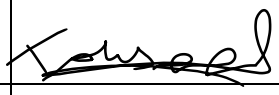
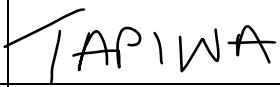
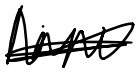
Business Requirements Document

Pharmacy Management System Client: Trafford Pharmaceuticals

1 Document Revisions

Date	Version Number	Document Changes
23/01/2024	0.1	Initial Draft (blank document)
24/01/24	0.2	Project summary added to document
24/01/24	0.3	Project background and scope completed
26/01/24	0.4	Current system explained
29/01/24	0.41	To-Be system explained
30/01/24	0.5	Functional and non-functional requirements gathered
2/02/24	0.6	Risks and legal, social, ethical, professional issues added

2 Approvals

Group Member Name	Role	Signature	Date
Awaiz	Requirements Engineer		23/01/24
Toseef	Team Leader		23/01/24
Tapiwa	System Designer		23/01/24
Arini	Research Analyst (Risk/Issues)		23/01/24

Katie	System Tester (Acceptance criteria)		23/01/24

3 Introduction

3.1 Project Summary

3.1.1 Objectives

Overall goal of the project: Develop a pharmacy management system to enhance operational efficiency, accuracy, and patient care within Trafford Pharmaceutical and ensure compliance with regulatory standards.

What the product will do:

- Manage pharmaceutical inventory: Efficiently track and manage the inventory and provide updates on stock levels, expiration dates, product information and different suppliers.
- Manage patient information: Maintain patient information including their contact details, allergies, medical history, and prescriptions to have a service personalised towards the patient.
- Manage a delivery system: Efficiently manage a delivery system which has a timely distribution of prescriptions and products for the disabled and elderly.
- Provide secure transactions: Have a seamless billing system which allows patients to make financial transactions accurately and in a timely manner while providing invoices and keeping a record of patient transactions.
- Provide reports and analytics: Enable data-driven decision making with insights on sales, prescription trends and patterns which will lead to business growth.

Aligning with business objectives:

The product will fulfil the following objectives:

- Enhance customer XP: With the product enabling quick and accurate prescription processing and having a personalised service, customer satisfaction should improve along with loyalty.
- Improve operational efficiency: Developing a user-friendly system which automates the manual processes such as managing inventory, prescription tracking and billing will reduce paperwork and optimise the workflow process within Trafford Pharmaceuticals.
- Increase profitability: Implementing a management system that tracks stock levels and expiration dates will minimise wastage and provide reports/analytics which will help make business decisions leading to increased revenue.
- Maintain data integrity and security: Developing a system that holds relevant data and having security measures in place will gain and maintain the trust of patients and help protect their information.
- Regulatory compliance: Following healthcare regulations and standards will allow the business to run smoothly in accordance with laws and procedures and promote trust among patients.

Requirements for Interaction with Other Systems:

- Integration with Electronic Health Records (EHR): Establish seamless communication with external EHR systems to access and update patient health records securely.
- Pharmaceutical Suppliers Integration: Integrate with pharmaceutical suppliers for automated restocking and order processing based on inventory data.

3.1.2 Background

The proposal for a development of a pharmacy management system came after recognizing the difficulties faced in inventory management, prescription processing, and overall workflow. With this, it became clear that a digital solution could improve these aspects and make them more efficient. There are plenty of problems identified in the business shown as followed:

1. Inventory Management: An inventory of a pharmacy can be large and varied, staff members might not remember all of it and checking the inventory takes a lot of time.
2. Ordering process: Ordering medication and equipment can also be daunting as a pharmacy may have dozens of suppliers and each of these suppliers will have different products which means that staff members need to remember all of these, and they also need to personally call these suppliers to send an order.
3. Prescription Processing: Staff members may make mistakes when handling prescriptions which means customers will have their medications delayed.
4. Expiry Management: Medications must be strictly checked to see if they are expired especially in a pharmacy because this can endanger a customer's life.
5. Patients Records: Having hundreds of papers with customers information is very inefficient not only when storing them but also finding them can be a hassle. Physical copies can also be made of this sensitive data which is a security breach.
6. Reporting: Having to check a lot of files and then putting the data all together to find any losses or profits and reporting on the inventory can also take a lot of time.

