

Building An Innovative Pharmacy Management System



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Submitted by

ID: xxxxxxxxxx

Name:

Department of Computer Science and Engineering

Varendra University

Rajshahi, Bangladesh

Supervised by

XXXXXXXXXXXXXX

Professor

Department of Computer Science and Engineering

Varendra University

Rajshahi, Bangladesh

Abstract

This project is to illustrate the designing and implementation of a Pharmacy Management System to control different branches of pharmacy all over the country at one place..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. The pharmacy management system is implemented in order to replace manual based system to computerize. The system is efficient, useful and affordable on implementing tasks ordered by the pharmacy manager. It provides functions on identify medication usages instruction, minimize human errors in medication safety, facilitate accessibility of drugs information and information management among employees, providing optimal drugs movement in pharmacy unit, enable reports with in significantly short period of time, despite simultaneous usage of database for the purpose stated above. The system will solve the problem of the current system by minimizing time wastage and reduce resources which simply change manual based system to computerized system. It also monitors the drug's movement history, thus leads to better inventory management of money allocated for the purchase of drugs.

Acknowledgements

Completing a Ph. D. is usually a journey through a long and winding road, where one has to tame more oneself than the actual phenomena in research. Luckily, I am not alone in this trip. My sincerest thanks are due to all those that have helped me to get this far.

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Chapter 1

Introduction

1.1 General Introduction

Pharmacy Management System is a pharmacy software designed for any pharmacy. This software is used for pharmacy data management. They are defined as computer systems designed specifically for pharmacy departmental use, with functionality for the management of pharmacy and dispensing processes, such as medicine labeling, patient medication records, decision support for drug interactions and other warnings, stock control, ward inventory management, order processing and functions to support pharmacy manufacturing processes in hospitals.

The current Pharmacy system is done manually i.e. almost all works on the pharmacy organization is done by papers. Thus, for medicine data search in order to buy, audit, and other related works. Here the data's can be accessed anyone who entered to the pharmacy like friends or other people having no relationship to pharmacist. The pharmacists work in tedious situation because of the upper reasons. By this method arrangement of medicine on the shelf is not efficient. In this system almost, all pharmacies do not use computerized system but have a computer for giving bills when medicine is sold to the user. Also, by using this system there is a difficulty to store the data so that recovery of necessary data is difficult which wastes resources as well as time. So generally, the current system does not arrange medicine in systematic way, does not store the medicine appropriate data, security for the data is low, does not indicate how much medicine is needed and sold quickly and efficiently [1].

The pharmacy management system is implemented in order to replace manual based system to computerize. The system is efficient, useful and affordable on implementing tasks ordered by the pharmacy manager. It provides functions on identify medication usages instruction, minimize human errors in medication safety, facilitate accessibility of drugs information and information management among employees, providing optimal drugs movement in pharmacy unit, enable reports with in significantly short period of time, despite simultaneous usage of database for the purpose stated above. The system will solve the problem of the current system by minimizing

time wastage and reduce resources which simply change manual based system to computerized system. It also monitors the drug's movement history, thus leads to better inventory management of money allocated for the purchase of drugs.

Compared to the current manual system, the implementation of Pharmacy management system will reduce the time spent for paperwork, leading to concentration on improving pharmaceutical care of patients, especially emphasis on patients counseling and patient medication monitoring. It will be greatly embraced by the pharmacy profession as it is one giant leap towards pharmaceutical care of patients.

1.2 Mandatory features for a pharmacy management system

The Pharmacy Management system otherwise referred to as the pharmacy information system stores data, systemizes and controls the use of the medication process with the pharmacies.

The Medical Technology and Information technology is growing day-by-day. The system developer makes use of this golden opportunity to help the pharmacist in controlling their stock and choosing the right medicine by using the computer program.

The pharmacist makes use of the pharmacy management system to control the pharmacy reliably. Patients sometimes prefer to visit the pharmacy instead of a doctor for minor illnesses, and the system enables the pharmacist to prescribe over the counter drugs for these ailments

Major Pharmacy Management System (PMS) Features:

The prime purpose of a PMS is to assist the pharmacist in the safe and effective delivery of pharmaceutical drugs.

The pharmacies require some core capabilities and functions to perform their duties effectively. Below are some of the top 5 must-have features for a Pharmacy Management System.

Pharmacies interact with multiple patients every day, and data regarding each of these interactions are stored within the pharmacy information system. Data may be used later for improving the business strategy or it may be needed during a certification or inspection process.

The reports offer valuable insights into the operations in the pharmacy. It can be used to distinguish the patients who visit the pharmacy frequently for refills, and this can be used to stock accordingly.

- **E-prescription:**

Prescriptions are known to be illegible and this can cause confusion among patients and is also a source of error in dispensing the right medicine. E-prescriptions provide a user-friendly option for the patients and also reduce the risk of errors.

The electronic prescription feature can be used by the pharmacy to manage refills and allows doctors to send the new refills directly into the pharmacy management system, allowing rapid dispensing of the medicines. Apart from this, there will be no confusion in offering the right prescription between the physician and the patient.

- **SMS and Notification:**

With the use of a pharmacy management system, the pharmacist can schedule text messages to be sent to patients intimating them before their prescriptions running out.

The patients can then let the pharmacist if they need a refill, simply by responding to the message. The status updates let the pharmacist keep in touch with the patients, ensuring patient satisfaction.

- **Multi-Store and Multi-Location Support:**

The user can manage stores at multiple locations easily with a pharmacy information system.

Data about stock levels, sales, returns from multiple stores can be viewed in a single software. Overall reports for the entire chain of stores can be generated, giving the user a complete overview of profit, loss, stock levels, etc.

- **User Management Module:**

This feature allows restricted access to various users. Access to various features can be limited for different users, for easy management. This authentication is classified into two conditions namely

Administrator User: The user can control the buying and selling process, list the medicines, view the stock and perform other tasks. The user will be able to view the pharmacy list and the pharmacy map easily. It plays an essential role in controlling the sales and stocks being processed every day.

Administrator Authentication User: The users who are authenticated can view all process including selling reports, transactions, manipulate the medicine list and the

medicine stock. This feature also helps to track regular activities and generate daily accounts by utilizing the multisite software [2].

Investing in pharmacy management software is always a good idea. Nowadays these systems have become an essential part of any pharmacy that is keen to stay competitive and believe in delivering better care to the consumers via an automated and efficient process. Pharmacies can customize & streamline the work-flow with a Pharmacy management system that comes packed with myriad features and functionalities to boost efficiency, safety as well as profitability.

By implementing this system, you can benefit in several ways, as it also makes management extremely easy, by addressing shortages (if any), streamlining work, smoothly running the pharmacy, fetching prompt & correct reports whenever required, helps in Centralized data storage with security and the most important one, Customer satisfaction.

Before we move forward with the modules and other things to be included in your pharmacy management software, let's discuss what is pharmacy management system?

1.3 Understanding Online Pharmacy Management System in Brief

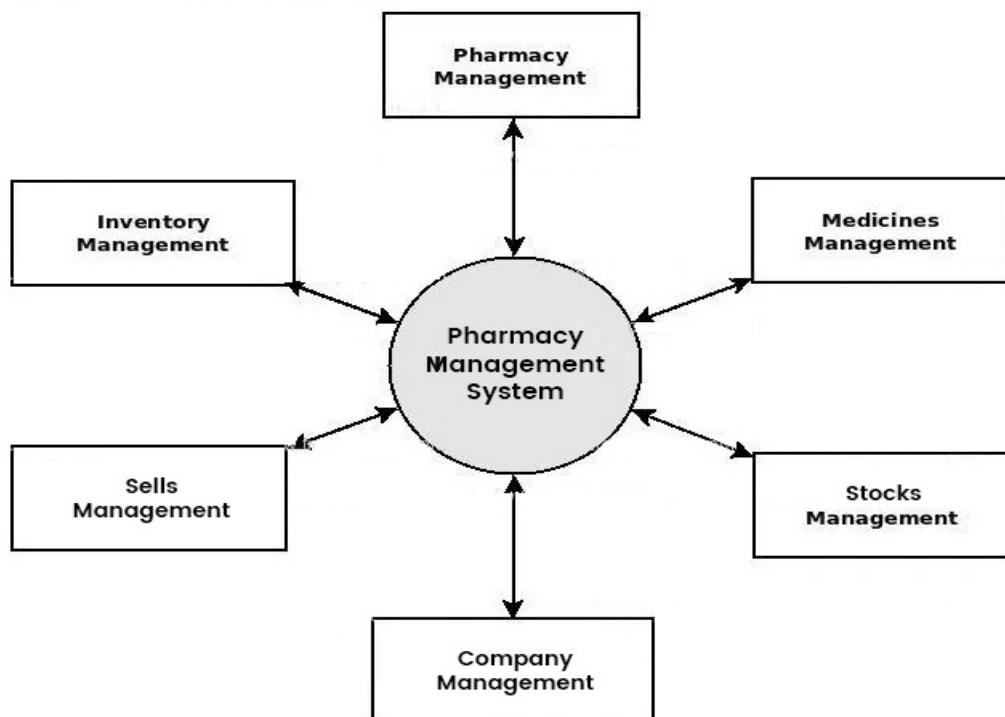


Fig 1.3a

Well, an easy answer. Pharmacy management system software is an online tool that records, supports, and enables functionality that maintains and organizes the use of medicines in the pharmacies. These systems can easily be integrated with the hospital or computer physician operator to keep a record of the medicines used.

Some of the basic features of pharmacy management software are user interface, data entry and retention, and security limits to protect patient health information.

1.4 Pharmacy Management System Modules

When talking about the digital pharmacy management system, different modules that make a complete pharmacy management system. Its functioning needs to take care of the following points:

- **Customizable Software & Generates Reports-** The software is easily customizable and is also capable of generating various reports.
- **Medicine Purchase Request & Order-** It is to manage the purchase requests and order requests received for the medicines.
- **Drug Issue to Patients & Billing-** This is to maintain the record of drugs issued to patients and also the billing that took place during the day/month/year.
- **Physical Stock Verification & Adjustment-** This module in any pharmacy computer system is responsible to verify the physical stock and the decision, regarding adjustment (if required) can take place.
- **Supplier & Manufacturer Information-** It is again vital as this keeps a record of the supplier/manufacturer information from whom you buy the medicines/who is responsible for the manufacturing of those medicines.
- **Reports About Stock-in-Hand & Complete Details of Medicines-** It gives information about the stock that is in-hand with the entire medicine details.
- **Maintenance of Medicine Stock-** Future decisions can easily be taken based on this, by maintaining the medicine stock as this way you know when the stock needs to be updated.

- **Destruction of Expired Items-** It is again vital to have the information about expired items that need to be destructed so that the process can be held timely in the pharmacy management system.
- **Return of Items Nearing Expiry-** There is a record of items nearing the expiry date, so this way they can be returned on time.
- **Automatic Reorder Level/Minimum Stock Setting-** There is a module in the pharmacy inventory management of the minimum stock setting, so that can be activated by mentioning a minimum stock and the Automatic reorder level refers to the quantity threshold at which your software will automatically place a new order for stock.

When it comes to the development of pharmacy management system project modules then people need to make sure that no point is left untouched. The slightest mistake could mess things up and service may face some serious issues.

