A Fraud Return Detection System in E-commerce

Priyanka Shiwarkar[1], Pranita Dayare[1], Pooja Kariya[1], Dimpal Kapgate[1], Nitesh Hatwar[2]

[1]Student, Department of Computer Engineering, MIET Bhandara, India.

[2]Assistant Professor, Department of Computer Engineering, MIET Bhandara, India.

Corresponding Author: priyankashiwarkar25@gmail.com

Abstract: - Customers can purchase items from the comfort of their own home or workplace via using online stores. Shopping is made easier and convenient for the customer through the internet. E-commerce has made great strides in providing convenient, fast and secure shopping experience for consumers. In the online marketplace, where customers are more attracted towards online shopping, there might be chances where a customer can intend to return a fraud product in place of the original one. This paper focuses on solution provided for an ecommerce seller when they face issues regarding false products.

Key Words: — *Online return policy issue, Online seller issue, Problems faced by ecommerce seller, online fraud returns.*

I. INTRODUCTION

Nowadays one area of growing interest is of online shopping. People nowadays prefer shopping via online stores as it saves time and is more lenient than going to the actual stores in the market. The combination of the Internet and E-commerce usage has produced a new online atmosphere that is extre melly efficient and effective. In the online marketplace, where customers are buying products, there might be some customers who are intended to return a false product in place of the real one. However, the growth in online retailing hides these problems with product returns. In this project we will be focusing on overcoming this fraud return problems. With the use of Laravel 8.x framework, we are working on a web application where each product is provided with a QR code containing a secret code id in it. The products considered are product from local vendors and not of any brands. When a delivery boy goes to pick a return product, first he will scan the QR Code provided on the product and then can cross verify its id using the system. If the Id matches, then he will pick up the product or else the product won't be returned.

The main objective of the project is to overcome the problems faced by an ecommerce seller when a false product is returned by a customer. Sometimes a customer can may lead to return a false product in place of the correct one which at the end would be a loss of the seller.

II. EXISTING SYSTEM

The previous system's application contains simple management of data regarding the ecommerce site. These applications are mainly used to manage data of orders placed by the users and their transactions Different status of the orders contain order placed, shipped, delivered, cancelled and returned also in the transaction, different status are active and inactive. The existing system is considered to manage the data only. Previously there was no such type of product detection system. At a certain amount, the frauds in returned products are neglected.

III. PROPOSED SYSTEM

The proposed system is a web application, created to overcome and avoid fraud returns occurring in ecommerce business. The system contains different modules to manage data and it also provides manageable users information. Password encryption is added so that no one can access the application except the authenticated person. Token has been provided for each attempt of login to the system to prevent hacking. The project contains different modules which are: Users, Products, Roles, Secrets, Orders and Transactions. Here the Users module contains two sub modules as: Add

Users and Manage Users. The Products module contains again two sub modules as: Add Products and Manage Products. The Roles module contains two sub modules as: Add Roles and Manage Roles. The Secrets module contain one sub module as: Manage Secrets. The Orders module contain one sub module as: Manage Orders. The Transactions module contain one sub module as: Manage Transactions. Every e-commerce system should have security measures because it is one of the most important features for e-commerce. Security measures should be applied at all levels including business applications, front-end clients and servers and also data and information interactions.

Validations have been provided in each field of the forms so that not a single column or field will be left empty. Some ext ra features have also been provided in the system as follows:

Data Tables is a plug-in for the jQuery Javascript library. It is a highly flexible tool, built upon the foundations of progressive enhancement that adds all of the advanced features to any HTML table.

- CREATE performs the INSERT statement to create a new record.

- READ is used to read the table records based on the primary key noted within the input parameter.

- UPDATE executes an UPDATE statement on the table based on the specified primary key for a record within the WHERE clause of the statement.

- DELETE removes a specified row in the WHERE clause.

- IMPORT is used to convert a file into the format required by the application being used. EXPORT is used to convert a file into another format (PDF, CSV and Excel) than the one it is in.

- RESPONSIVE design is an approach to web page creation that makes use of flexible layouts, flexible images and cascading style sheet media queries.

