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Netnomining: Understanding Perception of Consumer's using Products from E-Commerce Companies

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ABSTRACT: Sentiment analysis based on customer's reviews is the new and wide concept based on netnograph. This will help to understand what the customers think about that company and how they are been treated by company. There is a lot of confusion in consumers before buying any product on various E-commerce websites. To make consumer's experience better, this project helps them by providing suggestions of best platforms for various products by providing personalized and high-quality service. In this project data of customers review will be collected and then with the help of netnography and text mining the data will be analysed. This project deals with the real database collected by scraping dynamic website mouthshut.com and uses various python libraries for data processing and this data is shown on the webpage. It will help customer to decide which company is providing best services to customers.

KEYWORDS: Sentiment, E-commerce, Netnography, Review

I. INTRODUCTION

In this century there has been lot of advancement in technology, and many things have shifted to online rather than traditional aspect. The customer's point of view has also changed from shops to E-commerce platforms. Previously in early 90's Indian E-commerce market was not so popular and people got so worried if they want to purchase some products online. But now, many of Indians are getting to know how to purchase product online but still there are so many people who are not so confident about online mode of purchasing. From 'Digital India' initiative number of internet users increases drastically. During covid pandemic also many Indians shows their interest to buy products online. At present time most common reason of growing online shopping in India is having less time and providing low prices compared to shops. Netnography is need of today's generation. Based on reviews given by customers companies will get to know their performance relative to other companies, it enhances company's reach to customers also by improving their customer services. To motivate customer to buy products from online from trusted source, we are using this principle. With the help of netnography, we will analyse reviews of various products given by customers using various E-commerce platform. Using this analysis, convenient E-commerce website can be selected by customers whose services are best.

II. RELATED WORK

According to Izzal Asnira Zolkepli & Nur Sakinah Diyanah Abdullah (2017), based on research carried about the crowd present on online platforms they observed that subscribers appear to imitate different types of behaviours based on these platforms. Due to this, there develops strong bond between platforms of social media to normal person and thus they try to hit the sentiment of persons. There are namely three innovations about methodology and its review is given in



research paper published on July,2011 by authors Bengry-Howell A, R Wiles, M Nind and G Crow based on the exploring their act of reaction there are three such types like as example of innovation are online as well as creative methods, research on allowing everyone in a particular society, company. There are three methods to study social media communities i.e., Social Network Analysis, Participant observation, Netnography and blended methods suggested by Procter, CT (2019). With reference to Prokopis Christou (2015) based on paper published on topic of ethnographic study related about different types of festivals, events based on variety of geographical places after travelling and their response of visiting unknown persons they find that the negative outcomes can be responsible for poor bonding between visitors and hosts, positive emotions referred their fulfilling wish.

Effect of customer's fulfilment about services lead to strong bonding between companies and their customers this idea was given by Ha H and H Perks (2005) by presenting their research paper showing that customers who purchases regularly through same company lead to their strong relationship between them.

III. METHODOLOGY

In this project theme is to select any one of the choices from netnographic environment like sites, Twitter, Facebook on various topics e.g., Twitter analysis on Russia-Ukraine war etc. Then data collection started based on the topic we choose by applying web scraping or any method. We choose parameters of that data like for customer's reviews we can add columns having data like customer's name, date of review, rating, location, review. Then we used nlp or nltk for processing the data and remove the stop words from it and tokenize the paragraph into sentences and further sentences to words. From that, the results showing sentiment scores of data generated and stored in any file format.

These are the steps of methodology for netnographic analysis:

Step 1: Search the reviews of the people from different websites related to a particular product like clothes, shoes, jewellery, etc.

Step 2: Fill that data in the excel sheet depending on various criteria like gender, product purchase, website's name, review, etc.

Step 3: Process the data in the excel sheet using python language and obtain the results from it.

Step 4: Analysing the results, draw conclusion for the product to be analysed.

