DESIGN AND IMPLEMENTATION OF A PRODUCT EXPIRY ALERT SYSTEM

(CASE STUDY OF BENDEL SUPERMARKET, AUCHI)

BY

ONAIWU KENNETH

MAT. NO.: ICT/2252070396

BEING A PROJECT WORK SUBMMITTED TO THE DEPARTMENT OF COMPUTER SCIENCE, SCHOOL OF INFORMATION AND COMMUNICATION TECHNOLOGY, FEDERAL POLYTECHNIC, AUCHI. EDO STATE

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF HIGHER NATIONAL DIPLOMA (HND) IN COMPUTER SCIENCE.

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CERTIFICATION

We, the undersigned, hereby certify that this project work was carried out by **ONAIWU KENNETH** withmatriculation Number **ICT/2252070396** of Computer ScienceDepartment**.**

We certify that this work is adequate in scope and quality in partial fulfillment of the requirements for the award of Higher National Diploma (HND) in Computer Science.

_____ _____

MRS. CAMPBELL P.I **Date**

Project Supervisor

_____ _____

MR. AKHETUAMEN SYLVESTER **Date**

Head, Department of Computer Science

DEDICATION

This project is dedicated to the Lord God almighty for His love and to my family.

ACKNOWLEDGEMENT

I am most grateful to God Almighty, the sole provider of knowledge, wisdom, love, mercy and grace for His protection throughout the period of the programme

I sincerely appreciate my supervisor **MRS. CAMPBELL P.I**who offered timely correction that led me through the various stages of this project.

Also to our H.O.D **MR. AKHETUAMEN SYLVESTER**for his fatherly love, encouragement and for imparting knowledge in us for the successful completion of this work. Remain blessed sir.

Am extensively indebted to my parents, **MR AND MRS ONAIWU** for their love and support through every thick and thin I had experience in life and throughout my academics. Thanks for giving us the strength to reach out for the stars.

To all my friends, thank you for your understanding and encouragement. My life has been a wonderful experience with you guys. And my uncles **Mr. Odidi** and **Mr. George Idehen** for their endless supports towards the success of my project and academics.

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ABSTRACT

There are many products management systems which has realized the documentation and control of large goods, so as to facilitate the management and decision of sales, and reduce a big burden for managers. These systems hardly notify the users of any product about to expire or has expired. Which has led to loss of goods due to expiration. This project, product expiry alert management helps to improve the work efficiency of supermarket by providing daily, weekly or monthly expiry alerts of products. It also provides the basic information maintenance function of employees, memberships and products so that managers can through the function to add, delete, and modify the basic information of employees and the employees can through it to add, modify and delete the basic information of memberships and goods. Products expiry management system is very convenient for manage, input, output, and find the data so as to make the messy supermarket data to specific, visualizations, rationalization. In the aspect of software. In the cause of writing this project, Java was used to design the system (front end) and Wamp Server and MySQL was used to store the database (middle end). The software has a large memory of storing all the goods in the store and also keeping record, it is highly effective and accurate. In the aspect of software, various configurations in computer including input and output capacity, internal memory and external

memory capacity can meet the requirements of users. The methodology used in this project is the Object-Oriented Analysis and Design methodology (OOAD).

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Products control is the process of managing products in order to meet customer demand at the lowest possible cost and with a minimum investment, Byoungho (2014). A successfully implemented products control program takes into account such things as purchasing goods commensurate with demand, seasonal variation, changing usage patterns, expiration alerts and monitoring for pilferage, Ellram (2016). A preliminary step in the process of product control is to determine the approximate costs of managing inventory. According to Langabeer and Stoughton (2011), these costs include such expenses as storage costs, inventory risks, and the loss-of opportunity costs associated with tying up

capital. Product management is a vital function to help ensure the success of manufacturing and distribution companies and lately retail stores. The effectiveness of Product management systems is directly measurable by how successful a company is in providing high level of customer service, low inventory investment, maximum throughput and low costs, Ellram (2016). The challenge of productive product management is to support an upward trend in sales while keeping the investment at the lowest level consistent with adequate customer service. Control of inventory, which typically represents 45% to 90% of all expenses for business, is needed to ensure that the business has the right goods on hand to avoid stock-outs, to prevent shrinkage (spoilage/theft), provide proper accounting and prevent unnecessary loss of goods due to expiration.

Articles stored and later used in this way are known collectively as inventory. In large organizations, it is usual for inventory to be in tens, even hundreds of items valued at tens of millions of naira. Given this state, it has become natural to have inventory items represented in computer-maintained files. Computer especially microcomputer has become an important tool in all types of business from one-man operations up to large international business firms. Every business manager needs to know what he purchased, what he sold and what is remaining in the warehouse. For this obvious reason, large, small and medium

organizations, companies and government, as a whole need computerization of inventory control. The speed at which the administrative and paper work in retail stores increases on daily basis calls for a corresponding need for a quick and effective device to meet up with the demand. This project hopes to link inventory control and computer system.

This study is to produce software which manages the sales activity done in a supermarket, maintaining the stock details, maintaining the records of the sales done for a particular month/year and most importantly notify users of products which have expired or about to expire. The users will consume less time in calculation and the sales activity will be completed within a fraction of seconds whereas manual system will make the user to write it down which is a long procedure and so paper work will be reduced and the user can spend more time monitoring the supermarket. The program will be user friendly and easy to use. The system will display all the items whose name start with the letter selected by the user. He can select out of those displayed. Finally, a separate bill will be generated for each customer. This will be saved in the database. Any periodic records can be viewed at any time. If the stock is not available, the supermarket orders and buys from a prescribed vendor. The amount will be paid by deducting the total amount acquired in the sales activity. Admin provides a unique username and password for each employee through which he can login.

1.2 STATEMENT OF THE PROBLEM

Although some business owners have incorporated one form of management software or the other in their business, some still use the manual method to manage their business. Bendel Supermarket is besieged with numerous problems, among which are:

i. **Time Consumption:** Manual systems are time consuming, as the business owner must keep track of Supermarket sales on a daily basis, and update the master file at the end of the day.

ii. **Poor Communication:** For a large business who has their workers in different geographical locations, communication is difficult as resources have to be wasted before updated information is gotten.

iii. **Poor record keeping:** The documentation of the daily sales and general stock records are done with paper and pen. This method is poor as data can easily be manipulated or destroyed either intentionally or by natural disaster.

As for the current product management software which are been used by some companies, they have been seen to have one major limitation; products expiration monitor. This is a very important feature that must exist in a well-developed software. These pieces of software only have the ability to record stocks and manage sales. Lack of expiry monitor has made business owners

lose money due to product expiration. There have been cases of business owners selling expired products to users unknowingly. For a case of drug companies, expired drugs become poison to the body. This brings bad name to the company and loss of customers.

1.3 AIM AND OBJECTIVES OF THE STUDY

The aim of this project is design and implementation of a product expiry alert system for Bendel supermarket with the following objectives.

i. To design an easy to use software with a centralized database which helps in the management and record of stock.
ii. The system should permit the users input product's production and expiry dates.
iii. Incorporate a sound notification system to notify users of any product which is about to expire.
iv. System should keep status and updates of transactions, thereby helping progress level, to determine stock taking and managerial decisions.

1.4 SIGNIFICANCE OF THE STUDY

For every new thing developed there must be an advantage, a disadvantage and a significance it will have in the world. The significance of this product expiry alert system cannot be over emphasized. It will be of great

importance to business owners (Bendel Supermarket) as it will reduce if not completely cut off the unknowingly expiration of goods.

It will benefit supermarkets specifically as it will improve the managerial cum administrative strength of the business and move the business forward to meet the demand of times and globalization in this era of technology.

This work can serve as a reference to scholars who are researching in the field of computerized stock management.

1.5 SCOPE OF THE STUDY

This project work covers stock control, management and expiration Alert. It tends to correct anomalies in Supermarket business. It analyses opening of new stocks, stock updates and ability to view existing ones. It provides quick way of operation by capturing the manual process and automating them. It is a stand-alone software built for windows operating system.

1.6 DEFINITION OF TERMS

Inventory - a complete list of items such as property, goods in stock, or the contents of a building/ warehouse.

Stock - The goods or merchandise kept on the premises of a shop or warehouse and available for sale or distribution.

Product- an article or substance that or is manufactured refined for sale.

Expiring date- date of shelf life of a product. Might still be safe, but quality is no longer guaranteed.

Web application – A web application is a computer application program that utilizes web browsers and web technology to perform takes over the internet.

Transaction - an instance of buying or selling something.

CHAPTER TWO

LITERATURE REVIEW

2.1 IMPROVING INVENTORY MANAGEMENT WITH AUTOMATED INVENTORY ALERTS

Effective inventory management control can often be the difference between being able to fulfil an order or not. For the majority of businesses, inventory is a major asset, but if inventory is mismanaged it can create endless problems such as inconsistent high or low stock levels, miscommunication between warehouses and delays in fulfilment (Bendavid, 2010).

It’s important to protect your business from poor inventory management. Unfortunately, many wholesalers rely on employees to manually monitor and

react to changes in inventory. This approach exposes a business to errors and increases risk that can impact its reputation. Isn't it about time you received the information you need when you need it?

