Project B :
Customer Analytics
Product Sentiment Analysis

Owner: Reema Lad

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Case study Background

An International E-Commerce company(Electronic goods) wants to use some of the most advanced machine learning techniques to analyse their customers with respect to their services and some important customer success matrix. They also have future expansion plans to India.

They have some specific key insights to be found out from their existing customer database.

Problem Statement

- Since the company also wants to start their operations in India, they want you to do a Sentiment analysis(Positive or Negative) of their competitors such as:

1. Amazon India
2. Flipkart
3. Snapdeal

Understanding Data And Data Preprocessing

Raw Data

- Fetched Tweets of:
- Amazon IN : 3000
- Flipkart : 3000
- Snapdeal : 4082

	tweet_id	text	user	created	full_text
0	1348593310235914249	@snapdeal	MostofaRahman14	Mon Jan 11 11:31:15 +0000 2021	@snapdeal
1	1348563013981245442	RT @1kunalbahl: Looks like someone @snapdeal d...	singhriya001	Mon Jan 11 09:30:52 +0000 2021	RT @1kunalbahl: Looks like someone @snapdeal d...
2	1348516480954945536	@snapdeal I HAVE A PLACE IN NEWTOWN ACTION ARE...	dhirajs90	Mon Jan 11 06:25:57 +0000 2021	@snapdeal I HAVE A PLACE IN NEWTOWN ACTION ARE...
3	1348512414766166016	@iKayenn @goairlinesindia @santoshkamath @ajay...	SunilKudva	Mon Jan 11 06:09:48 +0000 2021	@iKayenn @goairlinesindia @santoshkamath @ajay...
4	1348510918204739584	RT @iKayenn: @SunilKudva @goairlinesindia @san...	SunilKudva	Mon Jan 11 06:03:51 +0000 2021	RT @iKayenn: @SunilKudva @goairlinesindia @san...

Data Preprocessing

Fresh Line spacer
Email addresses
Name Tagging '#'
Extra Space
Web links / addresses
Emojis / Emoticons
Extra wide / White space
Numbers
Lower case
removing punctions
remove stopwords
tokenization
stemming
Final cleaned tweet

	Company	Tweet	CleanTweet	NoEmoTweet	NoWhiteSpace	NoNumbers	FinalProcessedTweet	NoCompNameTweet
0	Amazon	@amazonIN @AmazonHelp You took almost a week t...	You took almost a week to deliver the produc...	You took almost a week to deliver the produc...	You took almost a week to deliver the product...	You took almost a week to deliver the product...	['took', 'almost', 'week', 'deliv', 'product',...	['took', 'almost', 'week', 'deliv', 'product',...

Polarity & Sentiment Mapping

	Company	FinalTweet	Polarity
0	Amazon	['took', 'almost', 'week', 'deliv', 'product',...	-0.20
1	Amazon	['amazonspinandwin']	0.00
2	Amazon	['best', 'smartphon', 'theperfect', 'mp', 'mii']	1.00
3	Amazon	['tech', 'good', 'anna']	0.70
4	Amazon	['much', 'time', 'need', 'take', 'return', 're...	0.35

Sentiment	
Negative	1477
Neutral	6095
Positive	2510

Word Cloud and Sentiment Analysis

- Over All Data
- Over All Data without Campaigns
- Amazon Data
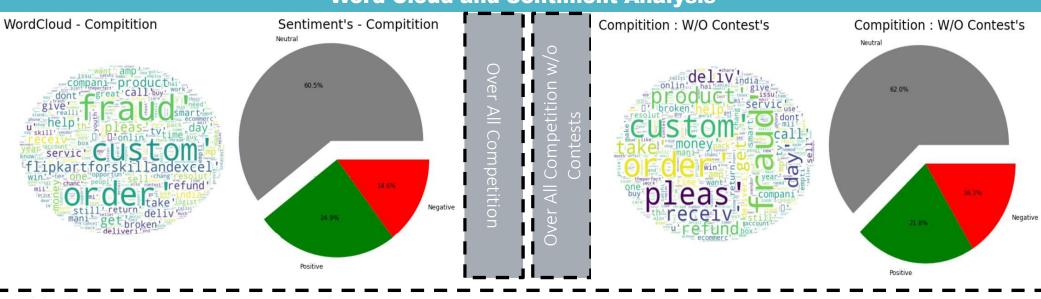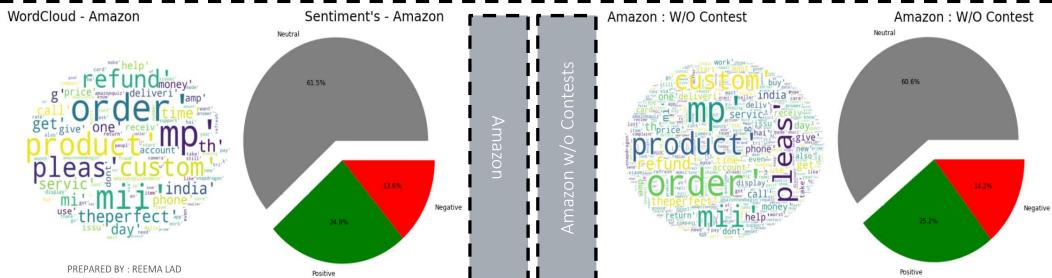- Amazon Data without Campaigns
- Flipkart Data
- Flipkart Data without Campaigns
- Snapdeal Data

