GROCERY GALLERIA
PROJECT PROPOSAL

Group CS 24

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Date: 30.06.2021

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Acronyms and Abbreviations

PC – Personal Computer

AWS – Amazon Web Services

GCP – Google Cloud Platform

PWA – Progressive Web App

ISP – Internet Service Provider

HTTPS – Secure Hypertext Transport Protocol

1 Introduction to Project.

1.1 Problem Statement

After analysing the food services sector, we have recognized several existing problems and their impacts:

- During the covid-19 pandemic situation, we all have seen that almost all the people had to face vast difficulties when finding day-to-day needs like food because of the lack of online food ordering platform availability in Sri Lanka. Although the supermarkets had the online ordering facility available, it is not capable of handling all the food delivery needs in Sri Lanka.

- Although large-scale entrepreneurs like Supermarkets had assets to build or rebuild an entire online ordering platform to function continuously, most of the small-scale food entrepreneurs don't have that amount of wealth to spend for that kind of a system and so that these types of businesses became unprofitable and unsuccessful with this situation.

- As a rapid offline solution, small-scale food businesses had to travel around the cities with their products to sell items. In this selling system, they had to face many troubles with huge costs as well.

- On the other hand, people had to wait so long without getting their food needs efficiently because of the lack of online ordering system availability and imperfections of existing systems.

- And also, all the people had to risk their lives by meeting the people physically to get the food needs during the pandemic situation.

1.2 Project Idea

Based on the above-identified issues we discovered that the following outcomes are of necessity:

To save both the people and the small-scale entrepreneurs from the above-mentioned difficulties, a <u>Centralized Online Grocery Ordering</u> Platform shall be built for the usage of the general public and such enterprises. That they could use to manipulate their orders of Vegetables, Grocery items, Fish, and Meat needs.

In simple terms, our teams' fundamental target is to create one single platform which makes available our nearest regional such small-scale shops where the customers can order their needs through this platform online. Which is going to be the same shopping experience as you get from the nearest public market. The only difference is that the customer has to buy the items online.

We have named this platform "Grocery Galleria". The term 'galleria' means 'a collection of small shops under a single roof'. Since our main target audience of this system is small-scale food entrepreneurs, we have chosen this term.

Our platform "Grocery Galleria" has several new special features which are not existing in current related e-commerce platforms. And they are,

1. A customer can find his/her all the essential item needs under one centralized online platform.
2. A customer can find his/her nearest essentials item shops in one online place.
3. A customer can order all the items that he/she needs even from several shops in one order.
4. A customer gets his/her item package in one delivery even he/she has ordered the items via several shops.
5. Even a customer's shopping cart contains several shops; he/she can pay in one go for all the shops including the delivery fee.

There are four major roles, we have included in this system. They are Customer, Shop, Delivery, and System Staff.

1.2.1 Customer

Customer can order their essentials through this platform. For that customer has to first register in the system via a simple registration. So, once the customer has registered, he/she can log in to the system and start browsing the items via searching a shop or by selecting a shop based on the requirement and the user ratings. Once the customer picks a shop, then he/she can

browse items inside that shop based on item pricing, and then the customer can add items into the shopping cart. As we have mentioned earlier, the customer can add items from another shop too.

Once the customer is done with the shopping, he/she can make proceed to the checkout and pay for their shopping cart. This payment includes all the total payments which include the calculated delivery fee too.

1.2.2 Shop

To sell items through this platform, a shop has to register first by providing the required information for the system. Once the provided information has been approved by the system staff, the shop can start with the item listing inside their online space provided by the system. When customers order items from the shop, the order listings and the required details will be showed to the shop owner via the relevant shop user interface.

1.2.3 Delivery

Whenever there are available orders from the customers, it shall show via the delivery company system interface and they can get the required information regarding the new order from that view. They can undertake that new order for today's delivery via the interface. Furthermore, they can view the ongoing and past order details as well. Once the delivery company undertakes the order, the company can assign a rider for that delivery by selecting the rider. The system shall send the relevant details to the rider regarding the order.

1.2.4 System staff

In this system, the system staff has the granted privileges to the system to manage the system efficiently. Staff will provide the permissions requested by the system and they have the granted permissions to take actions like remove the shop from the system, etc. And they are the ones who shall generate the revenue reports of the system to manage the finance side of the system.

We can continue to function this system even after the pandemic situation because of its user convenience.