2.2 MANAGEMENT OF PRODUCT INVENTORY

Owing to the age of products held in inventory, product issuing and replenishment strategies are completely crucial and need to be considered more comprehensively. The unique nature of the supply chain for pharmaceuticals makes managing complex information for supply chain effectiveness challenging, and lack of proper information mechanisms may lead to poor inventory control methods . The frequency and place of expiration control such as storage, distribution center or retailer-shelf determine the timelines of expiry or product flow information. Burt et al (2013) maintained that in order to develop ideas of how to reduce waste throughout supply chain cycle, one has to know and understand where that waste has been generated. He further indicated that any warehouse accumulates salvageable or waste material from breakage, deterioration and errors in record keeping regardless of how properly the warehouse is managed. In a book written by Magad and Amos (2015), it was stated that 'some materials are more susceptible to spoilage than others; material handling systems were designed to consider the shelf-life of stored items'.

2.3 PRODUCTS ISSUES AND DEMANDS

It should be fairly obvious that a FIFO (First In, First out) approach is most advisable within a frame-work of products that have a short life span. Reduction of outdated products costs could be realized by developing systems to detect slow moving and in-active materials. Hugo (2016) indicated that 'the aim of inventory management is to reduce costs of inventory as much as possible while still maintaining the service levels that the customers require'. Deterioration, damage and pilferage of products are controllable to a great extent by managers (Thron et al. 2017).

2.4 ALERT MESSAGING

Alert messaging (or **alert notification**) is machine-to-person communication that is important or time sensitive. An alert may be a calendar reminder or a notification of a new message Thron et al (2017).

Alert messaging emerged from the study of personal information management (PIM), the science of discovering how people perform certain tasks to acquire, organize, maintain, retrieve and use information relevant to them. Alert notification is a natural evolution of the concept of RSS which makes it possible for people to keep up with web sites in an automated manner.

Alerting makes it possible for people to keep up with the information that matters most to them.

Alerts are typically delivered through a **notification system** and the most common application of the service is machine-to-person communication. Very basic services provide notification services via email or **SMS**. More advanced systems (for example America Online) provides users with the choice of selecting a preferred delivery channel such as e-mail, Short Message Service (SMS), instant messaging (IM), via voice through voice portals, **desktop alerts** and more. Novel approaches provide users with the ability to schedule their own alerts (for example **Google Calendar**).

2.5 THE BENEFITS OF INVENTORY ALERTS

Enhancing inventory management control by monitoring and reporting on stock data changes can help to enforce company rules and procedures so that **s**tock levels are optimized to the businesses best practices. Companies that automate inventory alerts commonly see the following commercial benefits:

- Reduced stock waste
- Optimized inventory levels
- Enforced best practices
- Saves Time

- Increase accuracy
- Synchronization of inventory

2.6 BEST MOBILE ALERT SYSTEM TO CHOOSE?

There are several best practices to consider when using the alert systems. First, develop and implement an Alert & Warning Plan that delineates how messages will be sent and includes message templates. This plan should answer the following questions: Who has the authority to initiate/send messages? What system(s) is used for which type of messaging? Which system(s) requires registration/opting-in? Similarly, developing message templates for different types of situations can help ensure consistency across incidents.

Alerts have limited effectiveness when delivered via just one system. Instead, use several systems to increase alert coverage and inform your entire organization.

Most importantly, educate your organization about how to respond to the various type of alerting (Antai and Mutshinda, 2010).

2.7 DRUGS EXPIRATION AND CONSUMER PERCEPTION OF EXPIRY DATE

Product expiration is a problem which commonly affects Manufacturing Industries in Nigeria. Expiry date is defined as an assurance that a drug product

should meet applicable standards of identity, strength, quality and purity at the time of use. He further indicated that the definition is only applicable under storage conditions specified by the manufacturer on the labeling and packaging. Nakyanzi et al. (2010) maintained that the medicinal supply chain process needs to be managed to avoid wastage, pilferage, misuse, and expiry in developing countries where budgets are tight. Higher inventory add to the average age of the product and leads to more expired products. Tumwine et al. (2010) reported that expired Product stock is a waste of resources, which cannot be afforded in a resource-constrained nation

2.8 TYPES OF INVENTORY?

The four types of inventory most commonly used are Raw Materials, Work-In-Process (WIP), Finished Goods, and Maintenance, Repair, and Overhaul (MRO). You can practice better inventory control and smarter inventory management when you know the type of inventory you have. That includes choosing the best inventory management software to keep track of all that inventory (Bendavid, 2010).

1. Raw Materials

Materials that are needed to turn your inventory into a finished product are raw materials. These inventory items are bits and pieces of component parts that are

currently in stock but have not yet been used in either work-in-process or finished goods inventory.

There are two types of raw materials: direct materials—which are used *directly* in finished goods, and indirect materials—which are part of overhead or factory costs (Antai and Mutshinda, 2010).

Inventory example: For example, direct raw materials might be leather to make belts for your company would fall under this category. Or, if you sell artificial flowers for your interior design business, the cotton used would be considered direct raw materials, too.

Indirect raw materials might be lightbulbs, batteries, or anything else that indirectly contributes to keeping your shop running (Bendavid, 2010).

2. Work-In-Process

Inventory that is being worked on is Work-In-Process (WIP), just like the name sounds. From a cost perspective, WIP includes raw materials (plus, sometimes labor costs) that are still "in production" when the accounting period ends.

In other words, whatever direct and indirect raw materials your business is using to create finished goods is WIP inventory.

Inventory example: If you sell medical equipment, the packaging would be considered WIP. That's because the medicine cannot be sold to the consumer until it is stored in proper packaging. It's literally a work-in-process.

Another example would be a custom wedding dress that's not quite finished when the end of the fiscal year rolls around. That lace, silk, and taffeta are no longer raw materials, but they're not quite a "finished goods" wedding dress, either.

3. Finished Goods

Maybe the most straightforward of all inventory types is finished goods inventory. That inventory you have listed for sale on your website? Those are finished goods. Any product that is ready to be sold to your customers falls under this category.

Inventory example: Finished goods could be a pre-packaged fruit salad, a monogrammed bathrobe, or a custom-built laptop ready for an employee to use.

4. Overhaul / MRO

Also known as Maintenance, Repair, and Operating Supplies, MRO inventory is all about the small details. It is inventory that is required to assemble and sell the finished product but is not built into the product itself.

Depending on the specifics of your business, this inventory might be in storage, at a supplier, or in transit out for delivery.

Inventory example: For example, gloves to handle the packaging of a product would be considered MRO. Basic office supplies such as pens, highlighters, and paper would also be in this category.

2.9 THE MAJOR EMERGENCY ALERT SYSTEMS IN USE TODAY

Emergency notification systems are designed to alert an audience to an emergency or other life-threatening or dangerous event so that people can be informed as quickly as possible so as to take appropriate steps to be safe. When an emergency happens, there are six main types of emergency alert systems that are used to send information to people who may be affected (Thron et al., 2017). These are:

1. **Mass notification systems**

A mass notification system sends recorded messages to landline phones to alert the person who answers to a nearby situation that they should be aware of. However as landline phone use is decreasing, there are fewer recipients of these sorts of messages.

2. **Wireless Emergency Alerts (WEA)**

These are alerts sent from the Federal Emergency Management Agency (FEMA) as well as state and local authorities to peoples' wireless devices, including mobile phones. Messages are sent to all cell phones in an affected geographical area.

3. SMS text systems

This system is used to send SMS text messages to numbers in a database that have opted in to receive both emergency and non-emergency communications.

4. Outdoor Public Warning Systems

This is a system that uses stationary speakers and sirens placed throughout the community that will be activated in an emergency to warn people.

5. Color Code Alerts

Hospital and healthcare facilities often use color codes as part of their alert systems so they can communicate the type of emergency being experienced without alarming patients and visitors to the facility. They are a quick and easy way to let staff know what the emergency is so they can be equipped to deal with it.

Color codes sometimes vary between facilities, but these ones are usually pretty standard;

- **Code blue** - life threatening medical emergency
- **Code red –** a fire or a probable fire
- **Code purple or pink** – a missing child or child abduction

- **Code gray** – to alert security personnel that there is a dangerous person or criminal activity happening in the facility
- **Code green** - the hospital is activating its emergency operations plan
- **Code orange** – medical decontamination is needed such as a hazardous fluid spill
- **Code silver** – an active shooter
- **Code black** - bomb threat.

6. Organizational emergency alert systems

According to Thron et al (2017), an organizational emergency alert system, such as DeskAlerts, is one that can be deployed in a business, school, healthcare facility or any other organization to communicate quickly with employees in the event of an emergency. These systems work by sending emergency communications to computers and mobile devices, using different communications channels, to alert employees to an emergency situation such as a fire, active shooter, natural disaster, chemical spill, bomb threat or other crisis.

As an employer you have a responsibility to keep your people safe. When you have an emergency alert system in your organization you will be able to

broadcast important information to employees alerting them in a crisis and providing timely information about the steps that they must take in order to be safe.

CHAPTER THREE

SYSTEM ANALYSIS AND DESIGN

3.1 GENERAL DESCRIPTION OF THE EXISTING SYSTEM

The existing system is used in stores, supermarket and pharmacies, the existing involve recording each product supplied to the store in an inventory log book in which the store keeper will constantly check to know which product is about to expire and which product has already expired. These process which is very tedious and error prone, the store keeper might not really detect all products that are about to expire or already expired.

3.2 DISADVANTAGES OF THE EXISTING SYSTEM

Some of the disadvantages identified in the present system include:

1. The speed of processing data manually is low and prone to errors.
2. Not all expired products are being detected
3. Things done manually were very uncomfortable.

3.3 ADVANTAGES OF THE PROPOSED SYSTEM

The advantages of the new system includes:

1. To maintain a record of batches of product brought to the store
2. To keep a record of products brought to the store.
3. To detect about to expire and expired products in the store.
4. To calculate the loss on expired products.

