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PRODUCT REVIEW ANALYSIS FOR GENUINE RATING

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Abstract - *The social web has made expansive units of data within the sort of text feedback or experiences and consumers often tend to rely exclusively on such text, regarding usage of a specific product. Sentiment analysis is used to achieve this desired functionality. In this paper we have proposed an advanced Sentiment Analysis for Product Rating system that identifies the hidden sentiments within the user's text comments and using the Polarity Scores it rates the product reviews as positive or negative. Our site comprises of two panels, User and Admin. The user should be registered to view and to comment about the product or give their valuable ratings. The site provides genuine user rating as only authenticated/trusted users could provide reviews to products and successively assists them on deciding whether the product is worth buying. The product star rating will be evaluated based on the average of all ratings. The admin's job is viewing registered user's comments, modify the products and also segregate them based on brand, size, colour and category (men, women or kids). Sentiment analysis provides graphical bar representation of product reviews categorized into positive or negative.*

***Key Words*: Sentiment Analysis, Product review analysis, Vader Sharp, Sentiment Intensity Analyzer, Sentiment Visualisation, Polarity scores, hidden sentiments**

1. INTRODUCTION

Web based life has become a basic piece of everybody's everyday lives. It is utilized to stay in contact with companions, family members, individuals living in significant distances and alongside this, it likewise permits the individuals to communicate their perspectives about the items through remarks in an E commerce site. The objective of this paper is to work out the author or client's feelings inside the kind of audits; it will be either positive or negative towards the item. These thoughts or feelings communicated by the individuals are called as sentiments. Sentiment Analysis likewise alluded to as Opinion Mining is a field inside Natural Language Processing (NLP) that assembles frameworks that endeavor to distinguish and separate assessments inside content. Since openly and secretly accessible data over Internet is on a developing binge, an out sized number of writings which express client's assessments are accessible in survey destinations, gatherings, online journals, and web-based life. From a client's point of view, individuals are tech well-disposed and are prepared to post their own substance through different web-based social networking, for example, online person to person communication locales and different gatherings.

In the present advanced world, the vast majority of the customers incline toward e-commerce, due to gainful offers, but primarily because they need a review and feedback functionality to gauge the product and rate it consistent with user's emotions. It is additionally not a standard practice among clients to post audits about an item they buy, be it positive or negative.

2. PROPOSED METHOD

This paper states the event of a test website on which the techniques of opinion mining and sentiment analysis are applied. The test website comprises of products like apparel and footwear where the user can purchase the products and post reviews for an equivalent. It has two panels, namely, the user and the admin.

User Panel

It is mandatory for any user to register on the website. Only then he/she can surf the website. The user can add products to cart and also has the choice to purchase them. He can filter the products supported categories like brands, color and price. He can go through other customers review and supported the ratings can decide whether he/she wants to shop the product. After using it customer can rate the product and provide star ratings.

Admin Panel

Admin is that the one who handles the website and allows only registered users to access the website. He has the authority to add/delete products, edit product information and view user.

The different processing components of the system are as follows:

A. Extract Suitable Text

After the user has logged in and posted a review for any product(s), this component extracts all the text from the review section of the product.

B. List of Products

This module will display an inventory of products from which reviews are going to be extracted upon selection of certain products.

C. Show Review List

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

D. Sentiment Visualisation

This module shows a dynamic bar chart representation measured in terms of positive and negative sentiments for a given product.

