Analysis are some types of content analysis. Hashtag and word cloud analysis also help users to interact on common topics or discussions with keywords and generate interactions.

Data in social media is present in unstructured form so there are many data preparation steps that need to be done before we can analyze it. Sentiment analysis on the other hands helps to classify content based on certain words into Positive, Negative and Neutral. Hence, Sentiment Analysis helps to form the Polarity as well as the Subjectivity of the content(Twitter in case of the project) .

Network Analysis – Network Analysis gives us a brief idea or an overview of the clusters, communities, networks or interest groups which take part in various organizations’ discussions and interactions. Network Analysis helps us to understand behavior using content on the social media with the help of network mechanism

techniques like degree, closeness, nodes etc. Twitter users and their relationships are the basic terms which are used in network analysis. These terms and network further reveal interactions among users using different networks. Friendship networks are created based on the follower and following information.

Several studies show that social media analytics does not reveal the complete picture, but nonetheless, it is an important and indispensable means for gaining an overview of underlying insights.

2.3 Company Overview

Now, there have been 4 major companies taken up for the project and their tweets have been analyzed. These four companies are:

1. **Hindustan Unilever Limited(HUL)** - Hindustan Unilever is an Indian subsidiary of Unilever headquartered in Mumbai. It is basically a Fast Moving Consumer Good company. The company has some famous products like Bru coffee, Kissan, Dove, Axe, Pepsodent, Lifebuoy etc. Hindustan Unilever is quite famous for Social Marketing, from the advertisement related to saving water to Lifebuoy's recent advertisement raising awareness about the COVID-19, HUL has been quite significant in creating useful and user engaging content on social media. Its recent social message on washing hands and maintaining hygiene with any soap not just Lifebuoy gained a lot of praise and attention.
2. **Tata Companies** – Tata group of Companies include Tata power, Tata steel, Tata Chemicals etc. It's a conglomerate. Tata group is known for their social responsibility. They have high brand value, trust and loyalty. Today, when the nation is suffering with COVID-19 or the coronavirus crisis, Tata group has once again risen up to the occasion and helped several people in terms of donations,

infrastructure and also in raising awareness. They have quite a large number of followers on twitter.

3. **Zomato-** Zomato is an Indian restaurant aggregator and food delivery start up founded 2008. Zomato provides information, menus and user-reviews of restaurants and also offers food delivery options. Zomato has been quite in news recently from its recent controversy to Zomato standing up during coronavirus , there have been abundant evidences of Social Marketing by Zomato. Zomato is also quite active on twitter, posting some witty content.
4. **Swiggy** - Swiggy is India's largest and most valuable online food ordering and delivery platform. Swiggy is based out of Bengaluru, India, founded in 2014, as of March 2019, Swiggy was operating out of 100 Indian cities. In early 2019, Swiggy expanded into general product deliveries. Swiggy is the leader in online food delivery and the biggest competitor of Zomato.

Thus, the official Twitter handle of all the above companies is analyzed to assess the engagement, popularity and sentiment of its tweets and comparisons and visualizations have been made using **Python** and **Tableau**.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Need of Study

The 4 companies chosen for Twitter Analysis are :

- Hindustan Unilever.
- Tata group of companies.
- Zomato.
- Swiggy.

Rationale

The **main rationale** behind choosing these companies is the above 4 companies are among the companies which are into **Social Marketing** and are quite active on twitter. With companies having quite a number of followers hence their analysis would be significant. It is believed that consumers long for responsible businesses and responsible brands. **HUL** and **TATA** group are said to have led the way on sustainable living and are associated with social causes and high growth. HUL has been linked with online ads campaigns and posts for saving water, helping rural communities to grow with project “Shakti” and recent lifebuoy post on using any soap to wash hands regularly amidst Corona virus crisis. Even TATA group has worked on the similar lines with its famous campaign “Jaago Grahak Jaago” and has donated substantially at time of Corona virus crisis. Similarly both Zomato and Swiggy have stepped up during times of crisis. From delivering food during times of floods, to pairing up with restaurants owners to distribute leftover food to the unprivileged and free delivery of groceries during Corona virus, they have always kept users posted with their social and witty content. Hence, their analysis would be viable to understand the sentiment of users. These companies have been pioneers in their domains hence they were chosen for research.

Sample Size – A sample size of **100 tweets** per company was taken for the research.

Twitter Analysis of tweets.

1. Content Analysis which includes Sentiment Analysis of sentences and based on message, categorisation of the message into Positive, Negative or Neutral.
2. Content Analysis also in terms of Word Cloud Analysis, which plots a map on basis of the frequency of word used in tweets. Bigger the word more is the frequency of that word.

3.2 Nature of Data

To gather data of interest, different resources were gathered which were available for free on the internet but required some extraction interface and tool. **Secondary data** has been used for the research.

The social media platform used in the project for analysis is **Twitter**. Further the twitter accounts of these companies have been analyzed for quantitative data like number of likes, number of followers etc and also content analysis in terms of sentiment analysis and word cloud analysis.

So, in the first part Content Analysis has been done while the second part deals with visualisation of quantitative data.