Step 5: Create a website and according to data collected, arrange in the order of the reviews of the people.

IV. EXPERIMENTAL RESULTS

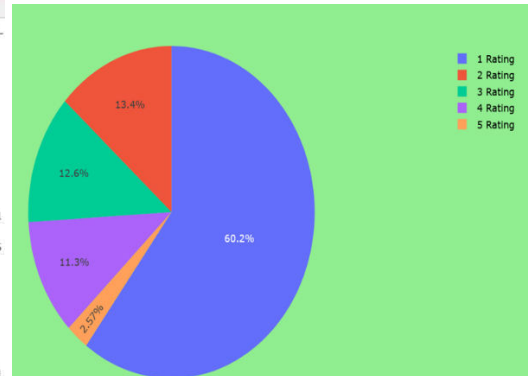
Fig.(a) shows the reviews of 'Amazon' company obtained by scraping 'mouthshut.com' which is a dynamic website. Fig.(b) shows Pie-plot showing rating percentage in based on above scraped data. Here onwards for results we considered: 1,2,3,4,5 rating for showing Bad, Below Average, Moderate, Descent, Awesome reviews respectively. Results obtained after applying nlp, nltk, vader and stammer are sentiment scores of those reviews. If sentiment score crosses the limit of 0.05 then it shows positive, if it shows less than 0.05 and greater than -0.05 then neutral and negative when less than -0.05 Also, stop words are removed and texts are summarized using tokenization. Stemming is used for text pre-processing to normalized text. Using tokenization text splits into sentences and further sentence split to words. Fig.(c) shows Data after text processing .



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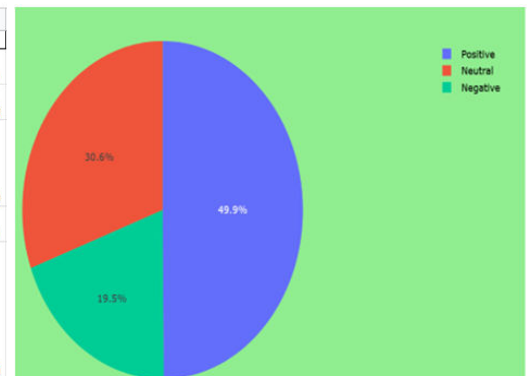
A	B	C	D
Company Name	Reviewer Name	Review	Rating
		Amazon is turning into a highly unprofessional company. It's logistics partner such as Delhivery are the worst service providers. Having been associated with Amazon as a prime member, I suffered with very poor experience where my product, a washing machine was taken back by Delhivery delivery person from my doorstep, as I was not able to get the product unloaded from the delivery vehicle as I could not handle the weight. I could not arrange for manpower to get the product unloaded and carried inside my house, hence the delivery person took back the product and I guess Amazon took this case as refusal by customer to accept the delivery. Anyway it is really very tough to know what goes inside when a Customer complains. We don't get any feedback. Hence I decided not to renew the prime membership. Now Amazon is not a preferred site for me. Infact I did not buy anything from them since this experience.	1
Amazon	Raman290		1
Amazon	adityakamble7	Good timely delivery and nice customer service, sometimes fake products but they are from the local sellers I am reviewing my experience of Amazon food orders kindly donot use it thinking that Amazon gives you better service they take 50 mins to deliver your order and after 50 mins they cancel your order giving some unacceptable reasons so you will go hungry if you order here and recently there is new scam where they deduct the amt from your UPI account and cancel the order that they have not received the amt and take your money even though the amt is credited they say they have not received the amt and asks you check with your banks I have lost 400 till now they donot give a damn even you submit the proof they donot return your money pls don't fall for this scam I am posting this so other customer dont loose there money here are some proofs. And this thing happened again today for me so pls donot loose your money	5
Amazon	lakshmik93		1



(a)

(b)