WordCloud - Compitition
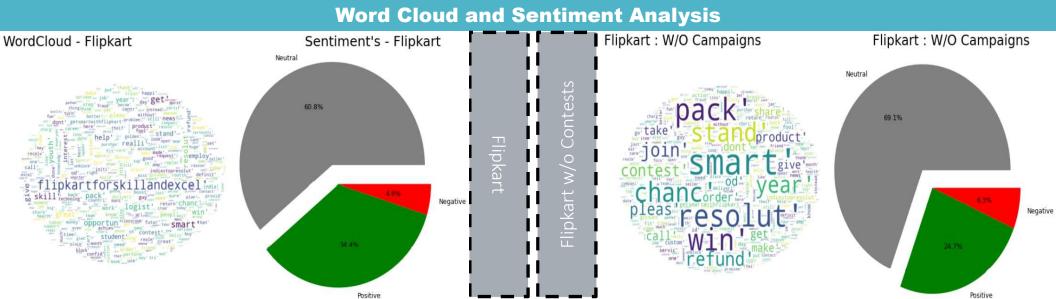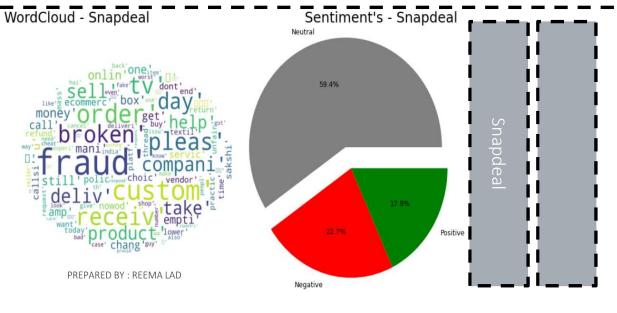
Sentiment's - Compitition

Raw Data

Preprocess'

Polarity&Sent'

Word Cloud & Sentiment Analysis

Word Cloud and Sentiment Analysis

WordCloud - Compitition

Sentiment's - Compitition

Neutral 60.5%
Negative 14.6%
Positive 24.9%

Over All Competition

Over All Competition w/o Contests

Compitition : W/O Contest's

Compitition : W/O Contest's

Neutral 62.0%
Negative 16.2%
Positive 21.8%

WordCloud - Amazon

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Sentiment's - Amazon

Neutral 61.5%
Negative 13.6%
Positive 24.9%

Amazon

Amazon w/o Contests

Amazon : W/O Contest

Amazon : W/O Contest

Neutral 60.6%
Negative 14.2%
Positive 25.2%

Word Cloud and Sentiment Analysis

WordCloud - Flipkart

Sentiment's - Flipkart

- Neutral: 60.8%
- Negative: 4.8%
- Positive: 34.4%

Flipkart

Flipkart w/o Contests

Flipkart : W/O Campaigns

Flipkart : W/O Campaigns

- Neutral: 69.1%
- Negative: 6.3%
- Positive: 24.7%

WordCloud - Snapdeal

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Sentiment's - Snapdeal

- Neutral: 59.4%
- Positive: 17.9%
- Negative: 22.7%

Snapdeal

Conclusion – Word Cloud Summary

Conclusion – Sentiment Analysis

Conclusion

1. <u>Overall</u>, Positive Sentiments are higher than Negative Sentiments

2. <u>Amazon</u>,
   Indications of higher Positive Sentiments and Lower Negative Sentiments.
   Overall better than Snapdeal however statistically lower than Flipkart.
   As derived from the tweets, has an ongoing contest 'AmazonSpinAndWin'. Nevertheless there has been negligible change in Sentiments with the ongoing contest, there has been a drop in both Positive & Negative sentiments when we evaluate the results, both considering and ignoring the contest contribution.
   This indicates, eiter the contest has not reached the target audience, or the impact / engagement has not been as desired. There has been **positive engagement in enquiring about products** as indicated in WordCloud, occurance of words **Mii/Mi, Product**. Users are also noticed enquiring about *Orders and Refund* status.

3. <u>Flipkart</u>,
   Statistically better than Amazon and Snapdeal in Positive Sentiments.
   It also has an ongoing campaign, 'FllipkartForSkillAndExcellence'. This certainly has a deep reach amongst the target audience, *as prominantly indicated in the overall Word Cloud too*.
   This campaign has a visible Positive impact on overall Flipkart's user sentiments. Almost a **2% drop in Negative Sentiments and a jump of 10% in Positive Sentiments**.
   There has been **positive engagement in enquiring about products like Smart Phones, Mii and mention of word Product.** Users are also calling out for *Customer support, Order and Refund.*

4. <u>Snapdeal</u>,
   The only company to have more Negative Sentiments compared to Positive Sentiments.
   Impact of higher Negative Sentiments is also visibly affecting the overall study.
   Its noticable, that unlike other competitors, Snapdeal has no positive customer engagement or customer reach; which may be also one of the reasons for the negative customer sentiments.
   Alarming words like *Fraud, Cheat, Unfair, Refund Money, Fake, Broken and Empty boxes* are noticed. There has been **engagement in enquiring about products like TV, Textile, Ecommerce**

It can be concluded that customer engagement programmes like contests and campaigns has a positive impact on customer sentiments.

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Thank You