3.3 Scope of Study

The project has been done for Twitter Analysis on some famous brands but the study can be extended further. It can be used by political parties or people in general to check the response of public on their social campaign online, to check sentiments of users on their existing work or something they are planning to do, a campaign or an activity to raise awareness etc.

Similarly companies can also get reviews about their new product or newly released softwares etc by analysing the sentiment of the tweets.

3.4 Project Implementation

Sentiment Analysis basically consists of four major steps:

3. **TOKENISATION** – This is the process of splitting sentence into words.
4. **CLEANING THE DATA** - This refers to removing mentions, special characters, numbers from the sentences so we have only words left on which sentiment analysis can be done.
5. **REMOVING STOP WORDS** - Words like “and” , “the”, “who” which do not contribute to the sentiment need to be removed.
6. **CLASSIFICATION** – After data cleaning now the words are classified based on their sentiments into Positive, Negative and Neutral.

CHAPTER 4: DATA ANALYSIS

The project uses **Python** programming code and comprises of three major steps.

1. The first step is authorizing **the Twitter API client**, which connects Python to fetch the live tweets.
2. Request for accessing tweets and extracting them to data frame for analysis.
3. Use of libraries and algorithm to classify text of tweets into Positive, Negative and Neutral

Python has some inbuilt libraries which help in performing all the above functions with just few lines of code. The **Tweepy** library helps to fetch tweets from twitter. The **TextBlob** library is used for text processing part of “Natural Language Processing” and hence used for performing sentiment Analysis.

Below are few snapshots of the Python code used in the following project.

4.1 Code Snapshot

Fig 4.1.1 – Accessing API Credentials

```
# Twitter Api Credentials
consumerKey = log["Key"][0]
consumerSecret = log["Key"][1]
accessToken = log["Key"][2]
accessTokenSecret = log["Key"][3]
#print(consumerKey)
```

Source - Own

Fig 4.1.2 – Authenticating Python

```
# Create the authentication object
authenticate = tweepy.OAuthHandler(consumerKey, consumerSecret)
# Set the access token and access token secret
authenticate.set_access_token(accessToken, accessTokenSecret)
# Creating the API object while passing in auth information
api = tweepy.API(authenticate, wait_on_rate_limit = True)
```

Source - Own

Fig 4.1.3 – Extracting Tweets

```
# Extract 100 tweets from the twitter user
posts = api.user_timeline(screen_name="@swiggy_in", count = 100, lang = "en", tweet_mode="extended")
```

Source – Own

Fig 4.1.4 – Cleaning Tweets

```
# Create a function to clean the tweets
def cleanTxt(text):
    text = re.sub('@[A-Za-z0-9]+', '', text) #Removing @mentions
    text = re.sub('#', '', text) # Removing '#' hash tag
    text = re.sub('RT[\s]+', '', text) # Removing RT
    text = re.sub('https?:\/\/\S+', '', text) # Removing hyperlink

    return text
```

Source – Own

Fig 4.1.5 – Sentiment Analysis

```
# Create two new columns 'Subjectivity' & 'Polarity'
df['Subjectivity'] = df['Tweets'].apply(getSubjectivity)
df['Polarity'] = df['Tweets'].apply(getPolarity)
```

Source – Own

Fig 4.1.6 – Word Cloud Analysis

```
#WordCloud
allWords = ' '.join([twts for twts in df['Tweets']])
wordCloud = WordCloud(width=700, height=500, random_state=21, max_font_size=110).generate(allWords)

plt.imshow(wordCloud, interpolation="bilinear")
plt.axis('off')
plt.show()
```

Source – Own

Fig 4.1.7 – Scatter plot

```
# Plotting
plt.figure(figsize=(8,6))
for i in range(0, df.shape[0]):
    plt.scatter(df["Polarity"][i], df["Subjectivity"][i], color='Blue') # plt.scatter(x,y,color)

plt.title('Sentiment Analysis')
plt.xlabel('Polarity')
plt.ylabel('Subjectivity')
plt.show()
```

Source – Own

In a similar manner various parts of the code have been executed.

4.2 Company Analysis

100 recent tweets of the company have been analyzed to form a generalized view on sentiments that include the polarity and subjectivity of the tweets and also the frequency or words used and hence analysis has been made. All the factors will be studied for all the four brands one by one.

The codes which we will specify will provide us with two outputs:

A) Polarity: Defines the positivity or negativity of the text; it returns a float value in the range of “-1.0 to 1.0”, where ‘0.0’ indicates neutral, ‘+1’ indicates a very positive sentiment and ‘-1’ represents a very negative sentiment.

B) Subjectivity: Defines the text on the basis that how much of it is an opinion vs how factual it is; where ‘0.0’ is very objective and ‘1.0’ is very subjective.

1. Hindustan Unilever Limited(HUL)

Twitter Handle - @HUL_News

HUL tweets' snapshot after cleaning the tweets.

