IS204.3 Business Process Management

Group Assignment

Final Report:

Business Processes in Pharmacy

Group 6

Submission date: October 20, 2023

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Preface

This project report is the ultimate result of collaborative efforts by our team members to study and analyse a particular business process inside an organization. Our main objective was first to study the business processes run in our organization, to identify the limitations of the existing process, and to explore potential improvements or any modifications that could affect the organization's future.

Our team members worked diligently throughout the project, employing process discovery methods to gather essential data and conducting qualitative analysis to find deeper insights into the business process.

Workload matrix in the Proposal Report and the Final Report

ID	Name	Task
25005	DGYR Senevirathne	Description of the organization, Identify Weaknesses, and suggest Solutions
25492	HMT Deeptha	Identified Process structure of the organization and related business processes in our selected process in the Proposal Report, Process Discovery Method, As-is process model, Prototype design
25324	KNN Tennakoon	Identified the Process structure of the organization and related business processes in our selected process in the Proposal Report, identified the Scope of the BP, Process Discovery Method, Inventory Process Analysis, As-is process model, To-be System BPMN Model, and Proposal & final report.
25064	WSU Botheju	Why have we selected the Inventory Management Process in the Proposal, Identified Weaknesses, and suggested Solutions
26109	HDKNP Appuhamy	Why have we selected the Inventory Management Process in the Proposal, the Process Discovery Method, the To-be System BPMN Model, and identified issues in BP.
25432	SI Madhavi	Description of the selected business process, Identified Weaknesses, and suggest Solutions

Description of the organization

We have chosen a pharmacy to study the business processes available in it. That is "Dinujaya Pharmacy". Dinujaya Pharmacy is a two-branch pharmacy that focuses on providing patients with the right medicines and proper guidance for their health. The pharmacy process at Dinujaya Pharmacy is designed to ensure that patients receive the medications they need in a timely and efficient manner. The pharmacy staff are knowledgeable and friendly, and they are always willing to help patients. Dinujaya Pharmacy is an asset to the community, and it is a trusted source of medications and healthcare products.

Scope of the Business Process

Inventory management Process

1. **Start**

The process starts with the receiver of prescription orders from customers or healthcare providers. So, the process of inventory process begins with this event.

2. **Activities**

The activities of our selected Business Processes are receiving prescription Orders, Check Inventory Levels, Verify & confirming Prescriptions, generating invoice bills, receiving payments from customers, if not stocked placing orders for Medications, receiving order confirmation from suppliers, waiting for Shipment, receiving shipments, order recheck, emitting invoices, archive order, Restock Shelves, Label Medications, maintaining inventory Records, and Dispense Medications to customers.

3. **Actors**

Within this process, the customer, pharmacist, and suppliers can be identified as the

actors who are involved in carrying out the necessary activities.

4. **Owner**

The owner of the inventory management process is typically the pharmacy itself, which is responsible for ensuring and fulfilling the customer needs and regulatory requirements.

5. **End**

The process ends with the successful dispensing of medication to the customer.

Process Discovery Method

To gather data and information about every single process throughout the BPM life cycle, we embraced process discovery methods. Here, the process discovery method we selected was the interview method.

Due to the excellent service, they provide, the Dinujaya Pharmacy has a large customer base in their physical Pharmacy shop. As a result of this, a single procedure was selected, and we analysed it in order to make modifications and improvements. Therefore, the Dinujaya Pharmacy organization's Inventory management was selected by our team.

The interview was conducted with both the domain experts (owner of the pharmacy) as well as the process analysts (2 members of our team). As a result, our process analyst members were able to gather some data that will be beneficial in understanding the process, analyzing it, identifying its limitations, proposing improvements, and ultimately developing a model.

While the interview was being conducted, we focused on the current as-is process of the Pharmacy. That helped us find out more about their core structure, activities that were being engaged throughout their managing inventory levels, the obstacles they faced, and their expectations, etc. Here are the interview questions that we asked throughout the interview.

Explain your organization.

a) Can you give us a brief explanation about the business?

b) Is your business large-scale, medium-scale, or small-scale?

c) How about the financial status of your business?

d) Do you face any challenges/issues or identifying new trends in the business, due to the prevailing situation in the country?

About the current system in your organization?

a) About the current system in your organization, what are the day-to-day business tasks and processes, and how they are operated?

b) Does your current system have errors and failures?

c) Of the drawbacks that you mentioned, what do you expect to overcome the most?

About the inventory management process

a) Can you give a brief explanation about the inventory management system? (What are the activities and what is the starting point)

b) How does your pharmacy staff help with inventory management?

c) Do you use any machines or technology to help with inventory management systems?

d) Can you share any experience in improving your inventory management system?

e) How do you stay updated on changes in medicine availability and regulation?

f) How do you handle soon-to-be expired medicine?

g) Are there new trends or technologies you're considering improving the inventory management process?

Inventory Process Analyzing

The above discovery method (interview) was conducted to analyze the process and to collect the required data and information. To analyse this scenario, we applied the value-added method, under that, the qualitative analysis approach was selected, and the performance measurement was the quality and time of the process.

