

ANALYSIS OF REVIEW FOR AN ORIGINAL STAR-RATING

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Abstract—Consumers can now create enormous amounts of data in the form of text comments or experiences thanks to the social web. frequently have a tendency to rely solely on such text when it comes to making decisions about the use of a particular product. In order to achieve this desired level of functionality, sentiment analysis is utilized. In this research, we provide a sophisticated sentiment analysis approach for product ratings. This system analyzes the text comments left by users to determine whether or not they contain positive or negative sentiments and then assigns a Polarity Score to each review. Our website is made up of two different panels: both the Admin panel and the User panel. The user must view the product in order to remark on it or to provide their insightful ratings. needs to be registered. Because only authenticated or trusted users are able to provide reviews for products on the site, the site provides genuine user ratings, which in turn assists users in determining whether or not the product is worthwhile to purchase. The final evaluation of the product's star rating will be based on an average calculation using all of the ratings. The job of the administrator is to read the comments left by registered users, make changes to the products, and organize them into categories according to brand, size, color, and category (men, women or kids). A graphical bar representation of product reviews that are categorized as either positive or negative can be generated by using sentiment analysis.

Index Terms— Sentiment Analysis, Product review analysis, Vader Sharp, Sentiment Intensity Analyzer, Sentiment Visualisation, Polarity scores, hidden sentiments

INTRODUCTION

People's online lives have developed into a crucial component of everyone's daily routines. It is used to stay in touch with friends, family, and people who live far away. Also, it allows people to express their opinions about the products in the form of comments on online shopping websites. This article's goal is to assess the author's or the client's opinions about the product through an audit, and those opinions may be favourable or unfavourable. An individual's spoken transmission of thoughts or emotions is referred to as a sentiment. Sentiment Analysis, commonly referred to as Opinion Mining, is a branch of Natural Language Processing (NLP) that focuses on the creation of tools that aim to identify and classify the many emotional states that may be found in written content. There are several writings that express Evaluations of clients are provided in websites for research, online communities, online journals, and online living. This is due to the growing influx of publicly and privately accessible data over the Internet. The general public is technologically adept and ready to upload their own material via a variety of web-

based social networking, such as online person-to-person communication websites and various gatherings, according to the point of view of a customer.

In the modern, advanced world, the vast majority of customers lean toward e-commerce. This is partly due to the attractive offers that are available, but the primary reason is that they require a review and feedback functionality in order to evaluate the product and give it a rating that is in line with the user's feelings. It is not common practice for customers to publish reviews of the products that they have purchased, regardless of whether the reviews are positive or negative

PROPOSED SYSTEM

This article presents the results of an experiment involving a test website that employs the methodologies of opinion mining and sentiment analysis. The prototype website sells items such as clothing and footwear, and users are given the opportunity to both purchase the items and provide feedback on them after making a purchase. There are two different control panels: the user panel and the admin panel.

User Panel

Users of the website must first register an account there before using it. The user will then be allowed to navigate the website after that. After placing the things in their shopping basket, the user has the choice to purchase them at any moment. He can use supported categories like brands, colour, and price to filter the products. Before selecting whether or not to purchase the product, he can read reviews posted by other customers and check how effectively such reviews are backed by ratings. After using a product, customers have the option to rate it and give star ratings.

Admin Panel

The administrator of the website is the person who controls access to the site, ensuring that only registered users can log in. He is authorized to add and remove products, make changes to product information, and view user profiles.

The different processing components of the system are as follows:

Extract Suitable Text

This component will extract all of the text from the review section of the product after the user has logged in and posted a review for any product

Show Review List

This module will show all the reviews of the given product.

Visualisation of Sentiment

This section shows an interactive bar chart that compares and measures the positive and negative attitudes people have towards various products.