2 Project Goal.

Our team goal is to build a customizable user convenient online shopping platform for the entire small and medium enterprises as well as for the general public to establish an uninterrupted trade connection between customers and such enterprises in any kind of situation in the country.

In addition to our main goal of the project, we have mainly focused on the following sub-goals as well from this project.

- To make excellent connections for the small-scale enterprises with the community in an efficient manner without causing any user inconvenience.
- To build the UI design simply and straightforwardly to make it easily understandable for their level of perception.
- To use software good practices when developing the system to make an efficient and robust system.
- To make this system fully functional as much as we are capable of as a beginner software development team.

3 Scope of the project.
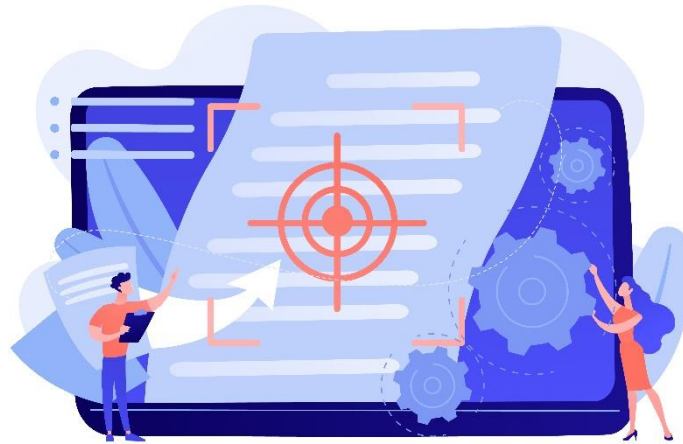
Stakeholders are,

- Customers
- Shop owners
- Delivery Company
- System Staff

3.1 In Scope

- Order items through the web platform.
- User profile management module.
- Manage to customize the order via different shop combinations.
- Payment through an online payment gateway.
- Shop module for item listing and order details handling.
- Delivery management module for accepting and assign riders.
- Weekly report generation

3.2 Out of Scope

- Inventory Management system for Shops
- Delivery management system for the Delivery Company.
- Mobile Application (Android/iOS).
- Real-time delivery tracking

4 Objectives of the project
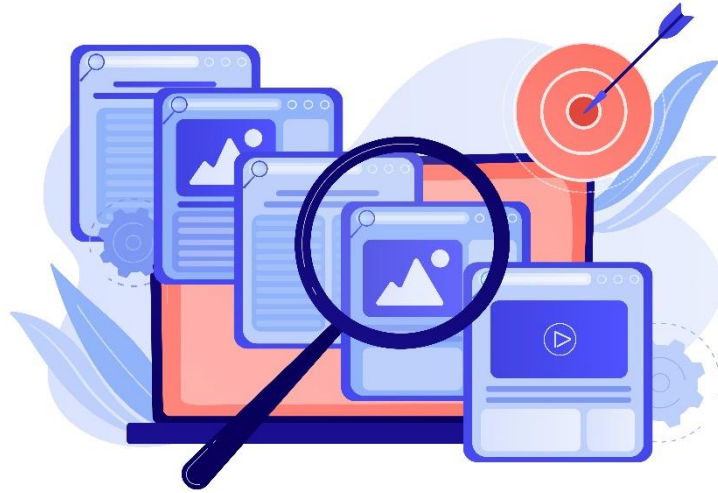
One of our primary goals is to make this system work better and easier than the existing online systems. So the "Grocery Galleria" shall achieve this by taking an innovative approach by restructuring the existing ordering and delivering process.

These are the strategies that we intend to achieve all of the project goals through the following objectives.

- Create a proposal for the project.
- Create an SRS document of the project with a clear explanation.
- Make a fully functional system.
- Make the system to be user-friendly.
- Identify all user requirements and provide Satisfactory solutions for all user requirements.
- Test and debugging of the software whole through the project development to minimize the errors.
- Implement and deploy the software within one year.

Another special objective here is to acquire knowledge through the project's development and gain experience in working together as a team.

5   Project Feasibility

The feasibility study for the system is done to gather the facts about the practicality of creating such a system. This section will help to better understand the product. The study is divided into five primary subtopics.

1) Technical Feasibility
2) Economic Feasibility
3) Legal and Ethical Feasibility
4) Operational Feasibility
5) Schedule Feasibility

5.1   Technical Feasibility

In this section, we measure the practicality of the technical solution and the availability of the technical resources both physical and developer team's abilities.