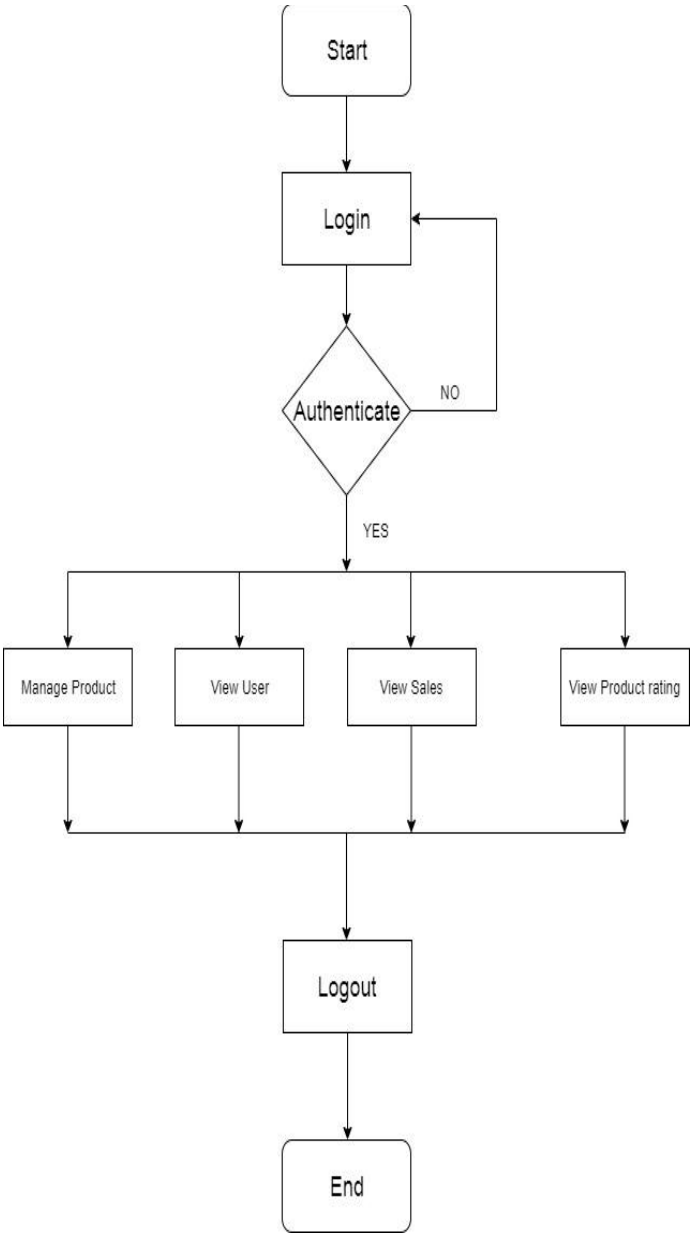


Fig -1: Admin Activity Diagram

Fig -1 represents the Admin Panel of the website where the admin manages the site infrastructure.

In Manage product, he/she can add/edit, view or delete the products based on the brands. In View User, as the name suggests the admin has the privilege to access the details of the user i.e. username, email id, contact details and user address. In View Sales, the admin can view the user's sales i.e. the products bought from the site and in View Product Rating, can access each product's ratings.