But with the completeness of this system there are many expected benefits:

1- Efficient Inventory Management: Having a system will help to manage the items and inventory in a much simpler and efficient way that takes less effort and less time.

2- Automatic ordering: The process of ordering items from different suppliers will be solved with the click of a button and they can also be programmed to be ordered at set intervals if needed.

3- Prescription Efficiency: Prescriptions will easily be more efficient, and it will be less errors.

4- Expiry Management: The system will automatically detect if the expiry date of a product is near, and it will notify the staff.

5- Patients Records: All data of customers will be in a database online which is easy to maintain and easier to find a specific record.

6- Reporting: The system will not only make comprehensive reports on sales, inventory and a lot of other things but it also will be able to display this information visually so it's easier to understand.

3.2 Project Scope

The project scope is a vital component of the requirements as it helps the development team to establish the constraints that will be faced during the process. The client provided the following constraints:

Up to 6 weeks with a deadline of 23 February 2024

Invoiced budget of $40000. Derived from the agreed hourly rate of $160, 40 hours a week.

A user friendly, graphical user interface (GUI) that will facilitate staff training.

As mentioned in the introduction, Trafford Pharmaceuticals are running outdated systems that operate as separate procedures. These procedures must be manually synchronised on the database to ensure consistency which is inefficient. It is therefore imperative that the client’s expectations align with the design team’s solutions, outlined in points 1-6 in section 3.1.2.

Workflow Strategy

Given that Trafford Pharmaceuticals are an SME business, the design team settled on the Waterfall method to manage the workflow process. This method is generally regarded as the typical way to manage software development and has been utilised by software engineers for years (Murray, 2016). A phased approach will be taken which incorporates:

Software requirements and elicitation from the client

Design of the software and user interface

Implementation by upgrading existing systems

Testing methods to be deployed for the software

How the software will be deployed in the client's outlets

And finally, maintenance post deployment with associated callout charges.

Deliverables and Creep Management

To ensure the project is tracking the client's expectations, each phase will be documented and presented to the client to gather feedback and changes. This approach is required given the rigidity of the waterfall method. While client feedback is integral in the development process, if poorly managed it can be counter-productive. The development team must therefore be aware of the term "software creep". Koch (2005) defines creep as the customer "generating new ideas about what the ultimate system should include". This can lead to overrunning the principled project budget and compromise deadlines. The design system will need to be rigid in their implementation of the Waterfall method to ensure Scope creep is minimised (Koch, 2005).

4 Business Process Overview

4.1 Current Business Process (As-Is)

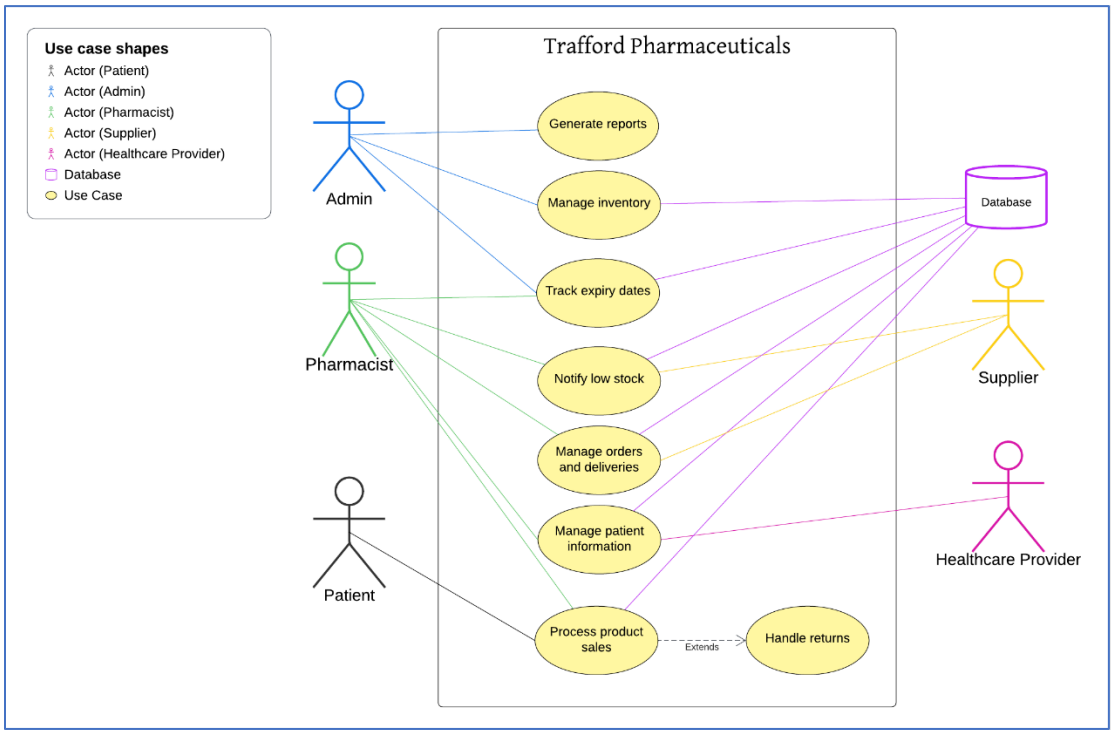
Currently Trafford Pharmaceuticals is using an outdated and impractical system, which includes staff members having to manually authorise prescriptions and book appointments, which takes up time for the business and the public. This is leading to clogged telephone lines as patients are having to call the pharmacy for almost everything. The current method for tracking stock levels is still using pen and paper, leading to human error in counting and recalling important