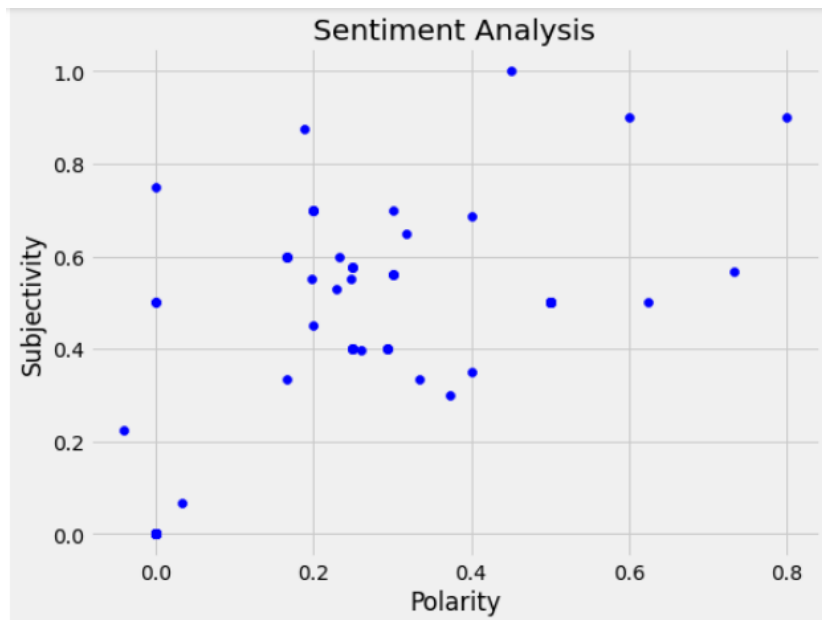
Fig 4.2.1

	Tweets	Subjectivity	Polarity	Analysis
0	We request you to share your contact details ...	0.000000	0.000000	Neutral
1	Hi, we understand your concern. Our team is w...	0.333333	0.166667	Positive
2	: हमें दिल खोलकर दान देना चाहिए, खासकर उन लोगो...	0.000000	0.000000	Neutral
3	Our forefathers spun the charkha with their ha...	0.566667	0.733333	Positive
4	_janaS06 Hi Suswagata, for us to assist you be...	0.500000	0.500000	Positive
5	: हम इसमें एक साथ हैं और हम इसे एक साथ हरा सकत...	0.000000	0.000000	Neutral
6	To win against COVID19, hand hygiene is essent...	0.350000	0.400000	Positive
7	Years ago, the people of India stepped outside...	0.300758	0.372727	Positive
8	Hi, for us to assist you better, we request y...	0.500000	0.500000	Positive
9	Hi, our expert would like to connect with you...	0.000000	0.000000	Neutral
10	Hi Mitesh, we have shared required informatio...	0.500000	0.000000	Neutral
11	1996 In the interim, we recommend you use any ...	0.000000	0.000000	Neutral
12	1996 We sincerely apologize for the inconvenie...	0.560000	0.300000	Positive
13	To all the medical and healthcare professional...	0.333333	0.333333	Positive
14	This WorldHealthDay, we reaffirm our commitmen...	0.000000	0.000000	Neutral

Source – Own

HUL's Scatter plot for sentiment analysis

Fig 4.2.2



Source – Own

This shows that the recent tweets by Hindustan Unilever are quite positive and factual only a very few are very Subjective.

They include famous tweets like:

Fig 4.2.3



Source – twitter.com

Another famous tweet to spread awareness about the COVID-19 crisis we had the following amazing and beautiful tweet.

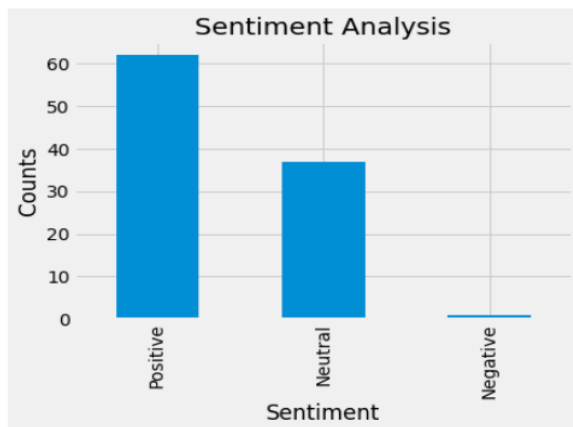
Fig 4.2.4



Source – twitter.com

So to summarize we have the following bar graph of these 100 tweets.

Fig 4.2.5



Source – Own

This clearly states how positive the consumers consider Hindustan Unilever's social tweets are and how well people consider it as a brand.

2. Tata Group

Twitter Handle - @TataCompanies

Here's a snapshot of its tweets.