A	B	C	D	E	F	G
Company Name	Review	Rating	Positive	Negative	Neutral	Analysis
Amazon	order id friend bought one plus earbud amazon deni replac return ask visit servic center servic center say contact amazon pathet support	1	0.341	0	0.659	Positive 😊
Amazon	order id bought one plus earbud amazon deni replac return ask visit servic center visit servic center say contact amazon avoid amazon big fraud	1	0.169	0.199	0.631	Negative 😞
Amazon	shop amazon year good custom late seller posit review sell fake product read negat review see complain fake productsth seller offer full refund take review still keep call don't want peopl get cheat refus remov reviewbut complain amazon don't care cheat would dealt amazon despit repeat complaint don't careluckiii found anoth shop site way honest	1	0.15	0.308	0.543	Negative 😞
Amazon	cant reali judg app tester app load kidl fire tablet download amazon free assum app featur pretest fire far troubl app featur	3	0.18	0.173	0.647	Positive 😊
Amazon	amazon servic becom worst nowaday never order bigproduct order automat wash machin thrice sinc month never provid qualiti servic time send fault machin time amazon n deliveri agent done big issu product third time day deliveri schedul deliveri agent didnt evn bother deliv producttheir custom care depart foolish peopl dont even understand custom say neither abl provid solut cancel product due pathet servic ur money vu get amazon pay account ohh god full stuck much helpless due bad pathet servic money also stuck account beawar guyz	1	0.118	0.217	0.665	Negative 😞



(c)

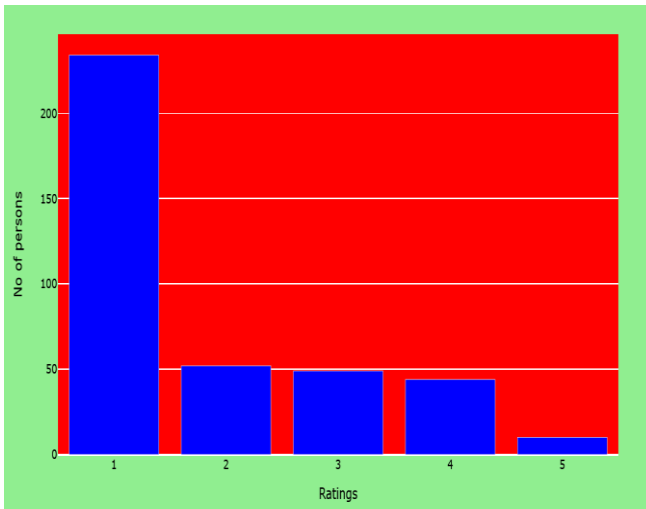
(d)

Fig.(d) represent Pie plot having % of total positive , negative and neutral reviews from that dataset there are total 49.9% reviews which are positive. Fig(e) represent Graph showing total No. of persons and their corresponding ratings this graph specifies no. of persons who have given specific ratings to amazon company.



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(e)

Company Name	Review	Rating
Amazon	Order id: 403-8898597-1663520 . My friend bought one plus earbuds but amazon is denying to replace or return. Asking to visiting service center and service center is saying to contact amazon. Such pathetic support	1
Amazon	Order id: 403-8898597-1663520 . I bought one plus earbuds but amazon is denying to replace or return. Asking to visiting service center. Visited service center and they are saying to contact amazon. Avoid amazon. Its big fraud	1
Amazon	Have been shopping on Amazon for years now.. have been a very good customer. but on rate there are sellers with over 90% positive reviews selling fake products. When you read the negative reviews you will see all are complaining about fake products!	
Amazon	The seller offered me full refund for taking my review down - he still keeps calling me. But I don't want other people to get cheated by him so I refused to remove my review.	
Amazon	But when I complained to Amazon about all this they don't care.. before such cheating would have been dealt with by Amazon but now despite my repeated complaints they don't care.	
Amazon	Luckily I have found another shopping site which is way more honest. Can't really judge this app tester as all of the apps I have loaded on my Kindle Fire tablet were downloaded from Amazon for free. I assume the apps they feature have been pretested for the Fire. So far I have had no trouble with any of the apps they feature	1
Amazon	Amazon service has become worst nowadays, never order bigproducts from here, I have ordered automatic washing machine thrice since 2 months but they never provided quality service, 1st time send faulted machine 2nd time amazon n their delivery agents has done big issue with my product and now it's third time it's been 3 days before delivery was scheduled but their delivery agents didn't evn bother to deliver the product their	3