information such as expiry dates. With a lack of end-to-end encryption, confidential patient details are not as secure as they could be which is a huge risk for the business and the patients.

4.2 Proposed Business Process (To-Be)

The new Trafford Pharmaceutical system will have automated prescription authorisations and appointment bookings. This eliminates the time-consuming manual processes and reduces wait times for patients. The system will have real time stock levels tracking which enhances accuracy and reliability compared to the current method of tracking stock levels. All patient records will be put onto a secure online database system, this aims to improve accessibility and any updates to patient records will reflect in real time. There will be end-to-end encryption, keeping patient records secure following GDPR standards. Medications that are close to expiration will be automatically detected and pharmacists will be notified. This reduces the risk of dispensing outdated medications as pharmacists can restock / remove expired medications.

Use case diagram:



Use case description:

Use case name:	Notify low stock
Primary Actor:	Pharmacist
Secondary Actor:	Supplier
Preconditions:	- The Pharmacist has logged into the Pharmacy Management System. - The system is working and successfully connected to the inventory database
Main flow:	1. Automatic Low Stock Notification: The pharmacy management system monitors the inventory levels continuously. If the stock level of any product falls below a certain amount, the system generates an automatic low stock notification. 2. Notification to Pharmacy Staff: The system notifies the pharmacists about the low stock situation by sending an alert or message about the products with low quantities. 3. Check Available Suppliers: Pharmacist reviews the low stock notification and identifies the products that are needed in stock. The system assists in identifying products and potential suppliers. 4. Notify Suppliers: Pharmacist selects the option to notify suppliers for restocking.

	The system sends notifications to the relevant suppliers, providing details about the products and quantities required.
Alternative flow:	1. If there are no available suppliers for a product then the system informs the Pharmacy. They may need to explore alternative sources. 2. In the case of technical issues where there is an error which prevents a notification being sent to suppliers, the system logs the incident and notifies the management system admins.
Postconditions:	- Suppliers receive notification about low stock for specific products in the pharmacy. - The Pharmacy Staff are informed about the notification status and any potential actions that suppliers take after it.
Exceptional cases:	- If there are no low quantity products then the system does not trigger any notifications. - If the Pharmacist chooses to manually override the automatic notification, then the system will allow for manual notifications to be sent to suppliers.

5 Business Requirements

The requirements in this document are prioritized as follows:

Value	Rating	Description
1	Critical	This requirement is critical to the success of the project. The project will not be possible without this requirement.
2	High	This requirement is high priority, but the project can be implemented at a bare minimum without this requirement.
3	Medium	This requirement is somewhat important, as it provides some value but the project can proceed without it.
4	Low	This is a low priority requirement, or a “nice to have” feature, if time and cost allow it.
5	Future	This requirement is out of scope for this project and has been included here for a potential future release.