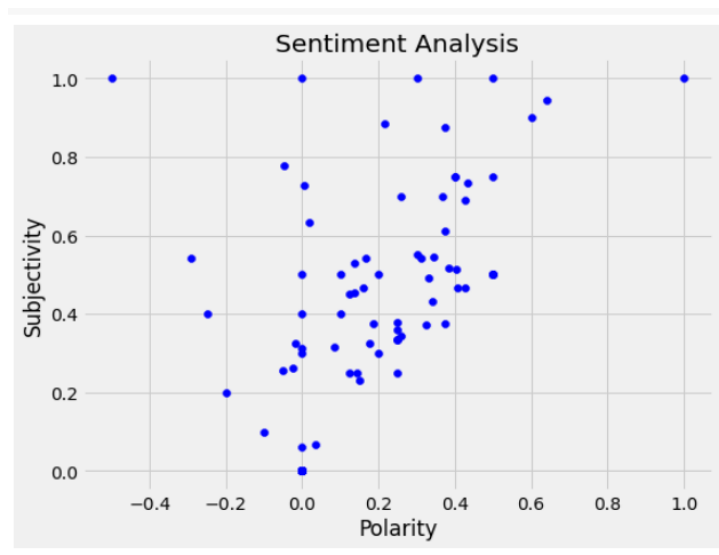
Fig 4.2.6

	Tweets	Subjectivity	Polarity	Analysis
0	Social distancing is not an option, but a nece...	0.066667	0.033333	Positive
1	: In these difficult times of the COVID19 outb...	1.000000	-0.500000	Negative
2	Staying safe and protecting oneself is of utmo...	0.377778	0.250000	Positive
3	Led by our founder's ideals, we strongly belie...	0.777083	-0.047917	Negative
4	To ensure that the health of those taking care...	0.000000	0.000000	Neutral
5	In these testing times, we're stronger when we...	0.000000	0.000000	Neutral
6	While the entire country is locked up at home,...	0.312500	0.000000	Neutral
7	When Maharashtra's power consumption dropped h...	0.250000	0.125000	Positive
8	The powerful team behind a successful 9PM9Minu...	0.883333	0.216667	Positive
9	We stand united as IndiaFightsCorona. This too...	0.000000	0.000000	Neutral
10	29 2000 Hi, could you please share the websi...	0.000000	0.000000	Neutral
11	Tata Salt, India's first iodised salt brand ha...	0.333333	0.250000	Positive
12	As a group, we've come a long way and the Tata...	0.256389	-0.051389	Negative
	om/drive/search?q=owner%3Ame %28type%3AApplication... kind words.	0.900000	0.600000	Positive

Source- Own

The Scatter plot is as given below

Fig 4.2.7



Source- Own

We can see even Tata group has many positive sentiments among the masses because of its social efforts and marketing. Tata group has had many endeavors and efforts for fighting the corona virus. Some of them have gained quite popularity on twitter like:

Fig 4.2.8



Source – twitter.com

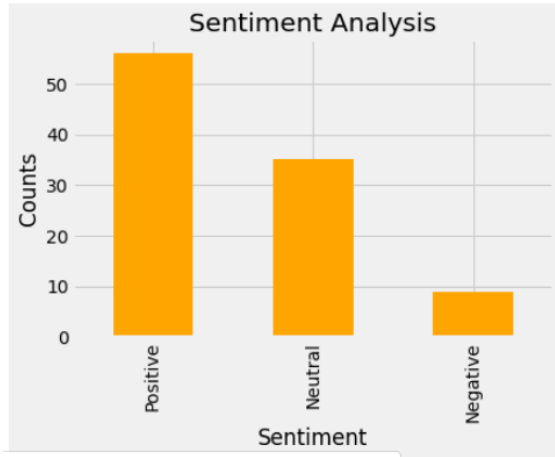
Fig 4.2.9



Source – twitter.com

So the entire 100 tweets can be displayed in form of a bar graph.

Fig 4.2.10



Source- Own

We can see how many of its tweets are positive and how much people trust the name.