3.4 METHODOLOGY

There are two main sources of data collection in carrying out this study, information was basically obtained from the two sources which are:

(a) Primary source and

(b) Secondary source

3.4.1 Primary Source

Primary source refers to the sources of collecting original data in which the researcher makes use of empirical approach such as personal interview, questionnaires or observation.

In our research, we used the method of observation where we were attentive to how transactions are being operated and saved using a manual method.

3.4.2 Secondary Source

The need of the secondary sources of data for this kind of project cannot be over emphasized. The secondary data were obtained by us from the library

source and most of the information from the library research has been covered in our literature review in the previous chapter of this project.

3.5 DESIGN OF THE NEW SYSTEM

The word “Design” is the process defining the architecture, component, modules, interface and database for the propose system to satisfy specified requirements. It refers to the physical and technical specification that will be applied in complementing the new system first, the physical design relate to the actual input and output, processes of the system, this is laid down in terms of how data is input into a system it also shows how data is verified/authenticated, how it is processed and how it is displayed. It involves a detailed design of a user and admin database structure processor and a control processor and testing those programs needed to meet system objectives.

3.6 DATABASE SYSTEM

The input table for product entry, product details, production date, expiry date for product expiry record are submitted to a database (backend) built with Microsoft access but embedded in MYSQL

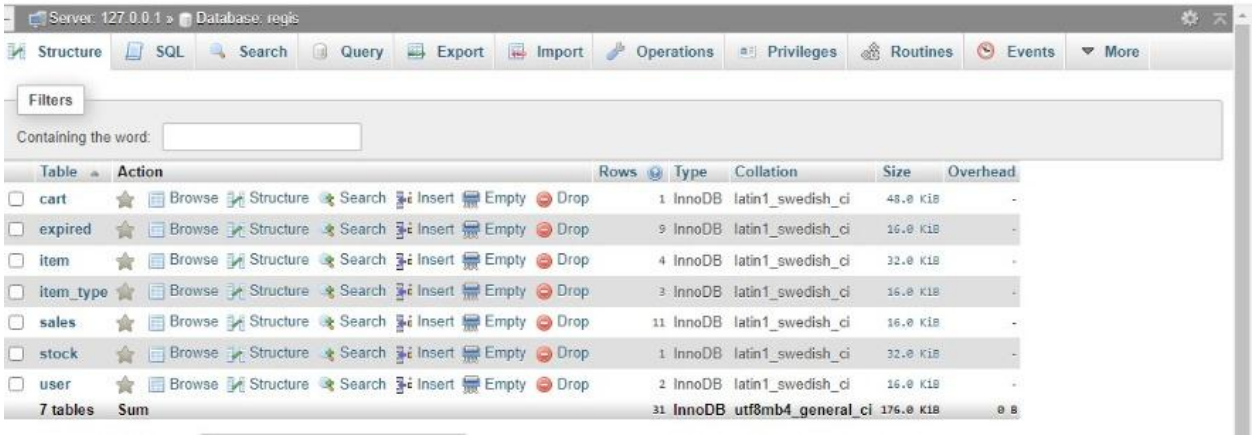


Figure 3.1 Main database table

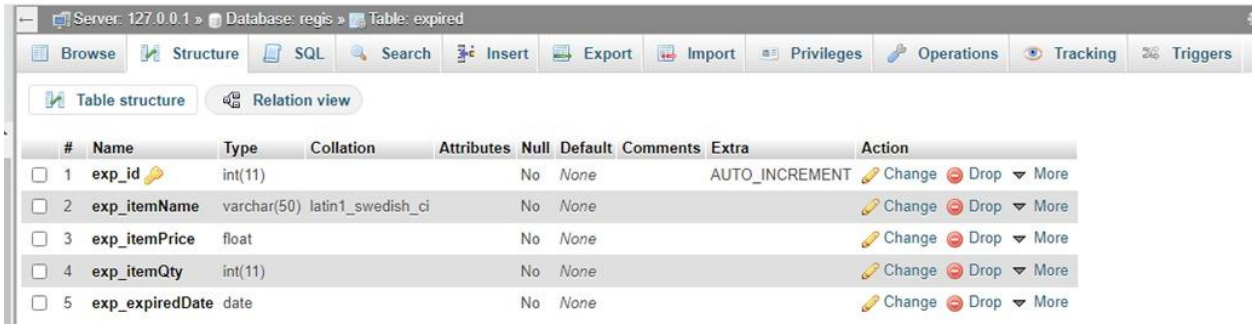


Figure 3.2 Expired item table

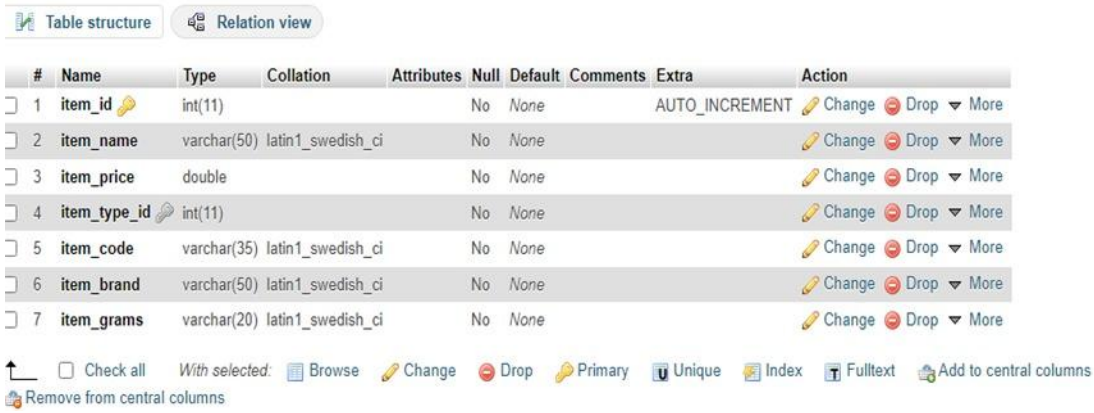


Figure 3.3 Order table

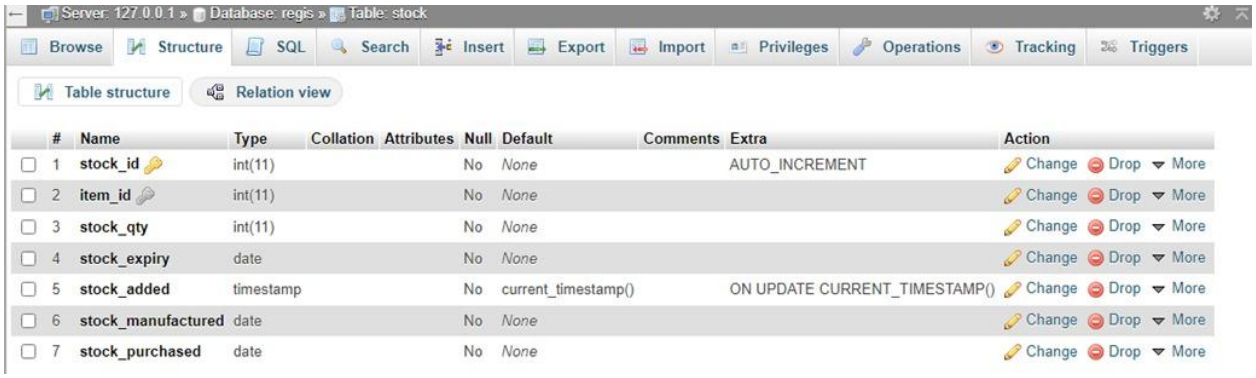


Figure 3.4 Product table

3.7 INPUT ANALYSIS

The input of layout of the new system is as follows:

1. Add Product form
2. Add batch form

ADD PRODUCT FORM

Batch: ……

Product Name: ……

Manufacturer Name: ……

Barcode: ……

Quantity: ……

Price:

FIG 3.5: Add Product input layout

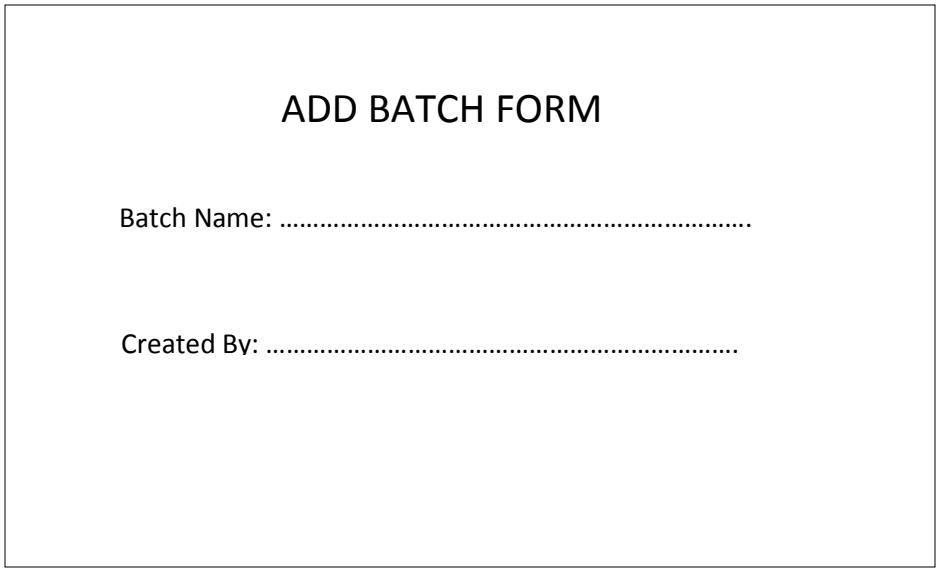


FIG 3.6: Add batch input layout.