We obtained some basic details about the organization and its activities throughout the interview. This includes the type of business, its size, and whether it is large, medium-sized, or small. Through this, we got to know this is a medium-sized organization. Furthermore, we learned a little bit about its financial situation as well. The interviewee showed a few challenges that the business has faced as an effect of the current situation in the country.

Then We asked about how things work day-to-day operations. This helps us to understand what the organization does regularly and how they do it smoothly. The interviewee also talked about some issues in their current system as well. So, this gives us an idea of what needs fixing., he shared what he thinks about it, which helps us know where to begin working.

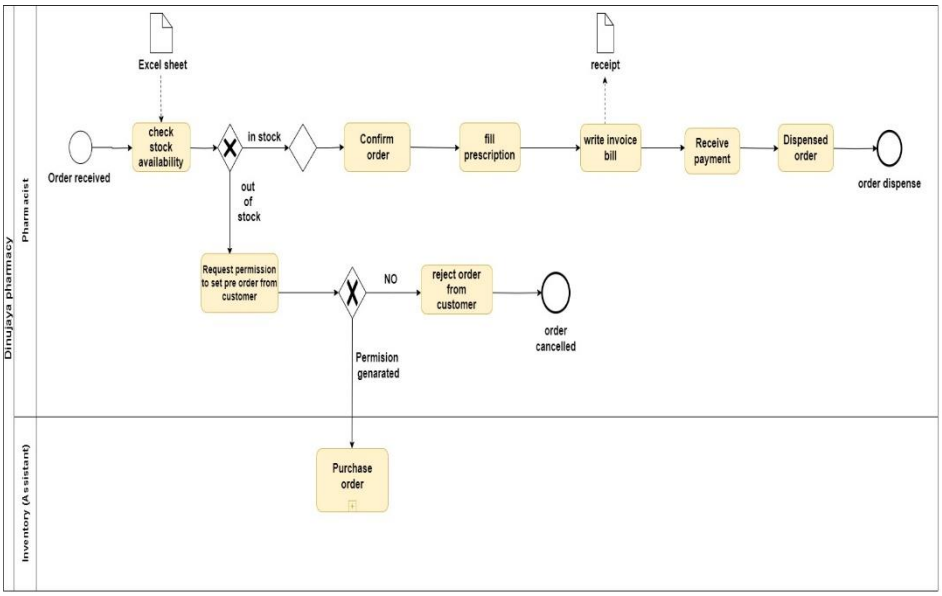
Finally, we asked about how the organization manages inventory. Then the interviewee explained how it works and who's involved throughout the process. He mentioned that they're thinking about new ways to make their inventory management even better in the future to minimize the issues that he mentioned earlier.

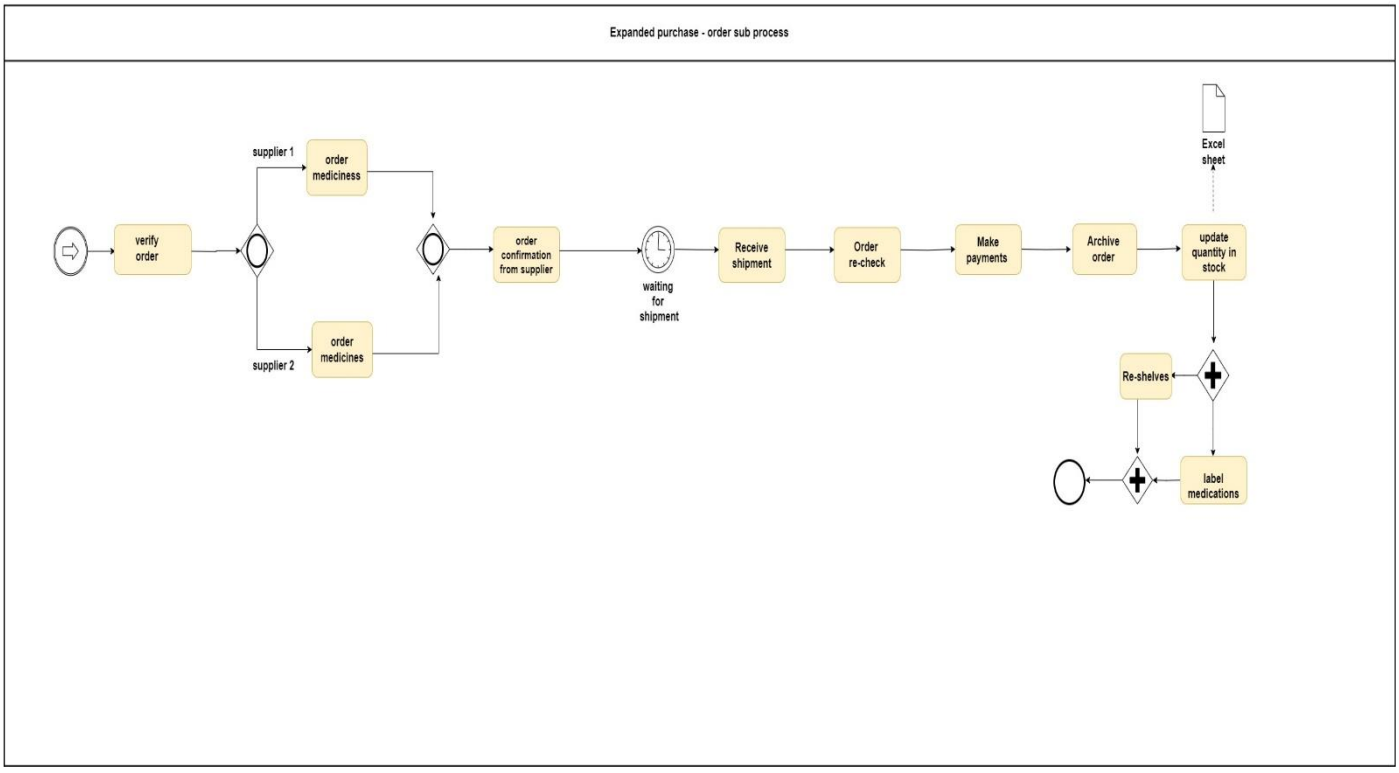
To do the qualitative analysis we use the feedback and ideas provided by the pharmacy owner. As a first step, we list down all the activities/tasks that they perform throughout the whole procedure. Then we categorize them into value-added activities and non-value activities. So, we identify the value-added tasks which means the activities are those that directly contribute to customer satisfaction, revenue generation, and core operations. In Simple, these directly give benefits to end customers as well as to businesses, so they are willing to pay for those value-added activities. Value-added activities, such as receiving orders from Customers, checking inventory availability, confirming orders for customers, generating an invoice for customers based on their orders, receiving payments from customers, dispensing orders for customers, making purchase orders, ordering Medicine from suppliers, verifying & receiving Order confirmations from suppliers, receiving the shipment, update quantity for database, making payments for suppliers, and label medications. The non-valuable activities are waiting for shipments, Filling prescription orders, order Re-Check, Archiving orders, and Re-Shelves. Filling prescriptions and order re-checks are put into the pure waste category because these don't provide any value to the customer or the business, and order Re-Check activity duplicates previous checks and doesn't add any extra value or quality control. But Waiting for Shipments, Re-Shelves, and Archived Orders we can put into incidental waste tasks because sometimes we can't replace or remove them with another activity.