3. Zomato

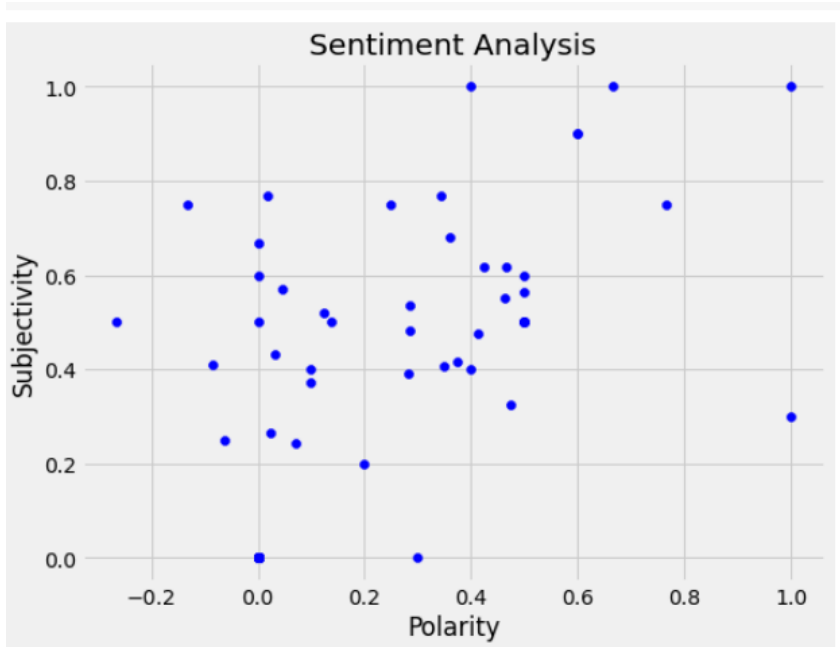
Twitter Handle - @ZomatoIN

Fig 4.2.11

	Tweets	Subjectivity	Polarity	Analysis
0	: 62714130 Yes, there's enough demand - not ev...	0.500000	0.000000	Neutral
1	some important charts 📊	1.000000	0.400000	Positive
2	what's something you reeaally want to have, b...	0.767857	0.017857	Positive
3	aaj dessert mein kya hai	0.000000	0.000000	Neutral
4	: At Zomato, we are doing everything we can to...	0.000000	0.000000	Neutral
5	: Images that move you. FeedTheDailyWager\n\n	0.000000	0.000000	Neutral
6	: Thanks to Feeding India, other NGOs and Goo...	0.483333	0.284722	Positive
7	: Update on 'Feed the Daily Wager'. \n\nWe've d...	0.242857	0.071429	Positive
8	_Creches: Keeping all our spirits high and hop...	0.570000	0.046667	Positive
9	: Some more food packets distributed with supp...	0.500000	0.500000	Positive
10	: We are just doing our duty ji. The country ...	0.535714	0.285714	Positive
11	: Hassle-free Hasselback potatoes !\n\n• Make ...	0.500000	-0.266667	Negative
12	: Our Hunger Heroes have been the backbone of ...	0.900000	0.600000	Positive

The scatter plot of Zomato's sentiment analysis is below:

Fig 4.2.12



Source- Own

This shows that subjectivity is high and the polarity is limited, meaning the nature of tweets is relative. Zomato has had many witty tweets and engaging content on COVID-19 crisis.

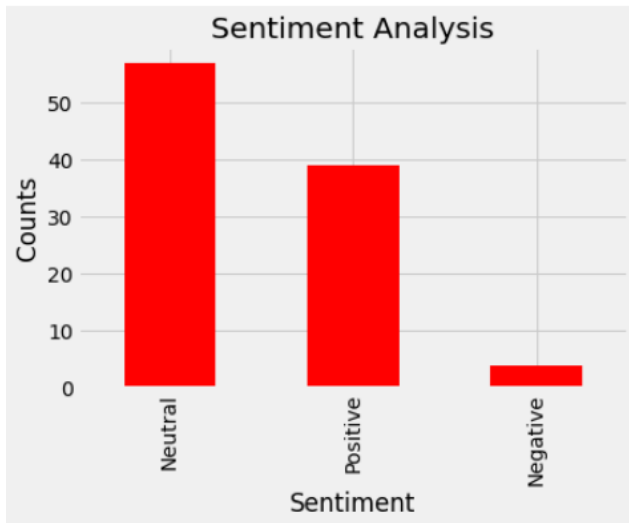
Fig 4.2.13



Source- twitter.com

To visualize the tweets we have the below bar graph.

Fig 4.2.14



Source- Own

This shows that most of the tweets are neutral and very few are negative. This shows that the one liners are mostly neutral.

4. Swiggy

Twitter Handle - @swiggy_in

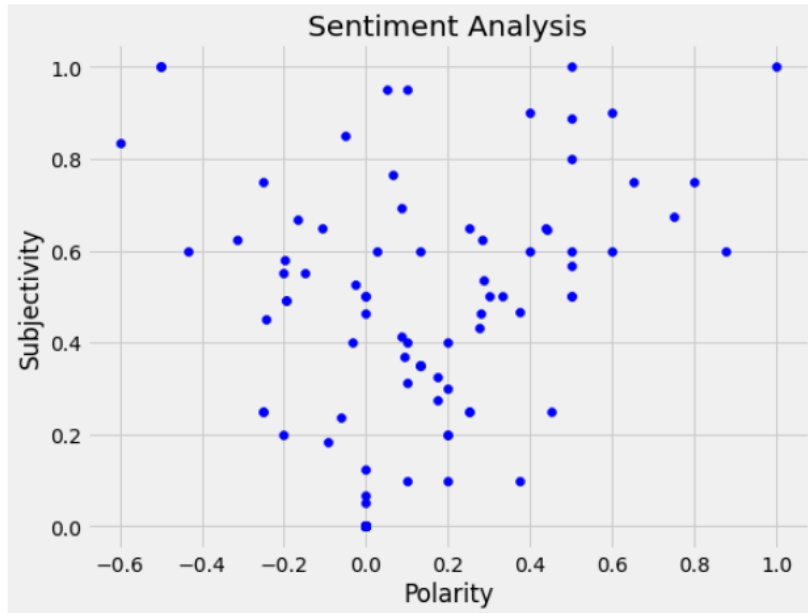
Fig 4.2.15

	Tweets	Subjectivity	Polarity	Analysis
0	: Lakhs of people are stuck in relief camps, h...	0.000000	0.000000	Neutral
1	Since COVID-19 has become a matter of global ...	0.000000	0.000000	Neutral
2	Our most sincere apologies for the letdown! W...	0.625000	0.281250	Positive
3	1972ias: Geo-tagged Relief ops (Supply of food...	0.000000	0.000000	Neutral
4	_Shine1: _in Thanks for offering food at door ...	0.200000	0.200000	Positive
5	@_ThePandaGirl: _in I am really thankful for ...	0.580556	-0.197222	Negative
6	: _Sunder _in Great swiggy is doing good job...	0.675000	0.750000	Positive
7	1: I commend _in for starting groceries delive...	0.500000	0.333333	Positive
8	2/2: In times like these, our delivery partners...	0.400000	0.200000	Positive
9	1/2: As India tries to flatten the COVID-19 cu...	0.400000	-0.033333	Negative
10	: _in _amarinder _punjab Punjabis are also t...	0.000000	0.000000	Neutral
11	_BAMRAH: _in _amarinder _punjab I am a docto...	0.200000	0.200000	Positive
12	We are thankful to the Punjab government and I...	0.275000	0.175000	Positive

Source – Own

Swiggy has the below scatter plot.