"Grocery Galleria" is a completely web-based platform. This shall be implemented using HTML, CSS, and JavaScript as the frontend and the backend shall implement in PHP and SQL. The system shall prioritize mobile users over desktop users in most of the interfaces.

Until the system grows, we can keep the system in a low-cost shared host. There are plenty of solutions such as Bluehost, iPage at a cost of as low as $2.50 per month[1]. There are

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[1] 10 best Hosting providers 2021 https://www.websitebuilderexpert.com/web-hosting/php/

local providers like SLT which has shared hosting plans as little as Rs 300 per month.[2] As it grows, we can move on to the cloud and utilize auto-scaling VMs to meet the traffic demand and also Managed SQL services for the Database. Thus, getting a >95% uptime for the services.

The development teams shall use freely available IDEs and Tools to develop the application throughout the whole time.

5.2 Economic Feasibility

Financial wise the development team will not bear any expenses for tools that they are using to develop the system since they are freely available for students. But costs of electricity and telecommunication shall be bear by each team member independently.

There shall be minimum premium services like hosting shall be used during the demonstration process. The team shall have the responsibility of paying for such services in case it's a valuable addition to the current application.

5.2.1 Costs

5.2.1.1 One Time Costs

5.2.1.1.1 Hardware and Software cost

Customers and Shops can use existing personal smartphones to access the system. Shops can use a PC to access a desktop version of the system for convenience. If the shop hasn't got a PC there will be an initial onetime cost for the shop owners. Delivery Company shall also get a PC if needed to access the system.

5.2.1.1.2 Development team cost

Since this is a university project developing cost for the software is not considered here.

5.2.1.2 Operational Costs

5.2.1.2.1 Utility costs

There will be costs for electricity and Telecom ISP charges due to the system needs to be up and running 24/7.

5.2.1.2.2 Hosting Costs

Until the system grows to a significant level, we can host the system in free tiers that are provided by cloud providers. In the case of paid hosting, a recurring monthly charge is needed. Choosing a global cloud provider is appropriate as there will be less downtime and

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[2] https://www.slt.lk/en/personal/internet/hosting-services/services-and-pricing

resilience in case of an outage. Costs are almost similar among cloud providers.[3] Selecting a suitable provider is up to the development team.

5.2.1.2.3 Personal cost

There will be no additional personal cost regarding the system as the system doesn't need specialized training to use the system. The development team shall ensure the system have an adequate level of usability among all stakeholders.

5.2.1.2.4 Cost for payment methods

The payment gateway costs LKR 39.00 plus 3.9% of the transferred amount of each transaction. This is something that needs to be considered because some orders can be cheap enough that Rs.39.00 + 3.9% of that order is a significant deduction from the profit. So, LKR 39.00 from each transaction with another additional charge will be an affect directly to the profit.

5.2.2 Benefits

5.2.2.1 Quantitative benefits

5.2.2.1.1 Uses of free software

In this system, we use freeware software bundles as our development tools, so that the users don't have to spend money on paid software packages.

5.2.2.1.2 Reduce personal cost

By using this system, people can reduce the manual cost of shopping like travelling cost, physical waste of the body, etc. since the people can order items online

And also, the shop owners can sell items online without worrying about the costs like calculating the total, customer handling, and physical waste of the body. That means by deploying this system shall reduce the personal cost of the main stakeholders of the system.

5.2.2.1.3 Generate Reports

By using this system, the shop owners and delivery companies can keep track of the business income that they have gained through this system by getting Weekly, Monthly & Annual income reports. The system staff shall generate those reports and send that to the relevant stakeholders.

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[3] https://www.simform.com/compute-pricing-comparison-aws-azure-googlecloud/

5.2.2.1.4 System managements

The system management shall be mainly carried out by the system staff and they can manage all the other stakeholders' information through the system. However, the other stakeholders can manage their responsible part of the system management using the system without system staff.

5.2.2.1.5 Increase the revenue

This system shall increase the revenue of the shop owners. since they can sell items through this online platform it will increase the customer audience. And also, since people tend to start buying from small-scale shops, it will increase the no of deliveries within a town and so that it will increase the revenue of the typical delivery company as well.

