SOFTWARE REQUIREMENTS SPECIFICATION

AND

ANALYSIS

FOR

LIFE LINE

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1. Introduction

The introduction of the Software Requirements Specification (SRS) provides an overview of the entire SRS with purpose, scope, definitions, acronyms, abbreviations, references and overview of the SRS. The aim of this document is to gather and analyses and give an in-depth insight of the complete LIFE LINE system by defining the problem statement in detail. Nevertheless, it also concentrates on the capabilities required by stakeholders and their needs while defining high-level product features. The detailed requirements of the LIFE LINE are provided in this document. It is necessary to ensure a technologically appropriate, equitable, affordable, efficient, and environmentally adaptable and consumer friendly system, designed to fully utilize the ICT for the maximum benefit in the health care industry.

In general, The medicine management system is based on computer technology that gives service for users, managed by the pharmacist who give implementation of function relatively in effective times as well as will design for removing time wasting, saving resources, easy data access of the medicine, security on data input and data access by removing almost manual based system.

1.1 Purpose

The main purpose of this project named "LIFE LINE" is to make an automation system which might be helpful for millions of users from different perspective by solving their a few problems. Therefore, we are going to develop such a project. The medicine management system is built for the sake of ensuring effective and clear data saving and manipulating as well as neat work on the pharmacy medical products. This refers the pharmacy management system project highly minimize time and resource by which, searching the medicine data you can get the data in quickest time.

1.2 Project Scope

With the development of specific and potent synthetic drugs, the emphasis of the pharmacist's responsibility has moved substantially towards the utilization of scientific knowledge in the proper use of modern medicines and the protection of the public against dangers that are inherent in their use.

Pharmacists are employed in regulatory control and drug management, community pharmacy, hospital pharmacy, the pharmaceutical industry, academic activities, training of other health workers, and research. In all these fields, their aim is to ensure optimum drug therapy, both by contributing to the preparation, supply and control of medicines and associated products, and by providing information and advice to those who prescribe or use pharmaceutical products

This SRS is also aimed at specifying requirements of software to be developed but it can also be applied to assist in the selection relation between the different users. The standard can be

used to create software requirements specifications directly or can be used as a model for defining the system requirements.

1.3 Glossary

This subsection contains definitions of all the terms, acronyms, and abbreviations used in the document. Terms and concepts from the application domain are defined.

- GUI – Graphical User Interface
- API – Application Programming Interface
- SRS – Software Requirement Specifications
- UI – User Interface

1.4 References

IEEE. IEEE Std. 830-1998 IEEE Recommended Practice for Software Requirements Specifications. IEEE Computer Society, 1998.

1.5 Overview

Today we have computers with large computing power and almost every business is going to take the advantages of using those technologies. But nowadays digital certifications itself becomes an essential component for every business infrastructure. Because it provides security and it can identify every unique individual. Besides, it also provides confidential communications to the users.
The “LIFE LINE”, also known as the pharmacy information system, is a system that stores data and enables functionality that organizes and maintains the medication use process within pharmacies.

It is the user-friendly application for Pharmacist, which reduces the burden and helps to manage all sections of Pharmacy like Medicine management and Billing etc., which improve the processing efficiency. It deals with the automating tasks of maintaining of Bills. In Pharmacy, Billing management is the key process. Including safe data store about medicine as well as fast searching, delete and update of medicines. The pharmacy management system is easy for use so the user can do pharmacy actions without ambiguities.

The main Objectives of the “LIFE LINE” is making the pharmacy organizations computerized by creating neat work through minimizing or eliminating wasting of time as well as removing the resources such as papers for data saving since know a days is paper based, decrease malfunctioned works on the medical usage by giving correct information on each medicine.

2. User Classes and Characteristics

There are three types of stakeholders in our "Life Line" module such as,

General People: In our system, general people (mass people) are those who will access the system to order medicine from the dispensary. But before that they need to be registered by their own identity like name, phone-number, email. They can search medicine and can view the details of the medicine like price, group, implementation process etc. They can also search for the dispensary by location or name and can see the details.

Dispensary: Local pharmacies are the best examples of dispensary. They will access the system to boost their business and deliver the medicine to the patient and order medicine from the pharmaceutical company. However, for that have to be registered.

Pharmaceutical Company: Different medicine companies, which produce and supply medicines.

3. Design and Implementation Constraints

Design and implementation constraints are those that we have used to implement this project make successful. It also describes tool that enables developers and testers to view and interact with the user interface (UI) elements of this application.

3.1 User Interface Technology

User interface (UI) is everything designed into a system view that which person's associates with this system may like the interface of this system.

3.1.1 Programming Language

For developing this system, we will use HTML, CSS, JavaScript and PHP as programming languages. These widely used open source general-purpose programming language is especially suited for web system development. These programming languages are powerful tool for making dynamic and interactive web system.

3.2 Implemented Tools and Platform

Every business plan, campaign, or project comes down to Tactics, Tools, and Strategies. To conceive, develop, and implement a sound social media marketing strategic plan that will be successful needs to have those three critical components.

3.2.1 Web Server

A Web server is a program that uses HTTP (Hypertext Transfer Protocol) to serve the files that form Web pages to users, in response to their requests, which are forwarded by their computers' HTTP clients. Dedicated computers and appliances may be referred to as Web servers as well. We will use the Apache HTTP server to implement this project. We will use RESTful API to retrieve data from our server to the system. RESTful stands for Representational State Transfer. Moreover, API stands for Application Programming Interface.

3.2.2 Database Server

We will use Oracle database server to store all of the information of this system. The reason behind to choose the database server are given below:

- Security
- Reporting and Data Mining
- Replication
- Fault tolerance
- Performance diagnostic

4 Requirement Specification

The complete requirement specification based on the elicitation process is described in this section.

4.1 Functional Requirements:

Functional requirements refer to the functions, which are mandatory to the system. Functional requirements must be able to perform on the software system. Every system must have some functional requirements. Now, we are going to mention functional requirements associating with our project.

4.1.1 Search medicine:

FR 1	Search medicine
Description	Stakeholders are requested to search medicine by their groups or names. Then, the system will show medicine lists related to search. If user selects anyone, system will show medicine details like price, quantity etc.
Stakeholder	General people, Dispensary
Priority	High

4.1.2 Search dispensary:

Requirement 2	Search dispensary
Description	Stakeholders can search dispensary by their names or location. Then, system will show the lists of dispensaries related to search. If stakeholders select anyone from the list, the system will show details about the dispensary and if anyone selects medicine from there, the system will show the details like price in that dispensary.
Stakeholder	General people
Priority	High

4.1.3 Search nearby dispensary:

Requirement 3	Search nearby dispensary
Description	Stakeholders can search nearby dispensary by their current location. Then, system will show the lists of dispensaries.
Stakeholder	General people
Priority	High

4. 1.4 Search company:

Requirement 3	Search company
Description	Stakeholder can search company by the company name. Then, the system shows company list.
Stakeholder	General people, Dispensary
Priority	High

4. 1.5 View recent medicine:

Requirement 5	View recent medicine
Description	Stakeholders want to see the recent medicines based on buy. The system will show them the list of recent medicines they bought.
Stakeholder	General people, Dispensary
Priority	Low

4. 1.6 View recent dispensary:

Requirement 6	View recent dispensary
Description	Stakeholders want to see the recent dispensaries based on buy. The system will show them the list of recent dispensaries from where they bought medicine.
Stakeholder	General people
Priority	Low

4.1.7 Manage medicine:

Requirement 7	Manage medicine
Description	Here stakeholders may get three sub functionalities to add, delete and update data. If new medicine comes, stakeholders will add medicine. If medicine is no longer then stakeholders will delete medicine. If medicines are stored then add or if medicines are sold then deduct the amount of the medicine. That's how stakeholders will update the medicine.
Stakeholders	Dispensary, Pharmaceutical company.
Priority	High

4.1.8 Manage cart:

Requirement 8	Manage cart
Description	Stakeholders want to add medicine to the cart or remove medicine from the cart or wants to see the status of the cart.
Stakeholders	General people, Dispensary

Priority	High

4.1.9 Make order:

Requirement 9	Making order
Description	Stakeholders wants to order medicine that are in the cart. That is why stakeholders have to give the amount of the medicine and the location to deliver.
Stakeholders	General people, Dispensary
Priority	High

4.1.10 Make payment:

Requirement 10	Make payment
Description	After fulfilling the condition of making order, stakeholders have to pay the total price to confirm the order. To pay, stakeholders verify payment method. One can use different types methods like bKash, Rocket etc.
Stakeholders	General people, dispensary
Priority	High

4.2 Data Requirements:

For defining data requirements, we need to build the model. For our application, maximum data would be loaded from remote user. Moreover, for that purpose we need to focus on some major points. Such as:

- Types of entity of the system
- Route data locations
- Capacity and resources of the data requirements
- Data source sequence
- Data availability schedules
- Quantity of data
- Availability of data

4.3 Performance Requirements:

It is very important to maintain performance of any software system. To ensure performance, we need to maintain some steps. Now, we will explain some perspective by which we are going to enhance the performance of our project.

