Secure System for Detection and Prevention of Data Manipulation Attack using MD5 Algorithm

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Abstract : **Now today's entire world have we many issues in internet security and privacy. Research survey discusses regarding privacy and security is based on the use of internet in travelling, E-Commerce site, social media, banking, study etc. Existing system also often faces the problems with the privacy of the entire network system and stored private data. To overcome these issues, increase widely used application and data complexity, so web services have design to a multi-tiered system wherein the web server runs the application front-end logic and data is retrieve to a database or file server. Intrusion detection system plays a key role in computer security technique to analysis the data on the server. This problem overcome in proposed Duel Security technique is introduced based on ecommerce application. For data security we use the message digest algorithm, an in built web server of windows platform, with database My SQL Server. In this paper proposed system monitoring both web request and database requests. Most of the people do their transaction through web based server use. For that purpose duel security system is used. The duel security system is used to identify & prevent attacks using Intrusion detection system. Duel security prevents attacks and prevents user account data from unauthorized updating from his/her account.**

Keywords; Duel security, Message digest algorithm, Intrusion detection, multi-tier web application, data leakage detection.

I. INTRODUCTION

Database is a major component of each and every organization. But to store data in database is not sufficient for any organization, since they have to deal with all issues related to database, from which one of the main issue is database security. We deals with the basic approach that determines whether data stored in database is tampered or not. Any business cannot afford the risk of an unauthorized user observing or changing the data in their databases. Web services are widely used by people. Web services and applications have become popular and also their complexity has increased. Most of the task such as banking, social net working, and online shopping are done and directly depend on web. As we are using web services which is present everywhere for personal as well as corporate data they are being attacked easily. Attacker attacks backend server which provides the useful and valuable information thereby diverging front end attack. Data leakage is the big issue for industries & different institutes. It is very hard for any system administrator to find out the data leaker among the system users. It is creating a serious threat to organizations. It can destroy company's brand and its reputation.

Most of the IDS examine the attack individually on web server and database server. In order to protect multi-tiered web services an efficient system call Intrusion Detection System is needed to detect attacks by mapping web request and SQL query, there is direct causal relationship between request received from the front end web server and those generated for the database backend. Dynamic web site allow persistent back end data modification through the HTTP requests to include the parameters that are variable and depend on the user input. Because of which the mapping between the web and the database rang from one to many as shown in the mapping model.

The **MD5 algorithm** is a widely used hash function producing a 128-bit hash value. Although MD5 was initially designed to be used as a cryptographic hash function, it has been found to suffer from extensive vulnerabilities. It can still be used as a checksum to verify data integrity, but only against unintentional corruption.

MD5 was designed by Ronald Rivest in 1991 to replace an earlier hash function MD4. The abbreviation "MD" stands for "Message Digest."

SQL injection is a code injection technique, used to attack data-driven applications, in which nefarious SQL statements are inserted into an entry field for execution (e.g. to dump the database contents to the attacker). SQL injection must exploit a security vulnerability in an application's software, for example, when user input is either incorrectly filtered for string literal escape characters embedded in SQL statements or user input is not strongly typed and unexpectedly executed. SQL injection is mostly known as an attack vector for websites but can be used to attack any type of SQL database.

SQL injection attacks allow attackers to spoof identity, tamper with existing data, cause repudiation issues such as voiding transactions or changing balances, allow the complete disclosure of all data on the system, destroy the data or make it otherwise unavailable, and become administrators of the database server.

To create a system for intrusion detection on static and dynamic web pages (creating session ID's for each user containing the web front end [HTTP] and back end [SQL server]) also make it able to prevent those intrusions from attacking the web pages and it should be able to find out the perpetrator.

