

Pharmacy Warehouse Management System

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Abstract

Managing of the stock and supply of medication plays an essential part for the provisioning of health care, thus the development of the web-based warehouse system. This project attempts to help gain a better understanding of the issue that the warehouse system is facing. And through the multiple sources based on the current warehouse management system, inefficiencies, namely the incorrect inventory management, can be solved. With the use of modern technology, the warehouse management system can be made better to help improve the quality of work for both the employees and admins. Additionally, this system will include the basic functions of a warehouse management system that will allow users to utilize the system with ease. The project also aims to improve the current pharmacy warehouse management systems so that it will be viable for users to understand and utilize the system efficiently.

Keywords: Stocktaking; Web-based application; Warehouse Management System

1. Introduction

Private pharmacies have started to create medicine delivery services and they must store their medicines at their own warehouse. During covid, most people can't physically go to the pharmacy because they might get infected, and pharmacies must adapt to the pandemic. Therefore, private pharmacies began to create delivery services from their own store with the stored medicines from their storeroom. The medicine that can be delivered is mostly without prescriptions such as Paracetamol, Zyrtec, and Antibiotics. Their own warehouse does not have a warehouse management system thus it will cause confusion when shipping in and out of the warehouse.

The warehouse's function is to enable the storage of products in one area and the delivery of those things to the company's consumers. The type of company will determine how things can be ordered and transported from the manufacturers. The entire distribution process is made up of a number of smaller procedures that must all be closely managed. As a result, the Warehouse Management System, a software solution for warehouses, was developed. Distribution and manufacturing organizations will save a lot of money if

they install the Warehouse Management System correctly since it will improve their entire work operations and provide essential business analysis [1].

The Warehouse Management System's goal is to manage the movement and storage of raw materials and finished goods in a warehouse. The Warehouse Management System also manages the transactions, shipping, receiving, put-away, and picking processes. Warehouse Management System (WMS) is a database-driven computer tool designed to increase warehouse productivity by guiding cutaways and maintaining extremely precise inventory by recording warehouse operations. Based on real-time data, the Warehouse Management System will also steer and optimize stocks. In order to better monitor the movement of raw materials and products, the Warehouse Management System will incorporate Auto ID Data Capture (AIDC) technology such as barcode scanners, personal computers, wireless local area networks, and radio-frequency identification (RFID). The central database will provide reports that are related to the products in the warehouse. The warehouse control system functions as information receiver from the upper-level host system. Upper-level host system, which is most often being the warehouse management system, will translate

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the information for the daily operations. The Warehouse Management System will usually manage processes and equipment on the operational level so that fewer errors will occur [2].

The benefits that Warehouse Management System (WMS) can bring to a business and organizations are greater cost savings, reduced errors and improved customer services. The benefits of implementing a Warehouse Management System are Real-time inventory management, where it manages the inventory of the warehouse much more easily and in real time. Warehouse Management System can support Logistics service provider but also the company's customers to plan the resources and inventory. Warehouse Management System also helps to reduce mishandling of inventory. This will allow each product to be scanned for every process at the warehouse, which includes inbound receiving and outbound processing. Inventory control will reduce the mishandling of inventory greatly thus improving efficiency. Efficient Returns Process Managing and handling the customer returns became easier and efficient, since it tracks the returned inventory at the detailed level [3][4][5].

Covid 19 has affected a lot of businesses and the pharmaceutical sector was greatly affected during the pandemic. The pandemic has caused social distancing among people which has caused people to not go and buy medicines from pharmacy physically as the fear or getting the disease. This has caused the sales of pharmacy to drop significantly as most people would prefer to order online. Private pharmacies have resorted to setting up an online medicine delivery service, but their warehouse has no system to manage it.

With the implementation of warehouse management system, private pharmacies will be able to manage their warehouses more efficiently and it allows less labor constraints. Therefore, this study aims to design and develop a pharmacy-based warehouse management system in order to deliver a system that can benefit the employees and admins.

2. Methods

The prototype system project will be utilizing various programming language such as Java and JavaScript. MySQL will be used for the components of the database. The flowchart diagram as shown in Fig. 1 has both the shipping in of products where it will be added by the employee and admin into the database system once its accepted. If the product is denied, the admin or employee must input the correct details. The shipping out of products will indicate the number of items that customers want, and the admin and employee must

input the correct amount of product that customers want, or it will be denied by the system.