4.3.1 Speed & Latency Requirements:

SLR-1	Search result will be shown very fast
Description	When a user search for medicine, dispensary or company, then the search result must show within seconds.
Stakeholders	Pharmaceutical Company, Dispensary, General people.
Priority	Medium

4.3.2 Precision & Accuracy Requirements:

PAR-1	Search result must be accurate
Description	Search result will be accurate. However, if the medicine is available according to the name, then it will suggest the same medicines which are in different names in different companies
Stakeholders	Pharmaceutical Company, Dispensary, General people.
Priority	High

4.3.3 Capacity Requirements:

The developed system by us must be capable to handle user data, provide accurate information, handling database, manage http request etc.

CR - 1	The system will handle thousands of data
Description	The system need to handle thousands of data every moment.
Stakeholders	General people, Dispensary, Pharmaceutical Company.
Priority	High

4.4 Dependability Requirements:

The term dependability is measured based on four dimensions. Such as:

- Availability
- Reliability

- Safety
- Security

Our system should have the ability to detect and remove errors.

4.4.1 Reliability & Availability Requirements:

RAR - 1	The system must be available on 24 X 7
Description	Our system must be available all day long, every day in a week • The system must be updated regularly • System must be malware free
Stakeholders	General people, Dispensary, Pharmaceutical Company.
Priority	High

4.4.2 Robustness or Fault-Tolerance Requirements:

To ensure robustness and fault-tolerance facilities to the end users, it is urgent to ensure 0% crush. Moreover, it must show accurate results.

RFR - 1	The system handles all user access without system errors
Description	Thousands of user might hit our system at a time. All their requests must be handled without any fault.
Stakeholders	N/A
Priority	High

4.4.3 Safety-Critical Requirements:

There are no safety-critical requirements in our project.

4.5 Maintainability & Supportability Requirements:

It is very important to provide after service or support to the end users.

4.5.1 Maintainability Requirements:

MR-1	**System helps to update user profile**
Description	It is very important to update the database.
Stakeholders	Developers
Priority	Low

4.5.2 Supportability Requirements:

Supportability requirements may have related to some extends. Like:

- Testability
- Extensibility
- Adaptability
- Maintainability
- Compatibility
- Configurability
- Serviceability

Our system meets all of the above requirements related to supportability.

4.5.3 Adaptability Requirements:

There are no adaptability requirements in our system software.

4.6 Security Requirements:

Making software security as a requirement is very important. Software security requirements should be its functional requirement. Software security enforces security of an application system.

Functionality related to software security can either be directly tested or observed. Some security related requirements is given below:

- Logging in as a general user/dispensary/company.
- Get access according to logged in user
- Logging out as a dispensary and company
- Handling encrypted passwords

While accessing to the system, each module must provide a central authentication mechanism. There is also a process to prevent entering into the system by ensuring hashed password for the unauthenticated users.

4.6.1 Access Requirements:

For accessing to our application system, there remain some authentication and authorization techniques and every module of our system will provide it. Now I will provide an explanation below.

AR - 1	Application provides security mechanism
Description	Every module is designed in such a way that it only give access to the authorized and authenticated users.

Stakeholders	General user, Dispensary, Pharmaceutical Company
Priority	High

4.6.2 Integrity Requirements:

An integrity requirement refers to a security system, which ensures an expectation of data quality. It also ensures that all data of the system would never be exposed to the malicious modification or accidental destruction. For that reason, we will store our user passwords as encrypted format, which is impossible to decrypt. It is also called hashed password.

4.6.3 Privacy Requirements:

It is very important to ensure privacy of the system users. Privacy requirements enhance to protect stakeholder's privacy. In this way, all data or a partial part of data is going to be disclosed according to system's privacy policy. To ensure privacy, the central database should be protected by the anonymous. Users are permitted to get access to those data, which are being associated by them, which can be ensured by the user log in system.

4.7 Usability and Human-Interaction Requirements:

The main target of developing any system is to make the system user friendly and easy to usable for the end users.

4.7.1 Ease of Use Requirements:

Our application is easy to use and easily understandable.

UER-1	System must be usable for the end users
Description	This System is enough usable to the people by which they can operate this system easily.
Stakeholders	General people, Dispensary, Pharmaceutical Company.
Priority	High

4.7.2 Personalization and Internationalization Requirements:

We will not personalize our system. It is open to all over the world to access.

4.7.3 Understand ability and Politeness Requirements:

It is already said that the system, which we are going to develop, is understandable enough. The system provides hints to users whether any error occurred or wrong. By reading those errors users can be able to operate the system easily.

4.7.4 Accessibility Requirements:

There is no specific accessibility requirements associated to our system yet.

4.7.5 User Documentation Requirements:

Documentation are mainly two types. One is internal documentation, which is generally written by the system engineers. It is prepared to make development life cycle easier for the system engineers or system analysts.

UDR-1	The system engineer documentation
Description	To develop our system named Lifeline, firstly we have made a system analysis team as well as documentation team.
Stakeholders	System analysts or software developers
Priority	High

4.7.6 Training Requirements:

After developing application, we will train up users how to operate it. Company people, dispensary will be trained up first. They will make general users understand about it.

4.8 Look and Feel Requirements:

Look and feel requirements mainly refer how the system will look like and how the user interface or graphical user interface of our system will display to the user.

4.8.1 Appearance Requirements:

General people and all other user must know which input fields are required and which are not. For that reason, we will use labels for all input fields. Input fields might be text type, radio, checkbox, spinner etc.

AR-1	Labels of mandatory fields must be bold
Description	The mandatory field's label must be bold and all input fields must have placeholder to make it easier for the users.
Stakeholders	General user, Dispensary, Pharmaceutical Company
Priority	Medium

4.10.2 Standards Requirements:

There are no specific standards requirements for our system.

5. Requirement Engineering Process:

Requirements engineering refers to the process of defining, documenting and maintaining requirements in the engineering design process. It is a common role in systems engineering and software engineering.

5.1 Requirement Elicitation Techniques

There are varieties of techniques that can be employed to elicit requirements. The approach taken by a requirements engineer is not limited to one particular technique. Organizational processes, application type, available resources, and individual preference all play a role in determining a particular approach. For instance, applications that need early customer feedback might benefit from the use of prototyping combined with group elicitation. The requirements elicitation process involves all stakeholders, which includes customers, developers, and users. Our approach still involves stakeholders and elicitation techniques; however, certain techniques are augmented and stakeholder interaction is different.

5.1.1 Hold Elicitation Interviews

The typical requirements elicitation process involves all stakeholders, but it is mainly the job of the requirements engineer to generate specifications from the gathered information (see Figure 5.1). These specifications can be formal, such that they can be understood only by software engineers, or informal, such that the customer can understand them.

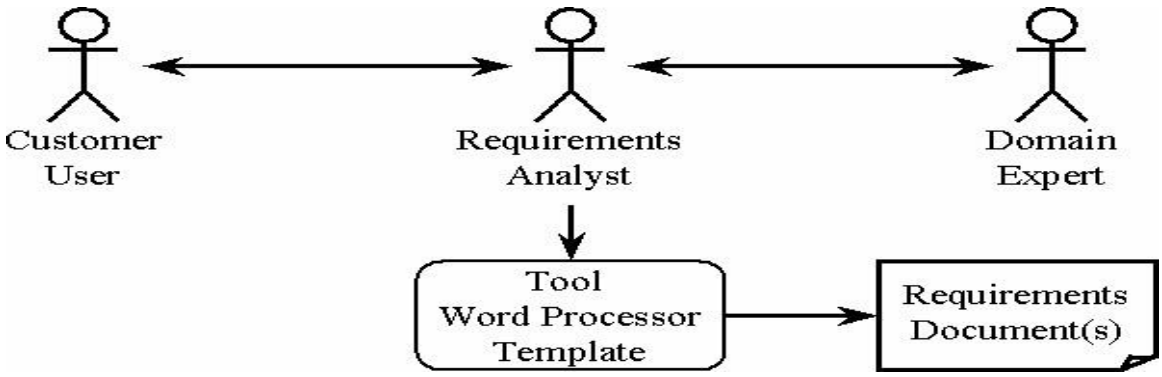

Figure 5. 1 Elicitation Interview

Our approach is similar to the typical approach except that now all of the stakeholders can interact directly with the system (see Figure 5.2). Domain experts populate a database with their expert is in the application domain. Users and customers answer questions based on the information in the domain database. We can then use the inputs to automatically create a draft requirements specification. This specification can be used for reference during interviews among the stakeholders to further elaborate the requirements.

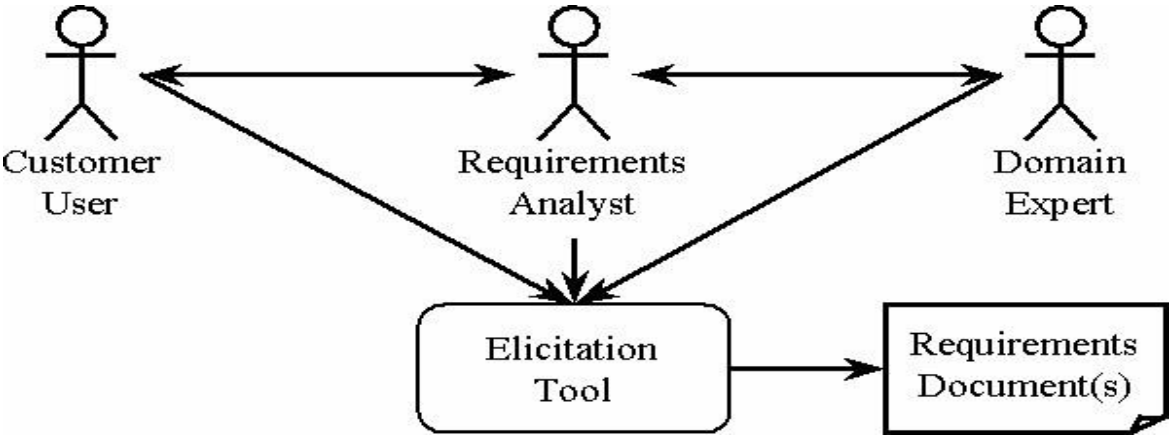

Figure 5. 2 Interaction View

5.1.2 Perform Document Analysis

Existing documentation can help reveal how systems currently work or what they are supposed to do. Documentation includes any written information about the type of problem that they faced regularly, business processes, requirements specifications, and competitor research. Reviewing and analyzing the documents can help identify functionality that needs to our project, functionality that is not used and do not needed.