5.1 Functional Requirements

Req#	Priority	Description	Rationale
1	Critical	System shall connect to a database to retrieve and manage product info, stock levels, expiration dates, suppliers etc.	The system connects to a database to efficiently manage and retrieve real-time product information, ensure accurate stock levels and track expiry dates. This approach enhances data integrity, supports scalability, and facilitates reporting.
2	Critical	The management system shall have patient	Incorporating patient records in the management system is essential for

		records/details including their medical history, GP, contact details etc	comprehensive healthcare management. This functionality enables the system to store and retrieve vital information, such as medical history, assigned General Practitioner (GP), and contact details.
3	Critical	The system shall allow pharmacists to enter, store, and manage prescription information such as the patient's details, their medications, dosage etc	Enabling pharmacists to input, store, and manage prescription details in the system enhances medication management. This functionality ensures accurate patient information, medication records, and dosage tracking which supports efficient pharmacy operations and improves patient safety.
4	High	The system shall support the processing of medication or product orders/deliveries for disabled and elderly people	Supporting order processes for disabled and elderly individuals in the system aims to enhance accessibility and convenience in obtaining medications or products. This feature ensures a user-friendly interface catering to specific needs while promoting inclusivity and delivering a seamless process for this demographic.
5	High	The system shall integrate with a transaction gateway for card/contactless/cash payments	Integration with a transaction gateway allows the system to have diverse payment methods, including card, contactless, and cash. This ensures flexibility for users, enhances the purchasing experience, and accommodates various preferences, resulting in a seamless and inclusive payment process.

6	High	System shall handle errors (display error messages for payments or invalid items and allow staff assistance)	Incorporating error handling in the system is crucial for user guidance and support. Displaying error messages for payment issues or invalid items ensures transparency and assists users in resolving issues independently. Additionally, providing an option for staff assistance enhances customer service and results in a better user experience.
7	Medium	The management system shall offer reporting and analytics for the pharmacy to support decision-making	Providing reporting and analytics capabilities in the system empowers pharmacy management with data-driven insights. This functionality supports informed decision-making by offering comprehensive reports on various aspects and enhancing overall efficiency in pharmacy management.
8	Critical	The system shall allow users to create an account and log in	Being able to login to personal accounts will allow different users to have relevant functionalities based on whether they are staff, patients, managers etc.

5.2 Non-Functional Requirements

ID	Requirement
1	The system should be scalable for large data over time which may include patients, transactions etc.
2	The system should implement security measures for transactions.
3	The management System must be secure and have user authentication. It should be accessible for authorised personnel only.
4	The system should adhere to healthcare regulations and legal standards including data protection (GDPR)
5	The management system should be reliable with minimal downtime.

6 User Stories

- “As a customer I want to order my prescription online and have it delivered around my busy schedule”
- “As a pharmacist I would like to be able to access patient details easily, so I know I’m giving patients safe and appropriate medication”

7 Risks And Issues

7.1 Possible Risks

Risk Title:	Risk Summary:	Risk Mitigation:
Scope creep	The risk that requirements may increase overtime and change the scope of the project.	Have a clear and detailed project plan and complete a change impact assessment to see if new requirements are possible to fulfil.
Missing requirements	The risk that important requirements are missed out or miscommunicated.	Conduct thorough interviews and utilise different requirement gathering techniques to acquire as much information possible.
Unrealistic expectations	The risk that stakeholders demand difficult or impossible requirements.	Ensure the requirements are possible to fulfil and conduct a feasibility study to set expectations.

7.2 Requirement Gathering - Legal, Social, Ethical and Professional Issues

Issue:	Issue Summary:	Issue Category:	Issue Mitigation:
Diversity and inclusivity	During requirement gathering there may be biases from one type of audience.	Social	Consider having a diverse range of people and perspectives when gathering requirements.

Lack of honesty or transparency	In the requirements stage issues may arise if there is no transparency about expectations, budget, and risks.	Ethical	Inform stakeholders about all the limitations and risks involved in the project and be honest with what requirements can and cannot be fulfilled.
Competence	Those responsible for requirement gathering may lack competence and expertise causing issues with important requirements.	Professional	Ensure that individuals have the expertise and necessary tools to gather requirements and document them accurately.
Data privacy	Requirements may have personal data which might not be protected.	Legal	Ensure data protection laws such as GDPR are adhered to throughout the requirement gathering.