5.2.2.2 Qualitative benefits

5.2.2.2.1 Customer Satisfaction

By using this system, the customers can purchase items from several shops as well in a single order. This is an introduced new feature for these types of platforms so that It increases customer satisfaction certainly. And also, the customer can buy items directly from the nearest well-known shop using this system.

In this system, the customers can rate the shops and make complaints about the system services which is highly valuable to increase the customer's satisfaction.

5.2.2.2.2 The efficiency of the system

The system efficiency depends upon the delivery company management. The system shall pre-estimate a delivery date as two days after the order placement date.

Based on the agreement with the delivery company, the delivery company has to deliver each delivery maximum of within two days after the order placement. So that, delivery company dashboard shall update automatically to catch the new order deliveries.

5.3 Ethical and Legal Feasibility

- The system guarantees that the system user information will be secure inside the system and will not be granted to any third parties for any other purposes.

- Any occurrence of substantial changes inside the system should be notified to the relevant user of the system.

- The system users should be responsible for the information that he/she is preserving inside the system. (Ex: Shop owner's item pricing)

- The delivery company should adhere to the delivery agreement provided by the system.

- The system privileges will be granted to the system staff to manage the system efficiently.

- Verified and Approved payment gateways will be used for transactions.

- The system will be designed with best practices to ensure the security of the system.

- The basic revenue analysis reports shall be generated by the system staff and relevant details shall be sent to the relevant other users of the system.

- Proper documentation and coding practices shall be maintained during the development.

- Shop owners and Delivery companies' eligibility shall be analyzed by the system staff before finalizing the registration.

- The whole system will be developed using free, and open-source resources and any external code plugging that we might have to use will be acknowledged and give credits to its rightful owner.

- According to the Electronic Transactions, Act, No. 19 of 2006(as amended) (the 'ETA'), Currently the system does not break any rules and regulations given by the act under the law of Sri Lanka. And the system shall obligate the guidelines given by the ETA act in Sri Lanka in future development.[4]

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[4] https://www.dailymirror.lk/features/E-commerce-in-Sri-Lanka-A-legal-overview/185-189694

5.4 Operational Feasibility

Under Operational feasibility, we have to study how the user achieves their goals according to the operations performed by our system. We have a clear idea about this system and the people who use this shopping system could do their work very efficiently. "Grocery Galleria" is a web-based shopping system and it will work more efficiently than the process of regular shops and how vends goods and how normal customer purchases goods from shops.

The system consists of three external users.

1. Customer – make purchases through the system
2. Shop - Establish an online shop, sale of goods, and generate revenue from it.
3. Delivery Company - Earn revenue by providing delivery service for orders placed through the system

We surveyed around 170 customers and 10 shopkeepers and with the Covid-19 situation they highly endorsed the system and suggested more relevant ideas to add to the system. It became clear that customers didn't have much availability of services to buy their essentials and Shopkeepers were having difficulty when selling their products with this prevailing hard time. According to the current situation mentioned by the customers, many of them still have to physically go to the shops and supermarkets to buy their essentials or have to buy from mobile essential services.

The following are some of the difficulties that the customers have to encounter when purchasing goods at the current moment,

- Lack of essential goods
- Have to buy expensive items because there is no other option.
- Inability to purchase goods during lowdown situations.
- Have to wait in long queues in shops for a long time.
- Late delivery.
- High delivery cost.
- Heavy road traffic.
- Lack of availability in existing online systems.

They strongly believe that an online shopping system is the best solution to overcome these problems and we have identified the opportunity that they are looking for in such an online shopping system.

According to the survey which we have carried out, most of the customers voted for the below-mentioned criteria,

- Buying goods at reasonable prices.
- Avoiding transportation problems and quick delivery.
- Buying quality products.
- Quick selection and purchase of all goods at one time.
- User-friendliness system handling.
- Secure and quick payments.

According to the comments received from the shop owners, we have seen that the shop owners were also facing lots of difficulties with maintaining their businesses. Such as,

- Lack of customers.
- Spoilage and expirations of goods.
- Decreasing in incomes.
- Inability to deliver goods to customers.
- Granting the opportunity to open only shops selected by the local councils during lockdown times.
- Difficult to manage when there are a lot of customers.
- Business breakdown due to lack of potential.
- Expensive to shop in compliance with health regulations and more.