5.1.3 Distribute Questionnaires

The most difficult part of the requirements elicitation process is obtaining a complete and consistent set of requirements. The requirements engineer, due to factors such as inexperience or lack of domain familiarity, might not be asking the right questions or using the best elicitation technique.

We conduct a survey to collect requirements for this project. Questionnaires are a way to survey large groups of users to determine what they need or not. Questionnaires are useful with any large users but are particularly helpful with distributed groups. We also considered how domain knowledge should be entered by the domain expert and viewed by the users. We decided to base the domain knowledge on the questionnaire elicitation technique, which uses close ended questions.

5.2 Requirement Validation

Validation ensures that the requirements are correct and demonstrate the desired quality that you want from this system. Requirements that seem fine when you read them might turn out to have ambiguities and gaps when to try to work with them.

5.2.1 Review the Requirements

Peer review of requirements, particularly the type of rigorous review called inspection, is one of the highest-value software quality practices available. Assemble a small team of reviewers who represent different perspectives and carefully examine the written requirements, analysis models, and related information for defects.

5.2.2 Test the Requirements

We test constitute an alternative view of the requirements. We also conduct writing tests about how to tell if the expected functionality implemented correctly. Derive tests from the user requirements to document the expected behavior of the product under specified conditions.

5.2.3 Simulate the requirements

To simulate the requirements commercial tools are available that we have used either to simulate a proposed system in place of or to augment written requirements specifications. Simulation takes prototyping to the next level.

5.3 Change Management

We used a common set of web-based tools for handling change requests and tracking open issues is essential. Change always has a price, so using change management practices to control scope creep is vital in a contract-development situation. We will provide these following issues in change management.

- Evaluate and prioritize defect corrections and enhancement requests.
- Dynamically adjust the scope of future releases or iterations.
- Evaluate the impact of proposed changes on users and business processes.
- Participate in making change decisions

6. Requirement Analysis

Requirements Analysis is the process of defining the expectations of the users for an application that is to be built or modified. Requirements analysis involves all the tasks that are conducted to identify the needs of different the needs of different stakeholders. Therefore, requirements analysis means to analyze, document, validate and manage software or system requirements. In requirements analysis, at first we draw "**Use Case Diagram**" then write every "**Use Case Description**" and following use case description we draw "**Activity Diagram**". Finally, we prepare the "**Requirement Traceability Matrix**".

6.1 Use Case Diagram

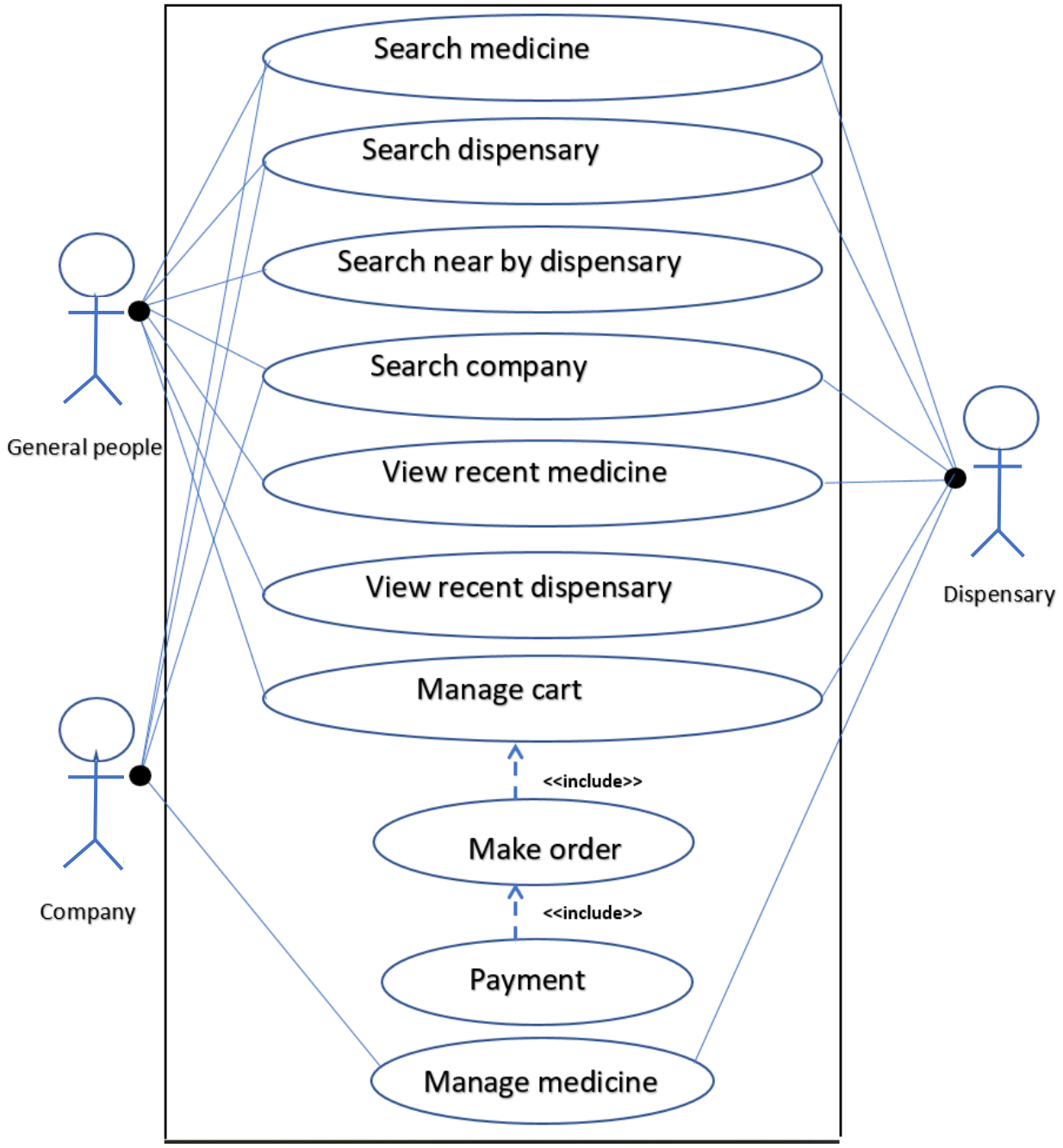

Figure 6. 1 Use Case Diagram

6.2 Use case Description

All use cases from use case diagram are explained here.

6.2.1 Search Medicine

Table 6.2. 1 Use case description of Search Medicine

Use Case	Search medicine	
Goal	Stakeholders wants to search medicine by their name or group.	
Preconditions	Stakeholders are signed in.	
Success End Condition	Stakeholders can see medicine list based on their name or group.	
Failure End Condition	No medicine found.	
Primary Actors: **Secondary Actors:**	General people, Dispensary N/A	
Trigger	N/A	
Main Success Flows	**Step**	**Action**
	1	Stakeholders requested to search medicine.
	2	Stakeholders will give name or group of the medicine
	3	System will search from the database server based on name or group given by the stakeholders
	4	System then shows a list of medicine which are matched with the name or group at first then related (could be same functionality or nearby spelling) medicine at last in the list.
	5	If stakeholders select a medicine the system will show the details (price, chemical elements, usages-rules etc.) of that medicine and a “add to cart” option.
Alternative Flows	N/A	
Quality Requirements	N\A	

6.2.2 Search Dispensary

Table 6.2. 2 Use case description of Search Dispensary

Use Case	Search Dispensary	
Goal	Stakeholders wants to search dispensary by their name or location.	
Preconditions	Stakeholders are signed in.	
Success End Condition	Stakeholders can see dispensary list based on their name or location.	
Failure End Condition	No dispensary found.	
Primary Actors: **Secondary Actors:**	General people N/A	
Trigger	N/A	
Main Success Flows	**Step**	**Action**
	1	Stakeholders requested to search dispensary.
	2	Stakeholders will give name or location of the dispensary.
	3	System will search from the database server based on name or location given by the stakeholders.
	4	System then shows a list of dispensary which are matched with the name or in that location at first then related (could be nearby spelling) dispensary at last in the list.
Alternative Flows	N/A	
Quality Requirements	N/A	