II. PROPOSED SYSTEM :

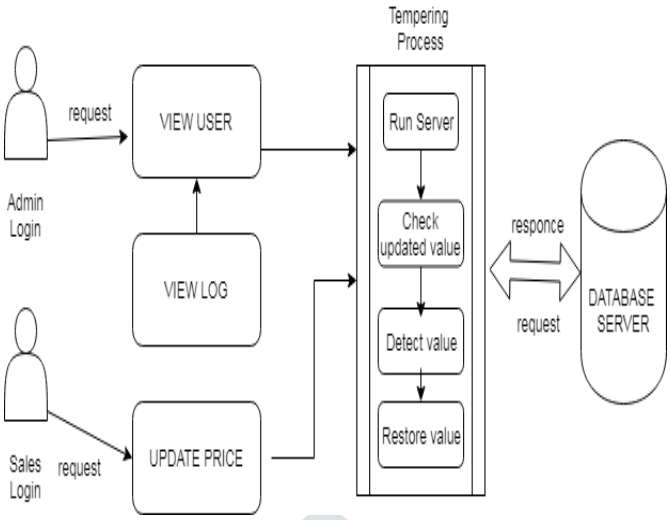

Fig 2. System architecture

In this proposed system there are three modules-Admin, Sales Department and user. All these three modules are connected with the Wi-Fi. At the user side if any sql injection attack and DOS attack is happen then it will be prevented immediately at that time so, user cannot move forward. Admin is the authorized person, he will keep watch on all the user activities and profile and also check log table. He will check first if server is running (on) or stop (off) and at run-time if any value may get changed or any modification is done then it will be an attack. At the back-end admin will analyze this value and detect it. He will restore the initial value automatically within a second of time.

III.METHODOLOGY:

Algorithm: Message Digest 5(MD5)
Input: Input data D = D1, D2, D3,.., Dn saves into the hash table.

Step 1: Arrange all input data into matrix format (save into log files).

Step 2: Consider m as a selected data act as a new selected data.

Step 3: m position gets changed after allocated time period.

Step 4: If () data get hacked.

Step 5: Data leakage is occurs.

Step 6: We have to check the leakage data and prevent

Step 7: Using Revert back function we have to get original data.

Step 8: When user calls that corrupted file, hash function gives to user a previous data.

Step 9: Return True.

Module Explanation:
User Module:
User has a authorized login access. He can update all personal information. User can buy a product by login from his account.He also can give authority to generated secure encryption process.

Sales Department:
Sales department work as a attacker. Here attacker may change the database value of any product without authentication.
Admin Module:
Admin is the authorized person, he will check all the user activity , records as well as profile. He also watch the tampering on changing the values from data base.

Advantages:

1. The proposed system provides authencation.
2. It also prevents hacking.
4. The system prevents identity theft.

III. RESULTS

Fig 2. Sales login page

Above fig 2, shows authentication sales login page based on the secure authentication username and password. Once username and password matched then authentication success.

