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# Designing a Computerized Pharmacy Management System with Inventory Stock Alert System

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## Abstract

***This project is illustrates the designing and implementation of a Pharmacy Management System with stock alert system. The primary aim of is to improve accuracy and enhance safety and efficiency in the pharmaceutical store. Today management is one of the most essential features of all form. Management provides sophistication to perform any kind of task in a particular form. This is pharmacy management system; it is used to manage most pharmacy related activities in the pharmacy.***

**Keywords:** Management system, Inventory management, Data base, Graphical user interface

## 1. INTRODUCTION

The Pharmacy Management System is a complete dispensing workflow management system that is designed to improve accuracy, enhance safety and efficiency. Most Pharmacies are still doing their whole work manually; this manual system requires the pharmacist or workers to manually monitor all the process and to check the presence of the each drug in Pharmacy.

So when the new drugs or new batches of the drug arrive in the Pharmacy the manual entry is done in the register. And this also followed when the drug is given to any patients. When the month is completed the workers in the Pharmacy have to generate the list or report manually of the drugs in the Pharmacy. This work is done to maintain require stock in the Pharmacy[1][2]. This kind of work may lead to mistake by workers and lead to a major problems.

Therefore to solve this kind of problems the urgent need is to develop a Pharmacy management system that will prove beneficial for the Pharmacy[3]. By using this software we can generate bill, maintain the stock very well, we can do cost saving and maintain inventory control. This system can help pharmacy, to handle the incomings and outgoings more smoothly and in a better way.

## 2. PROBLEM STATEMENT

Pharmacy management has kept paper record in filing cabinets. Managing a very large pharmacy with records on papers will be tedious and difficult to keep track of inventories with regards to the drugs in the store, expiry date, quantity of drugs available based on the categories and their functions[4]. The pharmacist has to order drugs to replenish the already diminishing stock. In addition, ordering of drugs is being carried out manually. Significant amount of time is allocated for writing the order as the pharmacist needs to go through the stock balance and make rough estimate of the amount to order based on Figures[5]. Drugs are not supposed to be used after they have expired. This project work will prompt the pharmacist about drugs that are close to expiry, preventing those drugs from being sold and also providing solution to the earlier stated problems.

## 3. AIM AND PURPOSE OF THE PROJECT

a. Provide for mass storage of relevant data.
b. Make access to the data easy for the user.
c. Provide prompt response to user requests for data.
d. Making modifications to the database available immediately.
e. Allow for multiple users to be active at one time.
f. Protect the data from physical harm and unauthorized access.
g. Get alert bout the drugs close to be expired,
h. Get Alert about the drugs going to be finish in the stock.
i. Having a good statistics part to know how much profit gained daily, monthly or even the specific date that the manager may need to get report about it.

## 4.PROJECT DESIGN AND IMPLEMENTATION

### A. DATABASE SYSTEM CONSIST OF MAIN ENTITIES

1. Login Table:

- ID : refers to the Id of the counter and the admin has the first number .
- User Name :refers to the name of counters .
- Password :refers to the password of that username.

**Table1 :** Login Table

| Field Name | Type | Size | Constrain |
|---|---|---|---|
| **ID** | Number | Long Integer | Primary key |
| USER NAME | Text | 255 | …… |
| PASSWORD | Text | 255 | ……. |

2. **Main Table:** Is the main table which consists of the most important fields for managing the system, the fields is as follow:

- Barcode ID : refers to the barcode which is unique numbers over most of the drugs.
- Drugs Name : refers to the name of the drugs.
- Unitary price: refers to the unitary price .
- Selling price: refers to the Selling price.
- Drugs store(inventory): refers to the number of items in inventory of the pharmacy.
- Expire Date: refers to the expire date of the drug.
- Manufacture name: refers to the manufacture which produces the drug.
- Note : for writing needed note about the drugs , its optional to be filled.

**Table2**: Main Table

| Field Name | Type | Size | Constrain |
|---|---|---|---|
| Br_ID | Text | 255 | Primary key |
| Drug_Name | Text | 255 | …… |
| Unitary_price | Number | Long Integer | ……. |
| Selling_price | Number | Long Integer | ……. |
| Drug_store (Inventory) | Number | Long Integer | ……. |
| Expire_Date | Date/Time | ..... | ……. |
| Manufacture_ Name | Text | 255 | ……. |
| Note | Text | 255 | …… |

3. **Sold Table:**

- Barcode ID : refers to the barcode which is unique numbers over most of the drugs.
- Drugs Name : refers to the name of the drugs.
- Number of item : number of item that have been sold.
- Unitary price: refers to the unitary price .
- Selling price: refers to the Selling price.
- Sale date: refers to the date of the drugs which has been sold.
- Sold by: refers to the name of the counters either admin or other counters .