6.2.3 Search nearby dispensary

Table 6.2. 3 Use case description of Search nearby Dispensary

Use Case	Search nearby dispensary	
Goal	Stakeholders wants to see dispensary to the nearby location.	
Preconditions	Stakeholders are signed in.	
Success End Condition	Stakeholders can see dispensary list based on nearby location the stakeholders now in.	
Failure End Condition	No dispensary found.	
Primary Actors: **Secondary Actors:**	General people N/A	
Trigger	N/A	
Main Success Flows	**Step**	**Action**
	1	Stakeholders requested to search nearby dispensary
	2	System will detect stakeholder's location.
	3	System will search from the database server based on location captured from stakeholder's current location.
	4	System then shows a list of dispensaries which is matched the location.
Alternative Flows	**Step**	**Action**
	2a	If system can't get access to device location, system will prompt the stakeholders to turn on the location service and give system permission to access the location.
Quality Requirements	N/A	

6.2.4 Search Company

Table 6.2. 4 Use case description of Search Company

Use Case	Search company	
Goal	Stakeholders wants to search company by their name.	
Preconditions	Stakeholders are signed in.	
Success End Condition	Stakeholders can see company list based on their name.	
Failure End Condition	No company found.	
Primary Actors: **Secondary Actors:**	General people, Dispensary N/A	
Trigger	N/A	
Main Success Flows	**Step**	**Action**
	1	Stakeholders requested to search company.
	2	Stakeholders will give name of the dispensary.
	3	System will search from the database server based on name given by the stakeholders.
	4	System then shows a list of company which are matched with the name at first then related (could be nearby spelling) dispensary at last in the list.
Alternative Flows	N/A	
Quality Requirements	N/A	

6.2.5 View recent medicine

Table 6.2. 5 Use case description of View recent medicine

Use Case	View recent medicine	
Goal	Stakeholders wants to see the recent medicines list.	
Preconditions	Stakeholders are signed in.	
Success End Condition	Stakeholders can see medicine list based on recent buy.	
Failure End Condition	No medicine found.	
Primary Actors: **Secondary Actors:**	General people, Dispensary N/A	
Trigger	N/A	
Main Success Flows	**Step**	**Action**
	1	Stakeholders requested to see recent medicines.
	2	System will show the recent medicines list (based on buying time and date).
Alternative Flows	N/A	
Quality Requirements	N/A	

6.2.6 View recent dispensary

Table 6.2. 6 Use case description of View recent dispensary

Use Case	View recent dispensary	
Goal	Stakeholders wants to see recent dispensary list.	
Preconditions	Stakeholders are signed in.	
Success End Condition	Stakeholders can see dispensary list based recent buy.	
Failure End Condition	No dispensary found.	
Primary Actors: **Secondary Actors:**	General people N/A	
Trigger	N/A	
Main Success Flows	**Step**	**Action**
	1	Stakeholders requested to see recent dispensary.
	2	System will show the recent dispensary list (based on buying time and date).
Alternative Flows	N/A	
Quality Requirements	N/A	

6.2.7 Manage medicine

Table 6.2. 7 Use case description of Manage medicine

Use Case	Manage medicine.	
Goal	Stakeholders wants to add, delete or modify the medicine list	
Preconditions	Stakeholders are signed in.	
Success End Condition	Stakeholders successfully add, delete or update medicine.	
Failure End Condition	System failed to add, delete, or update medicine.	
Primary Actors: **Secondary Actors:**	Dispensary, Pharmaceutical company. N/A	
Trigger	N/A	
Main Success Flows	**Step**	**Action**
	1	Stakeholders requested to search medicine.
	2	If medicine is added-
	2.a	Select on new medicine record option.
	2.b	The system display record form
	2.c	Then the pharmacy manager fills the form that the medicine data has.
	2.d	Then pharmacy manager trigger to save the medicine information.
	2.e	System checks the data entered whether valid or not.
	2.f	If the data's input are valid then system saved it into the data server.
	3	If medicine is updated-
	3.a	Select on update medicine records option.
	3.b	The system display the available medicines that is recorded before.
	3.c	Then the pharmacy manager selects the medicine that he/she wants update.
	3.d	Then press the update from available options.
	3.e	The system displays the medicine data that is selected.
	3.f	The pharmacy manager change the data that displayed in the form
	3.g	Save the updated fill form

	3.h	System checks the data entered whether valid or not
	3.i	If the data's input is valid then system saved it into the disks.
	4	If medicine is deleted-
	4.a	Select on delete medicine records option.
	4.b	The system display the available medicines that is recorded before
	4.c	Then the pharmacy manager selects the medicine that he/she wants to delete.
	4.d	Then press the delete from available options.
	4.e	If the system can successfully delete then displays the message "successfully deleted".
	4.f	The system removes the medicine data form disk.
Alternative Flows	**Step**	**Action**
	2.e	If the input form have error, the system displays "Saving error" message.
	1-2(2.e)	If the user enters cancel, the pharmacy management system will stop the operation.
	3.h	If the input form have error the system displays "Updating error" message
	1-3(3.h)	If the user enters cancel, the pharmacy management system will stop the operation.
	4.d	If the system cannot successfully delete the medicine then system displays "not delete" message
	1-4(4.d)	If the user enters cancel, the pharmacy management system will stop the operation.
Quality Requirements	N/A	

6.2.8 Manage cart

Table 6.2. 8 Use case description for Manage cart

Use Case	Manage cart	
Goal	Medicine from the cart.	
Preconditions	Stakeholders are signed in.	
Success End Condition	Stakeholders successfully add medicine to the cart and remove medicine from the cart. Stakeholders want to see the cart, add medicine to the cart and remove	
Failure End Condition	Stakeholders failed to add or remove medicine though stakeholders follow the proper step.	
Primary Actors: **Secondary Actors:**	General people, Dispensary N/A	
Trigger	N/A	
Main Success Flows	**Step**	**Action**
	1	Stakeholders requested to manage cart.
	2	System will show the cart with the list of the medicine that the stakeholders already added to the cart and an "Order option" to make order of the cart.
	3	To remove a medicine from the cart:
	3.1	Stakeholders select "remove" option.
	3.2	System will display the list of the medicine of the cart with a remove option on the right side of each medicine.
	3.3	Select remove from the right side of the medicine.
	3.4	System show a popup message "Remove from cart" with two option confirm and cancel.
	3.5	Select confirm to remove.
	4	To add medicine to the cart:
	4.1	Stakeholders select "add" option.
	4.2	Then the stakeholders go to the medicine details section following "Recent medicine" or "Search medicine" or "Search dispensary" use case.
	4.3	Then select add to cart.
Alternative Flows	**Step**	**Action**
	2.a	If stakeholders did not add any medicine to the cart then system will show empty list with a message "Cart is empty".

	3.5a	If stakeholders select cancel then system will show step 3.2.
Quality Requirements	N\A	

6.2.9 Make order

Table 6.2. 9 Use case description of Make order

Use Case	Make order	
Goal	Stakeholders wants to order medicine	
Preconditions	Stakeholders are signed in and cart is not empty..	
Success End Condition	Stakeholders successfully order the medicine	
Failure End Condition	Failed to order medicine	
Primary Actors: **Secondary Actors:**	General people, Dispensary N/A	
Trigger	N/A	
Main Success Flows	**Step**	**Action**
	1	Stakeholders select "order" from the cart section of the "manage cart' use case.
	2	System will display a form with the field of amount (amount of medicine) and the location to deliver.
	3	Stakeholders will fill the form and click "OK".
	4	Then stakeholders will go to use case "search dispensary" or "nearby dispensary" to select a specific dispensary to order from.
	5	Stakeholders will then the click "Confirm".
	6	Then the system will show a pop up message "Are you sure" with the options "Yes" or "No".
	7	Select yes to confirm order then system will show the total price and payment button (use case make payment).
Alternative Flows	**Step**	**Action**
	2.a	Selecting "No", system will show the step 2 with the filled data.
Quality Requirements	N/A	

6.2.10 Make Payment

Table 6.2. 10 Use case description of make payment

Use Case	Make Payment	
Goal	Stakeholders wants to pay the bill.	
Preconditions	Stakeholders are signed in and already made an order.	
Success End Condition	Stakeholders are signed in and already made an order.	
Failure End Condition	System failed to confirmed payment.	
Primary Actors: **Secondary Actors:**	General people, Dispensary N/A	
Trigger	N/A	
Main Success Flows	**Step**	**Action**
	1	After confirm the order stakeholders select "payment"
	2	System will display the payment methods like bKash, Rocket etc.
	3	Display selected payment method.
	4	Stakeholder input a transaction id.
	5	Then system check total pay money by stakeholder given transaction id.
	6	If total pay money is equal to total medicine cost then system will show a pop up message that payment is successful.
Alternative Flows	**Step**	**Action**
	2.a	If total pay money is less than total medicine cost then system will request stakeholder to pay full money and input transaction id again.
Quality Requirements	**Step**	**Requirement**
	1	If the payment is not successful within 30 minutes, the order will be cancelled automatically.

6.3 Activity Diagram

An activity diagram is a graphical representation of an executed set of procedural system activities and considered a state chart diagram variation. Activity diagrams describe parallel and conditional activities, use cases and system functions at a detailed level. Activity diagram for house rental management system are given below.