To improve and rearrange these non-valuable activities we can remove tasks like filling prescription orders, which can be replaced with confirming orders for customers and then dispensing the order. Also, we could suggest Implementing automation where possible to reduce manual effort and human error, generating invoices and updating the inventory database can be automated, reducing the time and resources required another thing that we suggest is to reduce storing unnecessary medications and other items in inventory to save cost and storage.

As-is process model.

As-is System Model Link - https://drive.google.com/file/d/1VN6pRbCNDHdgXTqRgHEWRK7kJ1RFPz9J/view?usp=sharing.





List of issues identified, and the performance measures used to identify those issues and Solutions.

system solution to minimize the identified issues.

1. **Pharmacies manually manage their inventory across all branches, leading to uneven stock distribution. (performance measurement: quality)**

We have studied that pharmacies are handling their inventories manually, in all their branches. Due to that, the stocks in these pharmacies are not equal, which might lead to a scarcity of medicine in the pharmacy while another branch has an extra stock. This is a problem they are facing when managing their inventories. Keeping an accurate number of medicine stock in each inventory is what the organization is expecting to do.

- We propose implementing a centralized inventory management system that links each branch to a single database so that the system can monitor and adjust stock levels, with real-time updates and a consolidated view of inventory across all sites.

- We suggest implementing automatic reordering systems that trigger replenishment orders when stock levels reach a predefined threshold, and this ensures prompt replenishment of stock and prevention of shortages.

- We propose to establish efficient lines of communication between branches to enable the exchange of parts as needed and establish a system that allows branches to order or transfer parts in response to an emergency.

02. **Especially during health crises, there is a need for the pharmacy to adapt and update its stock of drugs and medical supplies to meet the changing demands of customers. (Performance measurement: time and quality)**

Another concern is that with time, due to various reasons, consumers may request different types of medicine (Ex: during the COVID-19 breakout, various viruses, etc.) and related medical items. The pharmacy needs to be updated and the stocks should be made available if not available, the stocks should meet the needs of the growing number of consumers.

- In that case we can Collaborate with Healthcare Professionals. So, we can Build relationships with local medical professionals, clinics, and hospitals. The pharmacy can contact the hospital website whenever they need to talk with hospital management because its legal concerns. Then the pharmacy can know what kind of diseases these days and what medicines there are needed for them. They can provide insights into the specific medications and medical items required for various health concerns. Then the pharmacy can update their inventory.

Gathering updates from World Health Organization Sri Lankan brunch. Can join the organization and Monitor Health Alerts and Guidelines. Stay informed about local and global health alerts, guidelines, and recommendations from health authorities and agencies such as the World Health Organization and the Centers for Disease Control and Prevention. Then the pharmacy can update its inventory

3. **The risk of medicines expiring due to being kept in large stocks for extended periods. (performance measurement: quality and cost**)

If certain types of medicine stocks are kept too long and kept in big stocks, they might expire, therefore the pharmacy won't be able to sell them, and it would be a waste. The pharmacy should be able to get updated on which stocks are more likely to expire soon and take necessary actions, either selling them prior to expiration, while they are in good condition or returning or removing them. It will also help them if they have a manageable stock so in case, the loss in these kinds of scenarios will be minimized.