As well customer shop owners also insisted that if there was an opportunity to do business online, they would not face such difficulties. In this study, we found that they do not have the knowledge and background to make an online system to maintain their businesses. In our opinion, by using online platforms to sell the products they expect following are in the necessity,

- Gain fair profit.
- Easy management system (user-friendliness).
- Increasing trades.
- Maintaining a stable trade.
- Face well with critical situations.

Considering all these factors, using the solution we have proposed as a software application will help to fulfil almost every requirement above mentioned of both customer and shops sides with minimum technical environment. It will also address some shortcomings of currently

existing online shopping systems like late delivery issues. A reliable delivery company is associated with the system to provide delivery services and the system allows them to provide their services online and to make income from it. As for the current state of the project "Grocery Galleria", the system shall fulfil the stakeholders' requirements as much as possible.

5.5 Schedule Feasibility

"Grocery Galleria" intends to be completed within a one-year time frame. Because of the stable requirements, the system is more suitable to develop using the waterfall development methodology. The grant chart of the proposed timeline is attached on page 26.

We are using project management tools like GitHub to schedule and manage our works more organized. And considering the current context, we are already halfway through the process at the moment. Therefore, it is possible to finish the development of the "Grocery Galleria" meeting end of the time frame.

6 Deliverables of the project

After the project, the following shall be delivered to the users associated with the project.

- Fully functional web-based software application
- System documentation
- SRS report
- Database design diagrams (ER Diagram)
- System architecture diagrams (use case, component, activity)

7 Project Constraints and Assumptions

7.1.1 Customer

7.1.1.1 Constraints

- A new customer has to first register inside the system to get access to the "Grocery Galleria" website.
- Customers can only purchase items from the shops that are within the customers' region.
- The customer cannot update the shopping cart, once the customer has proceeded to the checkout window.
- The customer cannot cancel the order once the order has been placed.
- Customers cannot search for an item from several shops simultaneously.

7.1.1.2 Assumptions

- Customer details provided by the customer are accurate. (E.g.: Contact details, Address, etc.)

7.1.2 Shop

7.1.2.1 Constraints:

- The shop has to be eligible to be registered in the system. System staff will check registrations and verify the authenticity of the details that are submitted by the shop owner. Criteria will be,
    - Shop size: Enough to handle both online (the system) and offline (on-premise) sales.

- Location: System will be deployed to cater to customers within a specified region, and these shops should also be within the region to be registered.
- Shop type: Meat/Fish, Grocery Items, Vegetables. Staff will confirm that shop has the items that it has been listed.

- Shop owners can sell the items via the system only in the suburban area.
- The shop owner will agree to remove an item from the system if the shop is running low on inventory.

7.1.2.2 Assumptions:

- The shop owner is aware of how much stock is currently available in the inventory and when it's low he/she will remove the item from the system as soon as possible.

7.1.3 Delivery

7.1.3.1 Constraints:

- Only one delivery company will be available to provide delivery service for a particular suburb area.

7.1.4 Assumptions:

- Assuming that the company can deliver all orders placed by the system.

7.1.5 System Staff

7.1.5.1 Constraints

- None

7.1.5.2 Assumptions

- System staff will thoroughly examine the quality of the shops and the delivery Companies.

8 Requirements.
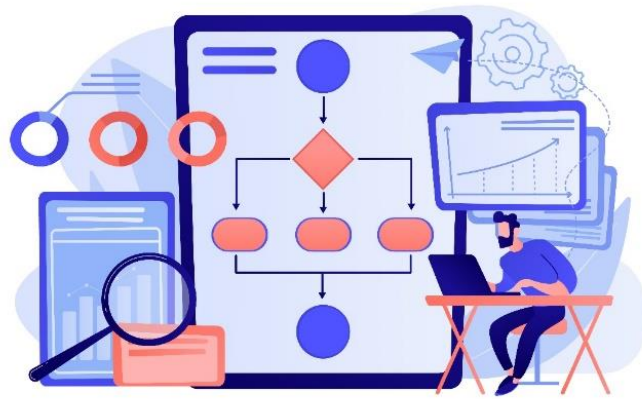
The requirements for this project can be provided as follows,

- Functional Requirements
    - o Flow charts.
    - o Component diagram.
    - o Use case diagram with narratives.
    - o Activity diagrams.
- Quality attributes (Non- functional requirements)