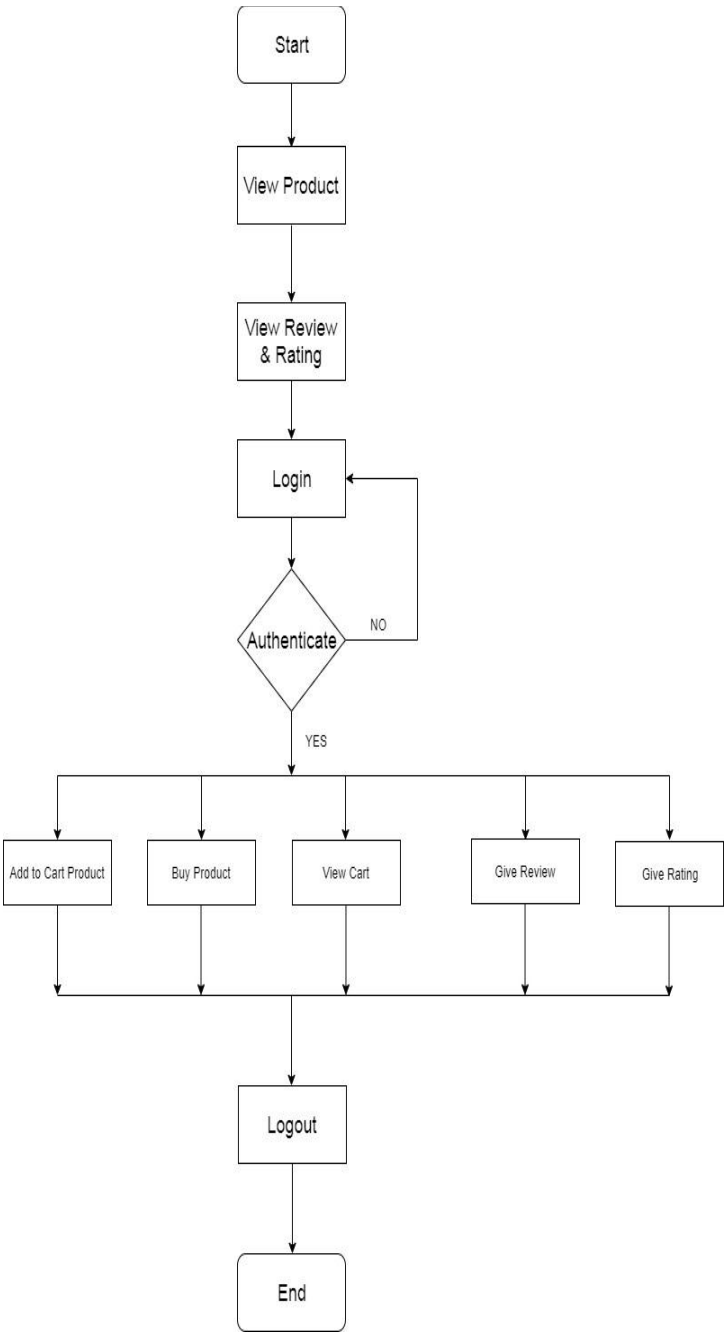


Fig -2: User Activity Diagram

Fig -2 represents the user panel of the website.

The user must authenticate himself for carrying out above privileges. In Add to Cart product, the user can filter out products based on the brands, colour, price and can add the product to their cart. Buy Product means the user can simply purchase the product and he/she would be redirected to the payment page. In View Cart, the user could view the products in his cart and perform out subsequent operations. The user could add reviews or ratings after using each product.

3. FRAMEWORKS AND S/W METHODOLOGY

1. .NET:

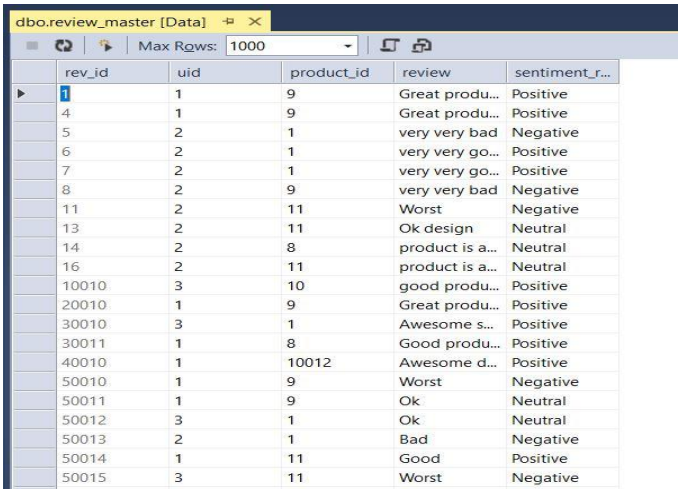
The framework utilized in our sentiment project is .NET. .NET is a free open source developer platform which is employed for building many various sorts of Technical applications. With .NET, you're enabled to use multiple languages, editors for better functioning, and libraries to create for web, mobile, desktop. This techno-friendly framework can be used to design, develop, compile, build, and deploy an application with its useful plugins of compilers, code libraries, etc.

.Net supports diverse programming languages like Visual Basic, C#, C, Java. So, developers can choose and select their preferred language to develop the appliance. In our project we've made use of C# language. C# is an easy, understandable, object-oriented programming language which is usually known for its easy syntax level. C# may be a lot similar to Java syntactically and is easy for users who are well versed with knowledge of C, C++ or Java.

2. SentimentIntensityAnalyzer package:

In Review system we've implemented Sentiment Analysis model which uses VaderSharp which is the best sentiment analysis tool in C#. VADER is popularly referred to as a lexicon and rule-based sentiment analysis tool that's specifically adjusted to extract sentiments hidden within the texts expressed in social media. For using it, we've to only import the package at the highest of page and then just initialize an instance of Sentiment Intensity Analyzer and call it's Polarity Scores method.