Fig 4.2.16



Source - Own

This shows that Swiggy has many Positive sentiments but the subjectivity is quite high. Swiggy has been quite witty and engaging on social media, twitter etc.

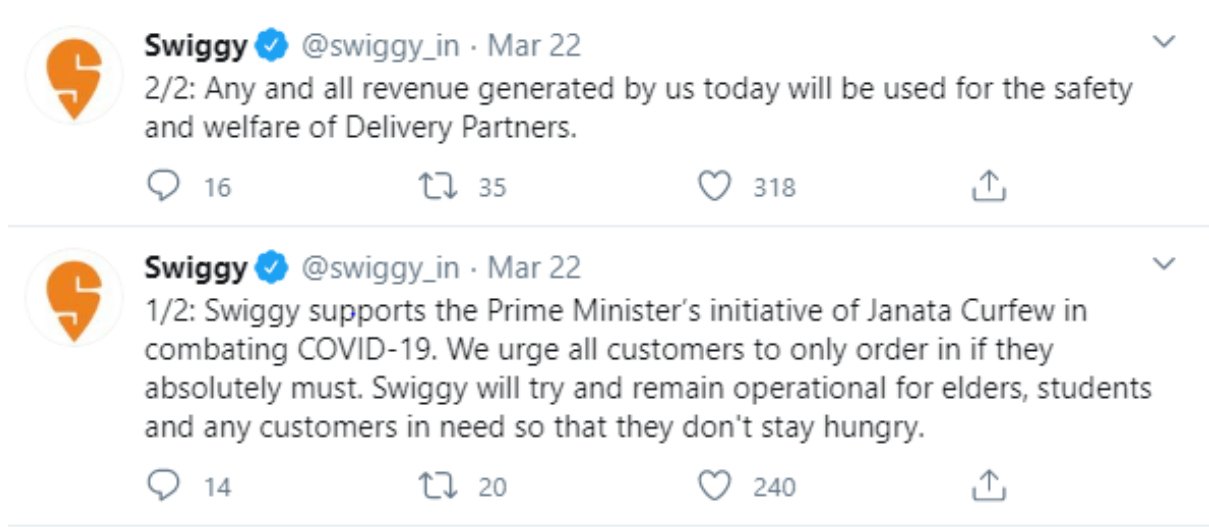
Some of them are:

Fig 4.2.17



Source – Own

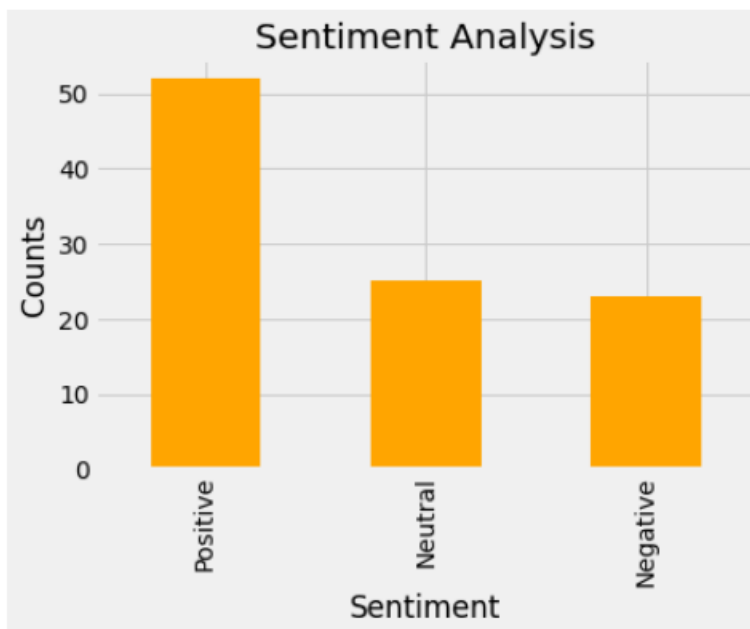
Fig 4.2.18



Source – Own

The graph detailing the 100 tweets is shown below:

Fig 4.2.19



Source – Own

This clearly shows how Swiggy has a better positive image than Zomato but also it's on the polar ends as negative tweets are also on the rise.

Word Cloud Analysis

Also, to further check using Word Analysis, Using the Word Cloud library in Python , the word cloud for all the companies has been plotted.

More the frequency of words more is the size and bolder are the words.

