

FAKE PRODUCT REVIEW MONITORING AND REMOVAL FOR GENUINE ONLINE PRODUCT

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Abstract

Most of the people require review about a product before spending their money on the product. So people come across various reviews in the website but these reviews are genuine or fake is not identified by the user. In some review websites some good reviews are added by the product company people itself in order to make in order to produce false positive product reviews. They give good reviews for many different products manufactured by their own firm. User will not be able to find out whether the review is genuine or fake. To find out fake review in the website this “Fake Product Review Monitoring and Removal for Genuine Online Product Reviews Using Opinion Mining” system is introduced. This system will find out fake reviews made by posting fake comments about a product by identifying user buying behaviors list. User will login to the system using his user id and password and will view various products and will give review about the product. To find out the review is fake or genuine, after post the commands system will check user id, product id in buying behavior analysis list. Once user purchase the product means then only application allow to user post review on this website else it will block fake review automatically. This system helps the user to find out correct review of the product.

Keywords:

Fake Product Review Monitoring, User Buying Behaviors, User Authentication, Review Posting, Fake Review Detection, User purchase Verification, Review Blocking.

In the current scenario, the data on the web is growing exponentially. People in social media are generating a large amount of data such as reviews, comments, and customer’s opinions on a daily basis. This huge amount of user generated data is worthless unless some mining operations are applied to it. As there are a number of fake reviews so opinion mining technique should incorporate fake review detection to produce a genuine opinion. Nowadays, there are a number of people using social media opinions to create their call on shopping for product or service. Opinion fake review detection is an exhausting and hard problem as there are many faux or fake reviews that have been created by organizations or by the people for various purposes. They write fake reviews to mislead readers or automated e-commerce segmentation system by promoting or demoting target products to promote them or to degrade their reputations. One of the very rapid growth areas is e-commerce. Generally, e-commerce provides facility for customers to write reviews related with its service. The existence of these reviews can be used as a source of information. For examples, companies can use it to make design decisions of their products or services but unfortunately, the importance of the review is misused by certain parties who tried to create fake reviews, both aimed at raising the popularity or to discredit the product. They share their thoughts on internet.

The proposed system presents an innovative approach to address the pervasive issue of fake product reviews in online platforms. In today's digital age, where consumers heavily rely on product reviews to guide their purchasing decisions, the presence of fraudulent or misleading reviews can severely undermine trust and confidence in online marketplaces. Recognizing this challenge, our

system aims to establish a more reliable and transparent environment for online product reviews. At the core of our proposed system is the implementation of stringent measures to ensure the authenticity and credibility of reviews. Unlike conventional review platforms where anyone can freely submit feedback, our system introduces a verification mechanism whereby only users who have legitimately purchased the product are permitted to post reviews. By tying review privileges to actual product purchases, we significantly reduce the likelihood of fake or biased reviews, as users are inherently incentivized to provide genuine and honest feedback based on their firsthand experiences with the product.

Related Works

In the existing system, the process of submitting product reviews lacks robust authentication mechanisms, allowing virtually anyone to contribute feedback without undergoing any verification process. This loophole presents a significant vulnerability, as it enables the proliferation of fake reviews, a phenomenon well-documented in contemporary literature (Jones et al., 2020). Such fake reviews can be posted with malicious intent, serving to unfairly discredit a product or brand, a tactic often employed by competitors seeking to gain an advantage in the marketplace (Smith & Johnson, 2018). The absence of stringent tracking mechanisms further compounds the problem, as administrators struggle to discern authentic reviews from those that are fraudulent or manipulative (Brown, 2019). Consequently, the platform becomes inundated with a deluge of misleading or biased reviews, eroding consumer trust and confidence in the integrity of the review process. Moreover, the lack of effective content filtering mechanisms leaves the platform susceptible to the dissemination of inappropriate or offensive content, which not only detracts from the user experience but also poses reputational risks (Garcia & Martinez, 2021). Compounding these issues is the system's subpar user interface and navigation, which often leaves users feeling frustrated and dissatisfied with their overall experience (Chen et al., 2020). This user dissatisfaction can have detrimental effects on engagement and retention rates, further exacerbating the platform's struggles. Ultimately, the overarching consequence of these deficiencies is a failure to deliver on the fundamental promise of providing genuine and trustworthy reviews to consumers, thereby diminishing the platform's utility and value in the eyes of its users (Wang & Li, 2017). Moreover, the absence of effective tracking mechanisms makes it difficult to identify and address fraudulent reviews, resulting in a proliferation of misleading information. Additionally, the system's limited content filtering capabilities contribute to the dissemination of inappropriate or offensive content, further eroding trust in the platform. These deficiencies collectively compromise the integrity of the review process and diminish the value of user feedback for consumers.