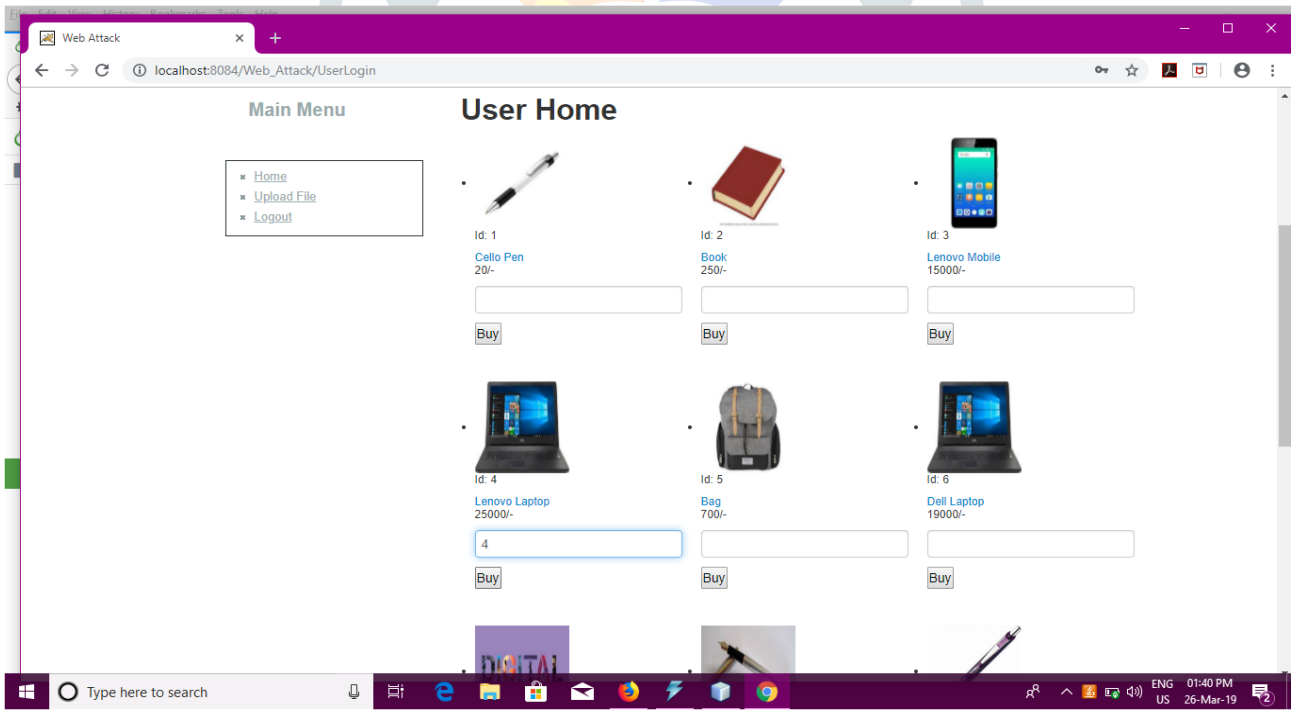

Fig 3. User home page

Above fig 3, shows user home page here user can check product details and buy the product using the product id.

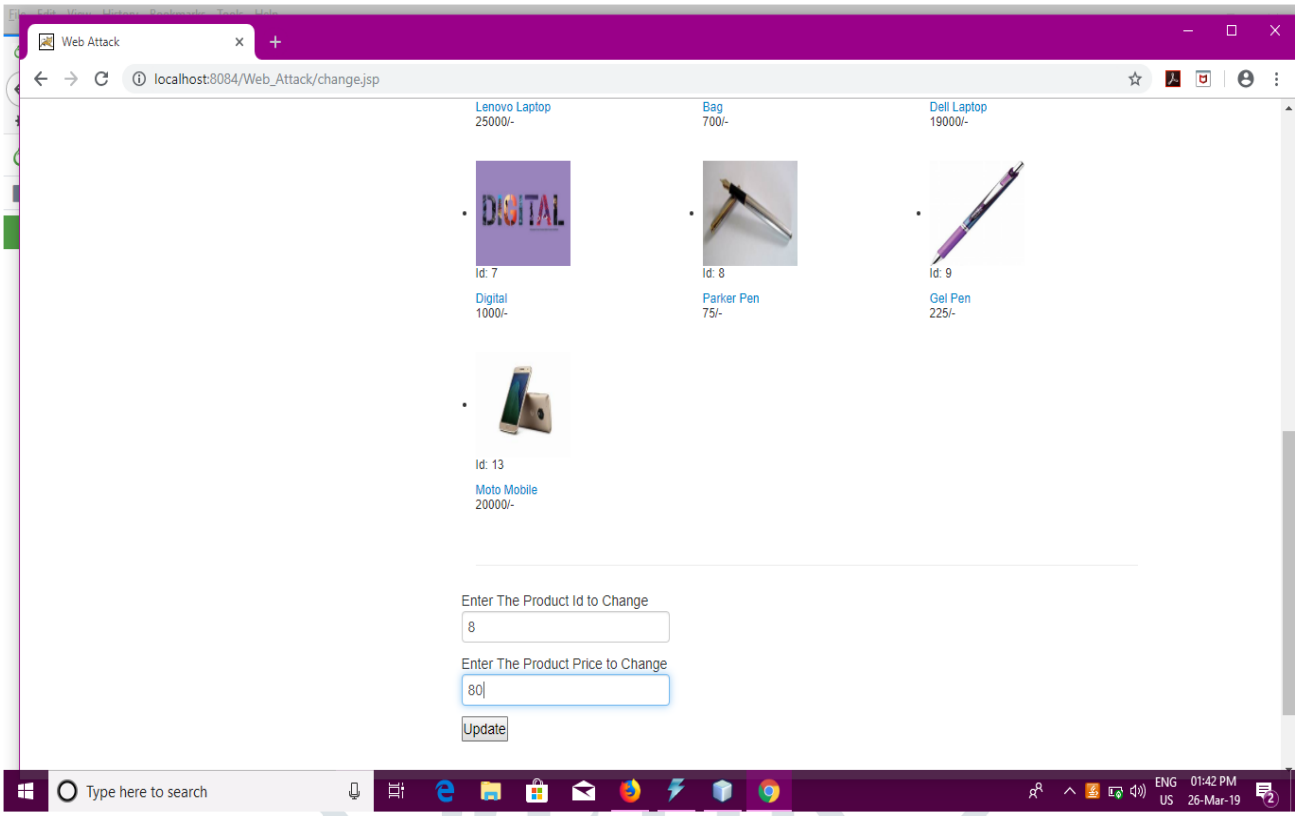

Fig 4. Update product cost respective product ids

Above fig 4, is the sales department authentication page for updating the product price any time when secure server is off or down.