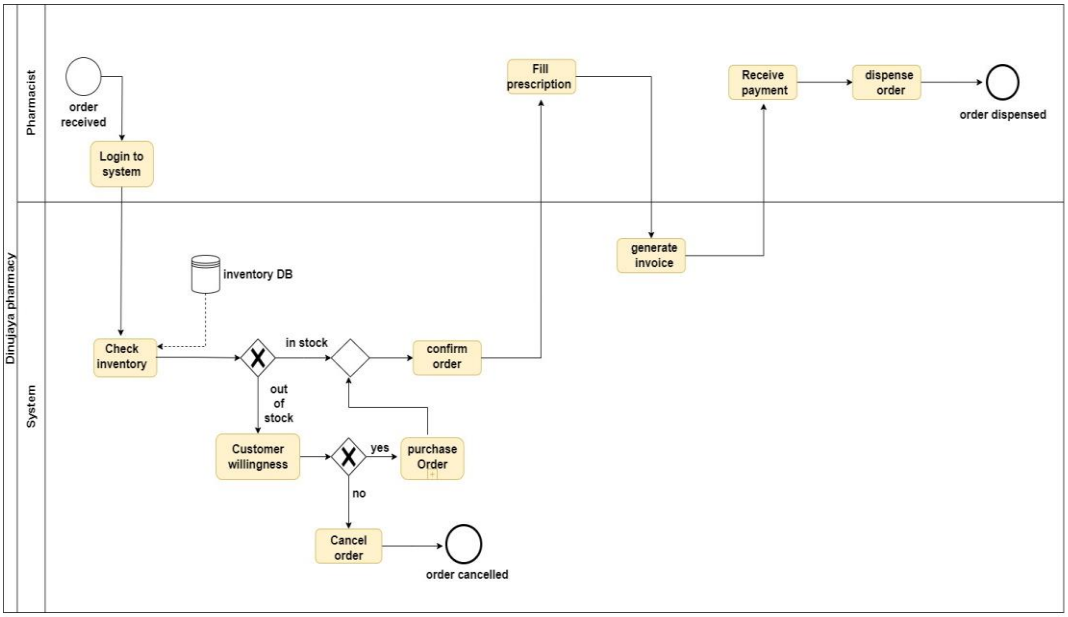
- It is suggested to set up an automatic notification process in the inventory management system that alerts when drugs are nearing their expiry date, and these notifications can be sent to concerned people in advance.

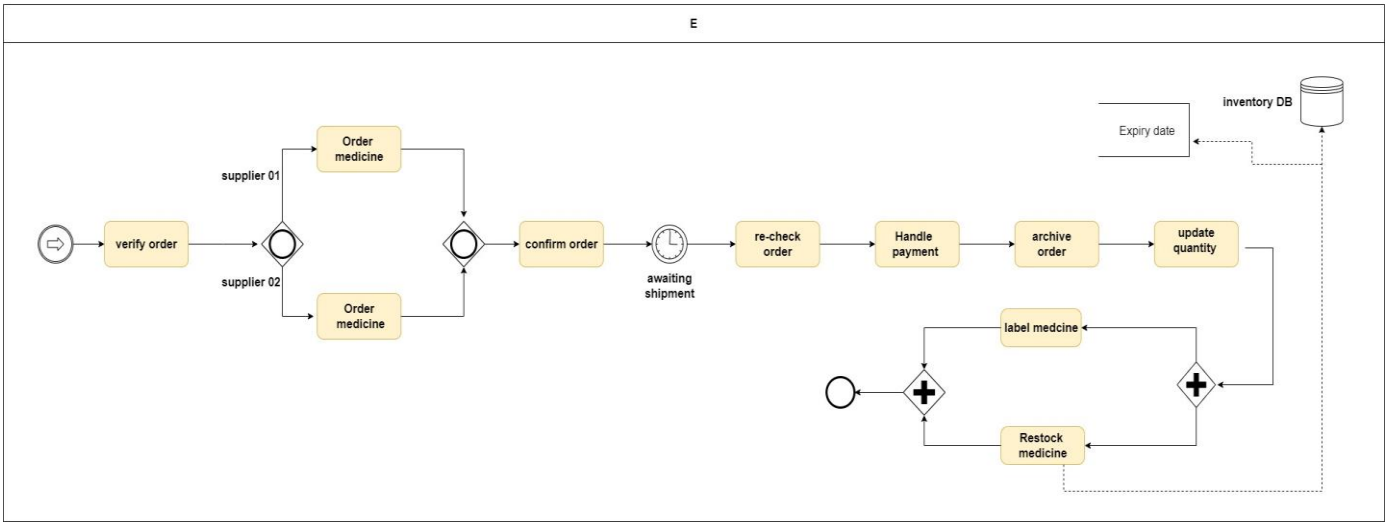
- We can suggest inventory segmentation for this concern. In this proposal process, long-day items and short-day Items will be better observed, a separate target system will be prepared for them, and medicines will be managed.