3.8 PROCESS ANALYSIS

The working process of the system is as follows; the data entered in the form is checked to make sure that all the required fields are filled and they match the corresponding data types and then they are store in the relational database. When information about products or batches is required, they are then fetched from the database and process to information and displayed to the user.

3.9 OUTPUT ANALYSIS

The output from the system designed is generated from the system inputs. These reports can also be presented as hard copy.

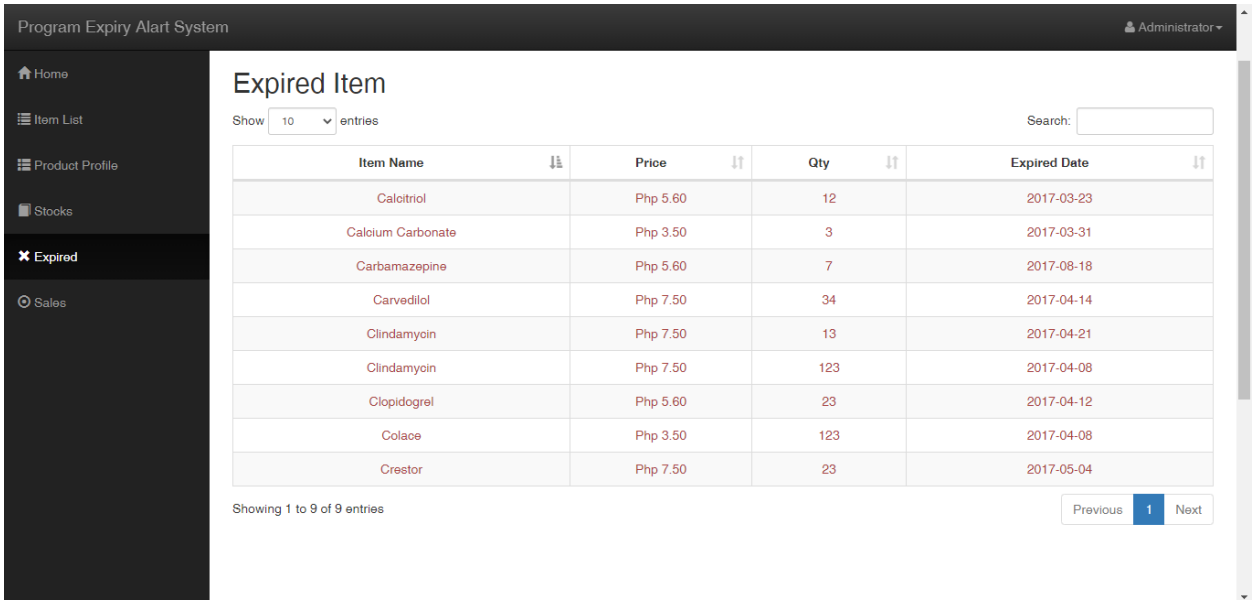
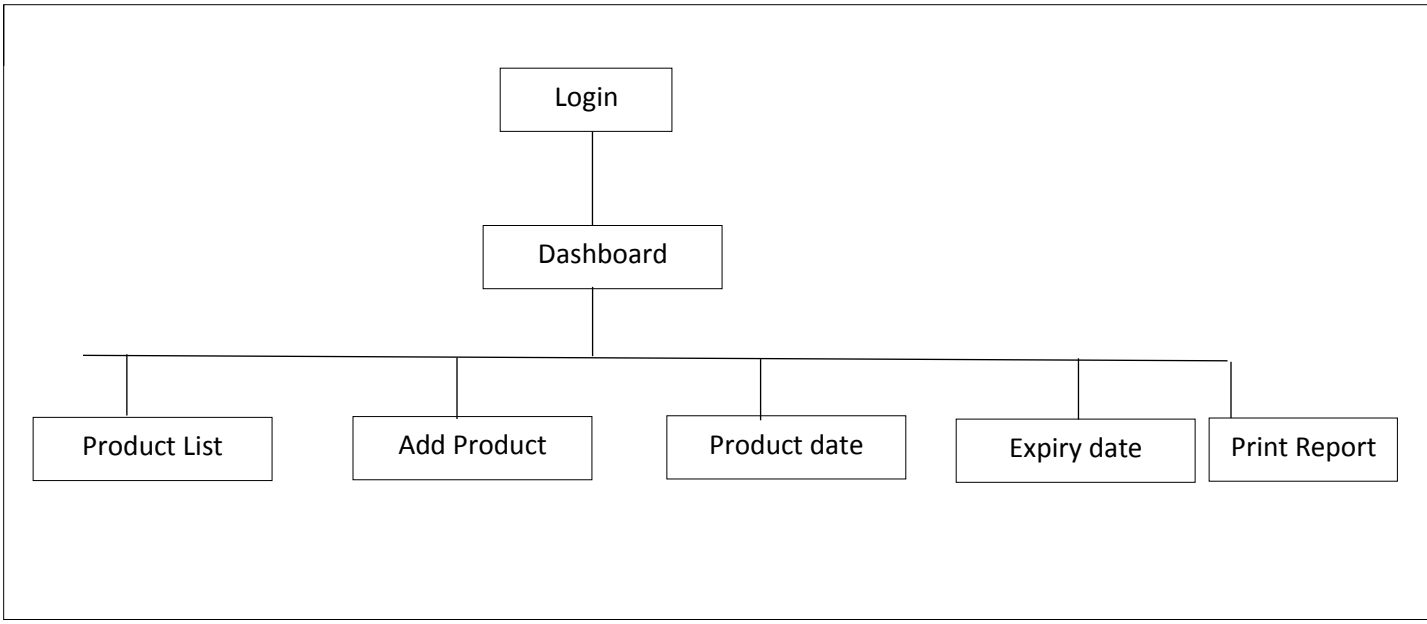
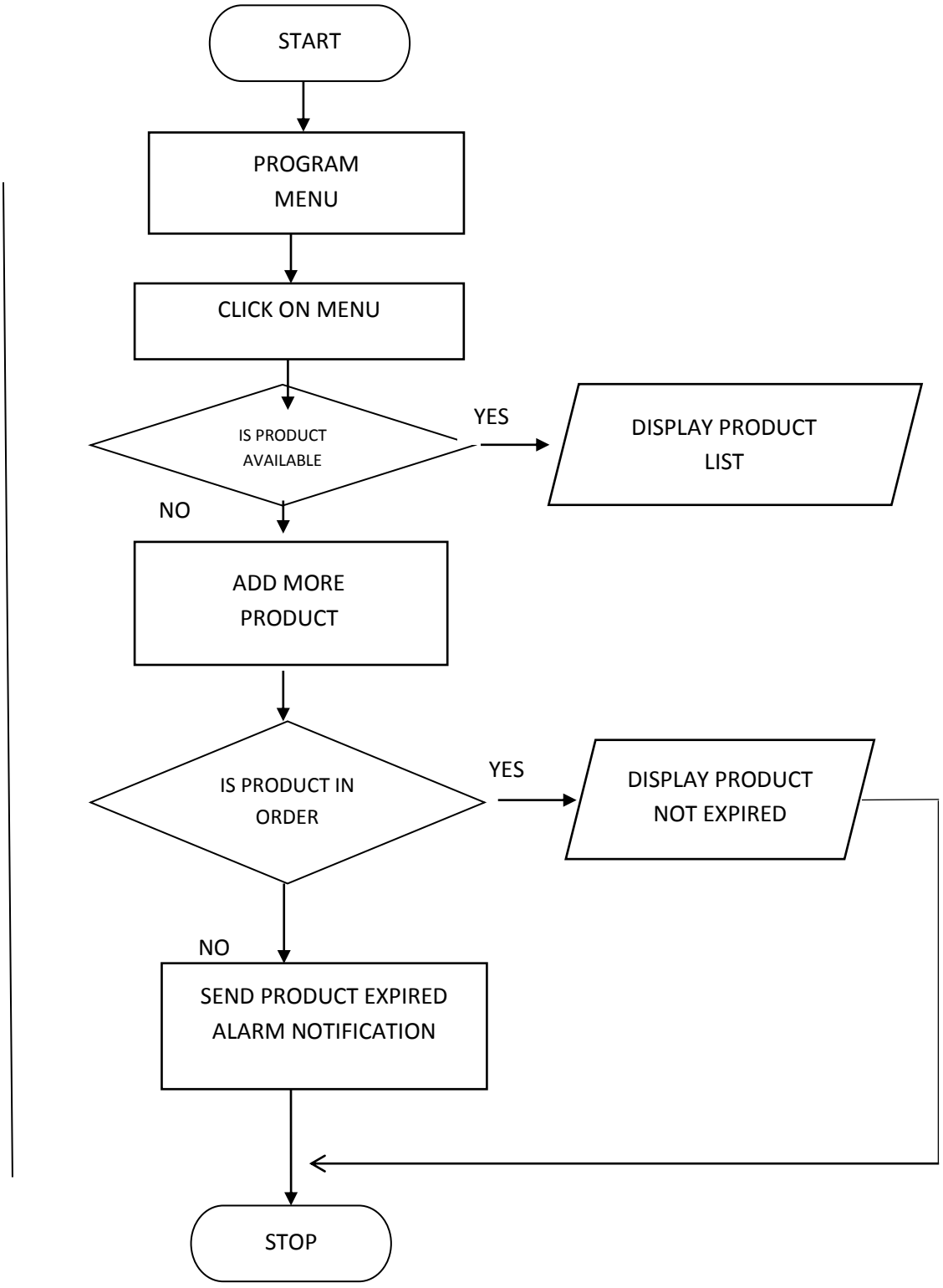


Figure 3.7 Expired Item

3.10 INFOMATION FLOW DIAGRAM



Program Flowchart



CHAPTER FOUR

SYSTEM IMPLEMENTATION

4.1 JUSIFICATION OF PROGRAMMING LANGUAGE

Once the algorithm specifying the operation necessary to accomplish the given task has been developed, an appropriate programming language is used to represent them as encoded sequence of instruction for the computer to execute. The selection of a programming language for use in a particular application is dependent on a large part on the nature of the above language selection, the Web Languages (HTML, CSS, JAVASCRIPT E.T.C.) were selected, Bill gates described Web Languages (HTML, CSS, JAVASCRIPT E.T.C.) as an "easy get powered tool for developing application which are totally potable". The choice of Web Languages (HTML, CSS, JAVASCRIPT E.T.C.) as programming language is bore with the following reasoning

1) Web Languages (HTML, CSS, JAVASCRIPT E.T.C.) has an intelligent interpreter/editor that often changes needed to correct routine programming and to geographical building and application.
2) Web Languages (HTML, CSS, JAVASCRIPT E.T.C.) has easy –to-use graphic statement, powerful built-in functions for mathematics and string manipulations and sophisticated file handling capabilities.