3.1 Objective:

To prevent fraud returns occurred in an e-commerce business as the trust between sellers and buyers is the fundamental problem in online environment. To reduce fraud returns as lack of rules and regulation in e- commerce, as goods and services purchased over the Internet cannot be immediately verified. To provide a better system over the existing system for identification of returned products. To overcome problems in ecommerce such as trust and security.

3.2 Disadvantages of Existing System

Lack of rules and regulations in previous system. Customer can easily return a fraud product in place of the real product received by them. Existing system do not contain product identification scheme. The false products returned by a customer are neglected which causes loss to an Ecommerce seller.

3.3 Application:

As online retailing is a modern medium of shopping, it is important to analyze the consumer purchasing behavior with respect to different strategies and problems occurring when they return a product to an E-commerce business in a competitive market. The project is mainly focuses on the problems faced by an ecommerce seller when a fraud product is returned by a consumer. The system is mainly used in ecommerce sites to verify if the product returned by a customer is generally belongs to the seller or it is a fraud return as sometime customer can intended to return fraud products for their own benefit which later can cause loss to the seller.

IV. LITERATURE REVIEW

At every point of time, due to increased penetration of the internet and smart phone, every individual has become a potential consumer for a company who deals with online business and with increased technological infrastructure; demand for products has also increased tremendously. Understanding, analyzing and meeting consumer's demand has become a fundamental duty of every Ecommerce business around the globe. As online retailing is a modern medium of shopping, it is important to analyze the consumer purchasing behavior with respect to different strategies and problems occurring when they return a product to an Ecommerce business in a competitive market. The research study focuses on the problems faced by an ecommerce seller when a false product is returned by a consumer.

4.1 Ecommerce Trust and Security Issues

A. Trust: The trust between sellers and buyers plays an important role for any successful e-commerce transactions. It has been found out that trust is the fundamental problem in e-commerce. Comparing to traditional commerce, trust is more important in e- commerce because goods and services purchased over the Internet cannot be immediately verified and also because of the lack of rules and regulation in e-commerce.

B. E-commerce Security: E-commerce security shares the same issues with cyber security. The dimensions can be categorized as below:

- Integrity: Making sure the data or information are not modified or tampered by any unauthorized persons and not using them without user's permission.

- Non-repudiation: Making Sure not denying any sale or purchase.

- Authentication: Making sure that only authorized persons are allowed to logon to the system.

- Confidentiality: Sensitive data and information are encrypted and not easily broken

- Privacy: The ability to manage the term under which private information is acquired and used.

V. METHODOLOGY

The front end has been developed for implementing the logic with the use of Laravel 8.x framework. In this coding logic we provide access to each user according to their roles. Each user will be authenticated to their respective modules according the roles provided to them. The system contains the following modules: Login, Dashboard, Users (Add Users and Manage Users), Products (Add Products and Manage Products), Roles (Add Roles and Manage Roles), Secrets (Manage Secrets), Orders (Manage Orders) and Transactions (Manage Transactions). Laravel Breeze has been used for authentication purpose.

- Login Form: - A login form is used to enter authentication credentials to access a restricted page or form which will redirect the user to the respective dashboard. The login form contains two fields, one for email and other for password. After successfully login, the user will be redirected to the dashboard.

- Dashboard: - The dashboard contains the count of total users, total products, total orders (has been placed) and total transactions occurred throughout the system.

- Users: - It is a tool used for information management of all users containing sub-menus such as Add Users and Manage Users. This module will be accessed by the admin only.

  Add Users: - It contains form which is used to add a new user, containing the fields such as Name, Email, Password, Mobile, Address, Country, State, City, Pin code, Role (provided while registration) and Profile of the user.

The form has been created by considering all form validations, to avoid missing user fields.

  Manage Users: - It is a table containing all details of the existing users, with an edit and delete button to make changes in existing data of users or deleting the user's information permanently from the system. The table contains some columns like: ID, Name, Email, Mobile, Address, Country, State, City, Pin code, Role and Profile. The functionality of Data tables has been used here to give more convenient user experience. Searching, Ordering, Information (about total rows) and Paging, this different functionality has been provided in the table. Import and Export (PDF, Excel, Copy and CSV) functionalities have also been added for more flexibility

- Products: - It is a tool used for information management of different products containing sub-menus such as Add Products and Manage Products. This module will be accessed by the admin as well as the seller.