- We can provide a process so that we get first ass inventory, and we can sell those inventory ass first in that case we need to identify what the first inventory lot is and we can provide a specific number or what we need to identify as first stock so then we can add those things in our database. In case we can identify what are the drugs in expire likewise.

To-be System BPMN Model

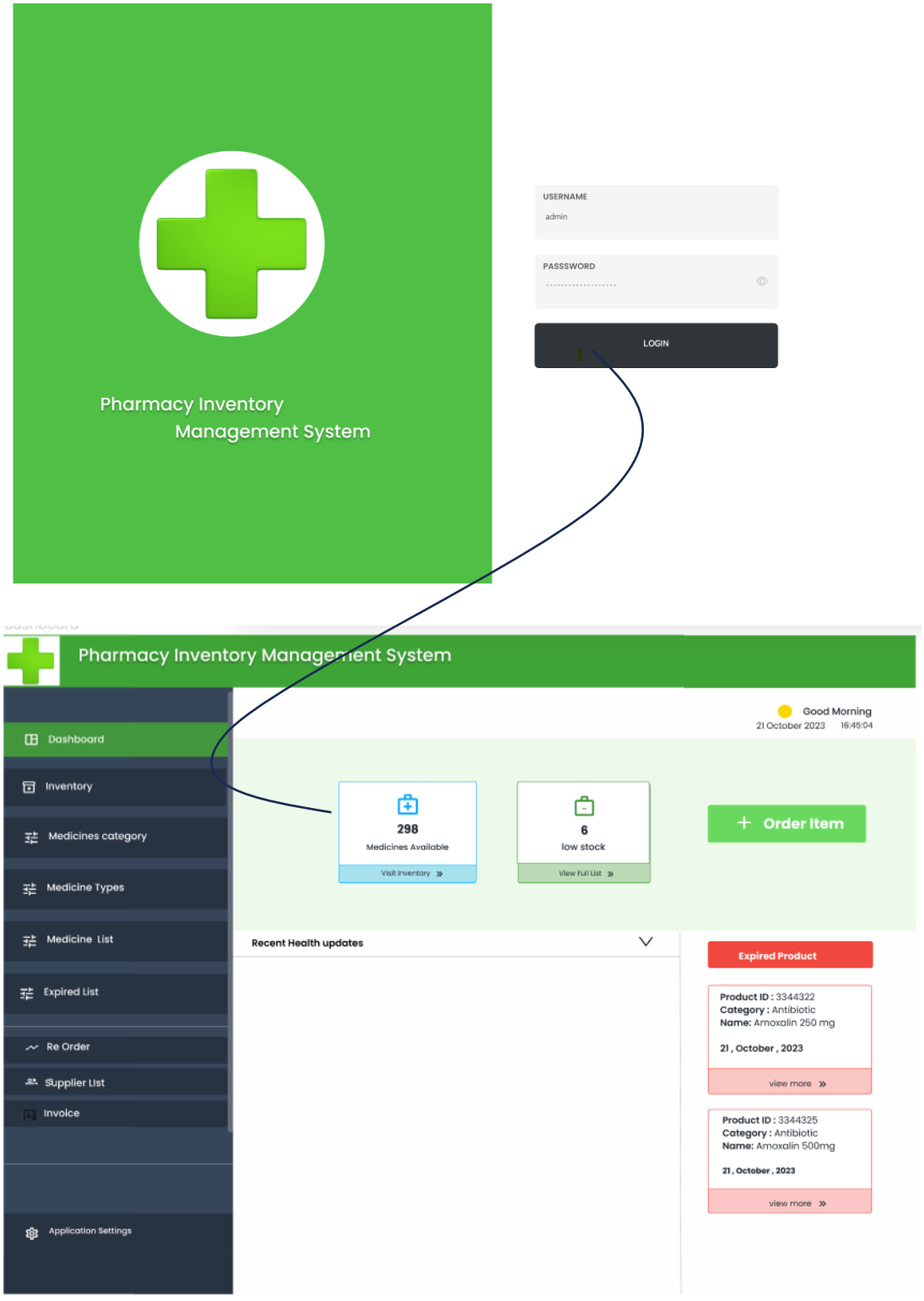
To-be System Model Link -
https://drive.google.com/file/d/19b0vhLPh8KhIsTXxwlhaFPl153Xo9ins/view?usp=sharing