1. Hindustan Unilever Limited –

Fig 4.2.20



Source – Own

4. Swiggy

Fig 4.2.23



Source – Own

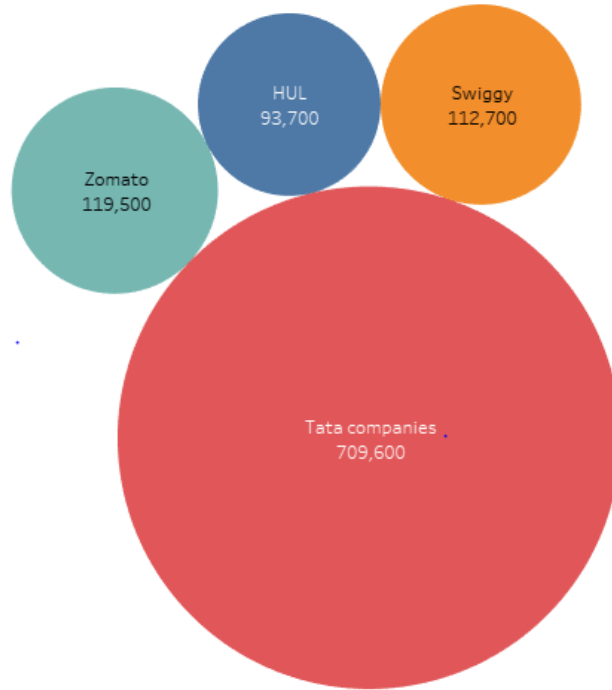
4.3 Visualisation

Using **Tableau** the quantitative data of the twitter handles of the above mentioned companies is visualized

1. **Number of Followers** – The number of followers indicate while the majority have around 100K followers on Twitter, Tata Group is quite popular with 700K followers. The difference is substantial.

Fig 4.3.1

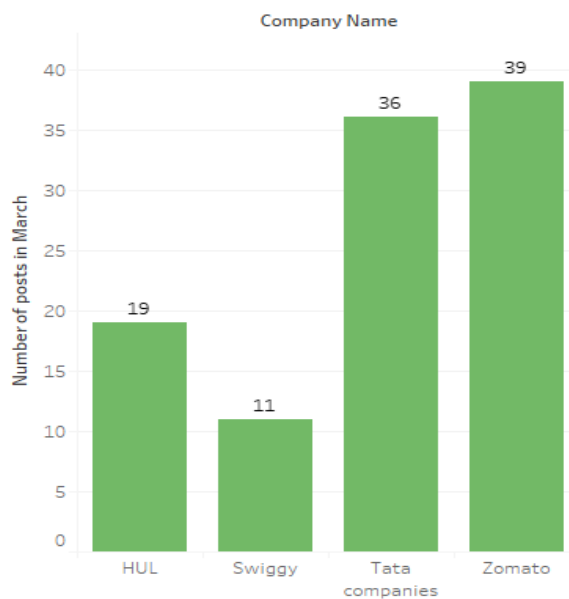
Number of Followers



- 2. **No of Posts in March** – This shows Zomato and Tata group of companies have been quite active during this time of crisis COVID-19, while Swiggy and HUL have also had considerable amount of posts.

Fig 4.3.2

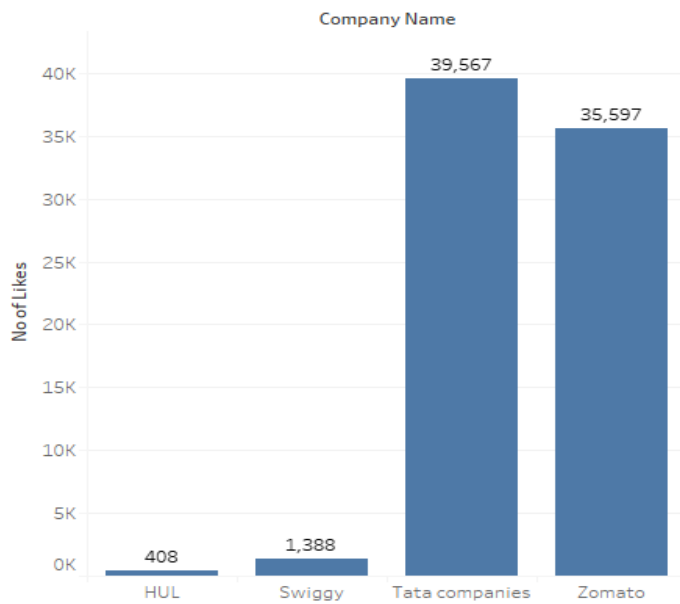
Number of Posts(in March)



3. Number of Likes – More the number of posts more are the likes as for Zomato and Tata Group. Also there’s a reason where HUL and Swiggy mostly get their tweets retweeted by some celebrities and other handles which fetch them likes. Example – The tweet “Washing your hands with soap, not just Lifebuoy but any soap” got retweeted by Kajol’s handle and got 5800 likes.

Fig 4.3.3

Number of Likes(in March)



4. **Number of retweets** – This shows the relevance and engagement of users with the tweets.

Fig 4.3.4

Number of Retweets(in March)

Company Name	
HUL	84
Swiggy	156
Tata companies	7,704
Zomato	3,569

CHAPTER 5: FINDINGS AND RECOMMENDATIONS

Twitter research has affected and impacted various research areas like marketing, healthcare and information systems. The other areas which have seen an impact are finance, politics etc.

It is also found out that twitter is more engaging and informative than any other social media platforms. It is ideal as varied consumers and eminent personalities. The unique feature of reaching out to an individual in Twitter via just their twitter handle without being mutual followers makes it easy for users to convey message to anyone and increase the reachability. There's also a word limit on Tweets which calls for companies to have their tweets more catchy and engaging.