(f)

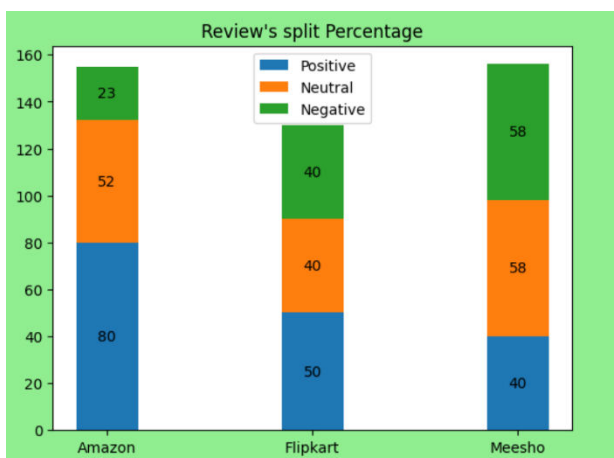
Fig(f) Table data values (in dashboard). These results will appear in dashboard when we search for specific company 'Amazon'. We can search any specific company we want to analyse. In this project we have collected reviews of total 6 E-commerce companies from mouthshut.com website.

Those six E-commerce companies are:

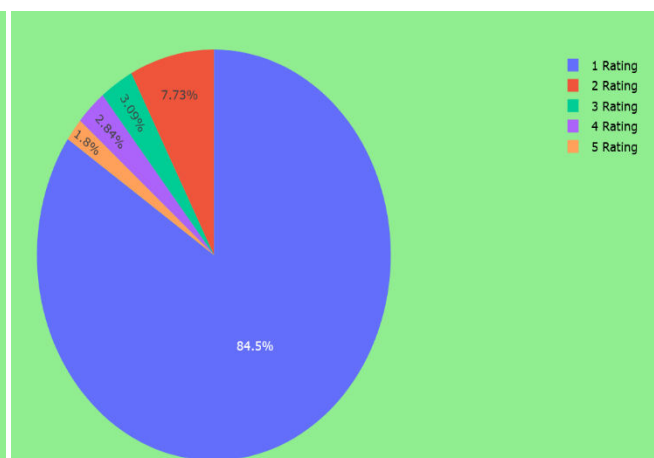
- A. Amazon
- B. Flipkart
- C. Meesho
- D. Ajio
- E. Snapdeal
- F. Myntra

We can search for any above mention company by typing company's name in search menu.

Below are some images of dashboard's first page:



(g)



(h)

Fig(g) represent Review's split Percentage. This figure shows the no. of persons who have rated the company based on positive, negative, neutral basis. In above fig, blue colour indicates positive rating given by 80 persons for 'amazon'



company. Like this we can understand the customers sentiments towards specific company. Fig(h) Pie plot showing % of ratings of 'Meesho'.

There are certain limitations of this system, that the computer doesn't understand the complete context of any sentence or some complex sentences, words. There are some hidden meanings of some words or sarcastic meaning these all cannot be accurately identified by software and computers. So, the result will be more or less equal to our expectations. Also, some fake reviews can be there or there can be prejudicious opinion.

V. CONCLUSION

This project will help customers as well as E-commerce company to understand patterns of how the trend is going on for buying items on E-commerce websites. And customer will be able to understand which company will give them best policy, best service and product. Also, companies will try to improve their policy and will understand where they are lacking. In short, using this method appropriate output will be collected which will eventually help customers to increase their trust towards online shopping.

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