6.3.1 Search medicine

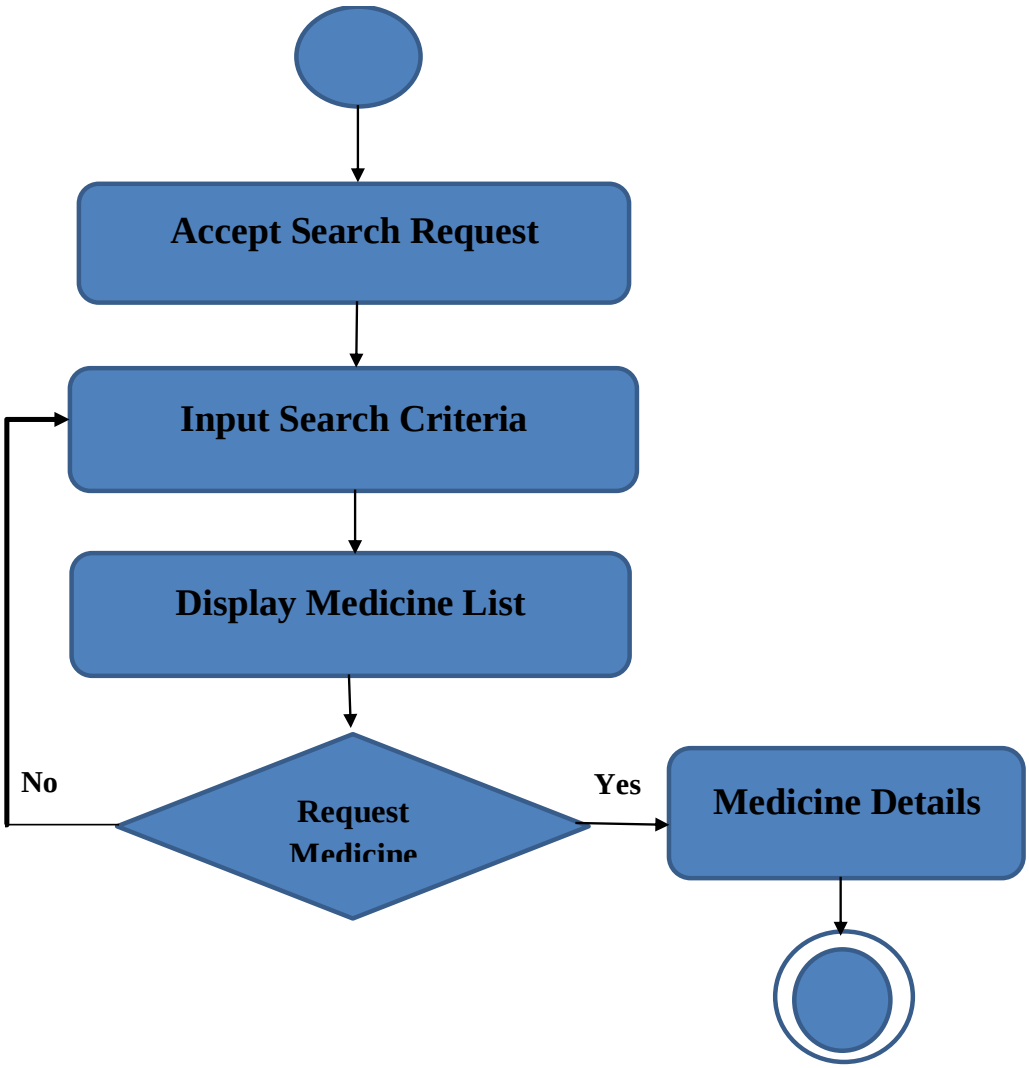

Figure 6.3. 1 Search medicine

6.3.2 Search Dispensary

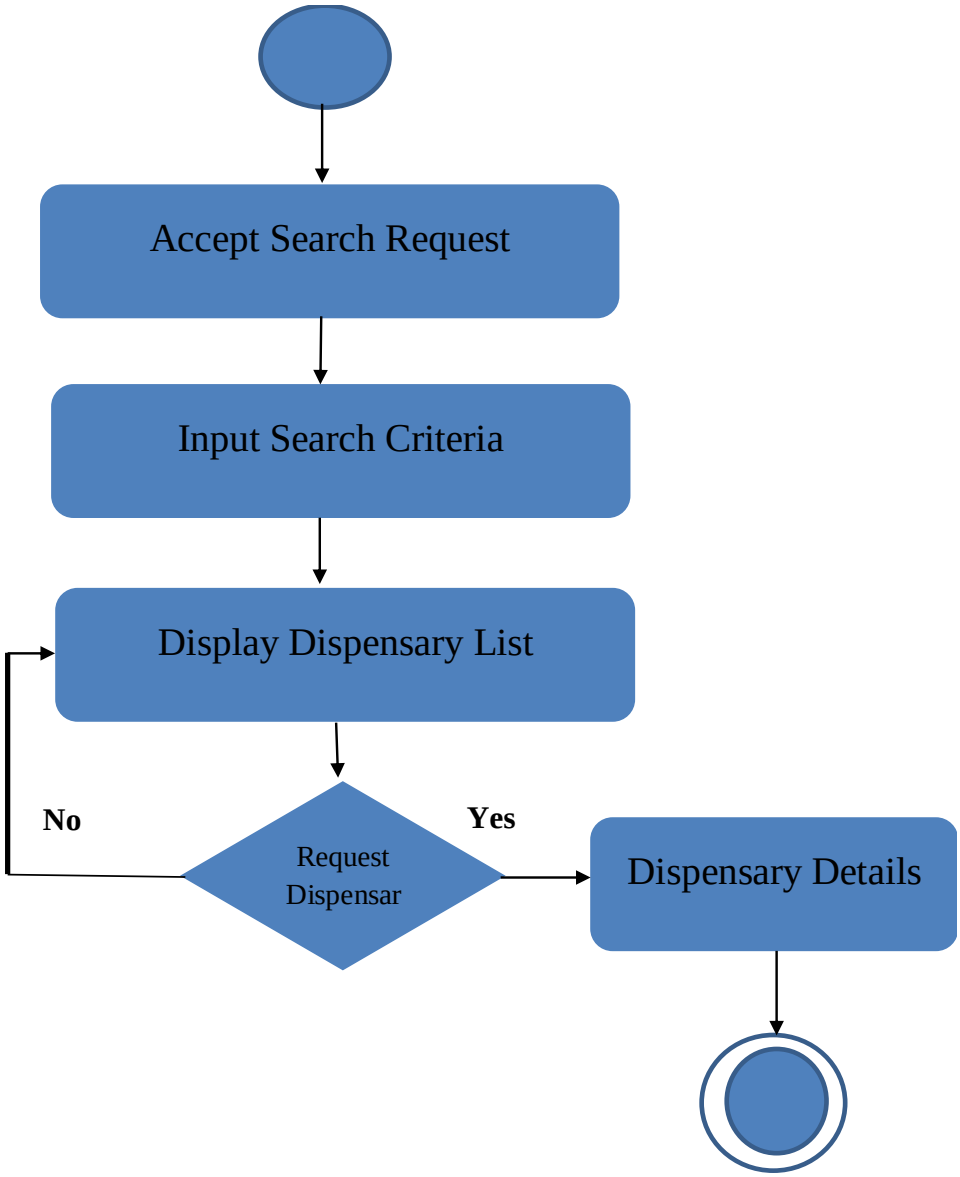

Figure 6.3. 2 Search Dispensary

6.3.3 Search nearby dispensary

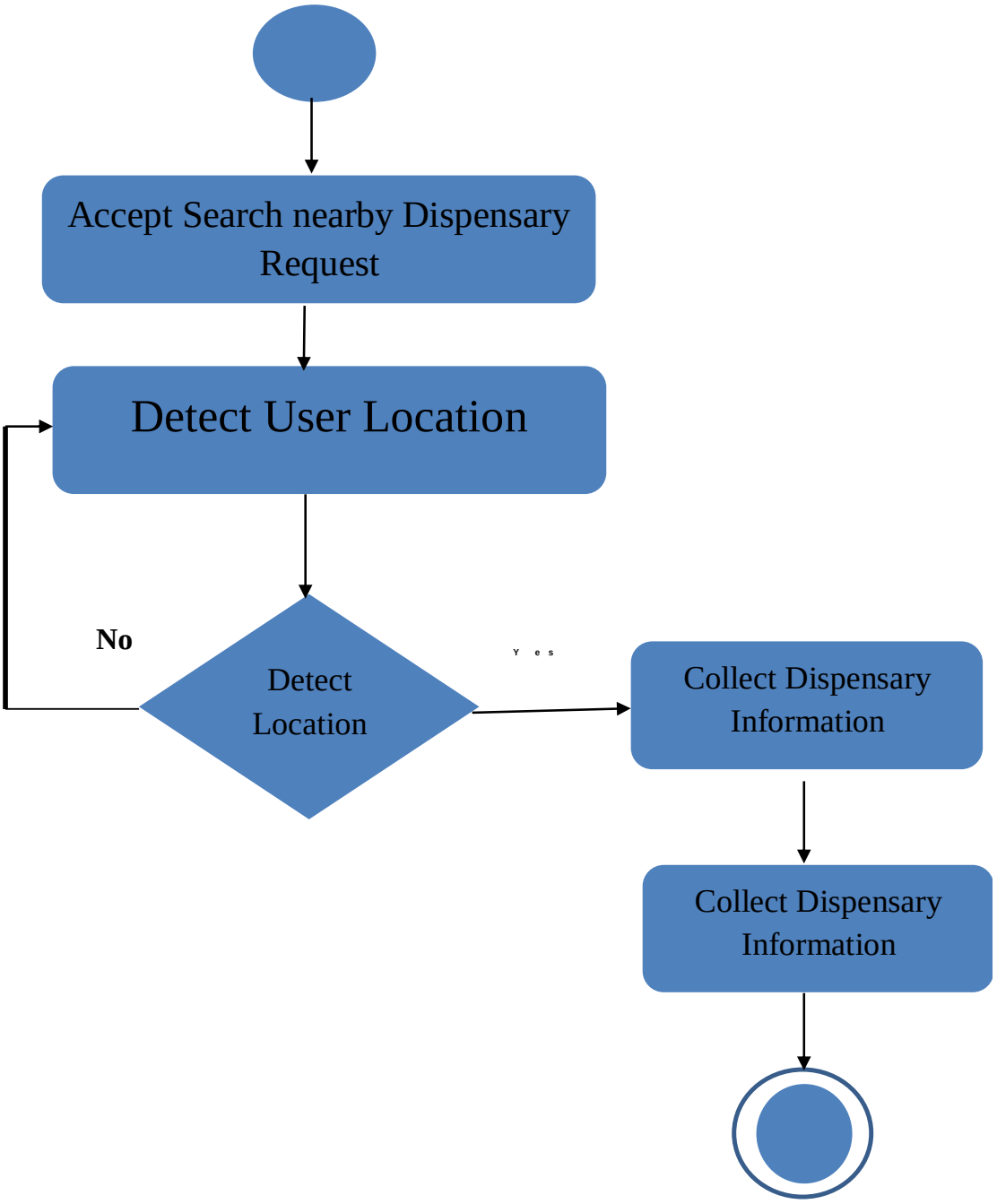

Figure 6.3. 3 Search nearby dispensary

6.3.4 Search Company

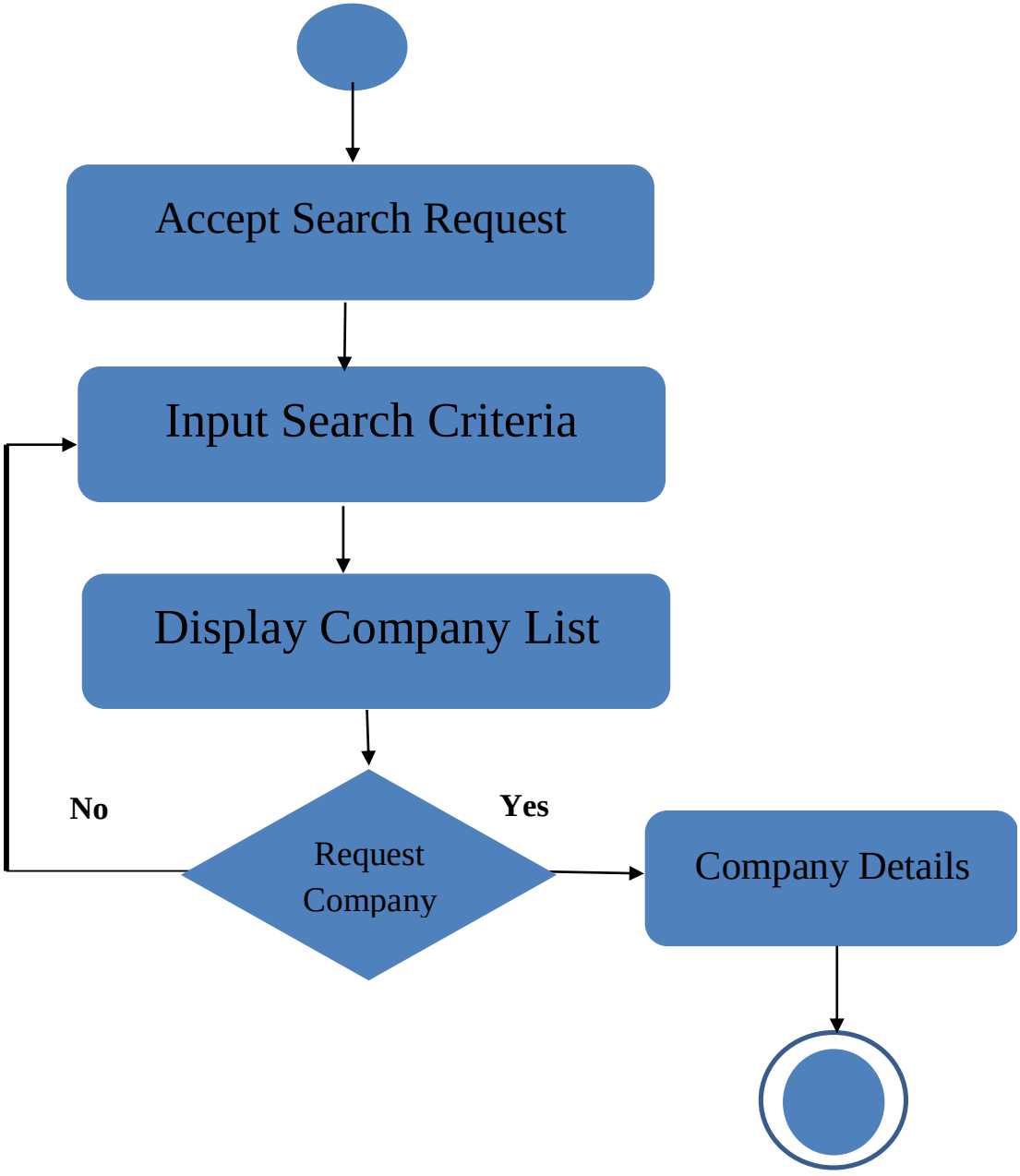

Figure 6.3. 4 Search Company

6.3.5 View recent medicine

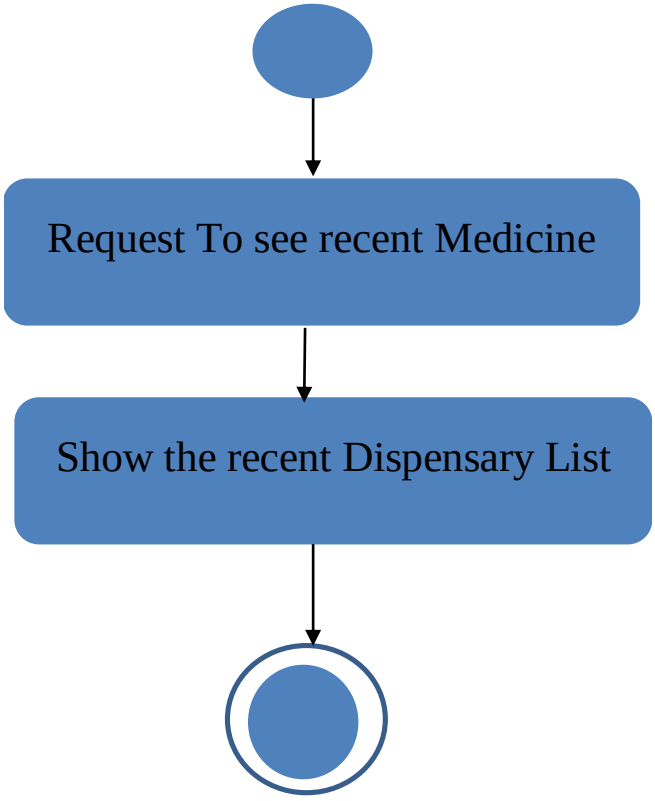

Figure 6.3. 5 View recent medicine

6.3.6 View recent dispensary

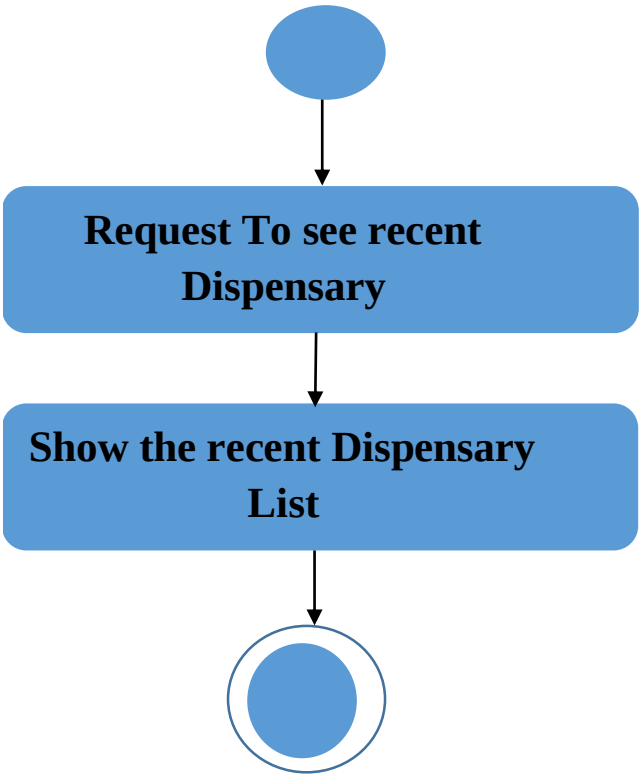

Figure 6.3. 6 View recent dispensary

6.3.7 Manage medicine

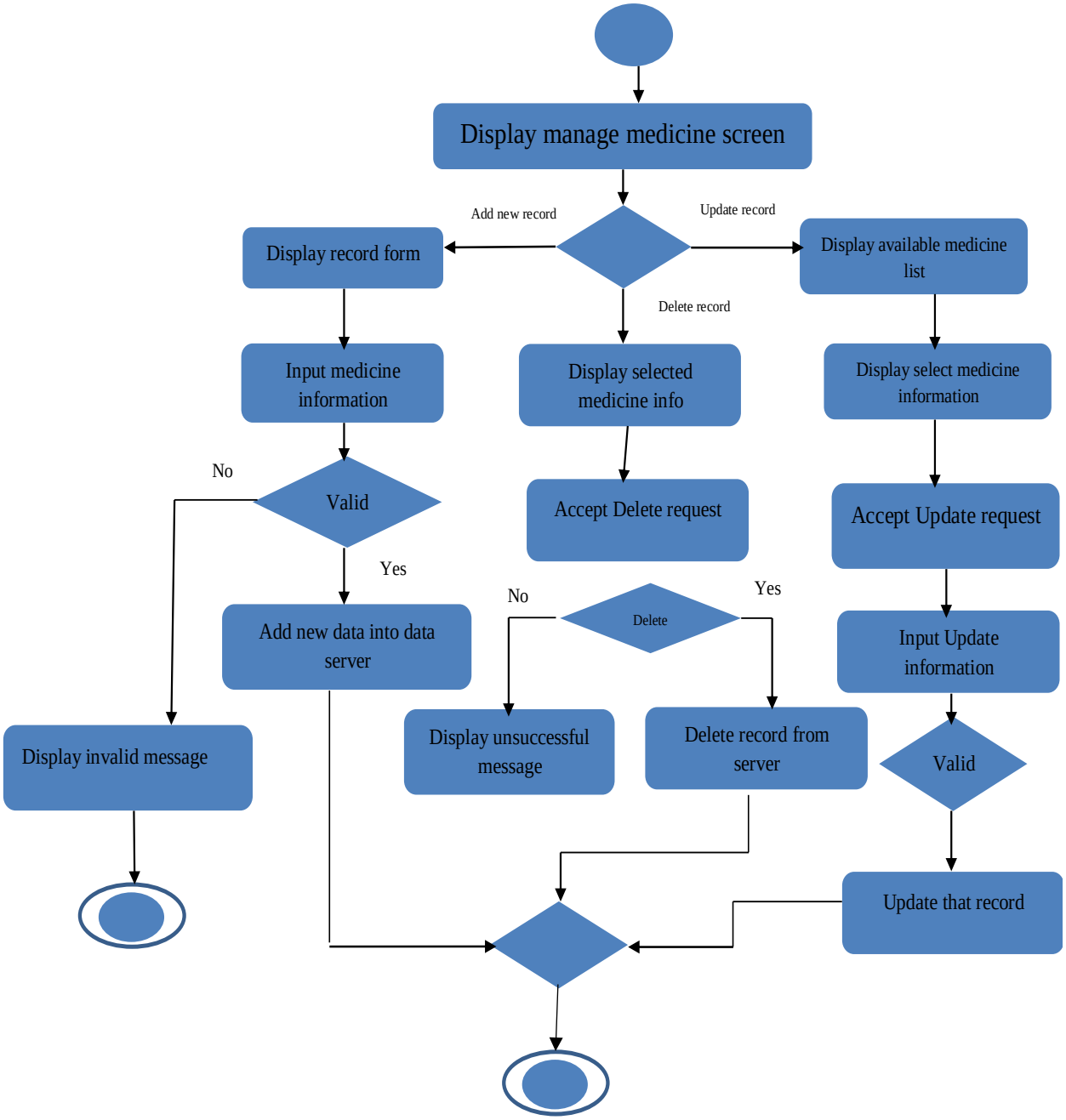

Figure 6.3. 7 Manage medicine

6.3.8 Manage cart

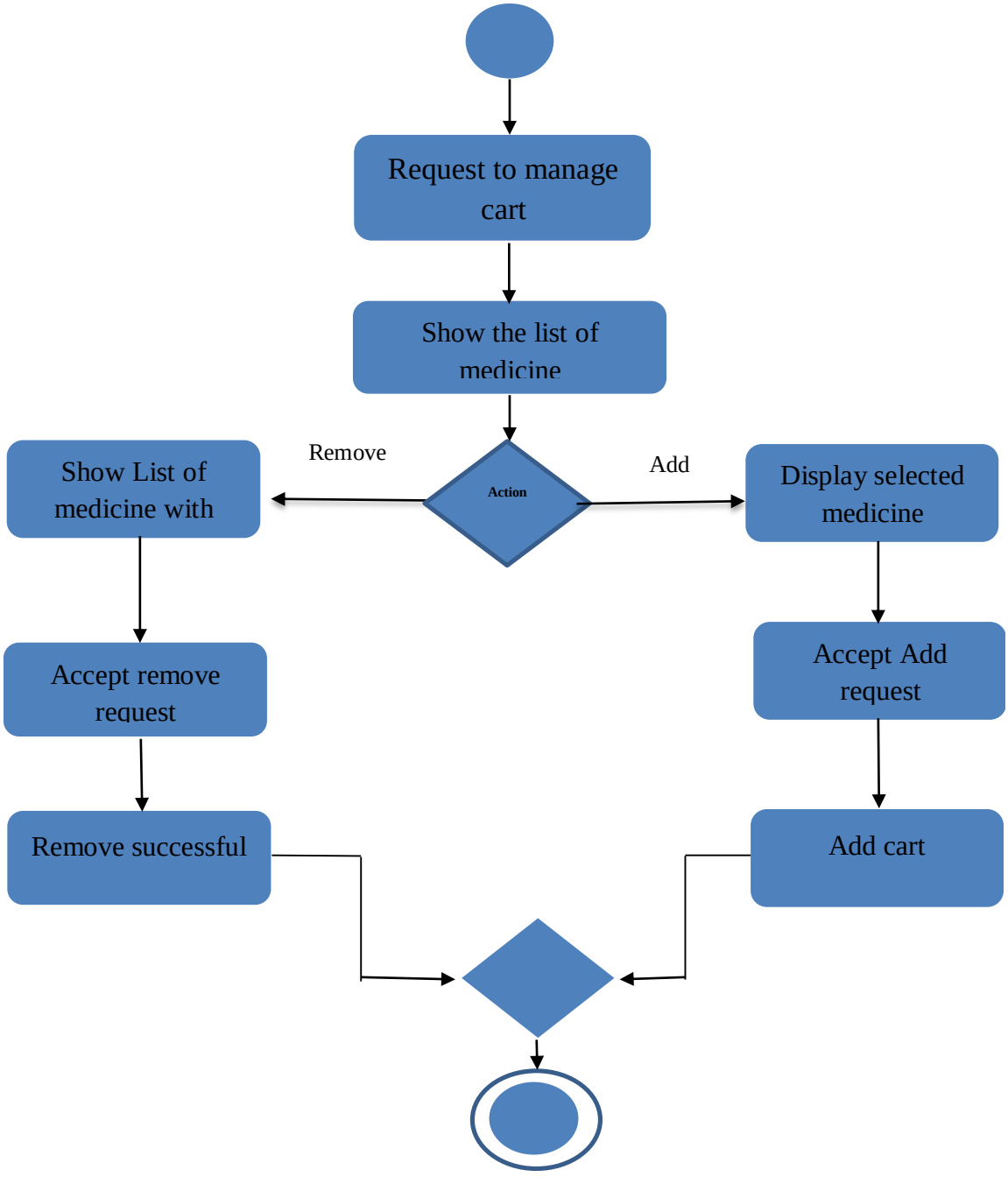

Figure 6.3. 8 Manage cart

6.3.9 Make order

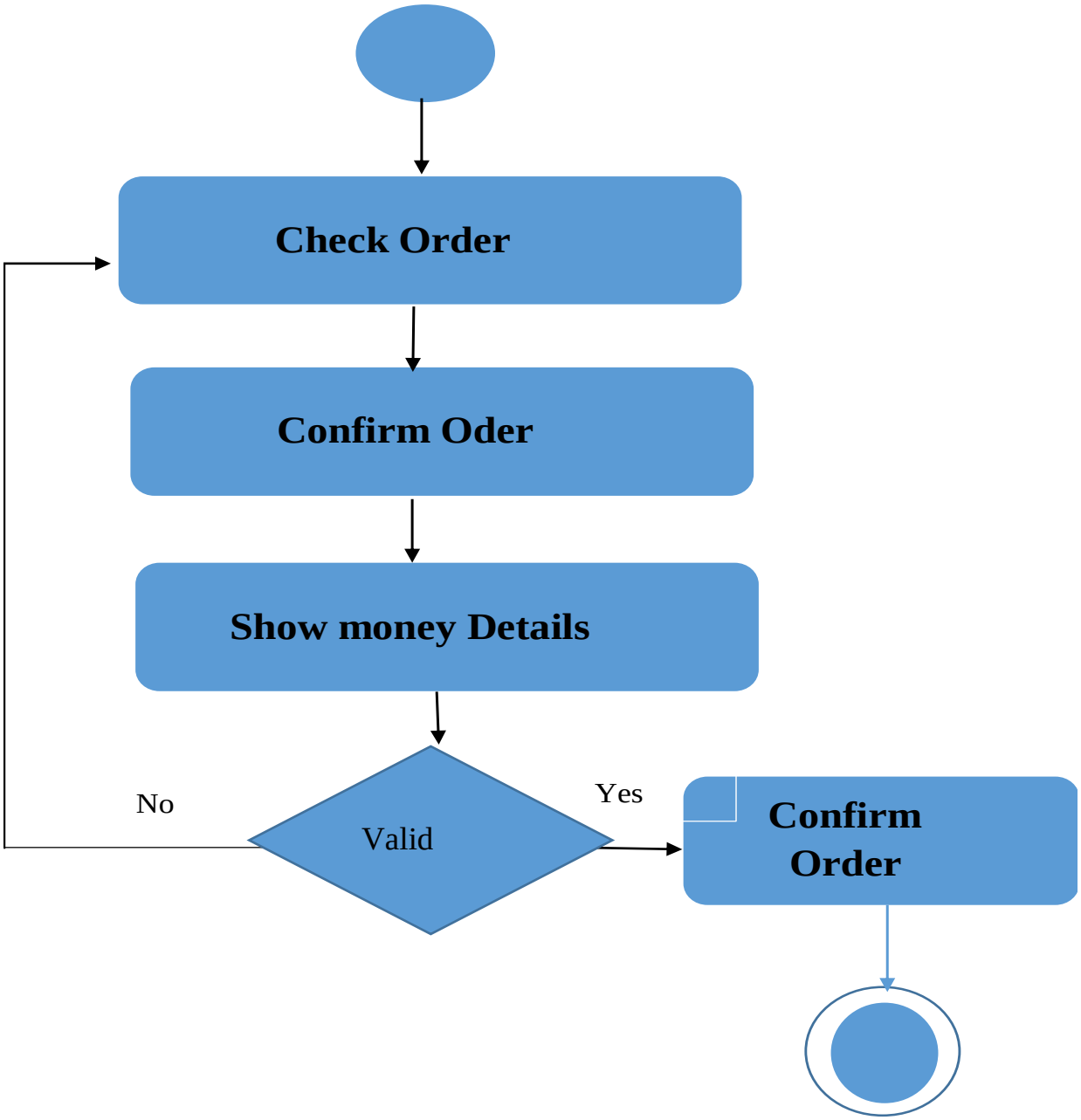

Figure 6.3. 9 Make order

6.3.10 Make Payment

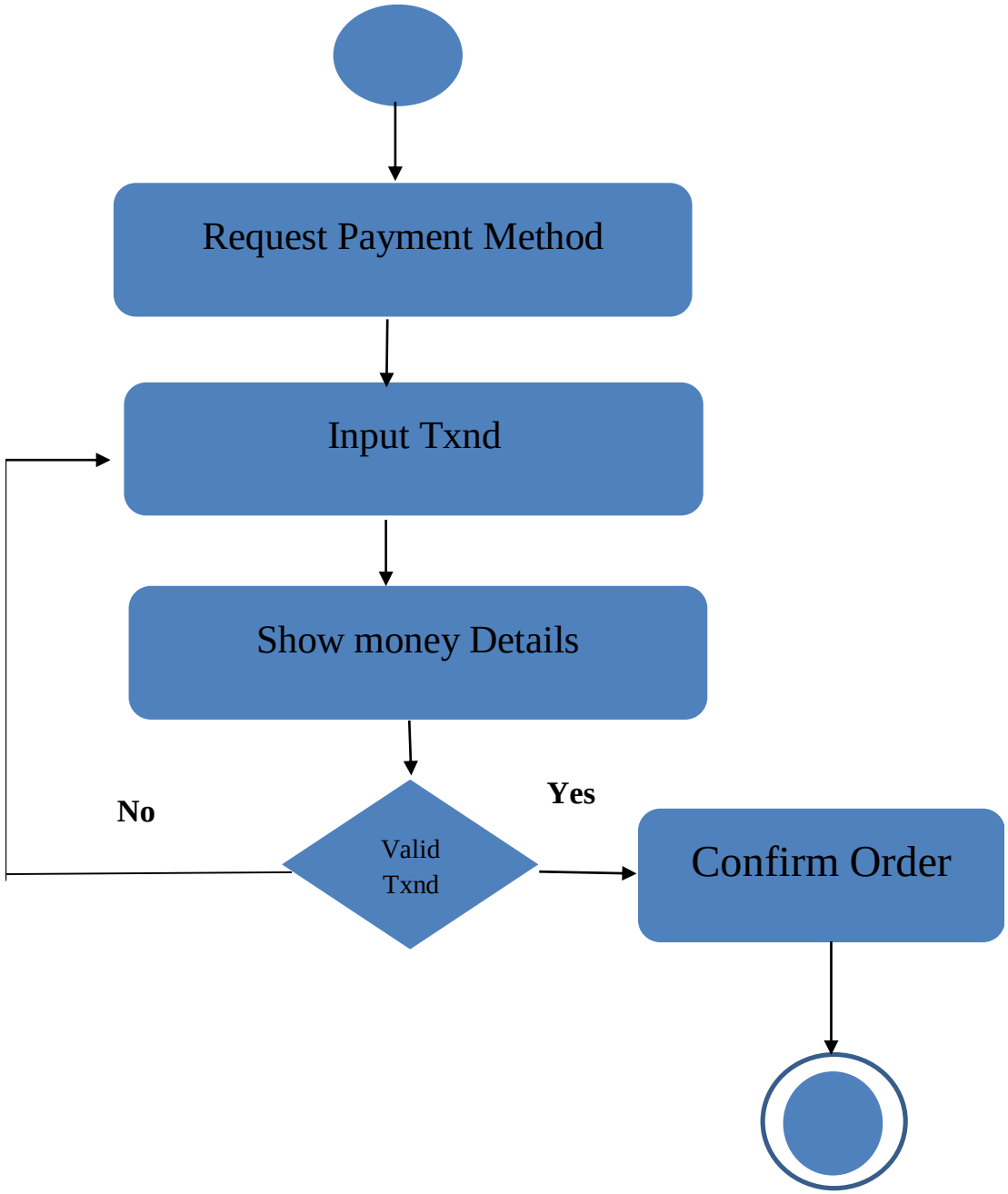

Figure 6.3. 10 Make Payment

7. Requirements traceability matrix

A traceability matrix is a document, usually in the form of a table, used to assist in determining the completeness of a relationship by correlating any two baselined documents using a many to many relationship