

A REVIEW APPLICATION USING NLP

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04/07/2023

Abstract

In this report, I have proposed the idea of a Review Application using Natural language processing, Deep learning performing sentiment analysis and text classification on reviews scrapped from web and reviews posted on the application. Basically, users will be searching for products, places, services in the application and all the reviews related to it will be scrapped from the internet and sentiment analysis will be performed on the review therefore it is easy for user to decide whether the review have positive or negative impact, and for offline stores people can post reviews stating the details of the store and product thus improving sales of small-scale shops.

1. Problem Statement

The problem statement is to apply Sentiment Analysis to analyze the Reviews and customer purchasing patterns in shops and vendors. Since it is very difficult for small scale shops to market their products to larger audience and it is very difficult to bring the trust in them. As online shopping has become day to day activity there are lot of reviews for products sold online, but there is no specific platform where offline stores can get reviews from their customers except generalized platform such as google. In order to do so, I hope to create a service that can provide a platform to market their products.

2. Market/Customer/Business need Assessment

The Rise of E-commerce and online shopping have greatly affected small scale local shops which provides service or products equally to online. Nowadays people are aware of offers in online stores where mostly the price of the product is increased before applying the offer, but there are local shops who equally provide offers on their quality products and services. Thus, a platform where anyone can post review of any product purchased from any shop will provide consumers enough details about the store and bring the trust in them.

3. Target Specification

The proposed system/service will provide the shopkeepers and vendors a platform where their customers can post their review on the product or service availed from the shopkeeper, thus other customers can go through those reviews where we will be displaying all the reviews related to that product or service, from both online and offline, therefore the customer can easily compare the sellers and avail the product or service.

4. External Search

The sources I have used as reference for analyzing the need of such a system for local businesses and how E-commerce giants have been using the technique to boost up online sales, have mentioned below :

- [Understanding Customer Behavior](#)
- [How E-commerce sites benefit from Market Basket Analysis](#)
- [Market Basket Analysis explained](#)
- [Increasing Sales and Improving ROI](#)
- [A study on Understanding Changing Trends of Customer Behavior and hence the Market](#)

4.1 Benchmarking

Market Basket Analysis, a process used by e-commerce titans like Amazon and Flipkart to identify customer buying patterns and utilize this knowledge to cross-sell and up-sell pertinent products, has been employing affinity analysis. But since the majority of daily necessities and other essentials are still purchased from these shopkeepers and vendors, this strategy would also be advantageous when applied to small enterprises.

4.2 Applicable Patents

- <https://patents.google.com/patent/US9665881B1/en>
- <https://patents.google.com/patent/US6976000>

4.3 Applicable Constraints

- **Response time:** The time it takes for the platform to respond to user requests. This should be as fast as possible, especially for critical tasks such as submitting reviews or browsing reviews.
- **Availability:** The platform should be available 24/7. This means that users should be able to access it at any time, from anywhere.
- **Scalability:** The platform should be able to handle a large number of users and requests. This is especially important if you plan to grow your platform in the future.
- **Security:** The platform should be secure and protect users' personal information. This includes using encryption, authentication, and authorization mechanisms.
- **Performance:** The platform should perform well and not slow down or crash under heavy load. This is especially important for tasks such as searching for reviews or browsing reviews.

5. Business Opportunity

- **Freemium:** This model offers a basic version of your platform for free, and then charges users for premium features or content. This is a good way to attract a large number of users and then convert some of them into paying customers.
- **Advertising:** You could sell advertising space on your platform to businesses that want to reach your target audience. This is a common model for many online platforms, including Google, Facebook, and Twitter.
- **Affiliate marketing:** You could partner with other businesses to promote their products or services on your platform. When a user clicks on an affiliate link and makes a purchase, you would earn a commission. This model is often used for platforms that review products or services, such as Amazon or TripAdvisor.
- **Selling merchandise:** You could sell merchandise, such as t-shirts, mugs, or posters, that are related to your platform. This is a good way to generate revenue and to promote your brand.
- **Donations:** You could accept donations from users who appreciate your platform and want to support its continued development. This is a good way to generate revenue if you are not interested in charging users for access.

6. Final Product Prototype

The final product is a service that provides small businesses with a platform where their users can post reviews on the products and services and other users can view it, compare it with other sellers.

- **Homepage:** The homepage will display a list of recently posted reviews in the locality of the user and reviews related to products in which user is interested.
- **Search:** User can search any product or service, all the reviews related to the product or service will be displayed in two categories online and offline and the reviews will be prioritized based on number of upvotes in case of online and locality and number of upvotes in case of offline store.
- **Reviews:** Each review will have a photograph of the product and all the details about product such as price, seller details, quality. Then the reviews will be processed and the sentiment of the review will be analyzed using NLP and tagged along with the review.
- **Profile:** Each user will have a profile page that displays their name, username, and avatar.
- **Settings:** Users can change their account settings, such as their password and email address. They can also manage their notifications and to enable or disable certain features of the platform.

7. Conclusion

In the current competitive world this Application could turn out to be vital for small scale businesses for marketing their products and acquiring customer base among corporate e-commerce giants and online retailers. But this extension for small businesses is a great opportunity to improve sales and help these businesses grow. With a considerable amount of work and effort, this application could be developed and launched for well-being of small-scale businesses and there is huge business potential for this application.