3) Web Language (HTML, CSS, and JAVASCRIPT E.T.C.) is a powerful and versatile tool that is well suited for complex business applications.
4) Web Languages (HTML, CSS, JAVASCRIPT E.T.C.) makes it easy to build up larger program by using modern modular techniques, this means one can break down a program into easier to handle (and or error prone) modules.
5) With Web Languages (HTML, CSS, JAVASCRIPT E.T.C.), one can develop user friendly applications.

The database used to design this program is MySql database system; it is an open source database which can be deployed online with high security feature. MySql is a relational database with data tables.

4.2 PROGRAM TESTING

During the design stage of the system, testing of the system was done to verify its efficiency and resistance to deliberate errors. This can be dining in toe stages which include:-

- **Unit testing** – the performance of the individual parts are examined using test data.
- **System testing** – the parts are linked together and the test data is used to see if the parts work together.

4.3 SYSTEM MAINTENANCE

System maintenance ensures that the system runs promptly by eliminating the smallest error suspected. This section, thus propose measures to be adopted.

i. Proper handling of the system unit. This entails booting, rebooting and shutting down the system properly to prevent file corruption.
ii. Scanning the hard disk and floppy disk in use regularly to avoid infection by viruses.
iii. Regular service of the computer hardware to avoid sudden breakdown of the computer.
iv. Important files of the new system should be backed up regularly to avert permanent loose of data due to hard disk failure.

4.4 SYSTEM REQUIREMENT

Hardware requirement

- Desktop computer or personal computer at the user end.
- The server computer which serves as back end with a configuration up to 4 megabyte of ram.
- Storage disk of 250 – 500 gigabytes
- Internet Access

- Router
- Printer
- UPS
- Stabilizer

Software Requirement

- Xampp
- MySql database system

4.5 CHANGE OVER

There are different methods of conversation of a manually operated system to a computer operated system. The different methods are mention below

- **Dual Approach**

This method requires that the existing system gradually put in place. It is more or less a gradual change over and not an immediate conversion

- **Inventory Approach**

This method requires a computer, on time change – over from the existing system to the new system. It can also be said to be an end to the old system immediately.

- **Apparel Approach**

This method requires the simultaneous operation of both the existing and the new system until such a time that the new system is actually producing result.

- **Pilot Approach**

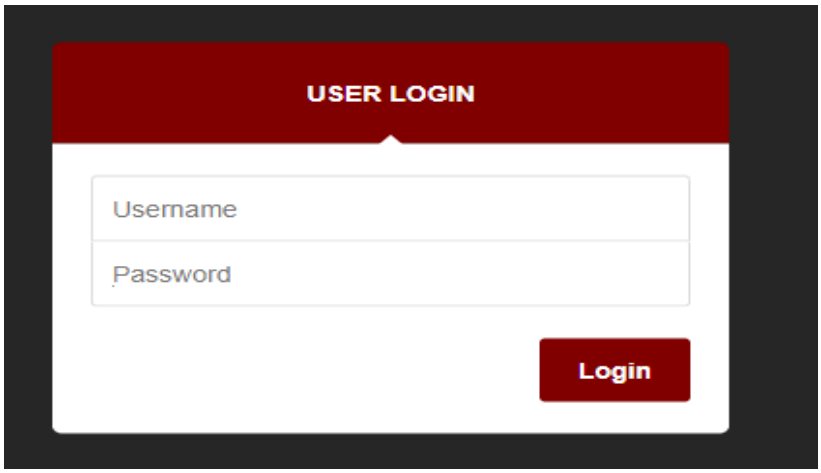
This method requires that a small portion of the new system be implemented and evaluated (by any of the pre- defined change- over approaches) while the major portion of the work load continues to be processed via the existing system. If the implementation of the entire system can be converted. This method is also a gradual change –over.

The best change over approach for the proposed system for its effective use is a parallel "approach" Reason being that the new system need proper familiarization by user and it is likely that they do not know much about computer system.

4.6 Program Testing and Sample Output

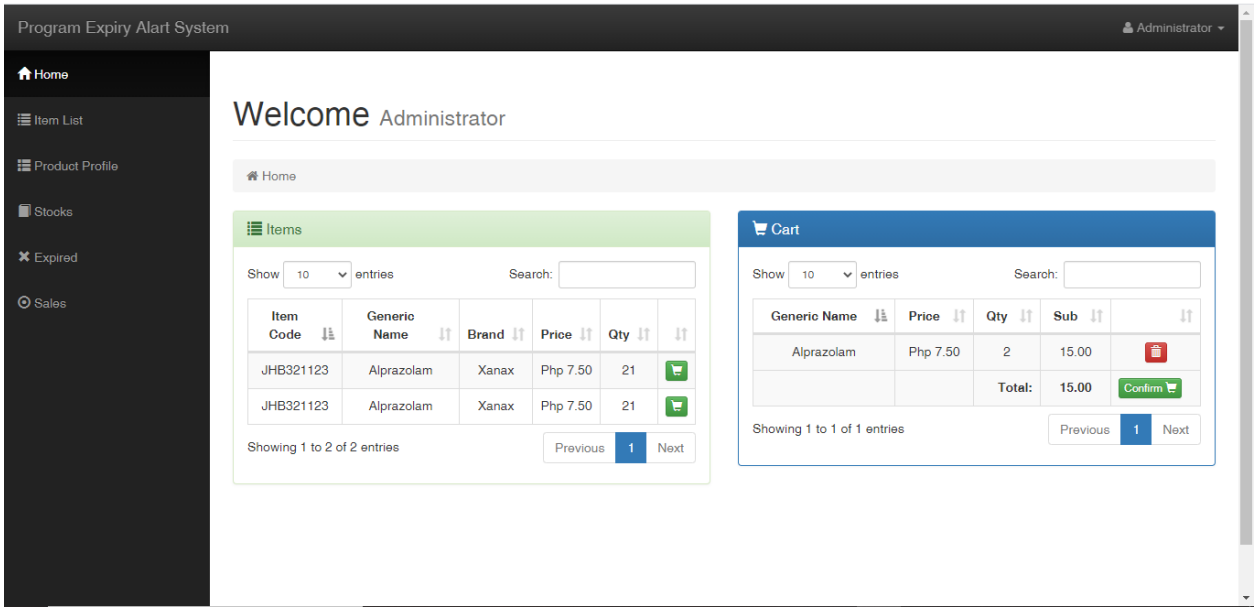
Login Page

This page is used to prevent unautorised users from the system. A user (Admin) is expected to enter his unique password to gain access to the system.



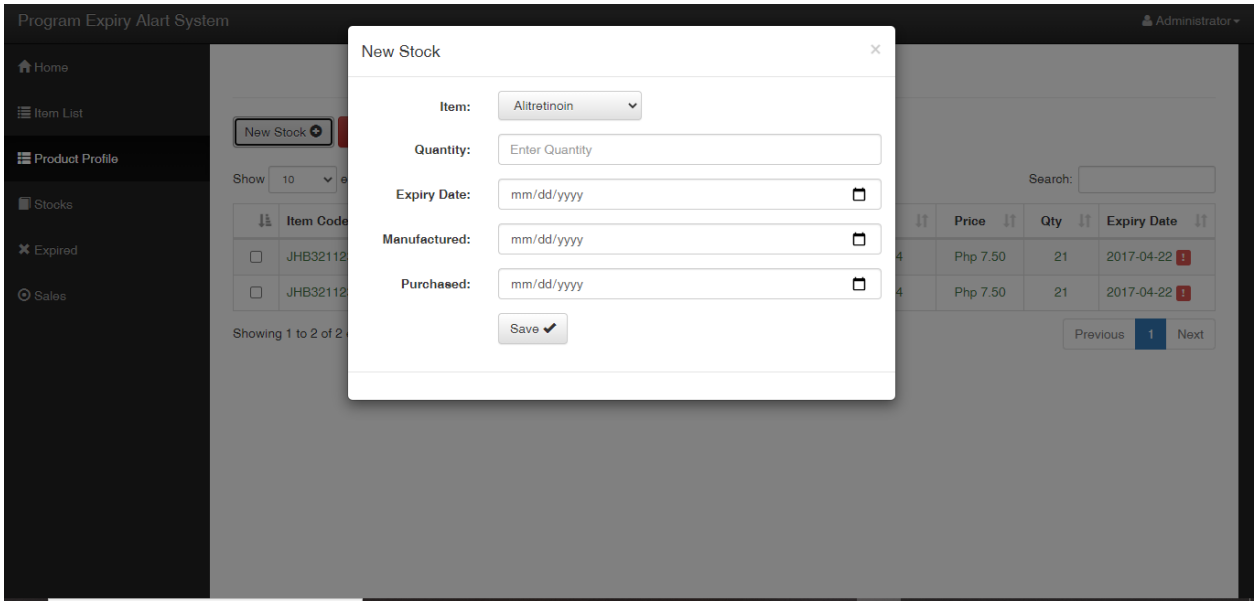
Dashboard

Once a user enters his or her correct password into the system through the login page, access is given to the user in to the dashboard. The dashboard contains link to all other pages (modules) of the system. It displays orders.