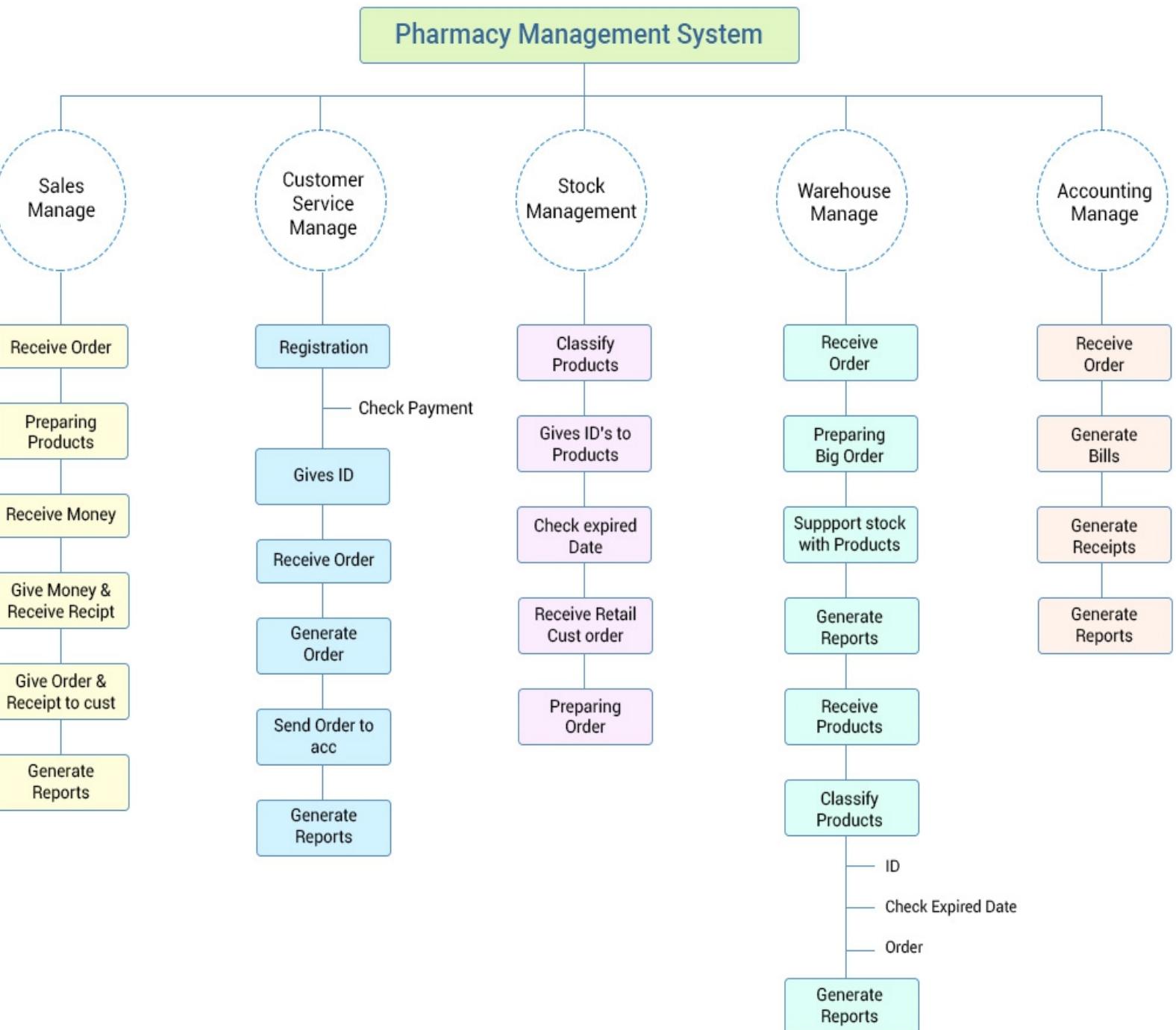


Fig 1.4a

1.5 How to Create a Pharmacy Management System?

If you own a pharmacy store that is yet not digitalized then you understand how to juggle your pharmacy routine processes such as retail, dispensing, outpatient services. Here we have discussed a few issues that we have faced when we all worked on our first pharmacy software. There are four core steps you should follow on the way to going digital:

- Share Business Goals**

Know exactly what you are looking for. Are you looking for an inventory management system, a CRM, and ERP, or a system that automates almost all of your functioning? At Octal IT Solution, we can help you work on all the important aspects of your business and deliver highly rewarding solutions.

- Listen to the Users**

Mainly the pharmacy management systems would be used by your staff and not you. When you reach to a third party with a request to develop such a system, consider the requirements of the users involved. Talk to your staff, suppliers, technicians, and even doctors prescribing the medicines to bridge the gaps and understand functions that need to be integrated.

- Record Insights**

What you gather from your team and others is some important data that you need to focus on. If you want your pharmacy management software development team to deliver solutions that fulfill your business needs, then you need to be sure that you have recorded and analyzed the data from your team well.

- Find a vendor**

Choosing the right pharmacy software development partner for your business is important. They must have industry expertise and experience in providing solutions that can make it easy to take care of your business.

We have discussed earlier various modules that you need to integrate with your software. The most important ones being:

- ERP
- CRM
- Storefront

To develop an online pharmacy management system for a pharmaceutical B2B company, our mobile app development team considers the following steps.

Step1. Setting up and integrating ERP. It is important to take care of the employees and other aspects related to the business. There could be chances that instead of a new ERP software development we would need to upgrade your existing ERP.

Step2. Customer relationship management is quite a big deal. If you want to consider the responses and the requirements of your customers then integrating a well-developed CRM software would help you analyze the requirements of your customers and come up with better business strategies.

Step3. To expand business and retain old clients you would need to have a well-developed storefront that would make things easier for you. Share the sales pitches, checkouts, discounts, etc. to upscale your business. These are the most basic pharmacy management system requirements that could earn you great results and help you expand your business.

Exemplary Features of Pharmacy Management System

In the case of the pharmacy system software, the developing company desires for it to be

Name	Category	Store Box	Purchase Price	Selling Price	Quantity	Generic Name	Company	Effects	Expire Date	Options
Ace	Fever	A1	\$ 5	\$ 6	5404	Load	3534	3453453	03-02-2016	Edit Delete
Antacid	Fever	A5	\$ 10	\$ 20	1899	Load	Paracetamol	drfwerw	erwerw	Edit Delete
Fenadin	Fever	A5	\$ 2	\$ 3	4949	Load	Paracetamol	Opsonin	erwer	Edit Delete
Ace hu	Fever	5	\$ 10	\$ 12	4999	Load	Paracetamol	Square	Dizzy	Edit Delete
Napa	Fever	A5	\$ 2	\$ 5	5000	Load	Paracetamol	Beximco	Dizzy	Edit Delete

Fig 1.5a

complex, and robust [3]. Like, it should be able to track inventory, generate several reports, manage

workflow, and manage complex billing adjudications in real-time, keep track of comprehensive dispensing data and a lot more. It involves dozens of essentials features, so let's explore them here.

- **User-Friendly Record System**

The purpose of pharmacy management system is to input & recall patient, drug & prescription information easily. This system is quite user-friendly and it has the ability to keep a record of patient, drug & prescription information, which is certainly come useful for future purchases or other purposes.

- **HIPAA and Regulatory Compliance**

It goes without saying that the pharmacy system must be aligned with legal requirements in the field hence it must comply with HIPAA & regulatory compliance (consisting of FDA required MedGuides& DEA Reporting.

- **Full Prescription Management**

As integrated with ePrescription, the system offers to manage the full prescription given by the doctors.

- **Automated Claims Processing**

Of course, the system requires automated claim processing systems and it keeps an entire record of the claim submissions including adjudication (V5.1, etc.)

- **Accuracy & Safety**

As it is the question of many lives, hence online pharmacy software offers the fail-safe features for accuracy & safety, leaving no scope for errors.

- **Complete & Accurate Drug Interaction & Other Databases**

The pharmacy database management system is able to detect Drug-Drug Interactions and this way it reduces the chances of ADEs, preserves patients' safety, and prevents related medical and legal problems.

- **A/R Management**

Account Receivables Management is crucial in the arena of healthcare to ensure smooth & successful functioning and that the owed amount is refunded back in the shortest time possible. It looks after denied claims and reopens them to receive maximum reimbursement.

- **On-line Reconciliation**

It's a cost-effective feature to increase cash flow, reduce write-offs and costs. This is vital feature of pharmacy management program in increasing profits & revenues.

- **Drug-file Updates**

All the updates regarding the new drugs introduced in the market and other drugs related information can be found in the system

- **Auto Dr. Fax**

It allows your doctor to call in or fax the patient's refill to the pharmacist, saving the patient's trip to the Pharmacy.

- **Tailored Labels**

This feature facilitates customized prescription drug labels, hence making the handlings a lot easier.

- **Electronic Wholesaler Ordering**

This feature ensures up-to-date costing and inventory, which ties into reliable margin reporting and inventory valuations.

- **Reporting**

As the month ends, you should be able to tally the revenues generated by the stock movement. You need to be informed of the sale of each unit of an inventory, also what has been disposed of or damaged. Hence you can ensure that you don't lose even a penny without it being accounted for.

1.6 How much does it cost?

A comparison of popular ready-made software from the perspective of cost, purpose, features, and support below will help to value investments for your retail business.

Price	Name	Purpose	Features	Education and support
From \$150/month	PrimeRx	Independent pharmacies and chains	<ul style="list-style-type: none"> • automatic refills • barcode generation • e-Prescribing • inventory management • multi-store management • pill imaging • point of sale • prescription processing • rx image scanning • eSignature capture • pill database • forms management • eSignature • claims management 	<ul style="list-style-type: none"> • documentation • webinar • live online and in person sessions
From \$300/month/user	SuiteRx	Independent pharmacies and chains	<ul style="list-style-type: none"> • retail and long term care modules • document management • eSignature capture • point of sale • inventory management • web portal capabilities • electronic delivery tracking 	—
From \$1500/one-time	Winpharm	Doctors dispensaries, independent	<ul style="list-style-type: none"> • full built-in verification 	—

Price	Name	Purpose	Features	Education and support
		pharmacies, long-term care pharmacies, and hospitals	<ul style="list-style-type: none"> module • point of sale • find and add new drugs • hard copies of documents storing and scanning • automatic refill processing • coupon management • medication therapy management • interactive voice response (IVR) 	
From \$1500/one-time	Advanced Rx	Independent pharmacies and chains	<ul style="list-style-type: none"> • automatic refills • barcode generation • compounding • e-Prescribing • insurance processing • inventory management • multi-store management • online refills • pill imaging • point of sale • prescription processing • rx image scanning • signature capture • pill database • forms 	<ul style="list-style-type: none"> • documentation • webinar • live online and in person sessions • online support • business hours support • 24/7 live support

Price	Name	Purpose	Features	Education and support
			<ul style="list-style-type: none"> management • eSignature • claims management 	
From \$10000/month/use	MerchantSoft	Outpatient hospitals and independent pharmacies	<ul style="list-style-type: none"> • barcode generation • inventory management • multi-store management • point of sale (POS) • prescription processing • signature capture • pill database • forms management • eSignature • claims management 	—

Table 1.6

The pricing range of ready-mades starts from \$150 and goes beyond \$10 000. It depends on the vendor value on the market, desirable feature set, purpose, and other factors. Solutions are provided on the subscription base varying in a one-time payment or regular monthly fees per organization or user. All offers are available as SaaS.

As for custom solutions, they will come at a much higher cost for several reasons.

- Person will start choosing a technical partner.
- Then set up a project team to do the entire scope of work.
- Person will need to design a system architecture from scratch.
- It will require a complex UI/UX design to be done.
- Issues on server and system infrastructure installation fall on you.

Obviously, it is more affordable for individual pharmacies to set up some ready-made solutions and address the technical vendor for customizations, probably different from those of a native software provider.

Chapter 2

Literature Review

Any software for pharmacy needs to be laden with features and should be built in a way that makes every aspect of pharmacy management easier and flawless. With the least human intervention in the process, you would be able to take your business to better heights.