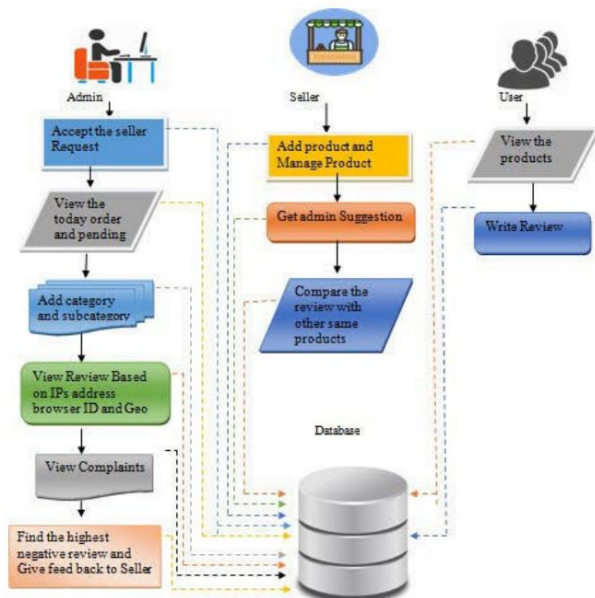


Fig 1: admin and user architecture

The website's administrative panel, shown in Fig. 1, shows how the administrator can control the site's technical setup.

He or she has the choice to accept, add/edit, view, or delete products in the Manage product section in accordance with the brands. The View User function gives the admin access to the user's data, including their username, email address, contact information, and user address, as the function's name implies.. Viewing a user's sales, or the products that user has purchased from the website, is possible through the View Sales option in the Admin Control Panel. Admin can also view the product review of a specific product based on ip address and geo and give feedback accordingly

Furthermore shown in Figure 1 is the website's user interface.

To use the aforementioned privileges, the user must authenticate themselves. The user can filter out products using the brands, colours, and prices in the Add to Cart product before adding the item to their shopping cart. Purchase Product indicates that the consumer can just buy the item and be taken to the payment page. The user could inspect the items in his cart and carry out further actions in View Cart. After use each product, the customer may add reviews or ratings.

appliance. On this project, our group has used the programming language c#. C# is a simple, object-oriented programming language with a short syntax. C# is also praised for being user-friendly. Users who are familiar with c, c++, or java will find learning c# to be a simple process. The sentiment analysis model is now used by the review system. In this model, VaderSharp, the most powerful sentiment analysis tool in C#, is used. Vader is a sentiment analysis tool that analyses social media posts using rules and a dictionary to determine the underlying emotions. It is best known as a lexicon analysis tool. To use it, simply import the package at the top of the page, create an instance of the sentiment intensity analyzer, and then run the method titled "polarity scores."

In this case, we made use of the Sentiment Intensity Analyzer package's object. This object extracts text reviews and assigns polarity scores to each one separately. Following that, it categorises each content survey as positive, negative, or nonpartisan based on the extremity scores, and it forecasts a slant result for each client audit.

rev_id	uid	product_id	review	sentiment_r...
1	1	9	Great produ...	Positive
4	1	9	Great produ...	Positive
5	2	1	very very bad	Negative
6	2	1	very very go...	Positive
7	2	1	very very go...	Positive
8	2	9	very very bad	Negative
11	2	11	Worst	Negative
13	2	11	Ok design	Neutral
14	2	8	product is a...	Neutral
16	2	11	product is a...	Neutral
10010	3	10	good produ...	Positive
20010	1	9	Great produ...	Positive
30010	3	1	Awesome s...	Positive
30011	1	8	Good produ...	Positive
40010	1	10012	Awesome d...	Positive
50010	1	9	Worst	Negative
50011	1	9	Ok	Neutral
50012	3	1	Ok	Neutral
50013	2	1	Bad	Negative
50014	1	11	Good	Positive
50015	3	11	Worst	Negative

Fig -2: Product review sentiment results

FRAMEWORKS AND S/W METHODOLOGY

NET:

For our current feeling project, the .NET framework was selected. A vast range of technological applications can be built using the free and open-source .NET Framework development framework. With the aid of .NET, you may develop for the web, mobile devices, and desktops. You can utilise a variety of programming languages, editors that enhance functionality, and libraries. Its user-friendly technical framework may be used to design, develop, compile, build, and deploy an application thanks to its useful plugins, which include compilers, code libraries, and other similar items.