  Add Products: - It contains form which is used to add a new product, containing the fields such as Name, Description, Product Image, Discount, Price, Secret Code and Status of the product. The form has been created by considering all form validations, to avoid missing product fields. Each product contains a secret code provided by the seller which will also be the id of the product's QR Code.

  Manage Products: - It is a table containing all details of the existing products, with an edit and delete button to make changes in existing data of products or deleting the product's information permanently from the system. The table contains some columns like: ID, Name, Description, Product Image, Discount, Price, Secret Code, Status and QR Code. The functionality of Data tables has been used here to give more convenient user experience. Searching, Ordering, Information (about total rows) and Paging, this different functionality has been provided in the table. Import and Export (PDF, Excel, Copy and CSV) functionalities have also been added for more flexibility.

- Roles: - It is a tool used for information management of different roles provided by the admin, containing sub-menus such as Add Products and Manage Products. This module will be accessed by the admin only.

  Add Roles: - It contains form which is used to add a new role, containing the fields such as Name and Slug of the role. The form has been created by considering all form validations, to avoid missing product fields. Both these fields are unique so that it cannot be repeated in the table.

  Manage Roles: - It is a table containing all details of the existing role added by the admin, with an edit and delete button to make changes in existing data of roles or deleting the role's information permanently from the system. The table contains some columns like: ID, Name and Slug. The functionality of Data tables has been used here to give more convenient user experience. Searching, Ordering, Information (about total rows) and Paging, this different functionality has been provided in the table. Import and Expo rt (PDF, Excel, Copy and CSV) functionalities have also been added for more flexibility.

- Secrets: - It is a tool used for information management of different secrets, containing one sub-menu Manage Secrets. This module will be accessed by the admin as well as the seller.

  Manage Secrets :- It is a table containing all details of the existing secrets, with an edit and delete button to make changes in existing data of secrets or deleting the secret's information permanently from the system. This secret will be added as id of a product's QR Code. The table contains some columns like: ID, Name and Slug. The functionality of Data tables has been used here to give more convenient user experience. Searching, Ordering, Information (about total rows) and Paging, this different functionality has been provided in the table. Import and Expo rt (PDF, Exce l, Copy and CSV) functionalities have also been added for more flexibility.

- Orders: - It is a tool used for information management of different orders, containing one sub-menu Manage Orders. This module will be accessed by the admin, the seller and the delivery boy also.

  Manage Orders:- It is a table containing all details of the existing orders, with an edit and delete button to make changes in existing data of orders or deleting the order's information permanently from the system.

The table contains some columns like: ID, User, Product, QR Code (of product), Price, Tax, Delivery Charges, Quantity, Total, Status, Tracking Number and Created At. The functionality of Data tables has been used here to give more convenient user experience. Searching, Ordering, Information (about total rows) and Paging, this different functionality has been provided in the table. Import and Expo rt (PDF, Exce l, Copy and CSV) functionalities have also been added for more flexibility

- Transactions: - It is a tool used for information management of different transactions, containing one sub-menu Manage Transactions. This module will be accessed by the admin as well as the seller.

  Manage Transactions: - It is a table containing all details of the existing transactions, with an edit and delete button to make changes in existing data of transactions or deleting the transaction's information permanently from the system. The table contains some columns like: ID, Order ID, Mode, Type and Created At. The functionality of Data tables has been used here to give more convenient user experience. Searching, Ordering, Information (about total rows) and Paging, this different functionality has been provided in the table. Import and Export (PDF, Excel, Copy and CSV) functionalities have also been added for more flexibility.

VI. SYSTEM ARCHITECTURE

The system contains total 6 main modules and that are Users, Products, Roles, Secrets, Orders and Transactions. In the Users module, there are two sub- modules as Add Users and Manage Users. In the Products module, there are two sub-modules as Add Products and Manage Products. In the Roles module, there are two sub-modules as Add Roles and Manage Roles. In the Secrets module, there is one sub-module as Manage Secrets. In the Orders module, there is one sub-module as Manage Orders. In the Transactions module, there is one sub-module as Manage Transactions. Several roles have been provided throughout the system as Admin, Seller and Delivery Boy. The admin is authenticated to access each six modules i.e. Users, Products, Roles, Secrets, Orders as well as Transactions. The Seller is authenticated to access four