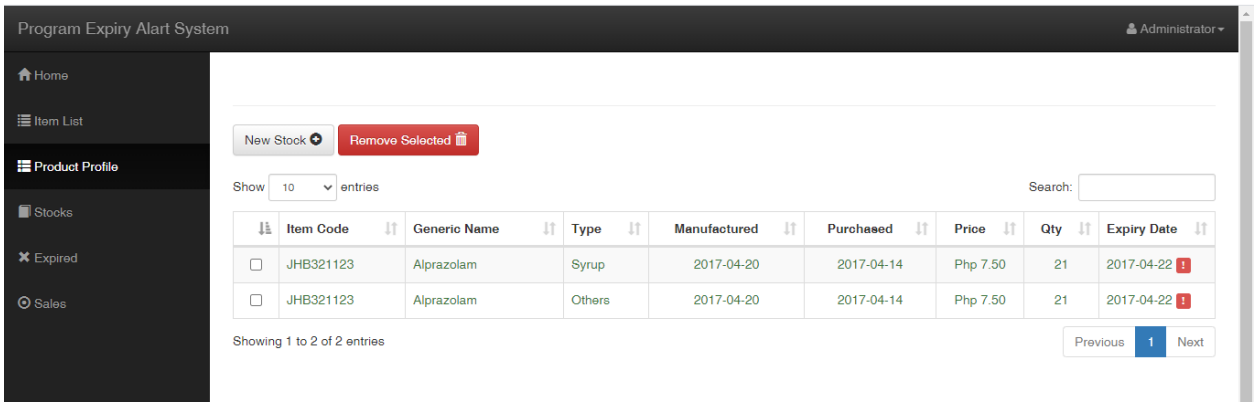
Stock Page

The admin is able to add new inventories here. When there is an existing supply of new stock, the admin through this module include them into the system.



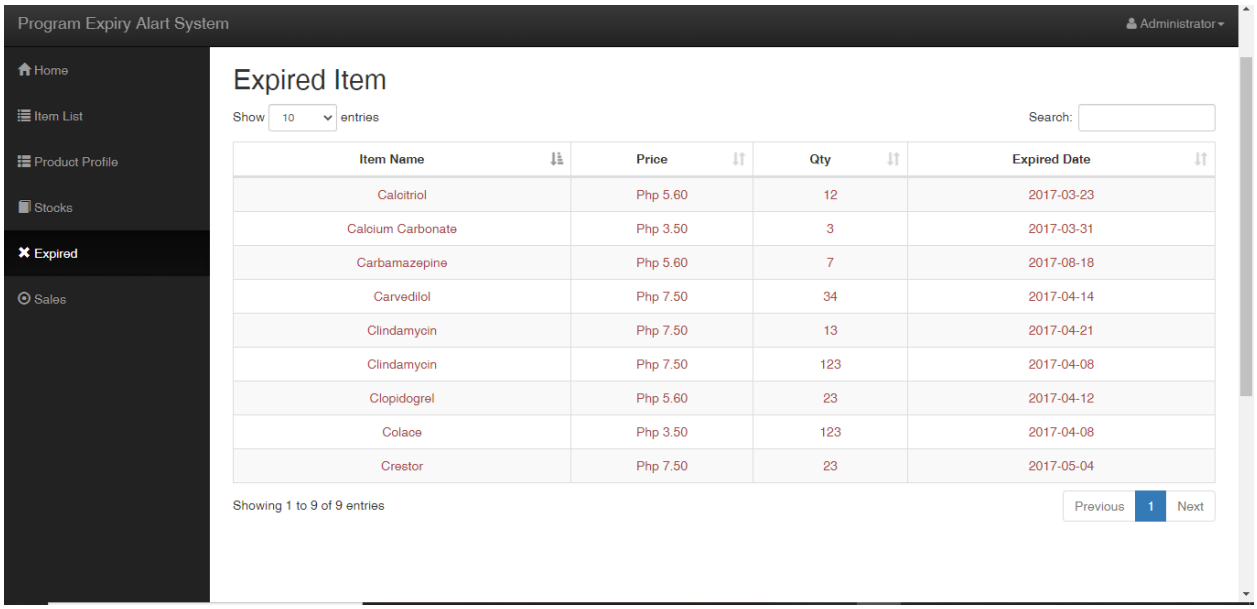
Product List

Here all available inventories are displayed. This module helps the user to keep track of products still available for sales.



Expired Module

All expired product are automatically added to this module. When a product is almost reaching its expiry date, admin is usually notificed. The Admin is hence expected to remove product displayed here from the warehouse



CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 SUMMARY

In summary, this Project work has done a great deal of giving a broad knowledge of what Product Expiration system is all about and how it can be operated.

5.2 CONCLUSION

From this Project Work, I have been able to show the application of database management system(Product Expiration system) and how it can be used, it has achieve the full aim of letting the public know what computer system is all about.

5.3 RECOMMENDATIONS

We hereby recommended that the staff and management of Bendel supermarket, Auchi should implement this project and indeed any other Institution with similar structure interested.

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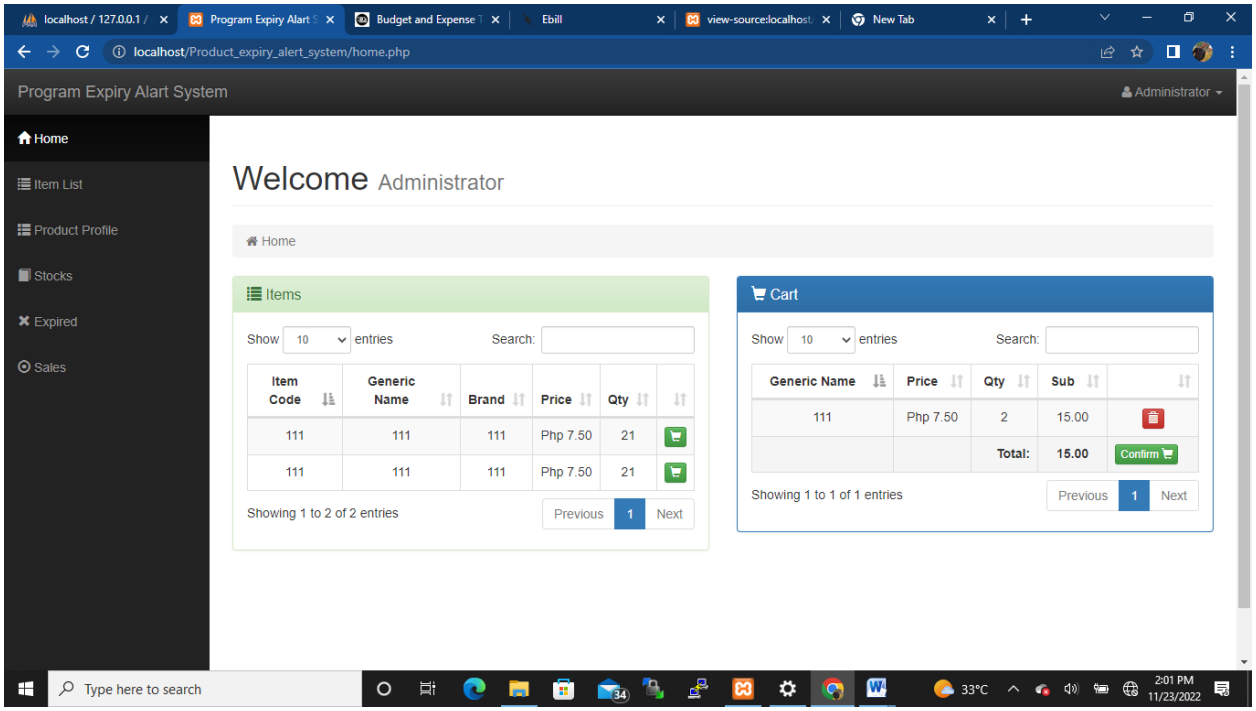
APPENDIX I (SOURCE CODE)