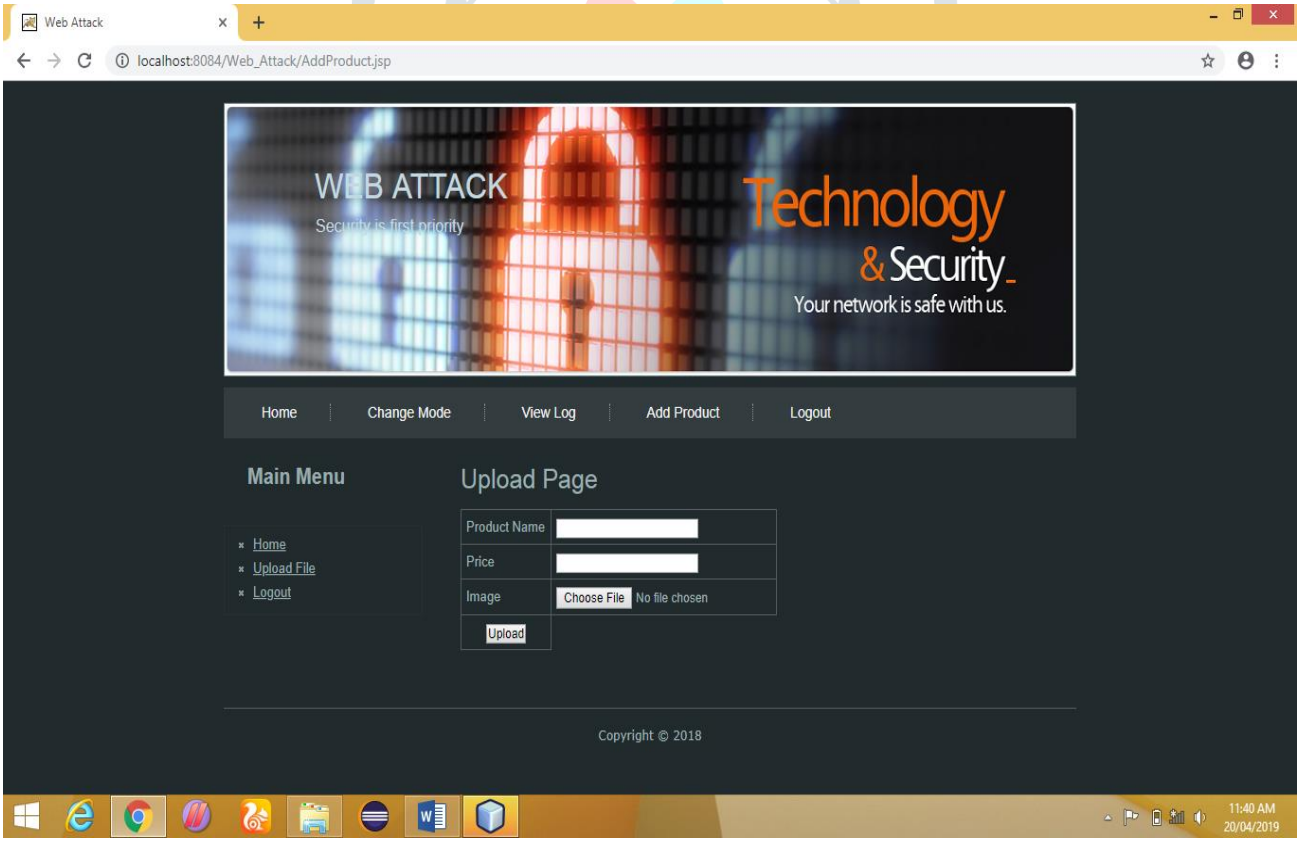

Fig 5. Upload product page with details

Above fig 5, shows the new product adding process, here admin upload the new upcoming product using the name, price and image.