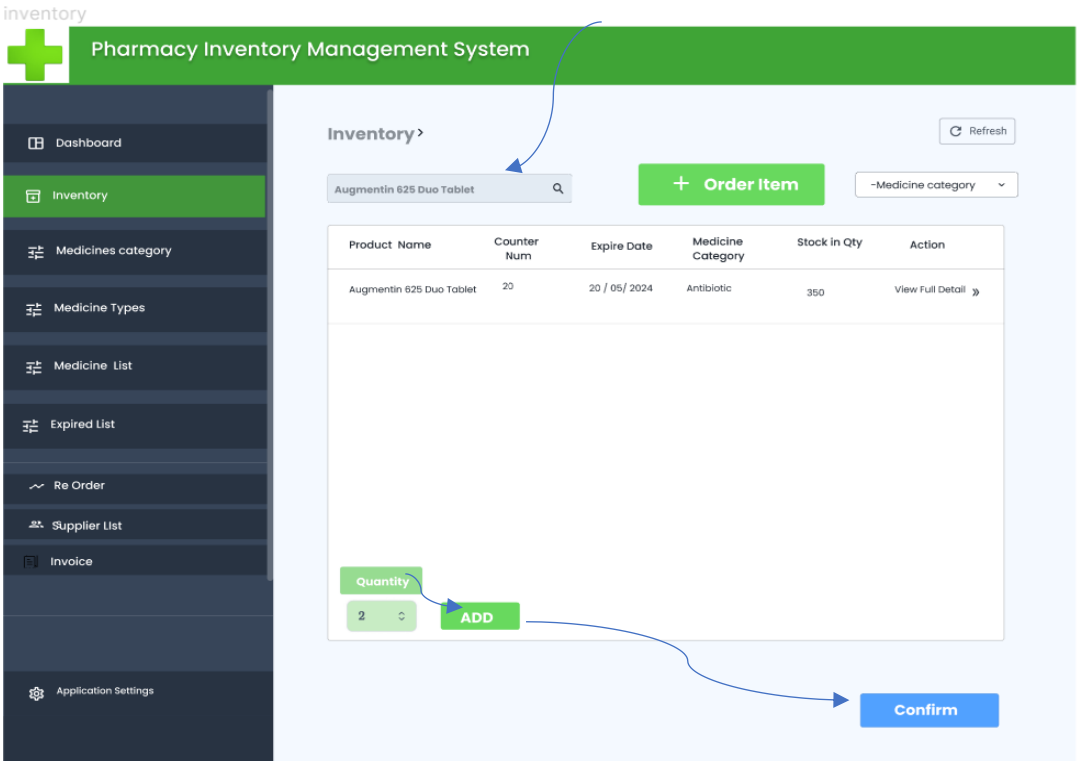
Prototype design for our redesign system

The given prototype is to show the login page, which will be used to log in to the system, which is the first step in our to-be process, after receiving the order.

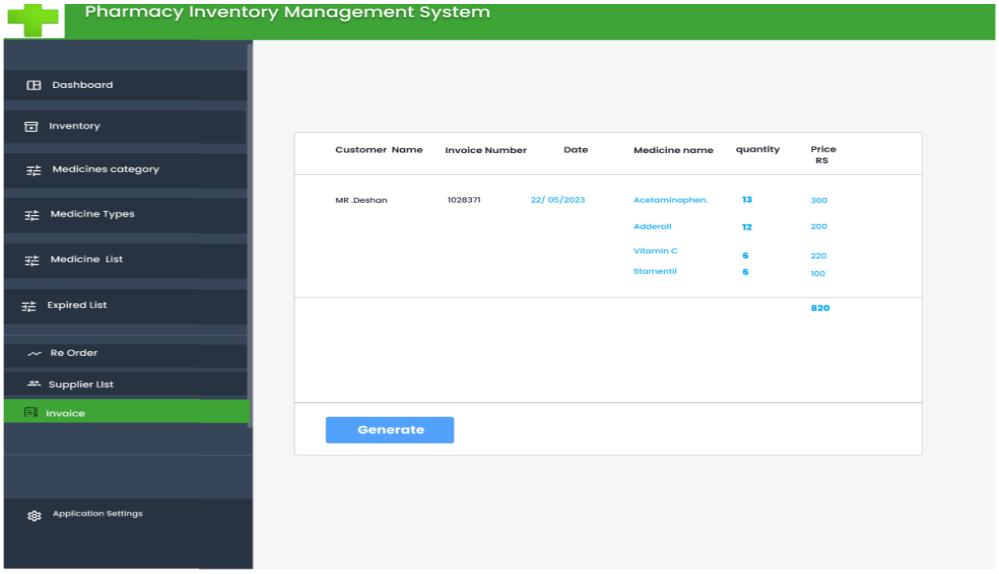


After logging in, the dashboard is visible with the features of the system.

- The dashboard will display all the features that can be accessed with the system, including an automatic stock measuring system that will indicate low-level stocks to the pharmacist. This feature was suggested by us, to maintain enough stock in the pharmacy.
- Another window is there to get the latest health updates from the WHO regional site or a similar website. This was added as a solution to stay updated on the prevailing health conditions and stock required medicine and medical equipment beforehand.



When the inventory tab is selected, we can check for inventory by searching using the search bar.