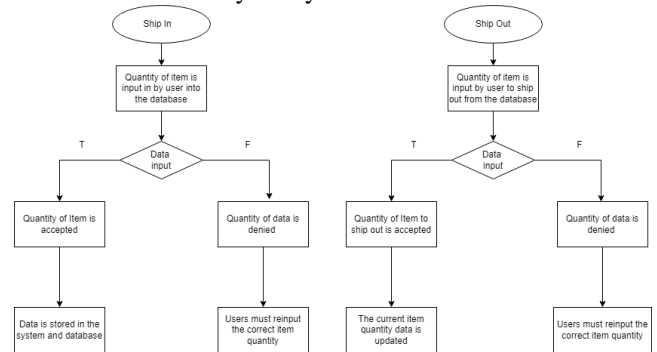


Fig. 1: Flowchart of the system

3. Results and Discussion

Fig. 2 shows the login page of the system which requires user to input their username and password. They must also choose the category that they belong to which is either employee or admin. After finishing inputting both username and password, they can proceed to click the login button to enter the system.

Fig. 3 shows the forgot password page which appears after user clicks the forgot password button. The user needs to fill in their username and choose the security question with the answer and input the new password to reset the account.

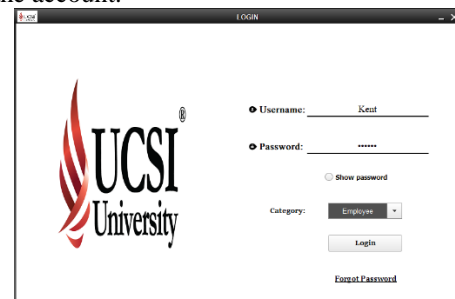


Fig. 2: Login Page

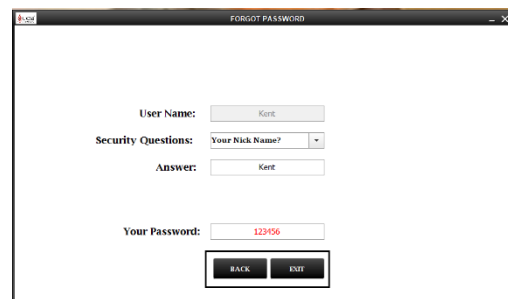


Fig. 3: Forgot Password Page

Fig. 4 shows the dashboard of the overall system for the employees, the page contains a graph char to record the

total amount of sales generated per day. It also shows the total items and total sales for the overall transactions. The page also shows the total number of suppliers and customers. The left panel of the system has stock button where employees can check the stock of items, sale button where employees can create sale for customer. Purchase button where employees can purchase products from suppliers or companies. Supplier button which allows employees to create suppliers to be added to the system. Product button which allows employee to add new product to the system and to check whether the product is expired or out of stock. Customer button where employees can add new customer into the system. And lastly, help button which the employee can contact the admin via their info.

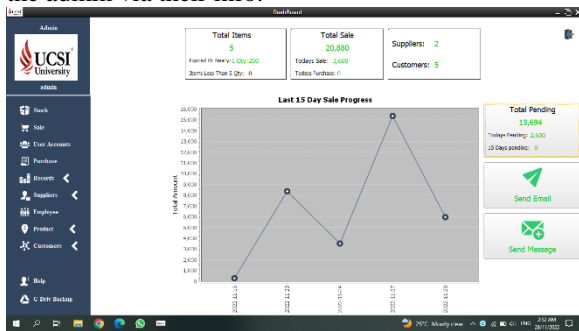


Fig. 4: Dashboard Page

Fig. 5 shows the stock page of the system which both the employees and admin can check the stock or location of the products. The search bar on top allows both the employee and admin to type the product that they want to search for.

Item	Image	Qty	P_Code	Qty_B	Unit	Brand	Supp	Par_Price	Price	Pcs	Location
Blackmores fish oil		58	1	100	Supplement	None	None	50.0	60.0	10	Upper-right
Centrum whole food		389	3	100	Supplement	Select	Select	100.0	120.0	60	Top-Right
Paraloid acetab		0	2	200	Medicine	None	None	30.0	45.0	10	Right-corner

Fig. 5: Stock Page

The sale page (Fig. 6) shows the products that are sold, and both the employee and admin can select the customers that are registered in the system and proceed to sell them the item based on the quantity that the customer desires. Both employee and admin can opt to provided discount and charge additional sales tax to the customer. Once everything is inputted, the payment via E-Wallet or Online Banking, and it will be saved in the database as a transaction.