2.1 Data Loading

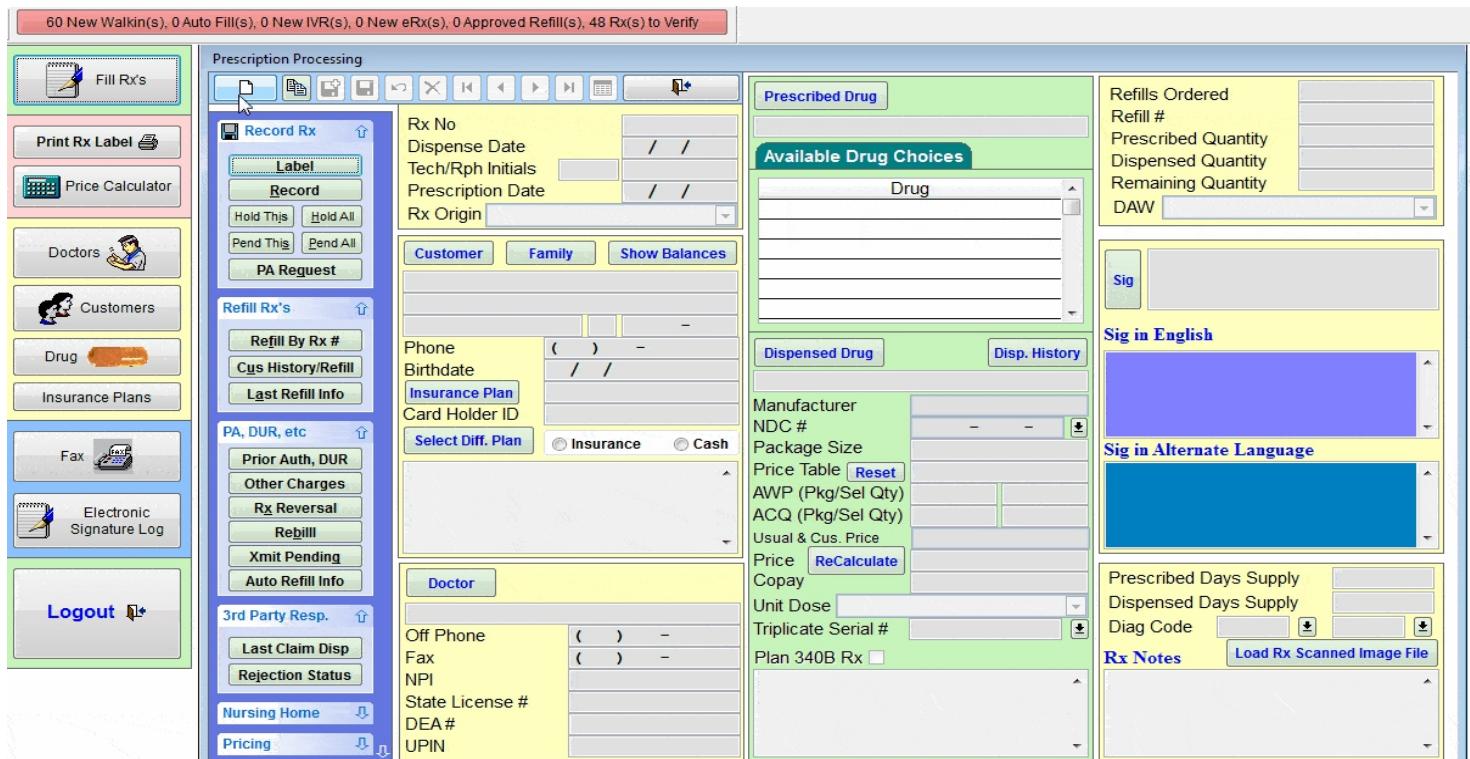


Fig 2.1a

As soon as pharmacy goes live, person will certainly need to deal with lots of data that needs to be put into the software with there being a huge number of items that have to be maintained in the pharmacy. It will obviously be a mammoth task to mention the details of each inventory one by one, regardless of the number of resources you put for this purpose. Even if person go ahead and do it, there is no guarantee that the data entered into the system is error-free, hence it is vital that your pharmacy software systems have the feature to load an entire data from an Excel/CSV file to lessen startup struggles.

2.2 Pill Imaging

This helps in preventing incorrect medication dispensing. The quality assurance check takes place; pills are displayed & compared with bottle contents thus ensuring that correct drugs are available. This brings a valuable control point which ensures the accuracy and quality of dispensing prescriptions.

2.3 Inventory Management

This is among the most useful features integrated in this kind of system as it helps in boosting efficiency & reducing pharmacy inventory costs via perpetual usage-based purchase decisions. When inventory is tracked via an automated system, the pharmacy staff will not need to indulge in labor-intensive inventory activities, and their time can be utilized well in other important activities. Moreover, this feature also improves security as it is able to control access to medications in pharmacy and promotes medication dispensing accuracy.

2.4 Electronic Prescriptions

Using this feature, your pharmacy will be receiving new & refill prescriptions directly into the pharmacy management systems from doctors for review, and this will be helpful in the faster completion of the dispensing process.

2.5 e-Signature Capture

This feature is quite useful in your pharmacy billing system project as it enables you to electronically track acknowledgment for each prescription. Signature capture interfaces assist pharmacy staff in saving time at POS, while the prescription sale & credit/debit card can also be signed in one transaction.

2.6 Barcode Verification

Without any doubt, it is an important element of pharmacy management systems, as it offers help with several aspects throughout the system, such as retrieval of refill information, Point of Sale (POS) scanning, verification of dispensed product, which enhances efficiency and accuracy.

2.7 Advanced Reporting

This feature is extremely a crucial one as it allows the pharmacy staff to make reports faster

with the help of an extensive easy-to-use library of built-in reports, and also custom reports which are based on the particular information that you wish to track & include in the report

2.8 Clinical Integration

It works wonders when the scope of pharmacy management system is extended and integrated with a number of clinical tools that pharmacists can use all along the day. For instance, drug interaction details, dosing guide, and also lab data (whenever required). Also, integrate MTM services into the system.

2.9 POS Integration

A centralized Point of Sale system can be integrated into the Pharmacy Management System Software to manage cash flows well on all the floors, chains, owned by the Pharmacy. All of these features combined will surely help you take your pharmacy to a whole new level. So keep this checklist handy and make sure the system you choose can answer YES to all of the above.

2.10 Pharmacy Management Mobile Application

Mobile application enables pharmacy employees to access all the required information on the go and it really helps in real-time decision making. Taking your pharmacy management system on the mobile platform will boost business efficiency and will simplify the business process.

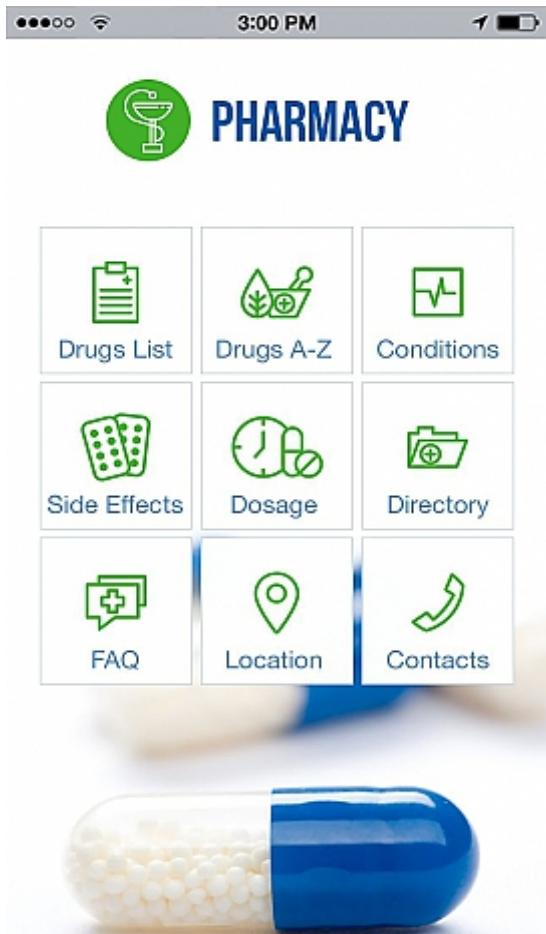


Fig 2.10a

With the help of the right software, you will be able to deliver the highest level of care to your patients while it will also help in maximizing profits and allow you to spend more time generating new business. There are many such benefits associated with Pharmacy Management Software, so let's explore the advantages of pharmacy management system:

- Low cost of ownership
- It is helpful in increasing productivity and resultantly profitability.
- It is a flexible system that can be customized as per your requirements.
- There are wide-ranging modules created keeping in mind all the requirements, with a separate login for pharmacy administrators & employees.
- It offers Smart User Management by assigning different privileges to different users. It is also able to manually set parameters for different users.
- With it being integrated with Barcode Scanner, it is able to record details easily and hence speeds up the sale procedure.

- It is a lot more than just a Pharmacy Management System, as it also takes care of Supply Chain Management.
- There are a number of useful features available in the system such as Expiry Date Alert & Minimum Stock Alert.
- Quite promptly & quickly the system provides the analysis and information about the business, which is helpful in better decision-making.
- It offers a Centralized Data Storage facility as well as Easy & Interactive retrieval of data.
- The system is reliable & secure as during the development of the system, all the major threats were considered and all preventive measures are also taken care of.
- It boasts simple, user-friendly & efficient user-interface design, as all the key elements are taken care during the designing of the system.

Pharmacy Management software offers a lot of functionalities and to be able to make the best use of them, you need to use them properly and must teach the usage to your staff as well. As you select a healthcare software development firm to create this system for you to ensure that they offer training that keeps updated with software's capabilities and can offer insights into how you can use the program more efficiently. To help you through the struggle we offer pharmacy management system project documentation where you can check the details for any confusion.

The pharmacy software price is highly influenced by the technology stack that we use. The experts associated with us are well-versed with various web and mobile app development technologies and can help you have a solution that serves your purpose of developing Pharmacy management software.

- Front End Technology: Java, Swift, Angular, HTML, CSS, React
- Back End Technology: Node.js, Laravel, Python
- Payment Gateway: PayPal, API, Braintree SDK, Stripe API
- Location Tracking: MapKit Framework, Google Maps
- Push Notifications: SMS and In-app messaging
- Database: PostgreSQL, MongoDB
- Analytics: Google Analytics

- Cloud Environment: AWS, Google Cloud
- Social Login: Facebook Mobile SDKs, Twitter APIs, etc.

When talking about pharmacy software price, it depends on the third party that you have hired.

- Developers in the US: \$150-\$250 an hour
- Developers in Europe: \$120-\$180 an hour
- Developers in Asia: \$40-\$80 an hour

Just reach to a reliable development firm and get our pharmacy management system ready.

Being one of the most extremely profitable niches in the world, the pharma sector needs facilitation in business process management no less than other industries. The total global pharmaceutical market rose to 1.25 trillion U.S. dollars in 2019. The US takes leading positions with 40% of market share and predictions to overcome \$685 billion by 2023 in its growth.