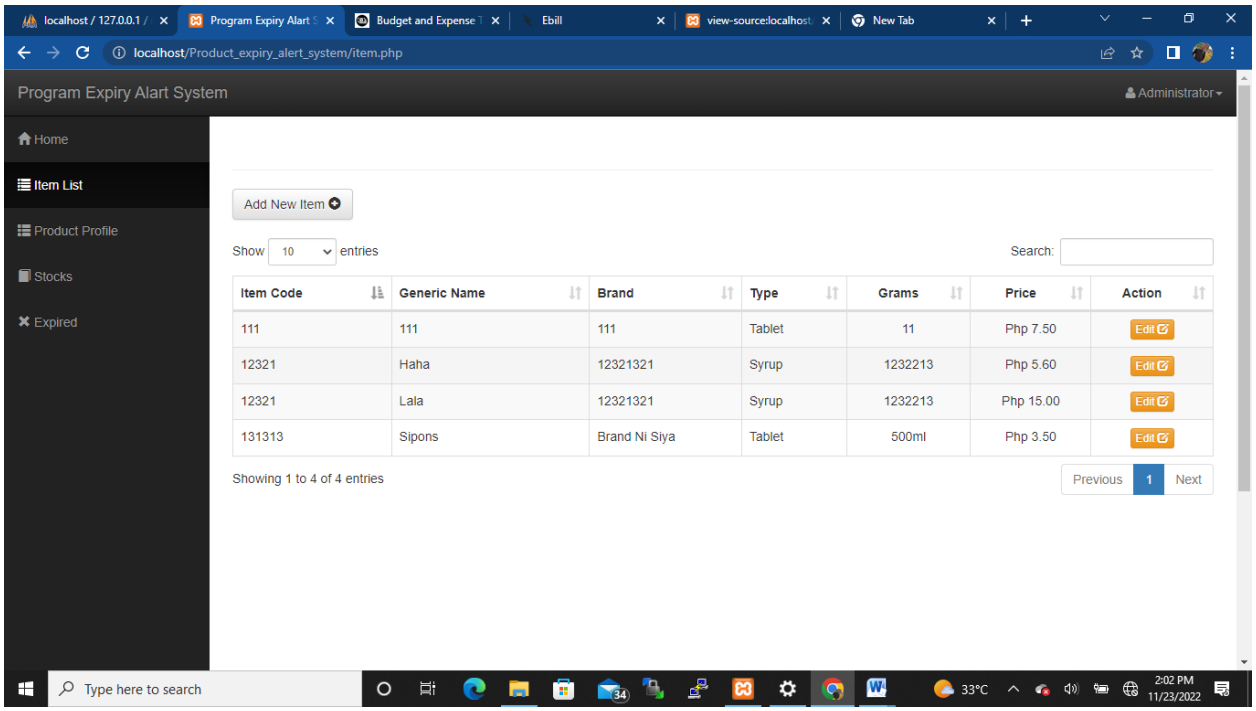
```
<?php require_once('include/session.php'); ?>
<!DOCTYPE html>
<html lang="en">
<head>
   <meta charset="utf-8">
   <meta http-equiv="X-UA-Compatible" content="IE=edge">
   <meta name="viewport" content="width=device-width, initial-scale=1">
   <meta name="description" content="">
   <meta name="author" content="">
</head>
<body>
   <div id="wrapper">
      <!-- Navigation -->
      <nav class="navbar navbar-inverse navbar-fixed-top" role="navigation">
         <!-- Brand and toggle get grouped for better mobile display -->
         <div class="navbar-header">
            <button type="button" class="navbar-toggle" data-toggle="collapse"
data-target=".navbar-ex1-collapse">
               <span class="sr-only">Toggle navigation</span>
               <span class="icon-bar"></span>
               <span class="icon-bar"></span>
               <span class="icon-bar"></span>
            </button>
```

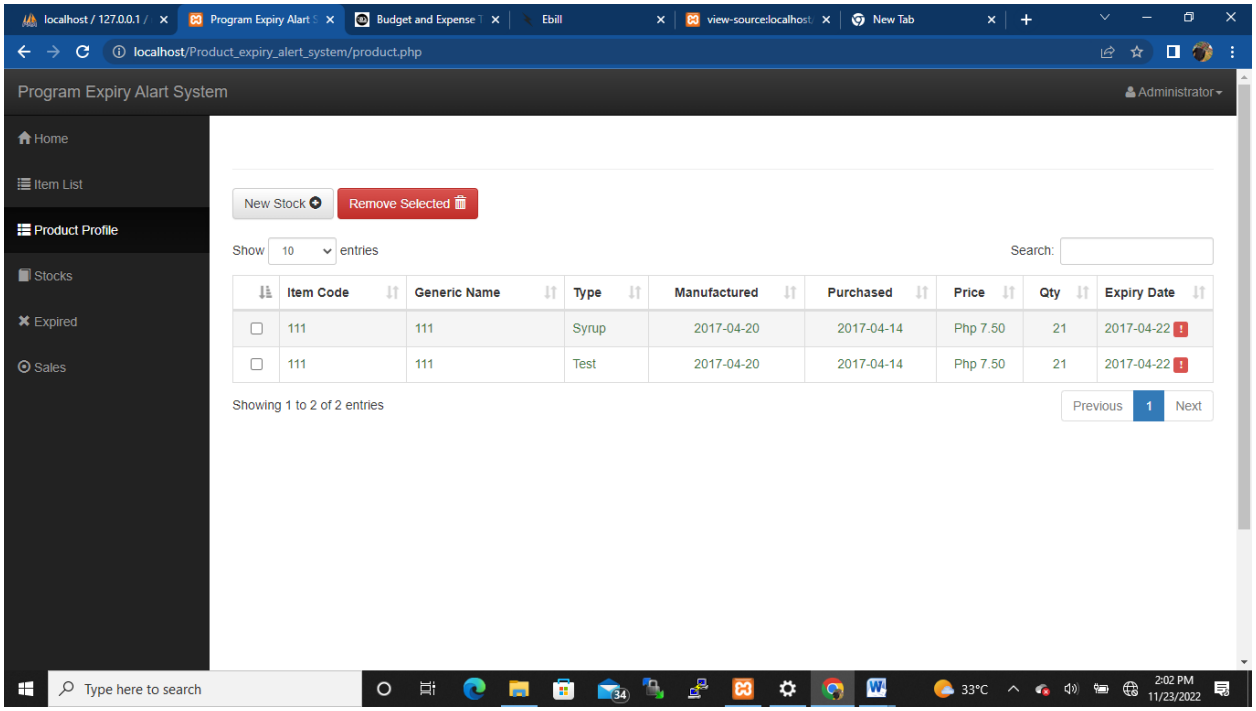
```
            <a class="navbar-brand" href="home.php">Program Expiry Alart System</a>
        </div>
        <!-- Top Menu Items -->
        <ul class="nav navbar-right top-nav">
            <li class="dropdown">
                <a href="#" class="dropdown-toggle" data-toggle="dropdown"><i class="fa fa-user"></i> Administrator<b class="caret"></b></a>
                <ul class="dropdown-menu">
                    <li>
                        <a href="#"><i class="fa fa-fw fa-gear"></i> Settings</a>
                    </li>
                    <li class="divider"></li>
        <!-- Sidebar Menu Items - These collapse to the responsive navigation menu on small screens -->
        <div class="collapse navbar-collapse navbar-ex1-collapse">
            <ul class="nav navbar-nav side-nav">
                <li>
                    <a href="home.php"><span class="glyphicon glyphicon-home" aria-hidden="true"></span></i> Home</a>
                    <a href="product.php"><span class="glyphicon glyphicon-th-list" aria-hidden="true"></span> Product Profile</a>
                </li>
                <li>
                    <a href="stock.php"><span class="glyphicon glyphicon-book" aria-hidden="true"></span> Stocks</a>
                </li>
```

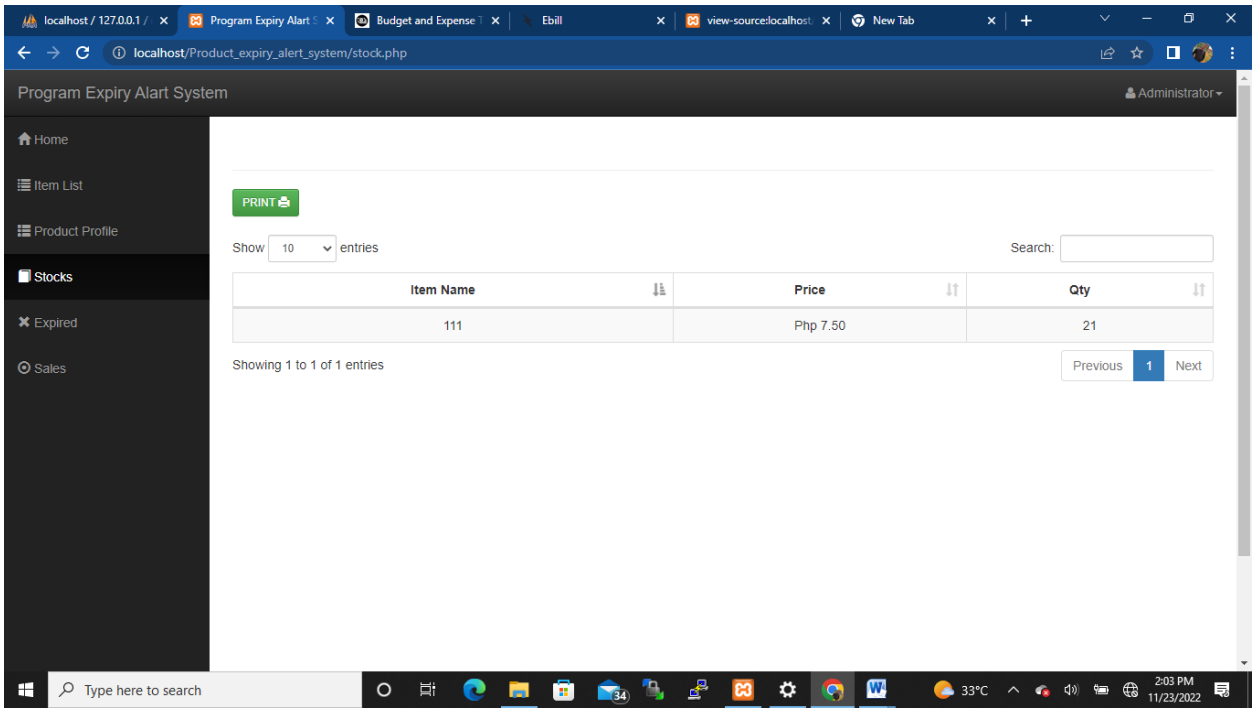
```
                <li class="active">
                    <a href="expired.php"><span class="glyphicon glyphicon-remove" aria-hidden="true"></span> Expired</a>
                </li>
                <li>
                    <a href="sales.php"><span class="glyphicon glyphicon-record" aria-hidden="true"></span> Sales</a>
                </li>
            </ul>
        </div>
        <!-- /.navbar-collapse -->
    </nav>
    <div id="page-wrapper">
        <div class="container-fluid">
</body>
</html>
```