The sale page form includes fields for Customer Name (Goo chun ming), P_Code, and a table for items. The table has columns: Item Name, Price, Qty, and Total. Items listed include Blackmores fish oil, Centrum whole food, Paraloid acetab, and Zymec. Summary fields show Sub Total (3370.00), Overall Disc (0.0), Overall Sale Tax (0.0), Payment (3370.00), and Total Payable (3370.00). Payment options like E-Wallet, Online Banking, and Print are available.

Fig. 6: Sale page

For Fig. 7, the purchase page will allow the admin and employees to purchase products from the suppliers. They can choose what item to buy by typing on the item bar or input the product code. After that, they can select the quantity that they want, and the net amount will appear. Once the total net amount appears, they can pay the supplier via E-Wallet or Online Banking. After the payment is done, a notification will appear as seen in Fig. 8.

The purchase page form includes fields for Company/Supplier (Supplier 2), Due Date (2022-11-24), and a table for items. The table has columns: Item, Price, Qty, Gross, Dis, Sale Tax, and Net amt. Items listed include Zymec. Summary fields show Total Gross (5000.00), Total Net (5000.00), Change (0.0), Payment (5000.00), and Paid (0.0). Payment options like E-Wallet, Online Banking, and Print are available.

Fig. 7: Purchase Page

The successful purchase page shows a confirmation message: 'Purchased items from Supplier 2 !!'. The background shows the same purchase form as Fig. 7, but with the payment status updated to 'Paid: 5000'.

Fig. 8: Successful Purchase

The system also generates the purchase receipt of the transaction where both the employees and admin can print the receipt.

In this system, admin and employees can add new suppliers or company into the database. Firstly, they must input the name, address, email and contact and then save the info. A notification stating inserted successfully will appear after saving. Fig. 9 shows after the new supplier is added into the database and the info will be shown as well. The admin and employees can delete the suppliers from the database. A notification will inform them whether they really want to delete the supplier before being deleted. After confirming the deletion of the supplier, a notification stating deleted successfully will appear and the supplier is gone from the database.

Fig. 10 shows the supplier ledger where the admins and employees are able to check the existing suppliers' balance. Fig. 11 shows the product information page where the employees can add new products into the database. The employee must input the item name, product code, category, subcategory, brand, supplier, opening stock, purchase price, retail price, pieces in pack, quantity, location, purchase date and expiry date before saving into the database. The employee can also opt to clear the information to reinput the product details again.

Suppliers

Go To Product Information: --Choose--

ID:

Name: Email:

Address: Contact:

Opening Balance:

SPL_NO	ID	NAME	ADDRESS	EMAIL	CONTACT
001	1	Supplier 1	Johor Bahru	dim@gmail.com	01087654321
002	2	Supplier 2	Wangsa Maju	kr@hotmail.com	0163456789
003	3	Supplier 3	Johor Bahru	Zy@gmail.com	0182456789

Fig. 9: Supplier Added to The Database

Supplier Ledger

From: To:

SPL_NO	DATE	COMPANY	BALANCE	TYPE
001	2022-11-20	Supplier 2	5000	CR
002	2022-11-23	Supplier 3	5000	CR

Fig. 10: Supplier Ledger

Product Information

Search Item Name:

Item Name: Purchase Price(Unit):

Product Code: Retail Price(Unit):

Category: Pes. in pack:

Sub Category: Quantity:

Brand/Company: Location:

Supplier: Purchase date:

Opening Stock: Expiry date:

Fig. 11: Add Product Page

Fig. 12 shows the notification after the product information is inputted and saved successfully. Fig. 13 which is the Near Expiry or Out of Stock Page shows the products that are almost expiring or out of stock.