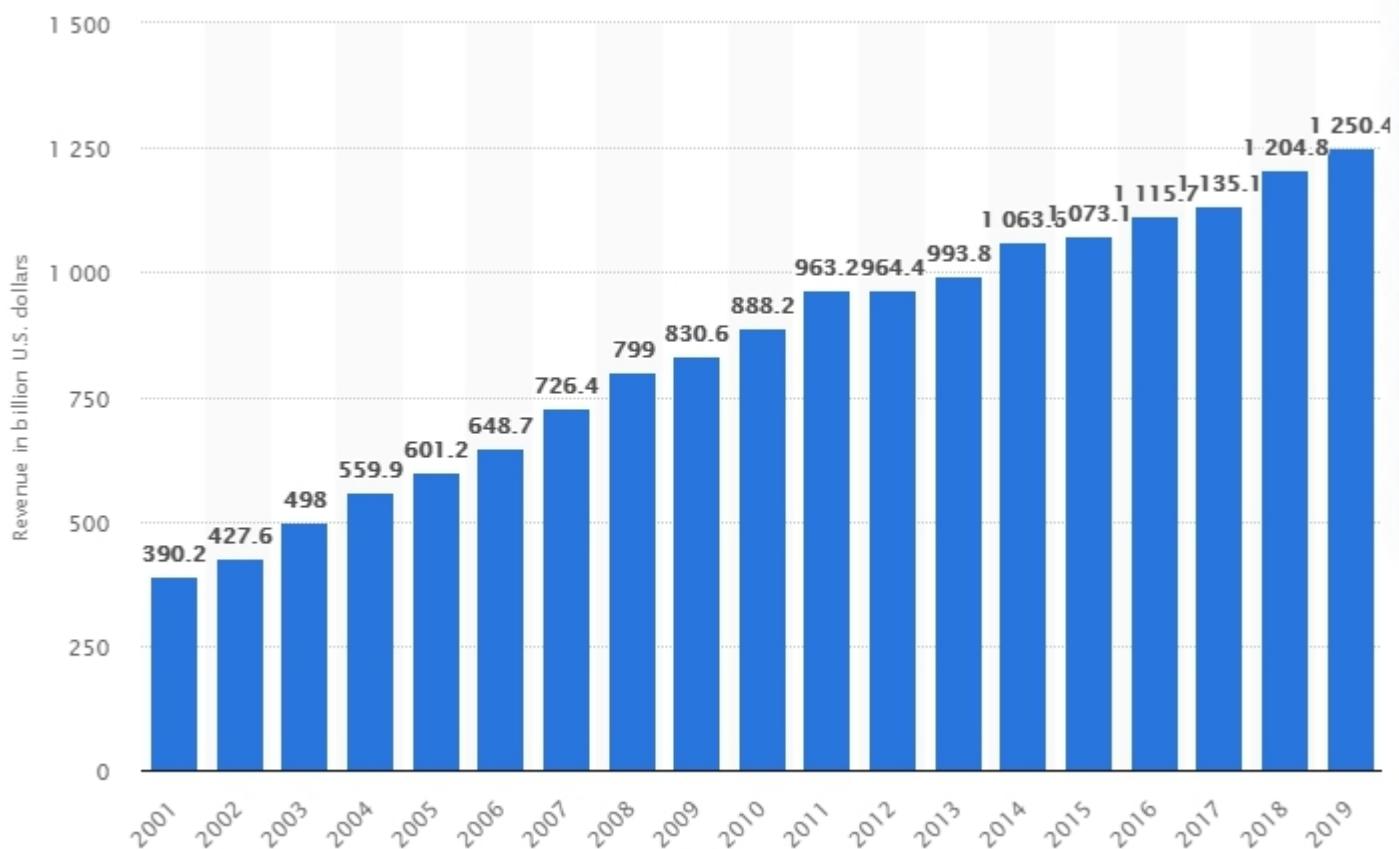


Fig 2.10b. Revenue of the worldwide pharmaceutical market.

Pandemic accelerated the process of contactless access to drugs. Pharma B2C businesses in the countries with an imperfect legislative system concerning sales of medicines hitherto received

relief and opportunity to reach the customer faster. Online. Under quarantine, many countries allowed distance selling of drugs to the public over the internet temporarily. However, some of them are going to continue the practice in countries shaping regulations surrounding the matter.

According to The American College of Clinical Pharmacy, prescriptions are dispensed online, and it is expected to reach 5 billion by 2021. The pharmaceutical market joins manufacturers, distributors, drug stores, logistics, warehouses, pharmaceuticals, and patients. Pharmacists will require software to automate workflow, inventory, and sales process management with those in the chain to cope with the growing demand for medicine.

The market's openings lie in demand for adaptation and extension of existing pharmacy management software to the online trade and business management in the new reality. When a distance selling model works in such countries as Ukraine, local distributors will have to compete not only among themselves but in the international market. It is a new competition level with new opportunities for business development and different requirements for the software.

However, some industry-specific limitations are related to regulations around the distance selling of medicine in different areas, which can be a severe barrier to entry to new markets. The industry-specific challenge is restrictions for distance selling of medications that are permitted and regulated by the national agencies like the Foods and Drug Administration (FDA) in the USA, the European Medicines Agency (EMA) in the EU, the Medicines and Healthcare products Regulatory Agency (MHRA) in the UK, and similar. That means going global requires to be compliant with regulatory agencies' standards of the specific area.

Based on the above mentioned, willing to automate your pharmacy business processes, you can opt for retail-related business software tailored to the pharma industry specificity. Let's see how you can arrange your sales processes based on market offers and our software development experience for B2B and B2C clients.

Two types of businesses in the industry are striving to increase efficiency and manage workflow.

Scaling B2C pharma retailers that want to improve relationships with their customers and meet patient expectations:

- independent B2C pharmacies;
- B2C pharmacy chains.

Large client-base B2B companies that want to level up relationships with their partners:

- pharmaceutical wholesalers (international and local);
- pharmaceutical manufacturing companies;
- pharmaceutical warehouses.

2.11 When Do Businesses Need A Pharmacy Management System?

When you are tired of slow, error-filled operations that force your customers to hesitate, you are going to look for a remedy.

If you want to transform towers of paper into digital, manage retail sales of prescribed and over the counter drugs, control stock and dispensing, estimate demand, get a full picture of business performance with analytical insights and reporting, you will appreciate a unified automated solution that is a pharmacy management system.

Add to this finances management, real-time alerts on hot issues, sales and revenue management, and you will be able to plan pharmacy workload and manage activities effectively.

A list of obvious challenges that a pharmacy management software development and integration has to solve:

- medication classification and selection;
- pricing;
- embedded ordering system from suppliers;
- integration with pharmacy devices;
- support and integration with POS;
- open APIs and security;
- loyalty programs and specials;
- online pharmacy management;
- online person identification for prescriptions.

What Pharmacy Management System Does A Business Need?

Even more generally, though, a large pharma B2B needs a set of ERP + CRM + e-store to automate processes aiming to increase ongoing revenue. This complex is worth considering when a man-hour cost in the area is higher than software maintenance. In its turn, it is quite enough to set up a

pharmacy management system of general use for a small B2C pharmacy. To the issue of the cost, we will come back later.

Now responding to the growing demand for the automation of information processing into pharmacies, we would like to delve deeply into pharmacy software development to keep up day-to-day operations.

2.13 Features of Pharmacy Management System

Every pharmaceutical retailer needs a particular set of features. That's why creating a pharmacy software often covers multiple needs. In any way, you have to manage supplies and relationships with customers and sell goods both offline and online. Perfect if one solution can cover your needs. In another case, a system with various feature kits and the opportunity to be honed for your pharmacy will fit you.

The pharma retailers liaise between multiple suppliers and are under an obligation to control different aspects of specific goods as medications are. It is a commercial enterprise with a complicated reporting structure. Developing features, your software vendor should take into account that pharmacy is not only a health care institution providing the population with medications while.

However, there is a standard feature set necessary to make your pharmacy performance-driven and increase operating efficiency. Here's what we picked out.

- **Inventory Management**

- Pharmacy inventory management is a part of the software responsible for taking an accurate inventory automatically. You get a digital audit trail for all pharmaceutical products in your supply system that can help maximize the inventory turnover ratio.
- It helps to make data-driven decisions concerning updating stock level, selecting drugs, managing supplies, timely ordering, defining due refills, identifying and recording the prescription filling and pick-up details, and the due date for the next fill, providing alerts with suggestions to get the appropriate supplies, and tracking illegal medicines.

- **Prescription Management**

Prescription management helps arrange a random multiple prescription flow and over the counter (OTC) stock to maintain optimal inventory levels. It might be pretty convenient for your pharmacy to have a scheduled prescription process with patient details automated and centralized within your pharma environment.

Draw your attention to how the software copes with the prescription refill process. The way it does will decrease incoming calls, optimize deliveries, and generate greater prescription volume.

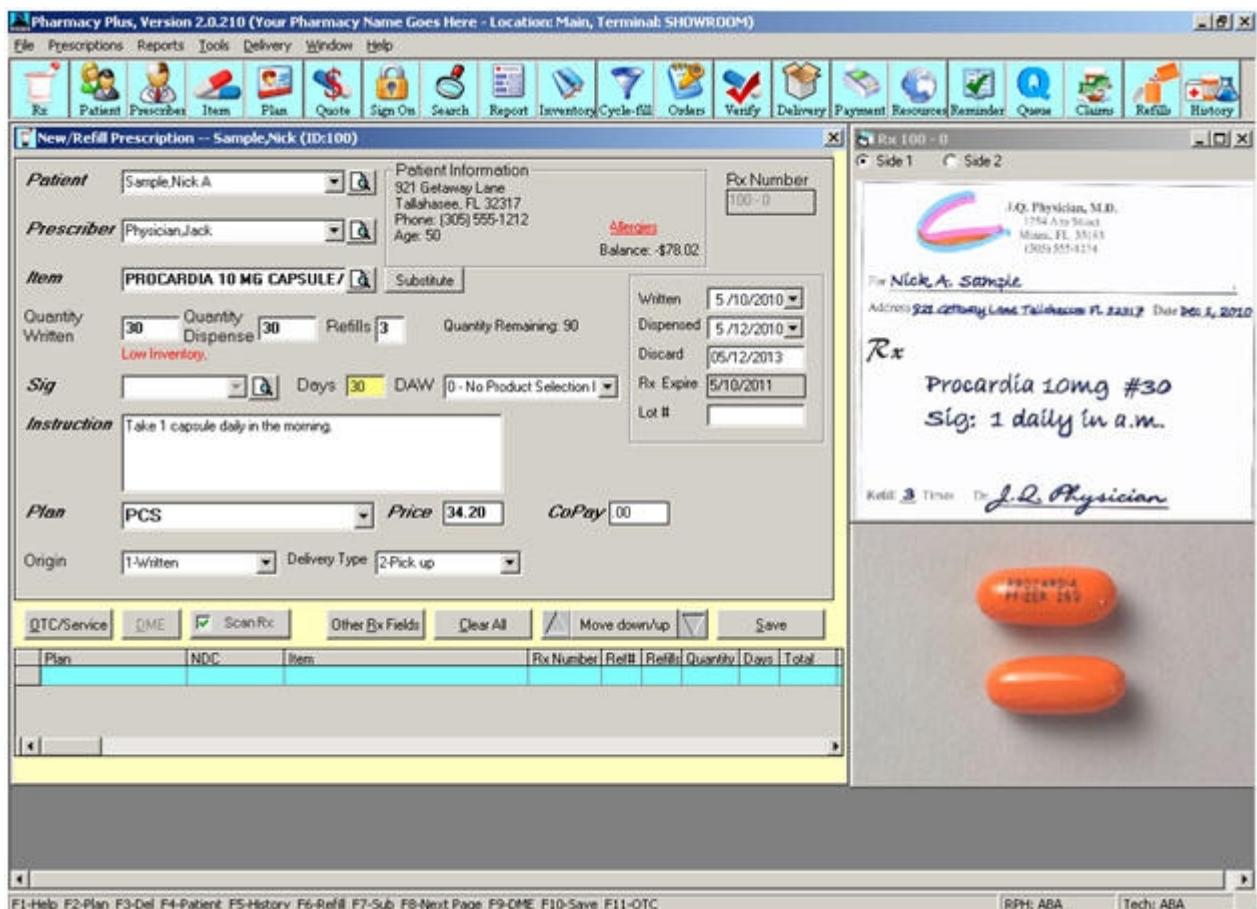


Fig 2.13a.. Refill prescription.

- **Dispensing Workflow Management**

A typical dispensing of medication order requires to be done in an orderly manner using different features with the following actions:

Initial identification of a patient in the pharmacy CRM system.

Prescription interpretation and data entry into the system by the technician or pharmacist.