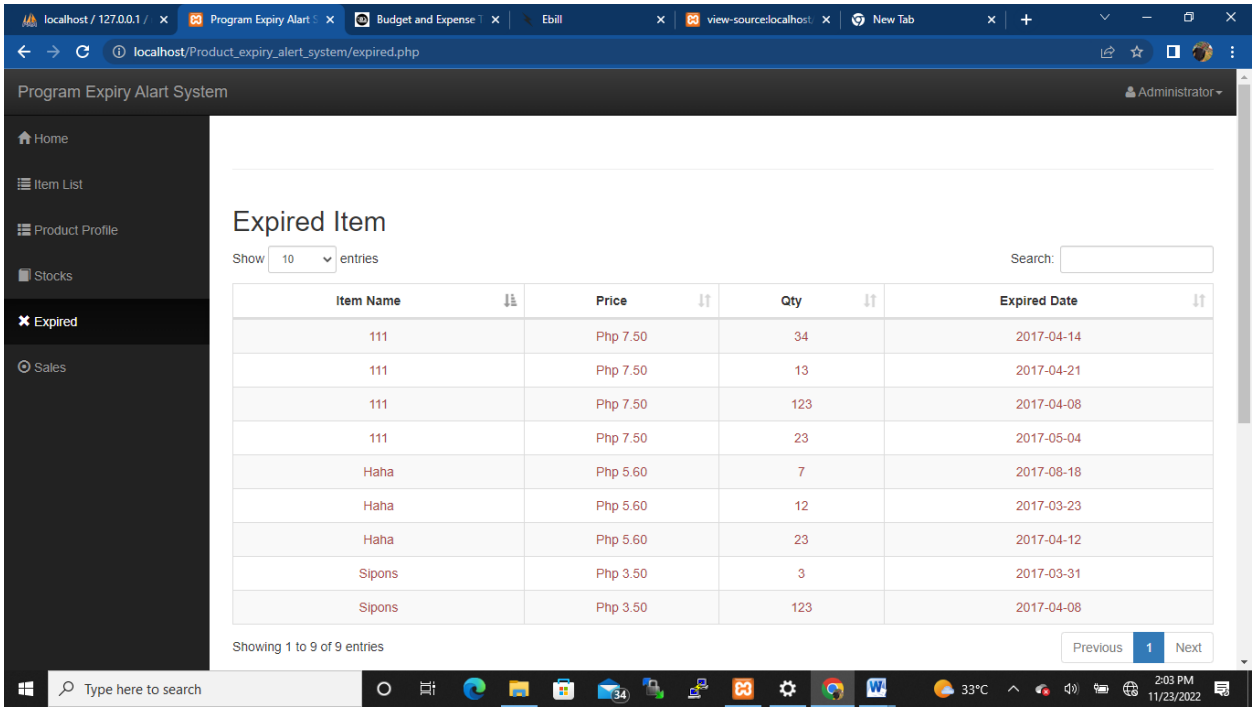
APPENDIX 2 (INTERFACE SCREENSHOTS)

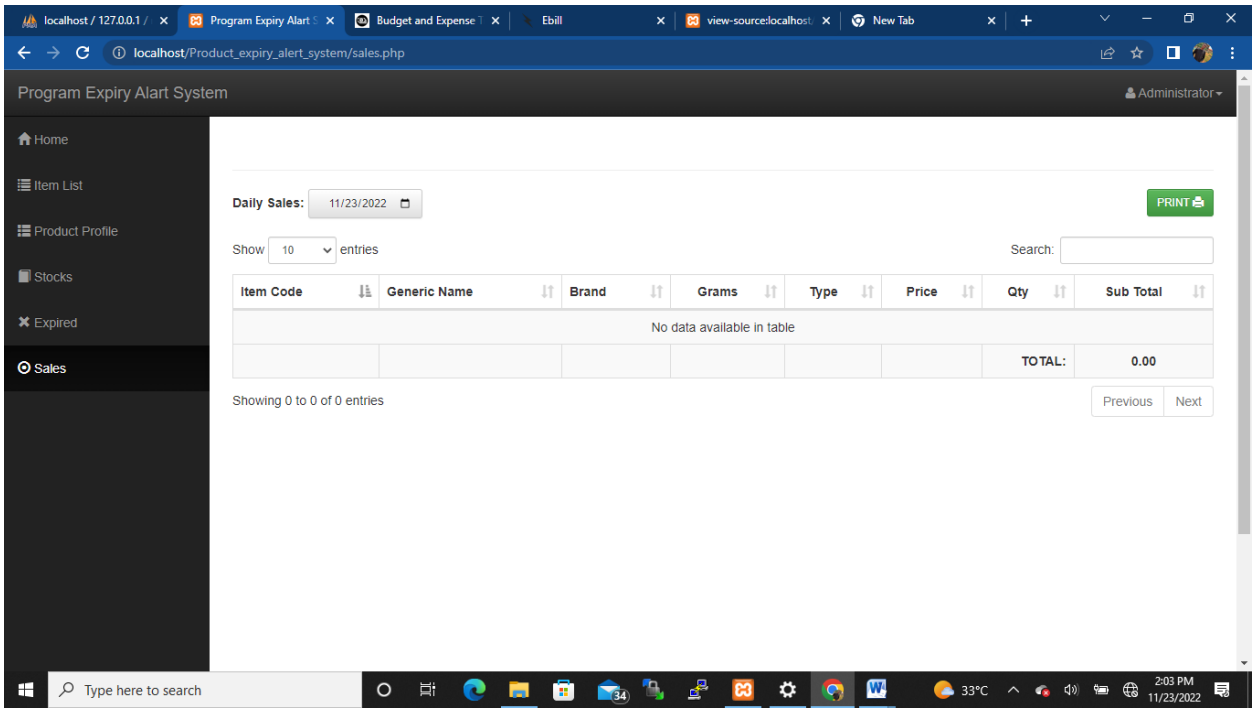





localhost / 127.0.0.1 /
Program Expiry Alart S
Budget and Expense T
Ebill
view-source:localhost
New Tab
localhost/Product_expiry_alert_system/product.php
Program Expiry Alart System
Administrator
Home
Item List
Product Profile
Stocks
Expired
Sales
New Stock
Remove Selected
Show 10 entries
Search:
Item Code
Generic Name
Type
Manufactured
Purchased
Price
Qty
Expiry Date
111 111 Syrup 2017-04-20 2017-04-14 Php 7.50 21 2017-04-22
111 111 Test 2017-04-20 2017-04-14 Php 7.50 21 2017-04-22
Showing 1 to 2 of 2 entries
Previous 1 Next
Type here to search
33°C
2:02 PM
11/23/2022


localhost / 127.0.0.1 /
Program Expiry Alart S
Budget and Expense T
Ebill
view-source:localhost
New Tab
localhost/Product_expiry_alert_system/stock.php
Program Expiry Alart System
Administrator
Home
Item List
Product Profile
Stocks
Expired
Sales
PRINT
Show 10 entries
Search:
Item Name
Price
Qty
111 Php 7.50 21
Showing 1 to 1 of 1 entries
Previous 1 Next
Type here to search
33°C
2:03 PM
11/23/2022


localhost / 127.0.0.1 /
Program Expiry Alart S
Budget and Expense T
Ebill
view-source:localhost
New Tab
localhost/Product_expiry_alert_system/expired.php
Program Expiry Alart System
Administrator
Home
Item List
Product Profile
Stocks
Expired
Sales
Expired Item
Show 10 entries
Search:
Item Name
Price
Qty
Expired Date
111 Php 7.50 34 2017-04-14
111 Php 7.50 13 2017-04-21
111 Php 7.50 123 2017-04-08
111 Php 7.50 23 2017-05-04
Haha Php 5.60 7 2017-08-18
Haha Php 5.60 12 2017-03-23
Haha Php 5.60 23 2017-04-12
Sipons Php 3.50 3 2017-03-31
Sipons Php 3.50 123 2017-04-08
Showing 1 to 9 of 9 entries
Previous 1 Next
Type here to search
33°C
2:03 PM
11/23/2022


localhost / 127.0.0.1 /
Program Expiry Alart S
Budget and Expense T
Ebill
view-source:localhost
New Tab
localhost/Product_expiry_alert_system/sales.php
Program Expiry Alart System
Administrator
Home
Item List
Product Profile
Stocks
Expired
Sales
Daily Sales: 11/23/2022
PRINT
Show 10 entries
Search:
Item Code
Generic Name
Brand
Grams
Type
Price
Qty
Sub Total
No data available in table
TOTAL: 0.00
Showing 0 to 0 of 0 entries
Previous Next
Type here to search
33°C
2:03 PM
11/23/2022