8.1 Functional Requirements

8.1.1 Flow charts

8.1.1.1 Example flow of existing similar systems
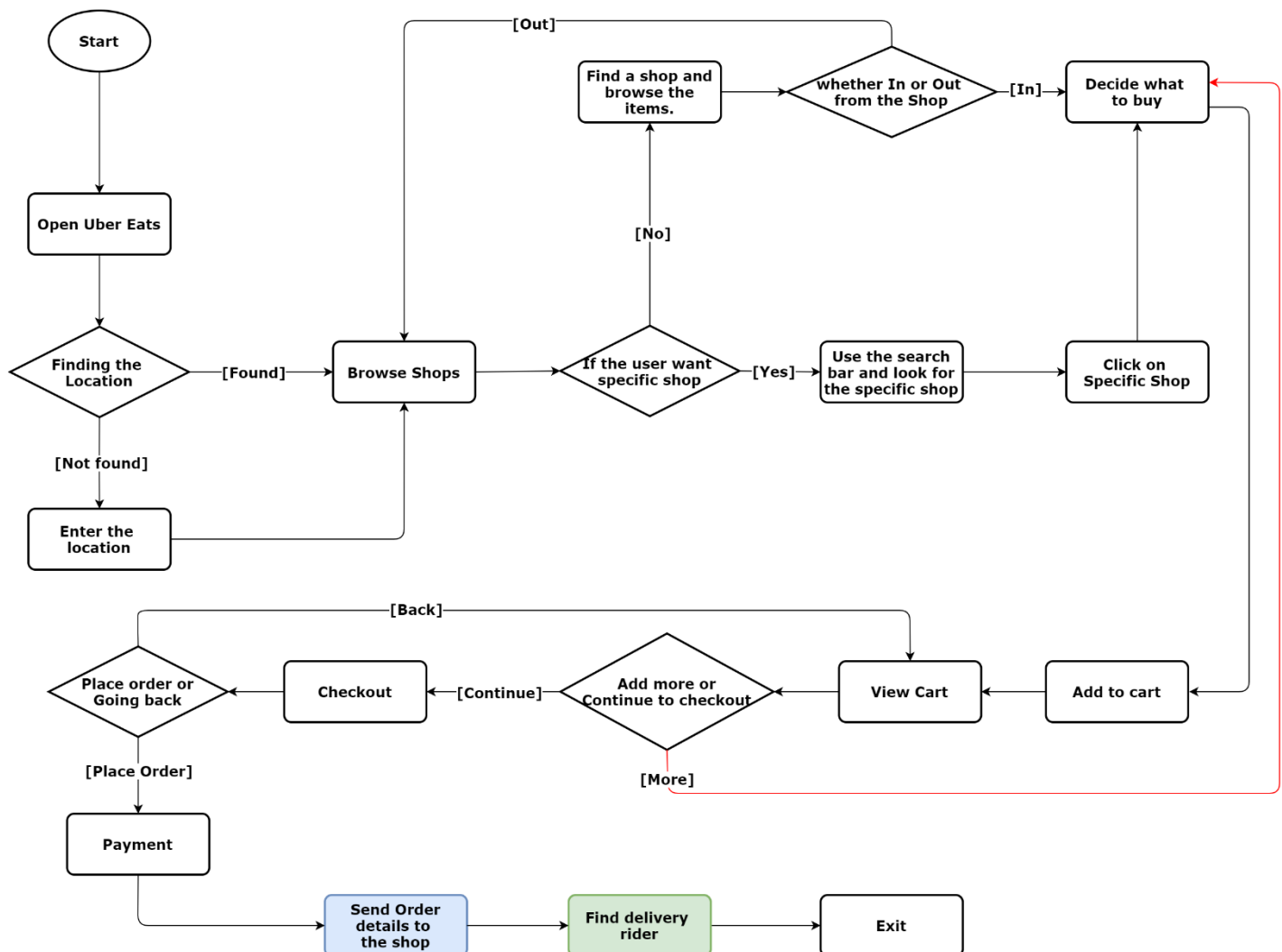
Figure 1: Example flow of existing similar systems.

- Above *Figure 1* provides the sample flow of currently existing systems.
- As from our system point of view, the main constraint of this process flow is that the customer can only purchase items from one particular shop in one order. Which is highlighted in red.
- So that, if the customer needs to buy items from different shops, he/she has to buy them using multiple orders. Thus, making the process inconvenient and expensive.