modules that are Products, Secrets, Orders as well as Transactions. And at last, the Delivery Boy is authenticated to access one module that is Orders only. After successful login of the user, the Dashboard will be redirected which contains total count of users, products, orders and transaction. After using the system, the user can logout by clicking on the logout button below their profile picture.
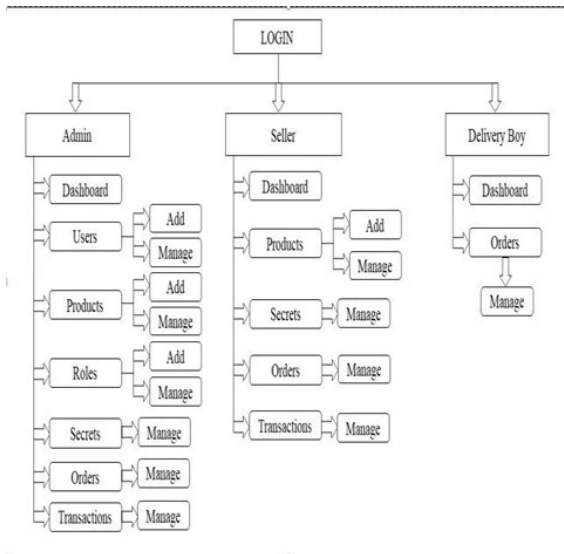
VII. CONCLUSION

As the digital economy is expanding rapidly and affecting more enterprises activities, it is important to take into consideration the issues and challenges of e- commerce seller. Providing secret codes in the product can reduce the percentage of the fraud returns and can overcome seller issues. A proper product identification technology is proposed to reduce fraud returns. The trust issue between sellers and customers is a fundamental problem, and can be overcome by using the system.

REFERENCES

[1]. H. S. Yoon and L. G. Occeña, "Influencing factors of trust in consumer-to-consumer electronic commerce with gender and age," International Journal of Information Management, vol. 35, pp. 352-363, 2015.

[2]. S. Jones, M. Wilikens, P. Morris and M. Masera,. "Trust requirements in e-business" Communications of the ACM, 2000, 43(12), 81-87.

[3]. A. Salam, L. Iyer, et a l. "Trust in e-commerce", Common. ACM, 48(2), 2005, pp.7277.

[4]. Winkler, N. (2018, September 25). Ecommerce returns: policy, rates, best practices & statistics (2018 Holiday Ed).

[5]. Speights, D & Hilinski, M. (2005). Return fraud and abuse: how to protect profits. Appriss Retail.

[6]. H. Matbouli and Q. Gao, "An overview on web security threats and impact to e-commerce success," in Information Technology and e-Services (ICITeS), 2012 International Conference on, 2012, pp. 1-6.

[7]. M. I. Ladan, "E-Commerce Security Issues," in Future Internet of Things and Cloud (FiCloud), 2014 International Conference on, 2014, pp. 197-201.

[8]. A. D. Noor, R. Sulaiman, and A. Abu Bakar, "A review of factors that influenced online trust in social commerce," in Information Technology and Multimedia (ICIMU), 2014 International Conference on, 2014, pp. 118123.B.

[9]. S. Chatterjee, "Security and privacy issues in E- Commerce: A proposed guidelines to mitigate the risk," in Advance Computing Conference (IA CC), 2015 IEEE International, 2015, pp. 393-396.

[10]. Y. Zhang, "Research on trust issue of current chinese c2c e-commerce: Problems and solutions," in Trust, Security and Privacy in Computing and Communications (Trust Com), 2012 IEEE 11th International Conference on, 2012, pp. 1423-1428.

[11]. John P. Wiley & Sons, Ltd. Bower, Amanda B. and James G. Ma xha m III (2012), "Return Shipping Policies of Online Retailers: Normative Assumptions and the Long-term Consequences of Fee and Free Returns," Journal of Marketing, 76 (5), 110–24.

[12]. Rashad Ya zdanifard, Noor A l-Huda Edres "Security and Privacy issues as a Potential Risk for Further E commerce Development". International Conference on Information Communication and Management - IPCSIT Vol. 16, 2011.

[13]. V. Srikanth " E-commerce Online Security and Trust Marks". UCET, Vo l. 3, Issue 2, July-September, 2012.