comparison. It is often used with high-level requirements (these often consist of marketing requirements) and detailed requirements of the product to the matching parts of high-level design, detailed design, test plan, and test cases.

7.1 Business Requirements:

Table 7.2. 1 Business requirement

BR#	Requirements
BR1	Allow stakeholder to search medicine, Dispensary and Company
BR2	Allow stakeholders to view recent medicine and recent dispensaries.
BR3	Allow stakeholders to add remove or update medicine.
BR4	Allow stakeholders to order medicine.

7.2 Test Case:

Table 7.2. 2 Test case

Test case#	Test case
TC1	Gabaster
TC2	Gabapentin
TC3	Tahrim Pharmacy
TC4	Sonapur
TC5	Detect user location
TC6	Square pharmaceutical ltd.
TC7	Buy a medicine
TC8	Try to add or remove or update medicine
TC9	Try to add to or remove from the cart
TC10	15
TC11	CR Residence | House 6/A, Road 113, Gulshan, Dhaka.
TC12	R191016.1812.690346

7.3 Traceability Matrix

7. Appendix

7.1 Prioritization of requirements

We have prioritized the functional requirements by following Three-level Scale technique.

7.1.1 Three-level Scale

When a Business Analyst categorizes the requirements in any of the ordering or ranking scale, it is subject to the analyst's understanding of the business. Many analysts suggest that this method has some drawbacks and advocate methods that have more than one scale.

FR1 – High priority: It is an essential requirement for our system. Stakeholder can always search for the medicine to buy or see the information of the medicine.

FR2 – High priority: Sometimes stakeholder wants to find out whether the medicines are available or to know the price in the dispensary.

FR3 – High priority: Sometimes stakeholder wants dispensary nearby where he lives in. So, stakeholder just need to click "**Nearby Dispensary**" button, then the stakeholder can see all those dispensary which is placed at his location. So, it is very important requirement for our system.

FR4 – High priority: Sometimes stakeholder wants to find out whether the medicines are available or to know the price in the dispensary.

FR5 – Low priority: A stakeholder maybe wants to see the medicines list that was being bought or sold by the stakeholder recently. However, it is not so important for smooth running of the system.

FR6 – Low priority: A stakeholder maybe wants to see the dispensaries list from where the stakeholder bought medicines recently. However, it is not so important for smooth running of the system.

FR7 – Low priority: In our system dispensary and pharmaceutical company will update their avail medicine list so that their customer can know which medicine they have available now.

FR8 – High priority: Before order medicine stakeholders need to specify which medicine they want to buy and it is very important feature.

FR9 – High priority: This is one of the best requirements in our system. Cause this requirement is basically making the order of the medicine. Without it, our system is useless.

FR10 – High priority: It is another important requirement for our system. After giving the order stakeholders have to make sure to pay the full bill.

SLR1 – Medium priority: Searched result will be loaded within a second. Sometimes it may take some more times, but this is not that much important cause it may take some time that should not matter that much.

PAR1 – High priority: Search result needs to be accurate.

MR1 – Medium priority: It is important to update the database of the system about the information of the medicine and the stakeholders.

AR1 – High Priority: Stakeholders need to be logged-in to the system and login system should be enough secure and authenticated.