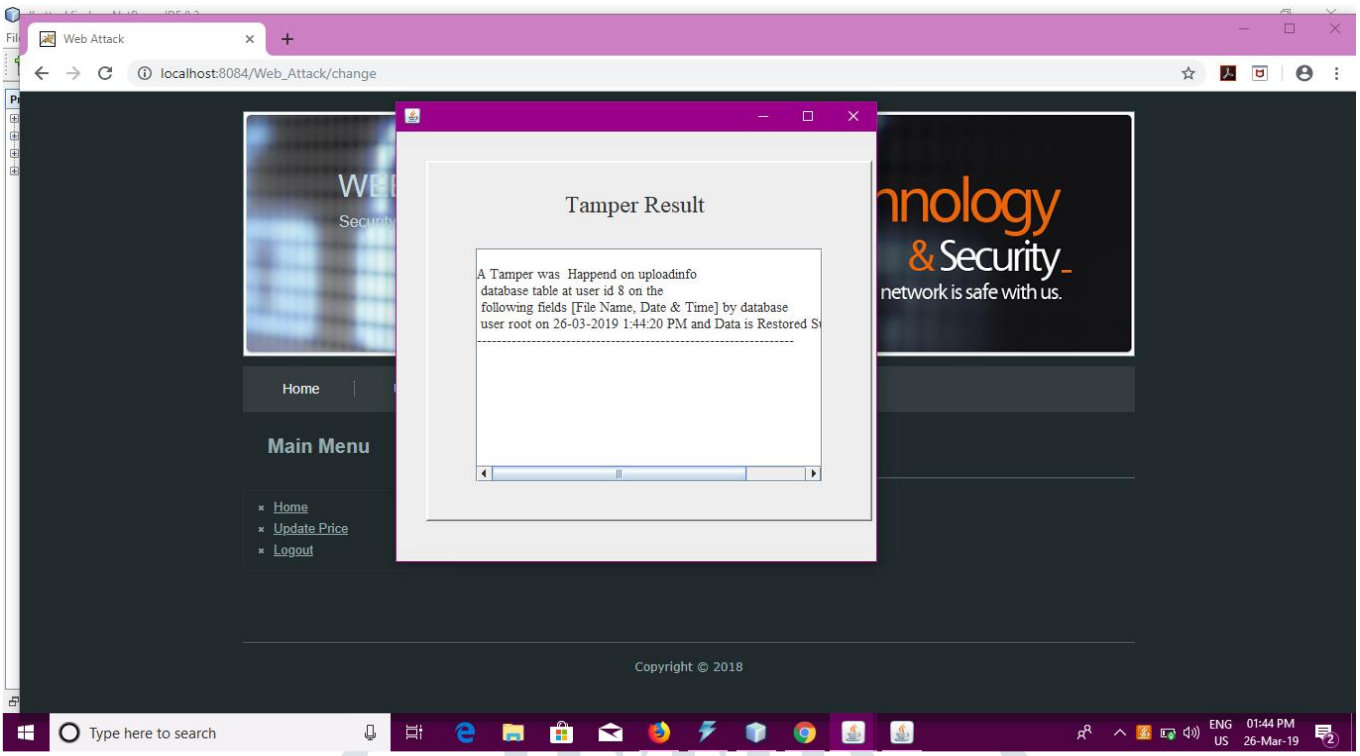

Fig 6. Final attack detection and prevention tamper result

Finally fig 6, shows the attack happen when data manipulation is happen during the secure server running, and the instantly secure server detect the attack and restore the values within of second**.**

IV.CONCLUSION

This is an Application of Modified data detection system through unauthorized access. By using MD5 algorithm we are restoring modified data again. By using MD5 algorithm we are restoring modified data in cooperation the front-end web (HTTP) requests and back end DB (SQL) queries. In future we can analyze the phishing attack and cross site scripting attack can be installed on wide range of machines having different operating systems and platforms.

V.FUTURE WORK

In future we can analyze the SQL Injection attack and Cross Site Scripting attack can be installed on wide range of machines having different operating systems and platforms. We use different algorithm for detecting tempering attacks on files using secure hash algorithm. We also on work global cloud computing for analysis the tempering attacks.

VI.REFERENCE

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