Clinical review for potential issues related to drug interactions, duplication of therapy, and appropriate dosage, etc.

Filling medications manually or by a robot, packaging followed by the handoff to the pharmacist.

Verification for accuracy of the drug information.

Issuing medications with counseling.

Technology handling workflow will allow you to keep under control this overscrupulous process neatly. Dispensing workflow is expected to be flexibly adjusted for slow days or short-staffed cases. Build a pharmacy management software implementing both an open workflow and a queue system workflow to maneuver in your pharmacy operation.

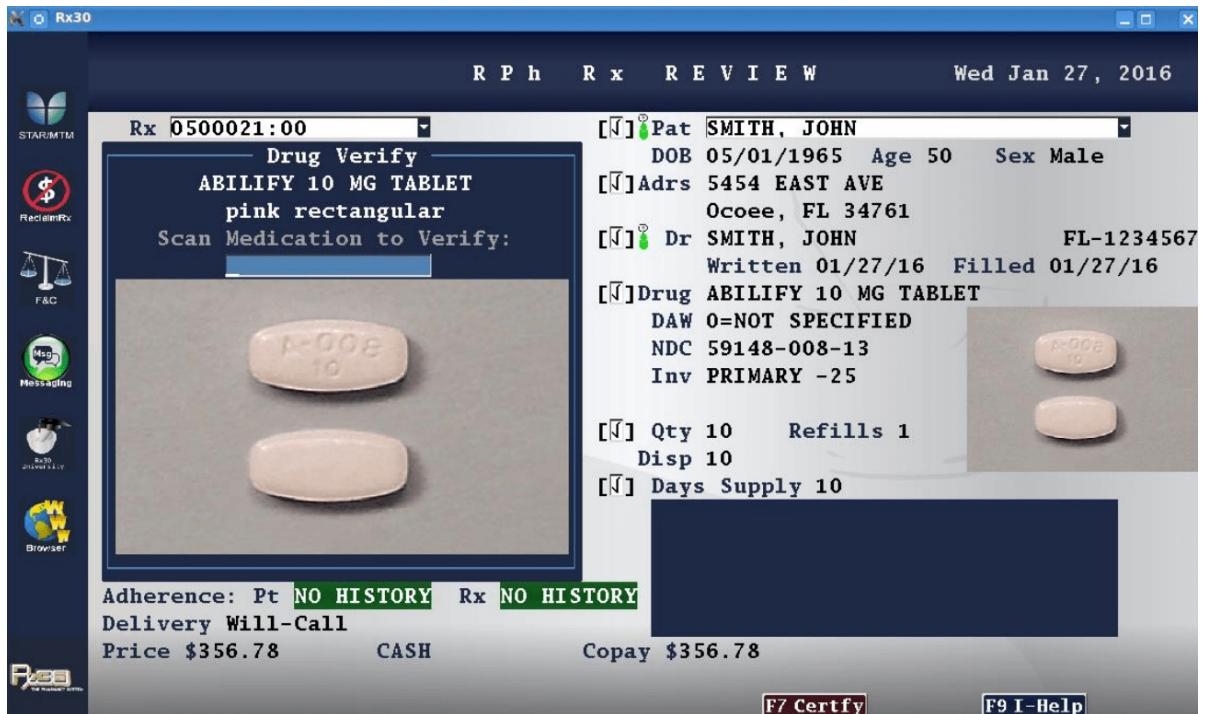


Fig 2.13b. Drug verification. Source:

- **Analytics And Reporting**

Even a small pharmacy is a complex datahub. Privacy rules and state regulations make using this type of data with due caution. You may turn that to your advantage with analytics functionality and set up patient care strategies in the right way.

You can leverage data subsets of patient personal information, prescription transaction, insurance, supply chain, sales figures into powerful analytics. Inventory reports can prevent drug shortages. Consider an analytics feature to track prescription activity to detect at-risk

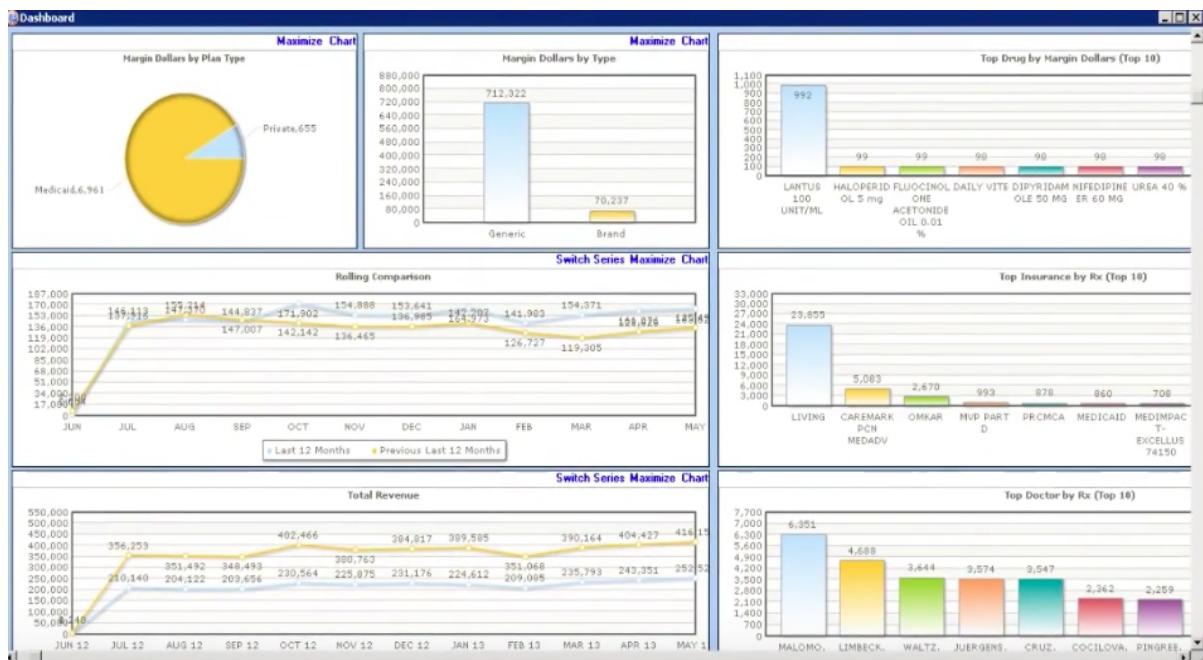
cases. Regular revenue reports and gap analysis can help develop business development and be used during an audit process.

Opt for a drag-and-drop way to move objects. That can streamline the process of using software and timely respond to market and patient care demands.

- Financial Management Service**

Pharmacy billing is too complicated in different countries involving three tiers: supplier – payer – consumer. It depends heavily on the variation in regulations and state laws and health or prescription coverage providers. It requires a robust system to offer competitive prices and manage revenue generation for patient care services.

Consider adding features within the automatic coordination of benefits (COB) billing module. It will help maintain day-to-day transactions, manage multiple payers, insurance reimbursements, delayed payments from patients, and identify profit losses from remuneration fees.



eFig 2.13c. Finance management.

- Online pharmacy**

Running your pharmacy today, especially in the time of corona, requires extra efforts to survive. It is an excellent opportunity to transform the business with an online store.

Consider an e-commerce module with features enabling you to arrange contactless sales online. It should have a storefront and backoffice that could be integrated into your pharmacy management software suite.

Note, before integration, check the e-commerce solution for compliance with pharma industry standards. Ask your software provider to tailor online dispensing, taking into account prescribed and over the counter items. It will come in handy to differentiate categories of goods, respectively. An option of free delivery direct to customers' doors will be a big plus.

- **Notifications And Alerts**

Regarding notifications and alerts, creating pharmacy software improves patient safety, which directly influences customer loyalty and competitiveness in the market. The relevant cases based on user-defined triggers could be:

- customer care (drug contradiction and allergy alerts, prescriptions ready for pick-up or refill, refills due, medication adherence reminders);
- inventory management (low product inventory alerts, run out items, slow-moving inventory, stock replenishment, supply and delivery notifications);
- daily operations (inconsistencies in a patient, medication, or prescription data entry);
- analytics (regular clinical and administrative performance alerts);
- sales strategies (up-sale with related products, promo, and loyalty programs);others.

- **Integration**

With e-Prescribing, your pharmacists will get error-free electronic prescriptions from medical providers instead of handwritten or faxed files requiring manual entry in the database. It will improve prescription management of refills, modifications, or cancels.

Point of sale (PoS) system integration helps coordinate pharmacy (or pharmacy chain) retail operations such as back-office management, sales, customer relationships, online and offline data flows on transactions, inventory updates, prescription operations automatically. signature capture capabilities

EHR/EMR integration is vital for inpatient pharmacies primarily. It provides greater efficiency and responsive care to patients based on their medical data.

Interactive voice response (IVR) reduces staff workload for patient calls on basic questions or refills, helps cope with overloads during peak periods, automates delivering messages on pharmacy schedule, special offers, etc.

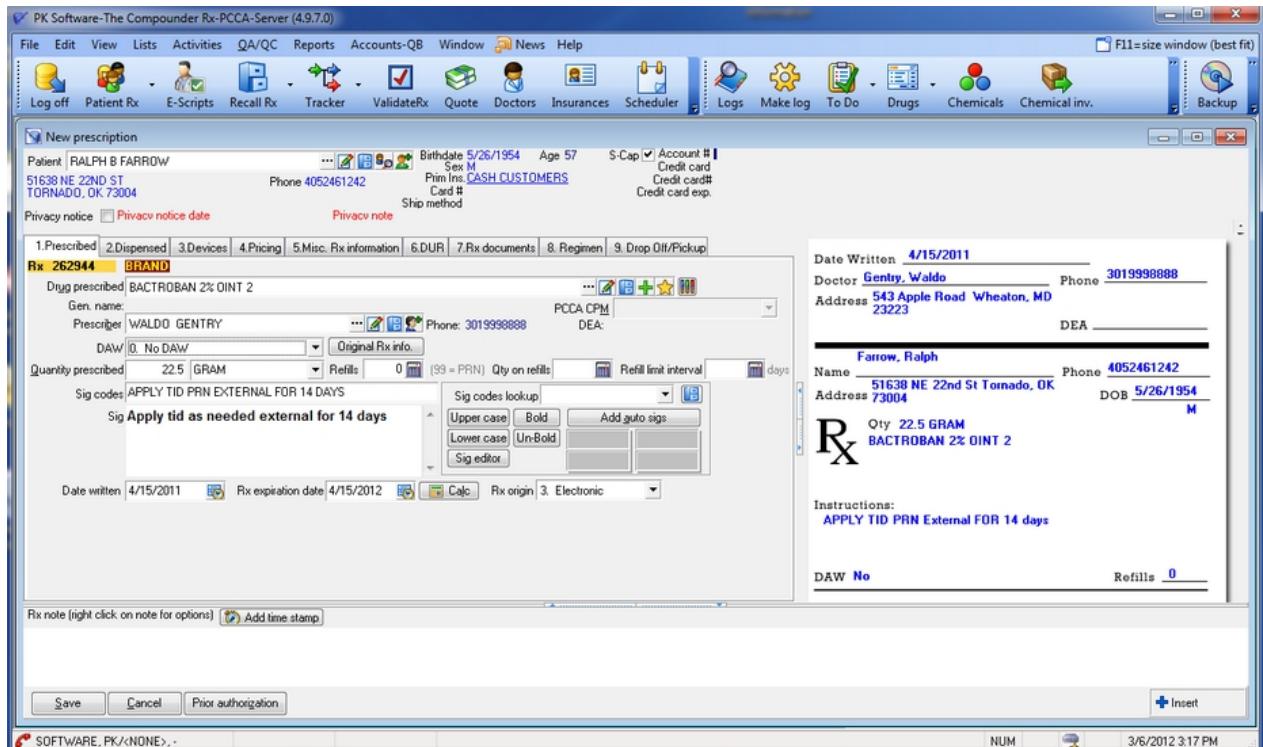


Fig 2.13d. The e-Prescribing module.