Visual basic, c#, c, and java are just a few of the programming languages that work with .net. As a result, developers are free to choose and use their preferred programming language during the development of the

Customers increasingly rely on reviews for product information. However, the usefulness of online reviews is impeded by fake reviews that give an untruthful picture of product quality. Therefore, detection of fake reviews is needed. Unfortunately, so far, automatic detection has only had partial success in this challenging task. In this research, we address the creation and detection of fake reviews. First, we experiment with two language models, ULMFiT and GPT-2, to generate fake product reviews based on an Amazon e-commerce dataset. Using the better model, GPT-2, we create a dataset for a classification task of fake review detection. We show that a machine classifier can accomplish this goal near-perfectly, whereas human raters exhibit significantly lower accuracy and agreement than the tested algorithms. The model was also effective on detected human generated fake reviews. The results imply that, while fake review detection is challenging for humans, "machines can fight machines" in the task of detecting fake reviews. Our findings have implications for consumer protection, defense

of firms from unfair competition, and responsibility of review platforms.

TRAINING OF MODELS

the training process can be explored as:

1. In Phase 1, the model was trained on a sizable dataset that contained a combination of favourable and unfavourable comments about numerous goods and services, including books, movies, electrical appliances, music, video games, restaurants, and various retail establishments. Positive or negative one-line reviews were included in the dataset. A single output value between 0 and 1 was not produced using neutral reviews as a predictor for either of the two groups of reviews, positive or negative .

RESULTS AND ANALYSIS

Therefore, in the following section, we will conduct an analysis of the results obtained by analyzing the graphical representation of user reviews for each product using Sentiment Analysis (Sentiment Visualization). Users may find it helpful to examine both the positive and the negative reviews presented in the bar chart associated with each product before deciding whether or not to invest in the product in question.

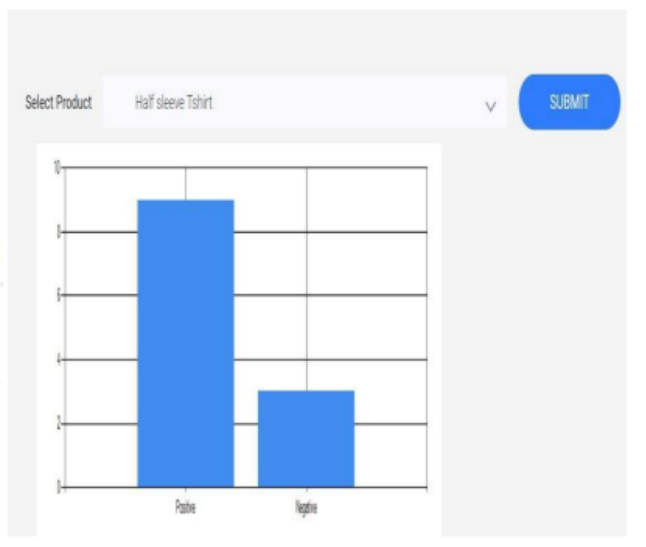


Fig -3: Half sleeve T-shirt reviews Sentiment analysis

Fig -3 states that there are nine positive reviews and three negative reviews for the product



Fig -4: Shoes reviews Sentiment analysis

Fig -4 states that there are one positive reviews and a couple of negative reviews for the product

CONCLUSION

In this day and age of the Internet, it is a great deal simpler to collect various hypotheses from a wide variety of people all over the world. People frequently look to review sites (such as Foursquare and CNET), internet business sites (such as Amazon and Mantra), online conclusion destinations (such as TripAdvisor, Rotten Tomatoes, and Yelp), and online life (such as Facebook, Instagram, and Twitter) to get input on how a particular item or administration is performing in the market and what its growth status is. The accumulation of ratings and reviews written by customers is one of the sources of revenue that can be generated for a company and is frequently used in its place of an extremely powerful tool. This type of digital feedback is an extremely effective tool for increasing your online reputation, fame, and growth while simultaneously boosting the confidence of customers.

Sentiment analysis, also known as opinion mining, is the computational investigation of feelings, assumptions, and feelings communicated within the kind of content, such as customer reviews left on an online shopping website. The information that can be gleaned from opinion mining is one reason why its use is becoming more widespread. This is due to the fact that the information that can be gleaned from opinion mining can result in the legitimization of the products and services that are utilized. The item input is also helpful in the process of building better items, the distribution of which may immediately affect income, as well as looking at the contributions made by competitors. We conducted an analysis of the customer feedback and extracted hidden sentiments from the text. Then, utilizing the Vader Sharp tool, the most powerful sentiment analysis tool available in C#, we sorted the review text into positive and negative categories.

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