Here we have used Sentiment Intensity Analyzer package's object which extracts text review and assigns polarity scores to each of them. It at that point arranges every content survey to positive, negative or nonpartisan dependent on the extremity scores and predicts a slant result for each client audit. This might help other registered users to urge an in-depth feedback whether to shop for the merchandise or not.


dbo.review_master [Data]

Max Rows: 1000

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 -3: Product review sentiment results

4. RESULTS AND ANALYSIS

So here we will analyze the results obtained by graphical representation of user reviews for every product which is executed by Sentiment Analysis (Sentiment Visualization). The bar chart for every product is categorized into positive and negative reviews which might help users to make a decision whether to get the merchandise or not.

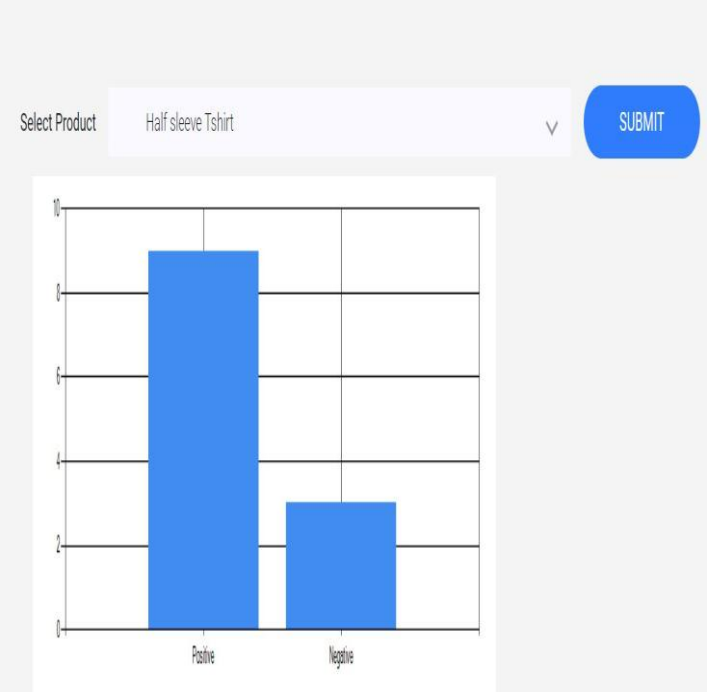


Fig -4: Half sleeve T-shirt reviews Sentiment analysis

Fig -4 states that there are nine positive reviews and three negative reviews for the product

Fig -5: Shoes reviews Sentiment analysis

Fig -5 states that there are one positive reviews and a couple of negative reviews for the product

5. CONCLUSIONS

In the Internet time, it's a lot simpler to accumulate assorted suppositions from various individuals round the world. Individuals normally hope to survey locales (e.g., Foursquare, CNET), internet business locales (e.g., Amazon, Mantra), online conclusion destinations (e.g., TripAdvisor, Rotten Tomatoes, Yelp) and web based life (e.g., Facebook, Instagram, Twitter) to ask input on how a specific item or administration is driving inside the market and what are its development status. The gathering of ratings and reviews generated are often used as an immensely powerful tool for one's business and is one among the revenue earning source. This digital feedback acts as a most effective means to increase build your online reputation, fame and growth while increasing the confidence of consumers.

Sentiment Analysis or Opinion mining is that the computational investigation of feelings, assumptions, and feelings communicated inside the kind of content, for example during a web-based shopping website the client reviews. The utilization of opinion mining is turning out to be all the more generally utilized on the grounds that the information it yields may result inside the legitimization of items and administrations utilized. Item input is furthermore useful in building better items, giving which may immediately affect income, likewise looking at contender contributions. We have analyzed the user reviews and extracted hidden sentiments from the text and using Vader Sharp tool, the best sentiment analysis tool in C# categorized the review text into positive and negative. This might help other registered users to urge an in-depth feedback whether to shop the product or not.

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