**Table3**: Sold Table

| Field Name | Type | Size | Constrain |
|---|---|---|---|
| **Br_ID** | Number | 255 | ..... |
| Drug_Name | Text | 255 | …… |
| Number_of_item | Number | Long Integer | ..... |
| Unitary_price | Number | Long Integer | ……. |
| Selling_price | Number | Long Integer | ……. |
| Sale_Date | Date/Time | .... | Primary key |
| Soled By | Text | 255 | ……. |

4. **Sale Table:**

- Barcode ID : refers to the barcode which is unique numbers over most of the drugs.
- Drugs Name : refers to the name of the drugs.
- Number of item : number of item that have been sold.
- Unitary price: refers to the unitary price .
- Selling price: refers to the Selling price.
- Sale date: refers to the date of the drugs which has been sold.
- Sold by: refers to the name of the counters either admin or other counters.

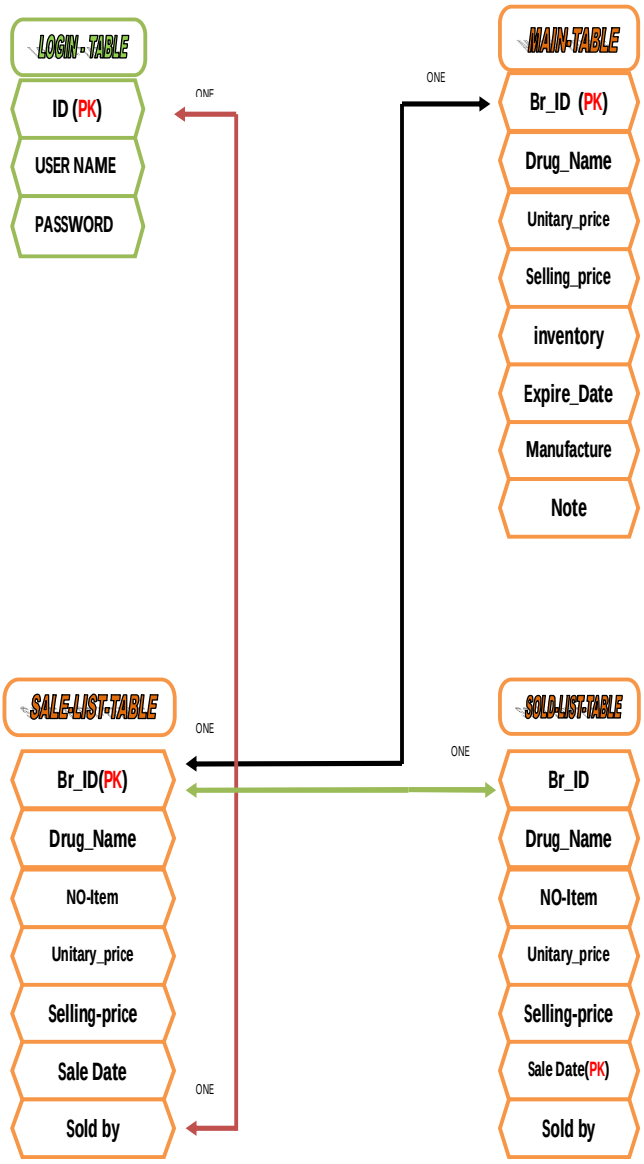


**Figure1**: Relationship between the tables

### B. The Graphical user interface

The graphical user interface is programmed using VB.net consists of forms bellow

### 1. Login Form:

The Login part has three Fields ( Login as (either Admin or User ) , User name , Password ) .This three field used to control this part in the good way, the user who is the admin will be able to control the whole system and every features are available, but the user logged as (User) he/she will not be able to see everything only the selling part and some small parts which is needed for the counters to deal with , see figure2.


### 2. Sale Form

After pressing Login Button in the Login form , directly the selling form will be appeared , and it contains many empty field here we can sell drugs by (barcode Id) field and clicking on the search then it will be added to the right side table by its needed information which is important to be there as its shown in Figure3.

