Sentimental Analysis of Customer reviews using Robotic Process Automation

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***Abstract*—Every purchase we make nowadays can be aided by the recommendations of others who have already used the goods. As more reviews become accessible, filtering the relevant reviews would be useful not just to speed up but also to improve the decision-making process. Only collecting the most useful reviews would save time and effort in the data processing procedure. We need more accurate prediction method to identify and predict whether new reviews will be useful or not, even if they haven't been voted on yet. To do this task easily and efficiently, we have done sentimental analysis using robotic process automation (RPA). It helps us in live deployment sentimental analysis ML skill, which makes it consumer ready and easy to use in RPA workflows which reduces the task of developers and modelling becomes efficient and quick.**

***Index Terms*—Sentimental analysis,RPA**

I. Introduction

Consumers' purchase patterns are influenced by digital reviews, which play an important role in boosting worldwide communications and influencing consumer buying patterns. Consumers can use e-commerce giants like Amazon, Flipkart, and others to share their experiences and provide real insights about the performance of a product to future buyers. The classification of reviews into positive, neutral, and negative sentiment is required in order to extract meaningful insights from a huge set of reviews, and the results can benefit both consumers and manufacturers. Sentiment Analysis is a computational study that extracts subjective data from text. Sentiment analysis is an automated method of determining the sentiment or opinion of a group of people by analyzing the written text. People are using social media, blogs, and website comments to actively voice their opinions about products since the Internet's inception. Consumer reviews on the internet are becoming more and more essential in the purchasing process. Customers nowadays study reviews before purchasing a product or service in order to learn from the experiences of others. They may have a certain question in mind, so they go through all of the available evaluations in search of an answer. Simple statistics such as star ratings are insufficient for them to make decisions.Similarly, producers are interested in reviews in order to keep their customers happy and to assess their products in light of changing wants and trends. The accessible reviews, on the other hand, are not all helpful in making a decision. Only the most useful reviews would be collected, which would save time and effort in the information processing process. It is done with the help of robotic process automation which makes the process more easier to manage and moreover, it automatise the whole task which ultimately increases the efficiency.

II. Related Work

III. Methodology

As we have applied our model on flipkart product customer reviews, there are some major steps that are followed to do the task as listed below-

A. Data Scraping

Data Scraping is the method of collecting data from various websites in order to process it.Using RPA, it is done by capturing the screen with the help of selector and extracting data from the selected area.

B. Sentimental Analysis

First of all, a Sentimental analysis Machine learning skill will be deployed on uipath orchaestrator in oreder to use machine learning and operating system package in the RPA workflow by simply dragging and droping the ML skill. Live deployment of this skill makes it consumer-ready.After the data has been collected, cleaning of the datawill take place which includes removing the tabs or new line in reviews then sentimental analysis ML skill is applied on the dataset and a json is created in which the resuts that has been given by the ML skill are stored and then we extract the result from that json file and store it in excel sheet which contains classification the reviews and refine the data to make it easier for customers to take a decision. It analyses the opinion or the reviews of the customers and focus on the words used by them in their reviews to classify it.

C. Classification of reviews

The classification of reviews is based on fivee types- very positive, positive, negative, very negative or neutral.The ML skill classifies the dataset in these five types and gives better results. If the words like no, not,worst, won't, don't, etc., are used then it signifies a negative review. If the words like nice, good, amazing, etc., are used then it signifies a positive review. If the words like ok, not bad, okay, etc., are used then it signifies a neutral review. Based upon the frequency of these words used, the classification is done and confidence scores are generated to show the significance of the classification done.

IV. RESULTS ANALYSIS

It shows us the reviews that are extracted by robot and the type of review that whether it is very positive, positive, negative, very negative or neutral and what is the confidence score of that classification. If the confidence score is closer to 1 which signifies the higher confidence in label's classification while lower score signifies lower confidence in prediction of the type of review.

	A	B	C
1	Review	Sentiment	Confidence
2	Fantastic chair. Been using for over 3 months now..Headr	Very Positive	0.76
3	Chair is nice .Head support is ok and adjustable tooMater	Neutral	0.78
4	Product is not that good....Hand rest is loose and it shake	Negative	0.55
5	Don't buy it after buying it neck pain started. No reclining	Very Negative	0.98
6	Not comfortable at all .	Negative	0.7
7	A good product got if for 4671 rupees.	Positive	0.52
8	Its nice and very comfortable.Buy it must try.	Neutral	0.77
9	Seating is so high and not adjustable... While pushing bacl	Very Negative	0.89
10	The quality is not worth the cost .	Negative	0.65
11	Worest chair	Neutral	0.91

Fig. 1. Output of our model

V. CONCLUSION AND FUTURE SCOPE

Customers have become increasingly reliant on online reviews as a result of the evolution from physical to digital markets. Online reviews have evolved into a tool for establishing trust and influencing consumer purchasing habits. With such reliance, it is necessary to manage a big amount of evaluations and deliver genuine reviews to consumers. Our study aims to achieve this by analysing mobile phone reviews for sentiment and categorising them into positive and negative emotion. Three classification models were employed to classify reviews after balancing the data with a nearly equal ratio of positive and negative evaluations. It may also be used in the future to estimate a product's rating based on the review. This will give users with a trustworthy rating because the product's rating and the mood of the review might sometimes contradict each other. The suggested work extension will be extremely useful to the e-commerce industry by increasing user happiness and confidence.

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