- 1. HUL** – HUL has many followers on its facebook page (3 million) but is not active, the last post was in 2018. While on twitter the followers are around 110 thousand, the company is very active with as many as 19 posts in the month of March. It was also found out during sentiment analysis that out Of 100 recent tweets **60** were **positive** and **38** were **neutral** while only **2** were **negative**. This shows the brand image and consumers view towards the company. This clearly shows this company which engaged in social marketing posts has a positive response from consumers. The number of likes on the tweets are low but the same posts have been shared by influencers, celebrities to increase reach and gain awareness. For example, the recent lifebuoy tweet was shared by Kajol and gained 10K likes. Analyzing the Word Cloud created it is found out the most frequent words are “**stay, protected, hygiene, use soap, query**” which clearly show their concern in raising awareness during corona virus crisis
- 2. Tata group** - the group has a very large follower base on twitter(800K) as compared to facebook(100K). The group has always been in forefront and

known for its ethics and social responsibility. The company is quite active on twitter with around 36 posts in March, 2020 and around **39K** likes on its posts. This clearly indicated the positive image and popularity. On doing Sentiment analysis it is found out that out of the last 100 tweets **57** are **positive**, **35** are **neutral** and **8** are **negative** that is in line with the positive brand image. Further on doing the Word Cloud Analysis it's further envisaged that the most frequent words in its tweets are "**This is Tata, India, Legend Lives, country, sustainable**", this indicates that the tweets made during corona virus are about the efforts made by the group, monetary contributions and in general the social work Tata has been indulged in.

3. **Zomato** - known for its engaging content, Zomato has 120K followers on Twitter compared to 1.9M on facebook has is quite active with **39** posts in March. Among the companies taken for study Zomato has the **highest likes to follower ratio**. Zomato has had 35K likes on its posts in March. Zomato has had tweets which related to free delivery during the times of corona virus crisis and had gained many likes. On doing Sentiment analysis it is found out that out of the last 100 tweets **54** are **positive**, **39** are **neutral** and **7** are **negative**. This states even Zomato has a good image among the consumers. On doing the Word Cloud analysis it is found out the most frequent words used in Zomato's tweets in March are "**food, delivery, feed daily, restaurants, healthy, thank you**". This indicates the words are in sync with Zomato's social marketing tweets.
4. **Swiggy** – Swiggy is quite famous among its users, the consumers are also loyal to the delivery company. It has 112K followers on twitter and 911K followers on facebook. It is quite active on twitter with **11** posts on the month of March. Though the number of posts are less than its competitor Zomato ,swiggy is quite popular with **high like to posts ratio**. On doing Sentiment Analysis it is found out that that out of the last 100 tweets **53** are **positive**, **25** are **neutral** and **22** are **negative**. This is good in a general sense but a little on the down side compared to its competitor. On doing the Word Cloud analysis it is found out the most frequent words used in Zomato's tweets in March are "**food, COVID, swiggy**".

daily, experience, sorry, thank". This indicates the words are related to Swiggy's social marketing tweets and Swiggy has also tried to resolve its consumers' issues and tried for them having a better experience.

Hence, the above all information clearly states that Twitter analysis is quite a convenient way to gain insights into the emotions of consumers and a wide variety of metrics can be constructed using data from twitter. It is also evident that companies having social marketing measures have quite a positive sentiment among the masses.

CHAPTER 6: LIMITATIONS

The study has been conducted for 4 major companies and the project and its findings can be extended to various other companies as well as sectors like healthcare, finance, marketing etc. Also, the number of tweets taken for the study are 100 per company, the analysis can be improved by taking into consideration a greater quantity of tweets and increasing the duration from a month to yearly and more.

With better machine learning algorithms twitter analysis using Python can be improved from just the positive , negative and neutral to sentiments of trust, anger , fear among the consumers. The classification algorithms can help companies further segment its users into loyal, disloyal and teetering consumers and help formulate strategies accordingly. Additionally, postings on the internet can be difficult to analyze given that they often reflect shorter versions of phrases

CONCLUSION

It can be hereby concluded that the brands displaying social marketing are well accepted by consumers and have positive sentiments. All the 4 major companies taken up in the research have had more than 50% positive tweets and a majority neutral this clearly shows that it's not only about profit but about responsible business. To build a sustainable business it's quite important to think of long term relationships and profits than just short term gain. It is quite evident that in whichever domain the companies are working they will surely have consumer engagement and preferences compared to the companies which have a negative sentiment among the masses. One can clearly see that though there can be different methods and modes of analysis online analysis provides suitable, convenient, timely and reliable results. Social Media analysis specially twitter analysis provides relevant results seeing how engaging and popular twitter is.

Twitter analysis using Python depicts how flexible the research can be and how the various techniques like Sentiment Analysis, Word Cloud Analysis etc can be used by companies at times of crisis, pre and post crisis to compare the difference and find the correct time to market their new services, products and also see the peak time when their marketing strategies will be acknowledged by the consumers. It is also seen that the above data can provide a strong foundation for marketers to base their research and hypothesis upon.

The analysis made can also help the companies set their standards, benchmarks related to their twitter activity and tweets which can help them and compare their present position with past and also formulate future direction.

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