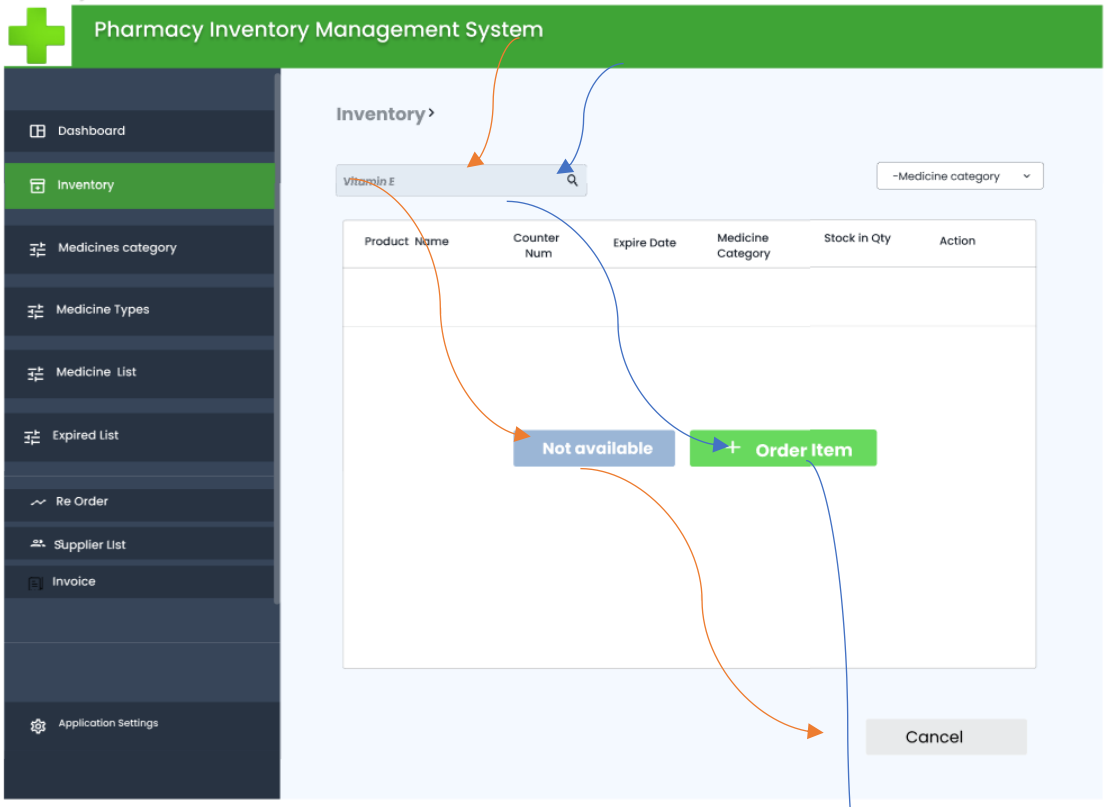
If the medicine is available, we can select the medicine and the quantity from that, and generate an invoice, by clicking on the generate button.

Out of stock.

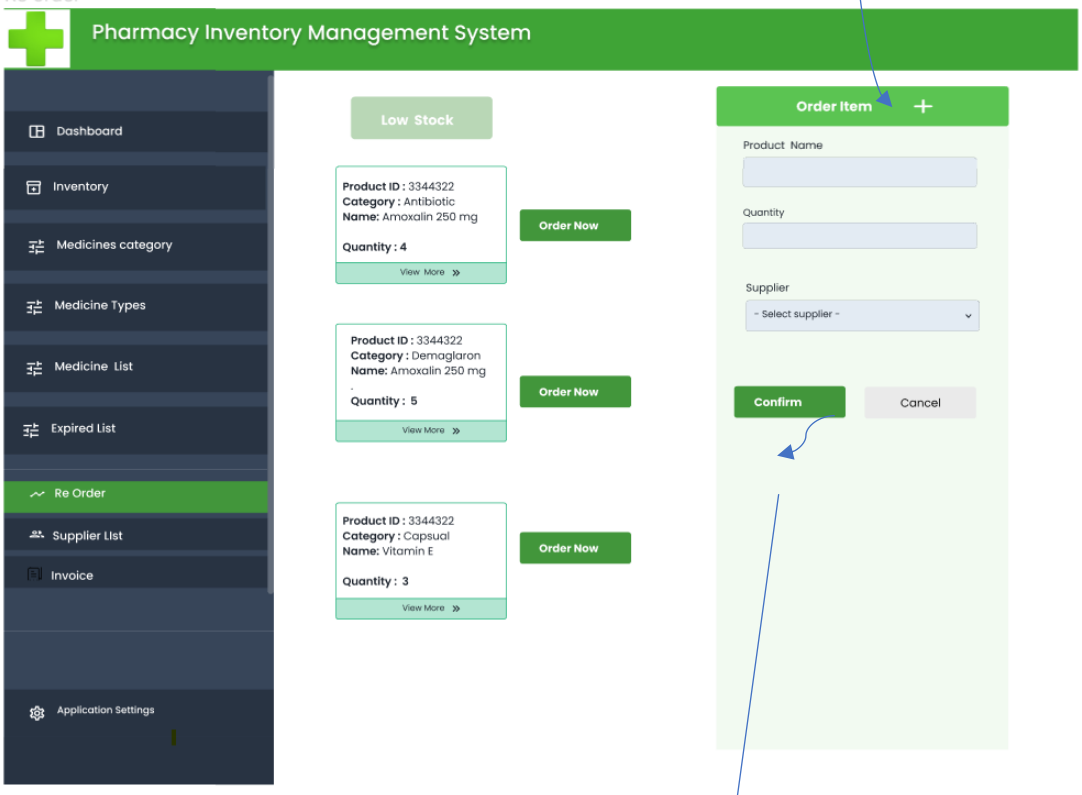
Stock not available at the time - cancel