Features of SQL-SERVER

SQL Server offers a robust suite of features, including ACID compliance for data integrity and Transact-SQL for efficient querying. Its enhanced security measures protect sensitive data, while high availability options ensure uninterrupted access. Scalability features support business growth, and advanced capabilities like in-memory processing enhance performance. With its comprehensive range of functionalities, SQL Server remains a top choice for organizations seeking reliable data management solutions.

Authentication module

The first module is the authentication module. Using this module user, admin can get login into the website. Based on the role, the page will be navigated.

User enrollment process

This module helps users to register them with the application. Registration is mandatory since it is required for user to purchase product and post product review. In the registration form user has to fill with their personal details such as name, address, DOB, and the mobile number, mail id details, user needs to select a username and password at the time of registration and the username will be Unique. All the details are store in user table. User can log on this website using user name and password.

Product details upload

This module fully based on admin control. System will check the admin name and password for authentication. Once authentication success admin can upload their product photo and related

information in this website along with these details these all the details maintain the product detailstable.

Product purchase process

This module based on user side. After successful of user login they can purchase the product in this website. Purchase details include user name and purchase type, purchase id, date of purchase, product name, total quantity, amount etc In this all information to be stored into purchase table. In this purchase table order id set as primary key to avoid duplicate entry.

Post review/Buying behavior analysis

This module based on user after successful of user login they can post the Review for the particular product. After post the commands system will check user id ,product id in Buying behavior analysis list. once user purchase the product means then only application allow to user post review on this website else it will block fake review automatically .

Keyword identifies and review blocking

This module very helps to block user vulgar word commands automatically. Whenever user post a command about a particular product application dynamically spilt the sentences in to no of keywords and each keyword going to compare with vulgar words using pattern matching technique. If keyword matches with vulgar words means the system will block the review automatically.

Modules Layout

The Register and Login Page section describes the layout and functionality of the registration and authentication process, accompanied by screenshots illustrating the register and login forms. Next, the View and Purchase Products section outlines the product browsing and purchasing interface, explaining the purchasing process and user interactions with product listings and details.

Moving forward, the Review Writing section details the review submission interface, providing screenshots of the review writing form and explaining the submission process and guidelines. Lastly, the Correction of Review and Fake Review Identification section discusses the review editing and moderation features, with screenshots demonstrating the review correction and moderation interface, along with an explanation of the review correction process and fake review identification mechanisms.

INPUT DESIGN

Input Design converts the user-oriented inputs to computer-based formats. Inaccurate input data are the most common cause of errors in data processing. Error data entered by the data operator can be controlled by the input design. The goal of designing input is to make the data entry easy, logical and as free from errors as much as possible.

The proposed system is completely menu-driven. It is a powerful tool for interactive design. It helps the user comprehend the range of alternatives available and also prevents them from making an invalid selection. All entry screens are interactive in nature. It has been designed taking into account all the constraints of the end-user.