Product Information

Search Item Name:

Item Name: Purchase Price(Unit):

Product Code: Retail Price(Unit):

Category: Pes. in pack:

Sub Category: Quantity:

Brand/Company: Location:

Supplier: Purchase date:

Opening Stock: Expiry date:

Item Added Successfully

Fig. 12: Product Information Added Successfully

Out Of Stock Or Inventory Out Of Stock

Business Search:

Total Products: 1

Item	Image	Qty	ExpDate
Paracetamol		0	2022-11-25

Fig. 13: Near Expiry or Out of Stock Page

The customer page allows both the admin and employee to add customers into the database system. They must input the name, address, email, contact, opening balance and date of joining before saving the details into the database system as shown in Fig. 14.

SR_NO	ID	NAME	ADDRESS	EMAIL	CONTACT
001	1	John loong	Kuala Lumpur	john12@gmail.com	0192345678
002	2	Tee ee	Medika	tee043@gmail.com	01923456789
003	3	Goo chun ming	Alam Dama	Ming@gmail.com	0129894578
004	4	Ng lee lam	Taman Cemerlang	Ng@gmail.com	0134567890
005	5	Mohammad shu hater	Wangsa Maju	shu@hotmail.com	0138076512

Fig. 14: Customer Page

Figs. 15 and 16 shows the sales and purchase record pages in which the admin can check the transactions of both the sales and purchase.

RECPT	C_NAME	PENDING	DISC	S_TAX	T_PRICE	DATE	TIME	USER	SHIPMENT
0	John loong	24.00	10%	0.0	24.00	2022-11-16	01:23 AM	admin	0.00
2	John loong	60.00	0.0	0.0	60.00	2022-11-16	08:20 AM	admin	0.00
3	John loong	60.00	0.0	0.0	60.00	2022-11-16	08:20 AM	admin	0.00
4	John loong	300.00	0.0	0.0	300.00	2022-11-16	08:21 AM	admin	0.00
5	Goo chun ming	1180.00	20	0	1180.00	2022-11-23	01:17 AM	admin	0.00
6	Goo chun ming	1180.00	20	0	1180.00	2022-11-23	01:17 AM	admin	0.00
7	Ng lee lam	1380.00	20	0	1380.00	2022-11-23	01:18 AM	admin	0.00
8	Mohammad a.	890.00	10	0.0	890.00	2022-11-23	08:15 AM	Ken	0.00
9	Mohammad a.	0.00	10	0.0	890.00	2022-11-23	08:16 AM	Ken	0.00
10	Mohammad a.	0.00	10	0.0	890.00	2022-11-23	08:16 AM	Ken	0.00
11	Goo chun ming	2390.00	10	0.0	2390.00	2022-11-23	08:23 AM	Ken	0.00
12	Ng lee lam	3600.00	0.0	0.0	3600.00	2022-11-24	01:22 AM	Ken	0.00

Total Sale Count: 12
Total Pending: 11094.00
Total Sale: 12874.00
Total Deposit: 1780.00

Fig. 15: Sales Record

RECPT	S_NAME	PENDING	DISC	S_TAX	T_PRICE	DATE	TIME
OKR-0	Supplier 2	500.00	0.0	0.0	500.00	2022-11-23	01:23 AM
OKR-2	Supplier 2	500.00	0.0	0.0	500.00	2022-11-23	08:12 AM
OKR-3	Supplier 2	1000.00	0.0	0.0	1000.00	2022-11-23	08:15 AM
OKR-4	Supplier 2	0.00	0.0	0.0	5000.00	2022-11-24	01:25 AM

Total Items Purchased: 4
Total Purchase: 7000.00
Total Pending: 2000.00
Total Deposit: 5000.00

Fig. 16: Purchase Record

4. Conclusion

The development of technology allows warehouse management system to rapidly evolve with each day [6]. The technology allows warehouse management system to record data more efficiently compare to being done

manually with people. The implementation of Pharmacy Warehouse Management System allows pharmacies to have their work handled with ease. After researching and going through multiple warehouse management system and to study their strengths and weaknesses, the proposed Pharmacy Management System was designed and developed. The Pharmacy Management System allows the pharmacies to check the stocks the stocks of products, generate sales transactions for the customers, purchasing products directly from the supplier or company. Besides that, the system also allows pharmacies to check the customers and suppliers that are registered in the system. Lastly, the system will also allow the users of the system to check the total amount of transaction per day.

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Authors Introduction

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