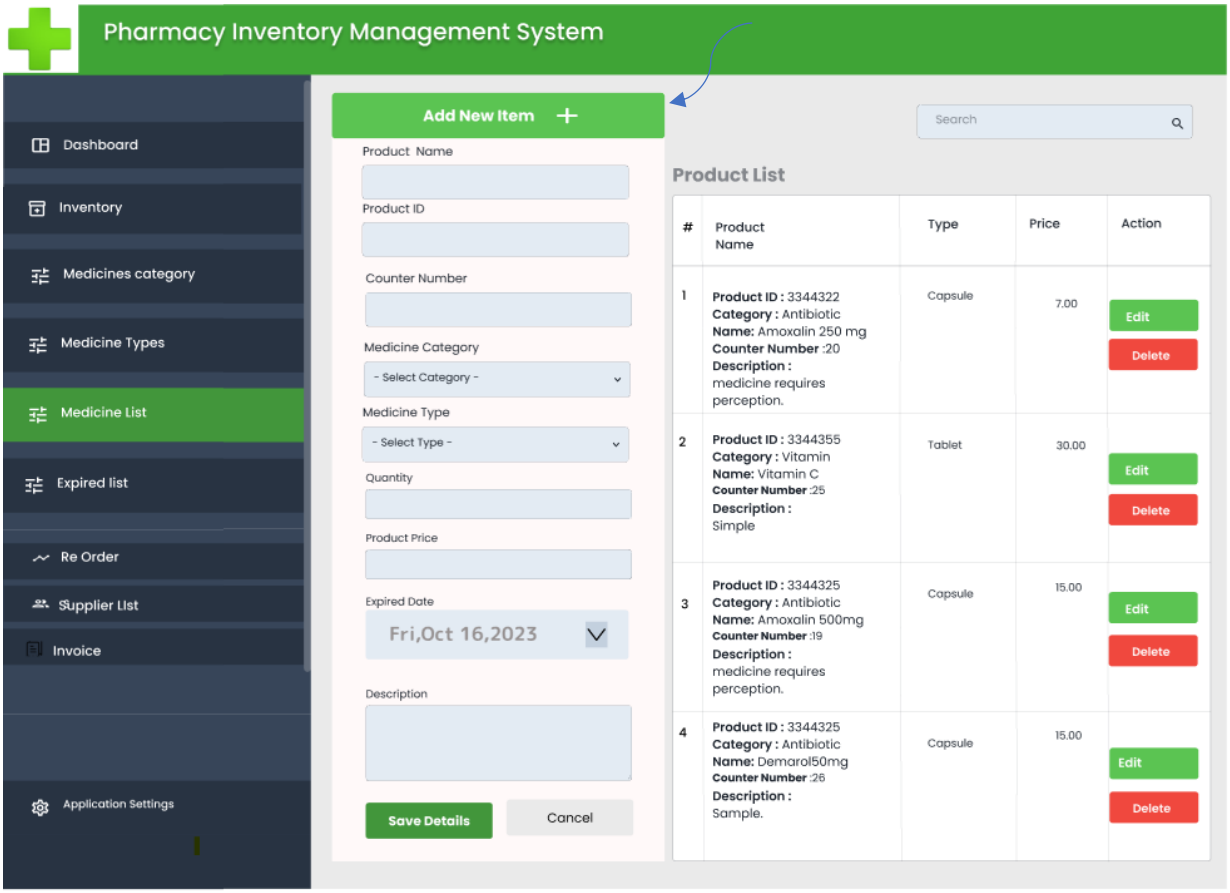
Stock not available at the time - order

inventory



Re order





If the stock is not available:

If the searched medicine is not available and the customer wishes to purchase it after re-stocking, we can return to the inventory page, and make an order there, by clicking ‘order item’.

‘Order item’ will lead to the re-order page. There we can enter the details of the relevant medicine name quantity and the supplier that we want to purchase medicine from. Then place the confirm the order by clicking ‘confirm’.

When the medicine stock is achieved after buying from the supplier, we can enter the new stock by clicking ‘add new item’. After entering the necessary details, the user should click ‘Save Details’ and the details will be updated in the Inventory database.

On the other hand, if the medicine is not available and the customer does not need to buy it after re-stocking, we can cancel the order.

Conclusion

In conclusion, our thorough analysis study of the whole business process within our selected pharmacy organization has yielded valuable insights. We selected and focused our efforts on one specific business process, employing discovery methods to thoroughly analyze its functions. Through this collaborative project, we identified several limitations and weaknesses that could impact the efficiency and effectiveness of the pharmacy's operation.

Working together, we've come up with several suggestions to make things run smoother than before. So, we're excited about the positive changes these ideas could bring. We're so excited to see our suggestions put into action and to help the pharmacy provide even better healthcare.