Additional Functionality

Scaling and responding to market changes, you will have to intensify functionality and integrate with external software systems.

The following automatization feature sets and modules will help your business to enhance your pharmacy processes:

1. Database update on industry regulatory and compliance information.
2. Automated filling strip packaging for patients.
3. Digital document management system.
4. Scanning and file recognition.
5. Barcodes and labeling.

Choosing software or developing features, you should consider those able to address your business concerns.

2.14 Ready-Made vs. Custom Solution

The off-the-shelf software is easier and faster to set up in case of the great need for outpatient pharmacy. A software vendor can offer you the cost of the version or chosen subscription plan right away. At the same time, opting for ready-made solutions, you will be involved in continuous investments in monthly or yearly license fees. It is a kind of rent of software from which it is too complicated to bail out. Particularly when you have tuned your business processes already, you will pay for a license, integration, and minor customizations.

If you want to disrupt, ready-made systems will slow you down. If you feel your potential goes beyond the early beginning, a custom solution is the one that can be honed to your needs. Designed to meet specific business requirements, it is worthwhile. You can think out a pharmacy management system design, architecture, choose development technologies, plan the development process module by module. In contrast, in a ready-made, you get predefined out-of-the-box features that can be extended by upgrading subscription plans or custom builds.

Image 6. Advantages of pharmacy management software development

Opting for homebrew solutions in order to save, you can make a mistake. Lots of upgrades of the ready-made solutions would make your system look like a patchwork quilt, threatening data loss if you outgrew it already. It could be expensive and non-effective as a result.

We advise you to avoid technology vendors without proper expertise. Take this case seriously. Consider approaches compliant with pharma industry standards and rules your business is subject to [4].

With respect to the large B2B, there is a software, for example, SAP Commerce Cloud (Hybris), integrated into ERP and CRM, can realize a B2B2C sales model. That is very appealing in the conditions of the global economy reboot caused by the pandemic. You can sell not only partners but also reach end customers directly, creating an additional sales boost.

Advantages of pharmacy management software development

Ready-made solutions

- Quick start
- Free trials
- Modular approach
- Low starting investments
- A great variety of offers

Custom solutions

- Designed to meet your special needs
- Can become a market unicorn
- Flexibility in adapting to changing environment
- Friendly to your business model
- Your ownership

Fig 2.14a

With the rapid development of computer communication technology in national health reform in China, hospitals have significantly changed their ways in dealing with medical information. Many hospitals introduced hospital information system (HIS) to store, dispose, and manage plenty of medical information by computers, and clinical pharmacy management system (CPMS) is the core part of HIS [5, 6]. At present, CPMS in our hospital emphasizes on the guarantee of drug supply including the stock, sell, and store of drugs, i.e., the logistics and fund flow. This system has realized the transition from manual to computer accounting. However, focus of the pharmacists in our hospital has gradually changed to the patient-centered pharmaceutical care [7, 8]. The function providing pharmaceutical information service for clinical pharmacists has not been incorporated in the current HIS, which can be remedied by applying the advanced computer software. [9, 10]

Currently, main responsibilities of the clinical pharmacists in our hospital include:

1. Cooperating with doctors closely to grasp the overall conditions of patients and completing their corresponding medical records.

2. Before 2011, the clinical pharmacists in our hospital randomly selected 100 outpatient prescriptions and 30 inpatient medical orders monthly to analyze, review, complete, and submit the prescription review lists.
3. Complying with the relative requirements in “Notification on the establishment of clinical use of antibiotics and bacterial resistance monitoring network” (Except for the establishment of national ‘clinical use of antibiotics monitoring network’ and ‘bacterial resistance monitoring network,’ corresponding monitoring should also be gradually carried out in appropriate areas and units.), the clinical pharmacists should randomly select 120 medical records annually to complete and submit the reports. 4) Completing the reports of adverse drug reactions monthly (ADR).

Two problems will arise when the clinical pharmacists in our hospital intend to fulfill the above missions, one of which is the heavy workload. Taking prescription review as the example, pharmacists need to select 100 prescriptions and 30 medical orders equally according to the requirements, and they also need to check the corresponding paper medical records to extract and evaluate the information of prescriptions or medical orders. Besides, it will take more time and efforts to complete the prescription review forms. Especially, filling in the number of basic drugs is in need of checking individual drug information in every prescription. Meanwhile, when filling in the antibacterial drug reports, pharmacists need to check the entire medical records of patients to acquire the requested information, which will take a long time to complete only one report form. In addition, samples consisting of 100 prescriptions, 30 medical orders and 120 medical records are still insufficient, and the data obtained by different samplers will differ greatly during the same period. Thus, the data cannot properly reflect the overall situation of prescriptions and the use of antibiotics.

As a result, it is crucial to effectively improve the overall work efficiency of the pharmacy department by systematizing, standardizing, and scientizing the management. Thereby motivated, a novel CPMS that is more suitable for the clinical pharmacists was developed by our hospital in 2010, and was put into effect on January 1, 2011. The system is connected to HIS of our hospital, which will be able to replace the jobs of clinical pharmacists including manual samplings, reviews of prescriptions (medical orders), and filling in the reports of the use of antibiotics. Besides, CPMS is also able to customize paper prescriptions and medical orders according to “Prescription Administrative Policy” and related laws and regulations [11, [12]]. The system has been utilized in our hospital for a period of time and performed quite well.

The main advantages of the system embodied in the following aspects. It can provide real-time monitoring for the prescriptions and medical orders and warn the irrational use of drugs timely, which thus greatly improve the qualified rates of prescriptions. According to the relevant rules in “Prescription Administrative Policy” of WHO (Medical institutions should establish prescription review systems, complete prescription review forms, implement dynamic monitor, and abnormal warn for prescriptions, register, and report irrational prescriptions, and intervene irrational drug use in time) [13, [14]]. It will realize the screening and statistical analysis of large sample cases precisely and thoroughly to meet the requirements of clinical pharmacy research.

In 2010, Nurul Muhammed proposed a Drug Management System (DMS) that increase the stocktaking management process. The proposed system is equipped with alarm that alerts the admin about all medicines which are reached the minimum quantity and medicines that expired [15]. In 2012, Carlisle George presented in his book different algorithms with rich information about issuing drugs and monitoring and controlling patient [16]. In 2017, the authors purposed a first elementary approach to sort the services of the most important Hospital Departments under the light of the disrupting influence of the emerging IoT [17]. In 2018, the author presented a study that leads to describe the current situation touching all the related portion to the hospital pharmacies functions [18].

Chapter 3

Methodology

The system which is being taken into account named as Obat+. At the start there is a login page for cashier's, admin, managers and other users.

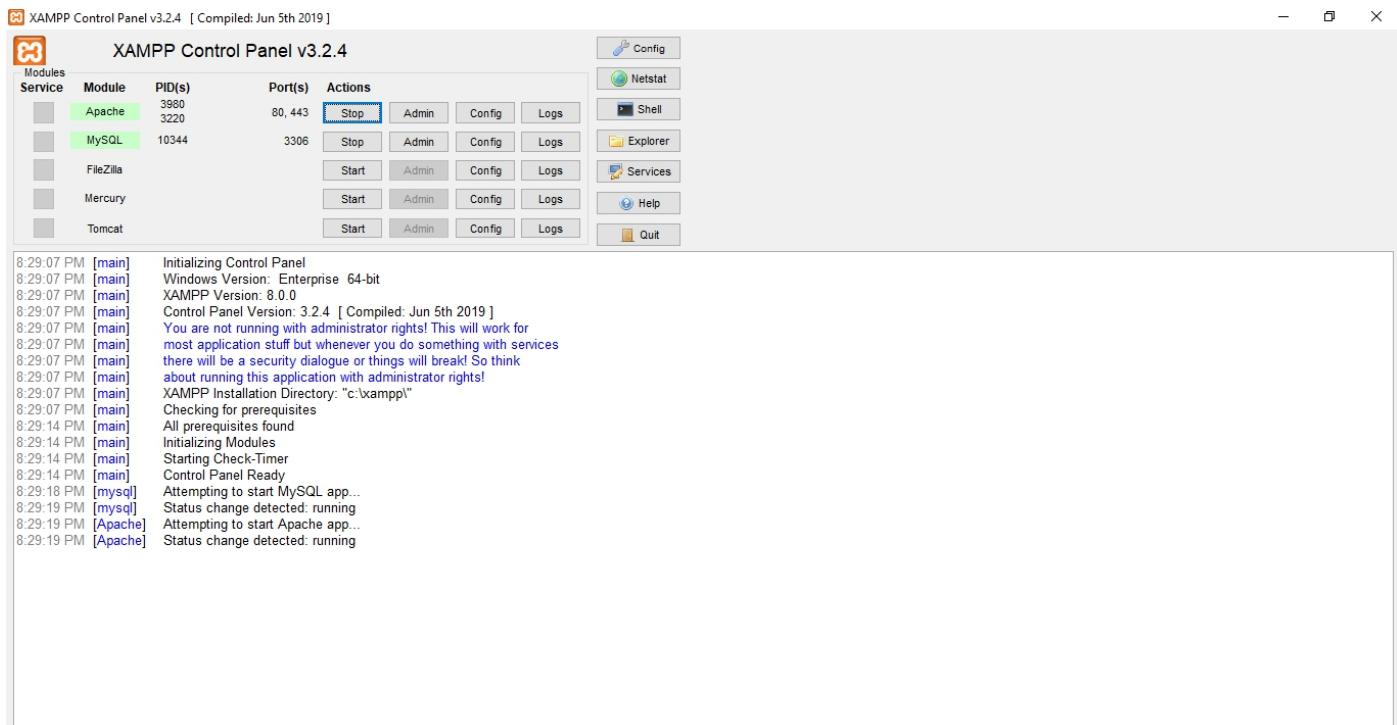


Fig 3.1

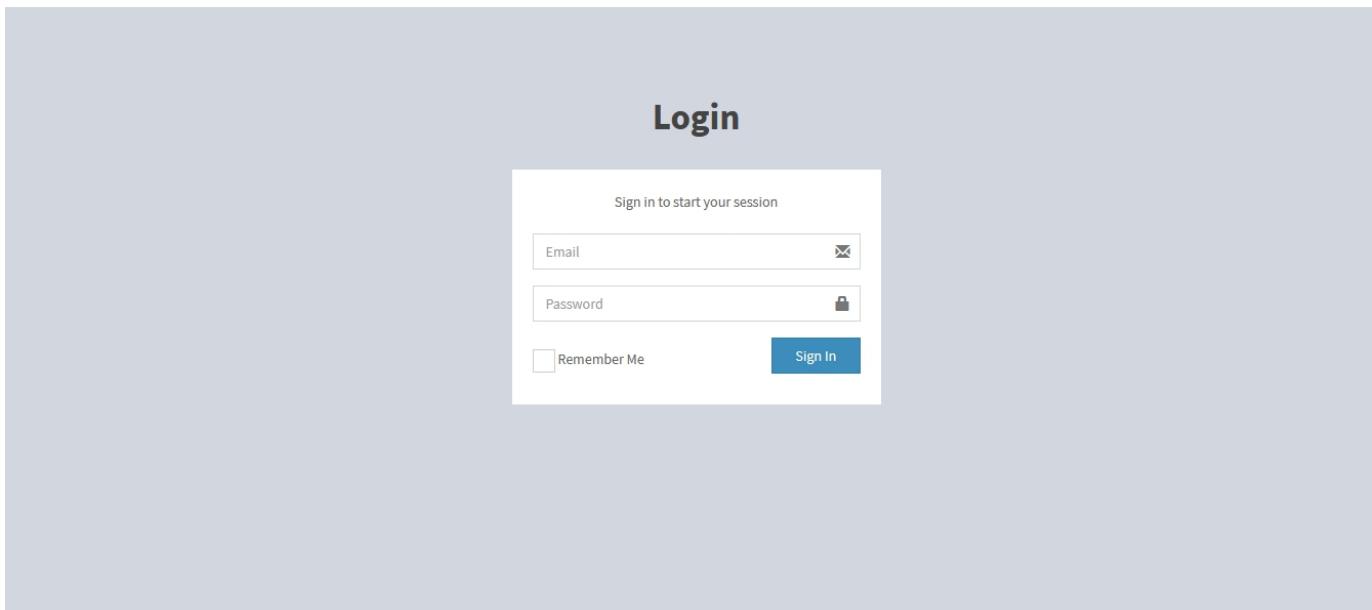


Fig 3.2

After Login, Admin panel appears, This panel is different in case of every user. Below this panel is for admin use.