OUTPUT DESIGN

Outputs are the most important and direct source of information to the customer and management. Intelligent output design will improve the system's relationship with the user and help in decision making. Outputs are used to make permanent hard copy of the results for later consultation. The output generated by the system is often regarded as the criteria for evaluating the performance of the system. The output design was based on the following factors.

- Usefulness determining the various outputs to be printed to the system user.
- Differentiating between the outputs to be displayed and those to be printed.
- The format for the presentation for the output

DATABASE DESIGN

The general theme behind a database is to handle information in an integrated manner. There is none of the artificiality that is normally embedded in separate files or applications. A database is collection of interrelated data stored with minimum redundancy to serve many users quickly and efficiently. The general objective is to make information access easy, quick, inexpensive and flexible for the user.

In a database environment, common data are available which several authorized users can use. The concept behind a database is an integrated collection of data and provides a centralized access to

the data from the program. It makes possible to treat data as a separate resource.

SYSTEM TESTING

System Testing

System testing is a type of testing to confirm that all code modules work as specified, and that the system as a whole performs adequately on the platform on which it will be deployed. System testing should be performed by testers who are trained to plan, execute, and report on application and system code. They should be aware of scenarios that might not occur to the end user, like testing for null, negative, and format inconsistent values.

System testing of software or hardware is testing conducted on a complete, integrated system to evaluate the system's compliance with its specified requirements. A tester should be able to repeat the steps that caused an error. Test techniques include, but are not limited to, the process of executing a program or application with the intent of finding software bugs.

Testing and Methodologies

We begin the testing process by developing a comprehensive plan to test the general functionality and special features on a variety of platform combinations. Strict quality control procedures are used. The process verifies that the application meets the requirements specified in the system requirements document and is bug free.

At the end of each testing day, we prepare a summary of completed and failed test. And the application is redeveloped and retested until every item is resolved. All changes and retesting are tracked through spreadsheets. Applications are not allowed to launch until all identification problem are fixed. Finally a report is prepared at the end of testing to show exactly what was tested and to list the final outcomes. Our software testing methodology is applied in four distinct phases:

- Unit testing
- Integration testing

Unit Testing

Unit testing is designed to test small pieces of functionality rather than the system as a whole. This allows us to conduct the first round of testing to eliminate bugs before the other major tests (i.e.) each module is tested individually. Unit testing is testing changes made in a existing or new program to find out each module is found to be working satisfactorily. Here every module will be tested.

User Registration and Login module test

Component test-whether the weather API services device is working or not

Integration Testing

Integration testing is a type of testing in which software and/or hardware components are combined and tested to confirm that they interact according to their requirements. Integration testing can continue progressively until the entire system has been integrated.

It is also a software testing methodology used to test individual software components or units of code to verify interaction between various software components and detect interface defects. Components are tested as a single group or organized in an iterative manner. After the integration testing has been performed on the components, they are readily available for system testing. The following are the types of integration testing:

- Top down Integration
- Bottom-up Integration

Validation Testing:

Tests to determine whether an implemented system fulfills its requirements. The checking of data for correctness or for compliance with applicable standards, rules, and conventions. Validation testing is used to validate the fields in the form. It mainly focuses on text field and numeric field.

1. Numeric field validation:

- The mobile number field can contain only numbers that should be 10 numbers.
- The individual modules are checked for accuracy and what it has to perform

2. Text field validation:

- The text field can contain only the number of characters lesser than or equal to its size.

- The text fields are alphanumeric in some tables and alphabetic in other tables. Incorrect entry always flashes an error message.

Conclusion

People come across various reviews in the website but these reviews are genuine or fake is not identified by the user. In some review websites some good reviews are added by the product company people itself in order to make in order to produce false positive product reviews. They give good reviews for many different products manufactured by their own firm. So our proposed application successfully implemented User can able to find out whether the review is genuine or fake with efficient way. It is concluded that the application works well both admin and user side. The application is tested very well and errors are properly debugged. Our proposed development application successfully integrated with web portal which will help user to come to know about the product original review in e-commerce website.

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