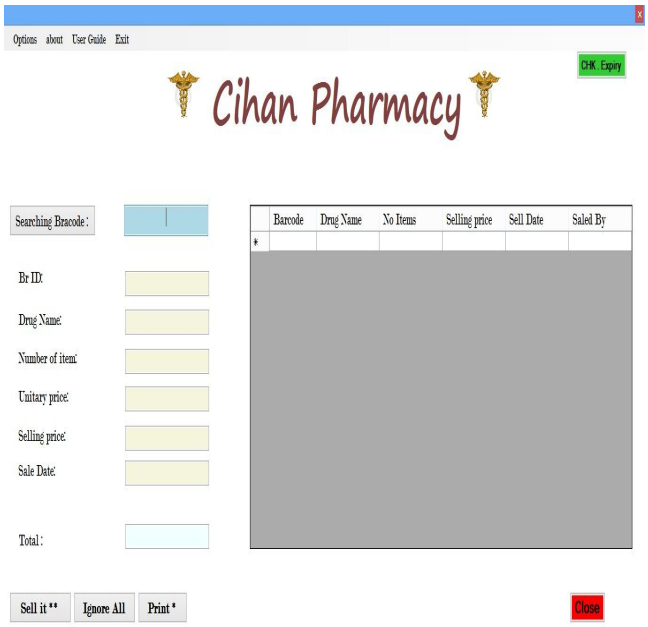


**Figure3:** Sale form

As well as in this part we have a special green button which located in the right side on the top corner called ( CHECK EXPIRY ) when the Admin or User Clicked on it he will get an alert box saying that if there is any drugs which is near to be expire or has been expired , look at figure 4.

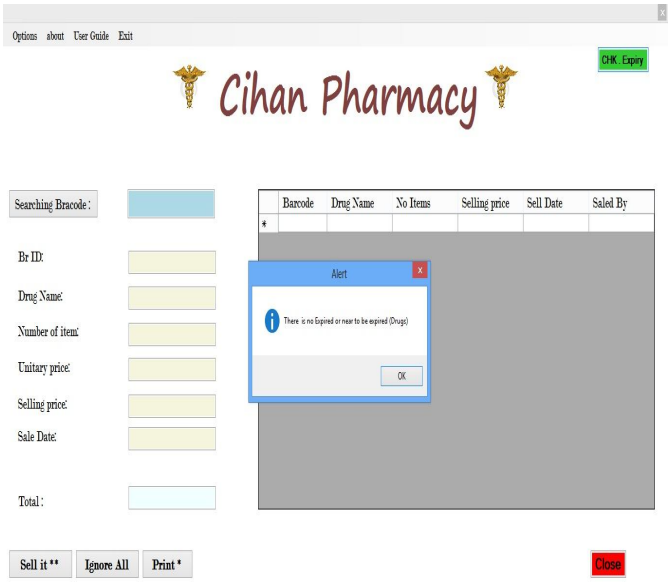


**Figure4 :** Expiry Alert

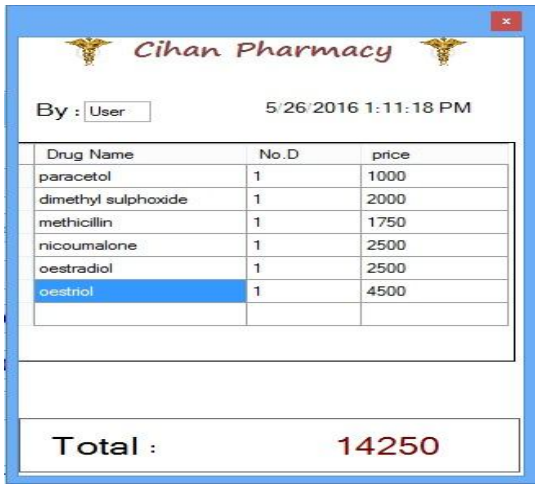


**Figure5 :** Bill

Before clicking on the Sell button there is another feature which is ( Printing bill ) by clicking this button we can get a hard copy bill which contains the information of who ( Admin or User ) has done this selling and the date and time of that moment which the selling has been done, look at figure 5 .

## 5.Conclusion

Today management is one of the most essential features of all form. Management provides sophistication to perform any kind of task in a particular form. This is pharmacy management system; it is used to manage most pharmacy related activities in the pharmacy. The primary aim of is to improve accuracy and enhance safety and efficiency in the pharmaceutical store. In this project we can also include BAR CODE facility using the bar code reader, which will detect the expiry date and the other information about the related medicines.

We may also concluded that by using pharmacy software, processing both new prescriptions and refills can be done quickly and simply with just a few keystrokes or mouse clicks with new, easy to learn and use Graphical User Interface (GUI) pharmacy management solution. That due to automation where the pharmacist does his or her work much faster, a switch from product oriented to patient oriented which is one of the most important keys in pharmaceutical care. In other words that the pharmacist will have more time in counseling his/her customers, where the goal of patient counseling is one of the important solution to avoid medication error.

## 6.Future work

According to the requirements of the managers of pharmacy we can update our system , but for future we have number of idea that may be very useful and making easier working of the system , these are some point that we may depend on them for the future :

- **a.** developing an application for android devices that works on the same database which is the mini of (MySql).
- **b.** putting or system over the network and updating it through it.
- **c.** the android application will be useful for controlling the system like remote app.
- **d.** have a barcode device but not the normal one actually special one that can be used in remote connected by either Bluetooth or Wi-Fi network .

## References

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