The screenshot shows the Admin dashboard with a sidebar containing links for Dashboard, Users, Groups, Brands, Category, Stores, Attributes, Products, Orders, Reports, Company, Profile, and Setting. The main area displays four cards: 'Total Products' (11, blue background), 'Total Paid Orders' (0, green background), 'Total Users' (3, orange background), and 'Total Stores' (5, red background). Each card has a 'More info' button. At the bottom, it says 'Copyright © 2018-2021. All rights reserved.' and 'Version 0.1.0'.

Fig 3.3

Here admin can add new users and assign tasks to them.

The screenshot shows the Admin interface with a sidebar containing links for Dashboard, Users (selected), Add User, Manage Users, Groups, Brands, Category, Stores, Attributes, Products, Orders, Reports, and Company. The main area shows the 'Manage Users' section with a table. The table has columns: Username, Email, Name, Phone, Group, and Action. It lists two users: 'jabiulla' (Email: jabiulla@gmail.com, Name: Ismail Jabiulla, Phone: 12365478921, Group: Rajshahi) and 'masud' (Email: masud@gmail.com, Name: masud rahman, Phone: 0172234555, Group: Dhaka). There are edit and delete icons in the Action column. At the bottom, it says 'Showing 1 to 2 of 2 entries', 'Previous', '1', and 'Next'. Copyright information and version are at the bottom.

Fig 3.4

Then admin can create groups and add other members to them. As pharmacies are present in different parts of a country so groups are also based on the basis of cities.

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Version 0.1.0

Fig 3.5

Admin can now add brands of different medicines after managing groups.

localhost/stock/stores/

Fig 3.6

After adding brands, admin can make different categories to easily access the required medicine.

The screenshot shows a sidebar navigation menu on the left with options like Users, Groups, Brands, Category (which is selected), Stores, Attributes, Products, Orders, Reports, Company, Profile, Setting, and Logout. The main content area is titled 'Manage Categories' with a sub-header 'Add Category'. It includes a search bar and a table with columns for Category Name, Status, and Action. The table lists nine categories, all marked as 'Active': 'the digestive system', 'the cardiovascular system', 'the central nervous system', 'pain', 'musculo-skeletal disorders', 'the eye', 'the ear, nose and oropharynx', 'the respiratory system', and 'endocrine problems'. Each row has edit and delete icons in the Action column.

Category Name	Status	Action
the digestive system	Active	
the cardiovascular system	Active	
the central nervous system	Active	
pain	Active	
musculo-skeletal disorders	Active	
the eye	Active	
the ear, nose and oropharynx	Active	
the respiratory system	Active	
endocrine problems	Active	

Fig 3.7

Admin can make multiple stores and can manage them digitally at one place.

The screenshot shows the same sidebar navigation menu as Fig 3.7. The main content area is titled 'Manage Stores' with a sub-header 'Add Store'. It includes a search bar and a table with columns for Store Name, Status, and Action. The table lists five store locations, all marked as 'Active': 'Natore', 'Rajshahi', 'Dhaka', 'Shylet', and 'Khulna'. Each row has edit and delete icons in the Action column. At the bottom, it says 'Showing 1 to 5 of 5 entries' and has navigation buttons for Previous, Next, and a page number '1'.

Store Name	Status	Action
Natore	Active	
Rajshahi	Active	
Dhaka	Active	
Shylet	Active	
Khulna	Active	

Showing 1 to 5 of 5 entries

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Fig 3.8

Now admin can add attributes to the products.

The screenshot shows the 'Manage Attributes' page. On the left sidebar, under 'Attributes', there is a blue button labeled 'Add Attribute'. The main area has a table with one row. The columns are 'Attribute Name', 'Total value', 'Status', and 'Action'. The first row contains 'Value' in the 'Attribute Name' column, '1' in 'Total value', 'Active' in 'Status', and three buttons in 'Action': '+ Add Value', 'Edit', and 'Delete'. Below the table, it says 'Showing 1 to 1 of 1 entries'. At the bottom, there is a copyright notice 'Copyright © 2018-2021. All rights reserved.' and a version number 'Version 0.1.0'.

Fig 3.9

Now admin can add actual products and can start managing them.

The screenshot shows the 'Manage Products' page. On the left sidebar, under 'Products', there are two options: 'Add Product' and 'Manage Products'. The main area has a table with eight rows of product data. The columns are 'Image', 'SKU', 'Product Name', 'Price', 'Qty', 'Store', 'Availability', and 'Action'. Each row includes a small image of the product, its SKU, name, price, quantity, store location, availability status (e.g., 'Active', 'Inactive'), and edit/delete buttons. The products listed are Alarid Eye Drops, AFUN VT, Anespin, Angilock® plus, Angilock, Cotrim®, Comet®, and Adryl®.

Fig 3.10

For each user and purchase admin can handle all data and print out receipts.

The screenshot shows a sidebar menu on the left with options like Groups, Brands, Category, Stores, Attributes, Products, Orders (selected), Add Order, Manage Orders, Reports, Company, Profile, Setting, and Logout. The main content area is titled 'Manage Orders' and displays a table of orders. The table has columns: Bill no, Customer Name, Customer Phone, Date Time, Total Products, Total Amount, Paid status, and Action. Two entries are listed:

Bill no	Customer Name	Customer Phone	Date Time	Total Products	Total Amount	Paid status	Action
BILPR-42B2	Afrid	92481798376	05-01-2021 12:36 pm	3	166.05	Not Paid	
BILPR-A012	nehal	936353523	05-01-2021 07:20 am	2	104.55	Not Paid	

Below the table, it says 'Showing 1 to 2 of 2 entries'. At the bottom right, there are buttons for Previous, Next, and a page number '1'. The footer includes 'Copyright © 2018-2021. All rights reserved.' and 'Version 0.1.0'.

Fig 3.11

The receipt header is 'OBat+' and the date is 'Date: 05/01/2021'. It lists the following details:

Bill ID: BILPR-42B2
Name: Afrid
Address: Hetem khan
Phone: 92481798376

Product name	Price	Qty	Amount
ACE 500mg	20	1	20.00
Alarid Eye Drops	70	1	70.00
Angilock	45	1	45.00

Below the table, there are several line items with their respective amounts:

- Gross Amount: 135.00
- Service Charge (13%): 17.55
- Vat Charge (10%): 13.50
- Discount: (not specified)
- Net Amount: 166.05
- Paid Status: Unpaid

Fig 3.12

From report section, admin can see reports of revenue, credit and debit card etc.

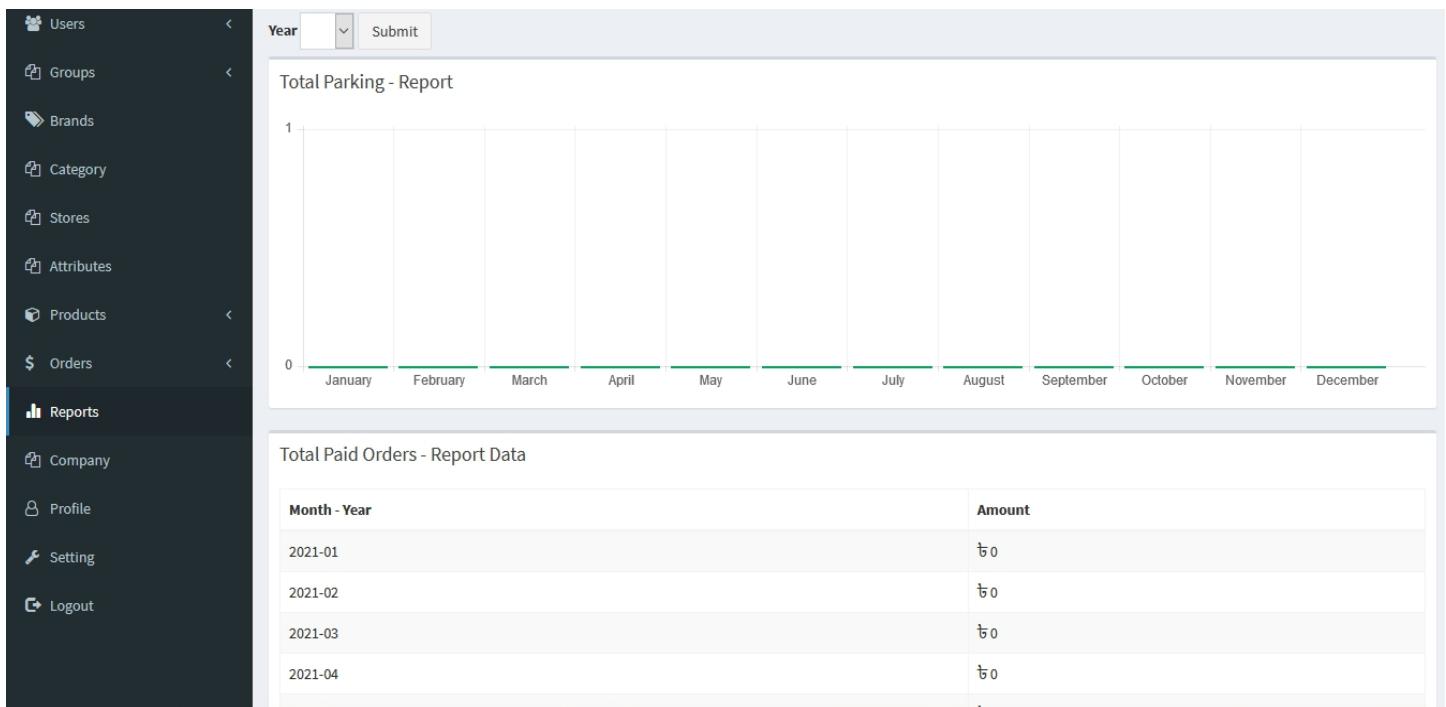


Fig 3.13

Admin can control company details and can update them.

Manage Company Information

Company Name: OBat+

Charge Amount (%): 13

Vat Charge (%): 10

Address: Rjshahi

Phone: 01765716061

Country: Bangladesh

Message:

hello everyone one

Formatting tools: A Normal text, Bold, Italic, Underline, Small, and various icons for list, table, link, and image.

Fig 3.14

After this admin can update their profile.

User Profile

Profile XXX

Username	Ismail
Email	admin@admin.com
First Name	Ismail
Last Name	Sarker
Gender	Male
Phone	+880165716061
Group	Administrator

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Version 0.1.0

Fig 3.15

Lastly Admin can update site settings.

Update Information

Username	Ismail
Email	admin@admin.com
First name	Ismail
Last name	Sarker
Phone	+880165716061
Gender	<input checked="" type="radio"/> Male <input type="radio"/> Female

Leave the password field empty if you don't want to change.

Password

Fig 3.16

The homepage of website contain some inspiring messages and popular brand names.

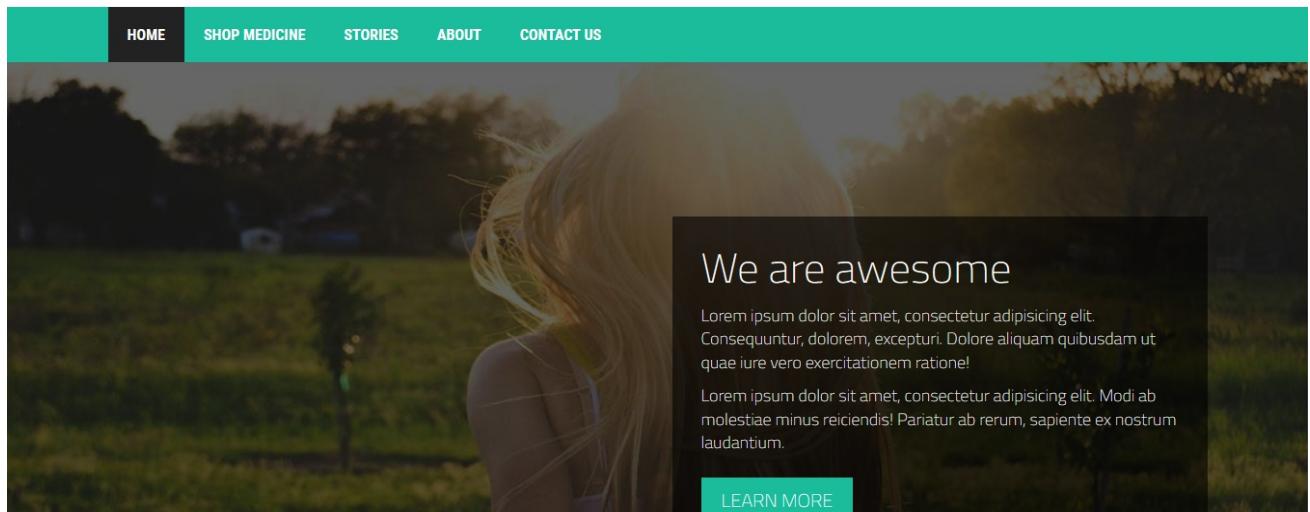


Fig 3.17

A screenshot of a website page titled "Brands". The page has a navigation bar at the top with links: HOME, SHOP MEDICINE, STORIES, ABOUT, and CONTACT US. Below the navigation bar, the word "Brands" is displayed in bold. There are four cards, each representing a pharmaceutical company: Sun Pharmaceutical Ltd., Sonear Laboratories Ltd., Veritas Pharmaceuticals Ltd., and Zenith Pharmaceuticals Ltd. Each card features a circular logo with a stylized 'C' or 'S' shape.

Fig 3.18

This is the shop where customers can see medicine and other brands and can buy them online.

A screenshot of a website for a medicine shop. At the top, there is a logo for "Obat Health & Medicine" and a "User Login" button. Below the header is a search bar with the placeholder text "Search products..." and a green "SEARCH" button. The main content area has a teal background with the text "Medicine Shop" centered. At the bottom, there is a navigation bar with links: HOME, SHOP MEDICINE, STORIES, ABOUT, and CONTACT US.

Fig 3.19



User Login -

Search products...

SEARCH

Searched Product

Product Name	ACE 500mg
SKU	sq123421
Price	TK20

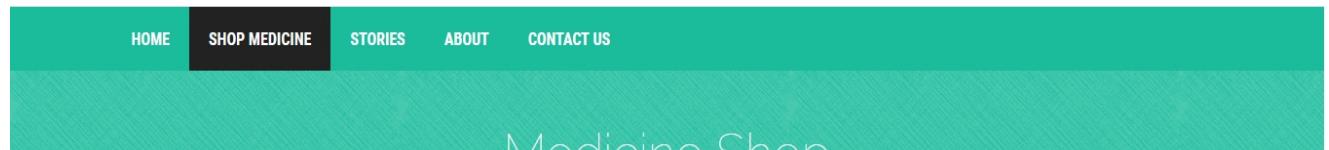


Fig 3.20

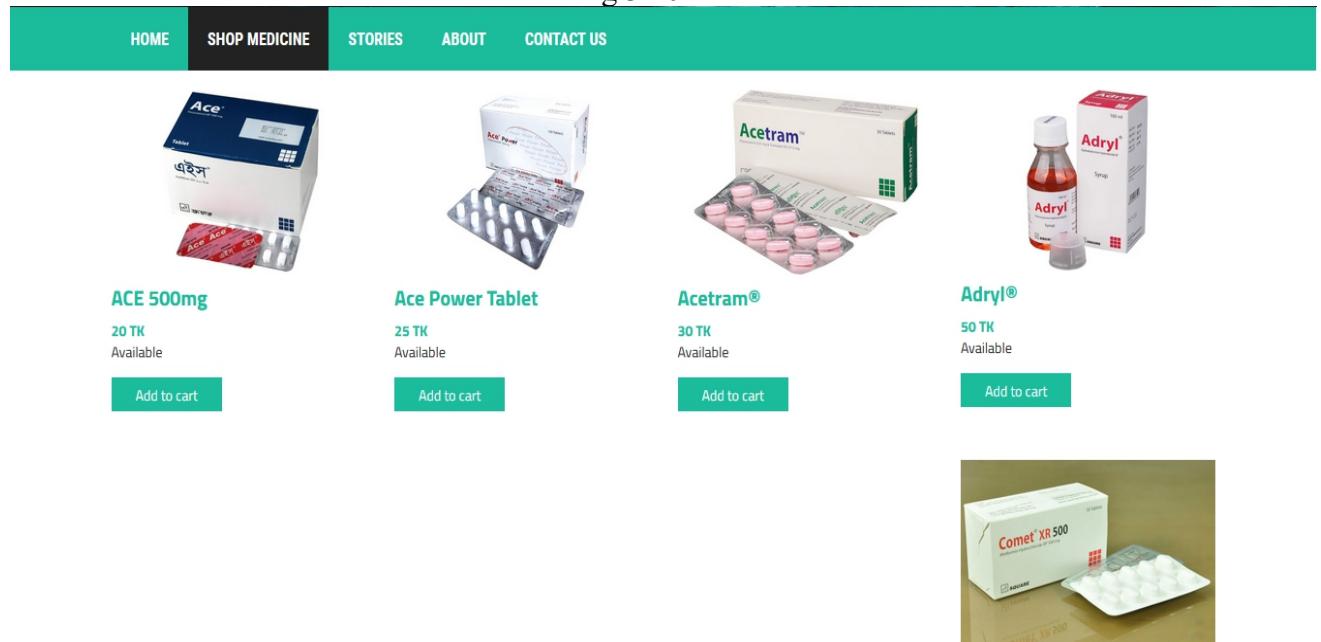
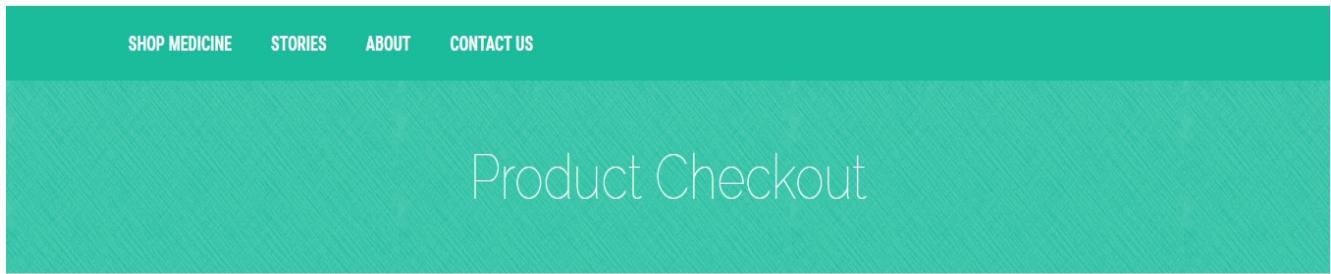


Fig 3.21

After this user can checkout and are directed to checkout page.



BILLING DETAILS

First Name *

Last Name *

Company Name

SHIP TO A DIFFERENT ADDRESS?

First Name *

Last Name *

Company Name

Fig 3.22

SHOP MEDICINE STORIES ABOUT CONTACT US

Postcode * State / County

Postcode / Zip Postcode *

Email Address *

Order Notes
Notes about your order, e.g. special notes for delivery.

Phone *

YOUR ORDER

PRODUCT	TOTAL
PRODUCT NAME	Aland Eye Drops
PRICE	TK .00
ORDER TOTAL	TK 70

Direct Bank Transfer
Make your payment directly into our bank account. Please use your Order ID as the payment reference. Your order won't be shipped until the funds have cleared in our account.

Cheque Payment

What is PayPal?

PLACE ORDER

Fig 3.23

Then there is Newsletter page and About us page.



Baby Care

Category: Baby Feeding

[Description](#)

Breastfeeding your baby is the most crucial way to ensure your baby's healthy growth in the early months of her infancy. There are many advantages of breastfeeding your little one, the most important one being the nourishment of your new-born that will lay the ground for her overall development in the years to come. Thus, it is important to know how to feed a baby to make sure you are well-acquainted with this process and ensure an effortless bonding experience between you & your bundle of joy.

Studies have shown that routine touch can lead to improved physiological, cognitive, emotional and social development. Your baby's first emotional bonds are built from physical contact, and these serve as the foundation for emotional and intellectual development later in her life.



Diabetics

Category: Diabetics Tips

Fig 3.24



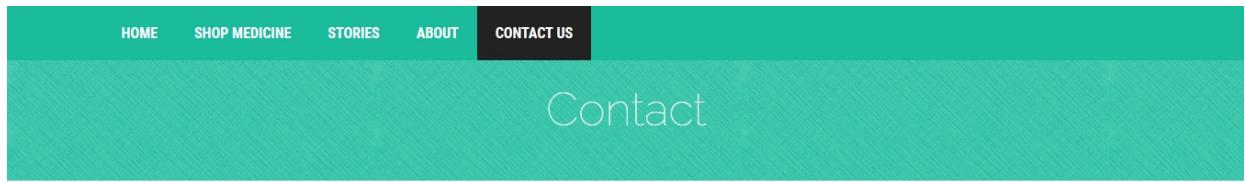
About US

[Description](#)

Breastfeeding your baby is the most crucial way to ensure your baby's healthy growth in the early months of her infancy. There are many advantages of breastfeeding your little one, the most important one being the nourishment of your new-born that will lay the ground for her overall development in the years to come. Thus, it is important to know how to feed a baby to make sure you are well-acquainted with this process and ensure an effortless bonding experience between you & your bundle of joy.

Studies have shown that routine touch can lead to improved physiological, cognitive, emotional and social development. Your baby's first emotional bonds are built from physical contact, and these serve as the foundation for emotional and intellectual development later in her life.

Fig 3.25



Contact US

CONTACT US!

Your Name

Your Email

Your Text

SUBMIT

Contact Info

Fig 3.26

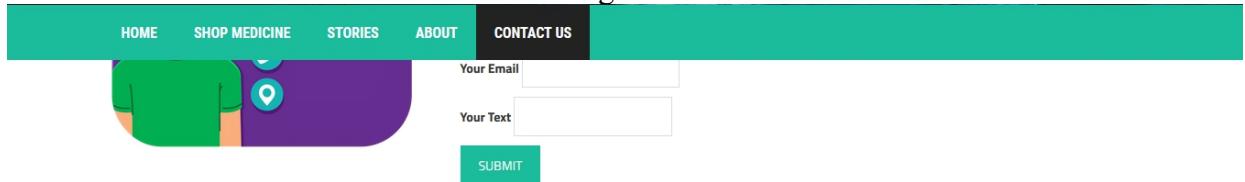


Fig 3.27

Chapter 4

Experimental

Result

Analysis

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 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 and easy to learn system. 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.

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

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