8.1.1.2 The flow of the proposed system
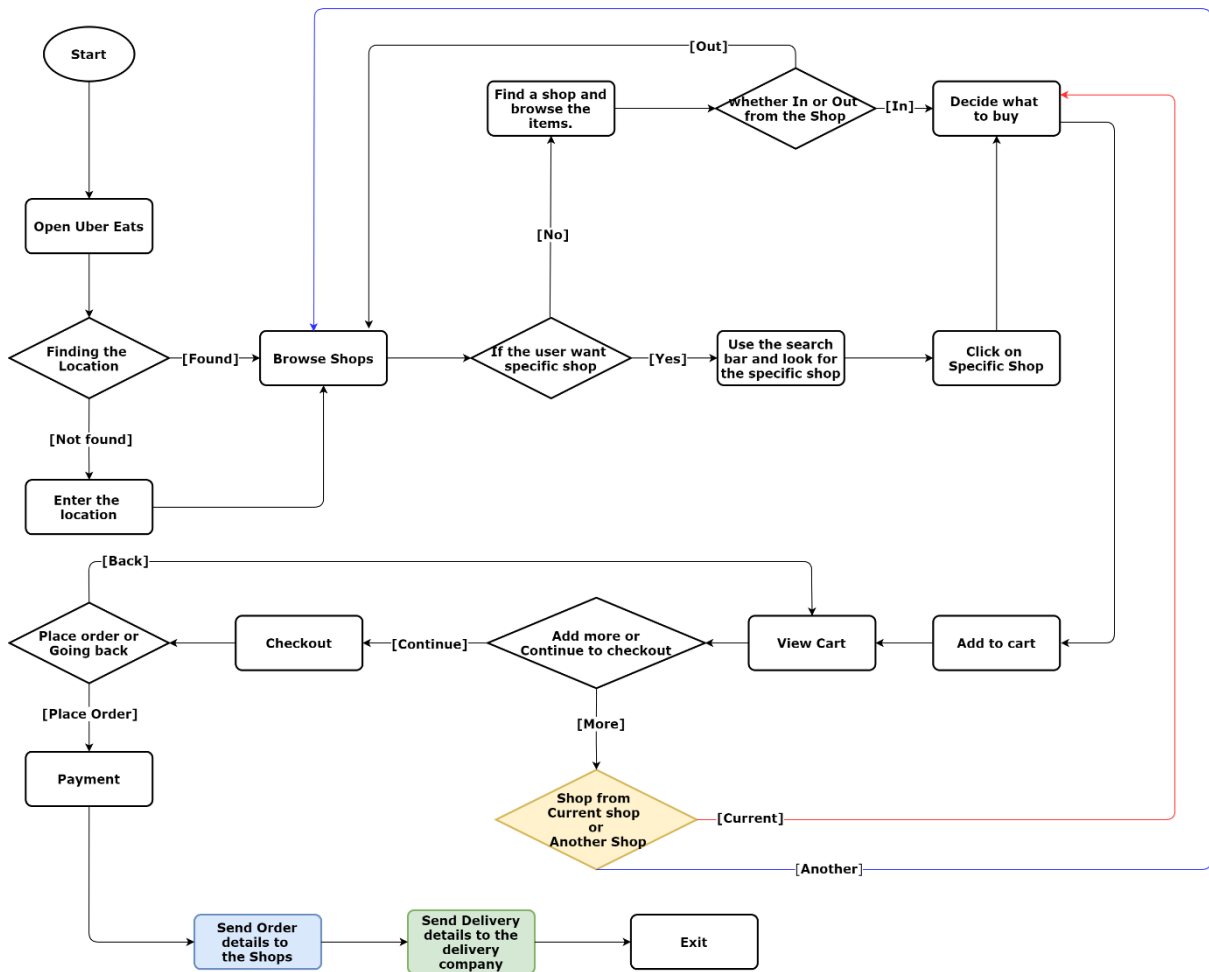
Figure 2: Flow of the proposed system

- Above *Figure 2* provides the new proposed flow from our system.
- The highlighted blue colored path shows the new proposed flow path to resolve the above *Figure 1* main constraint.
- By using the above flow, a customer can order items even from several shops in one order.
- And also we have changed the delivery method which is using in *Figure 1* flow, to cater to the new requirement. So that our system maintains delivery companies per suburb area, where the assigned delivery company rider will collect the items from the shops and deliver them to the customer in one go.

8.1.2 Complete Use Case Diagram
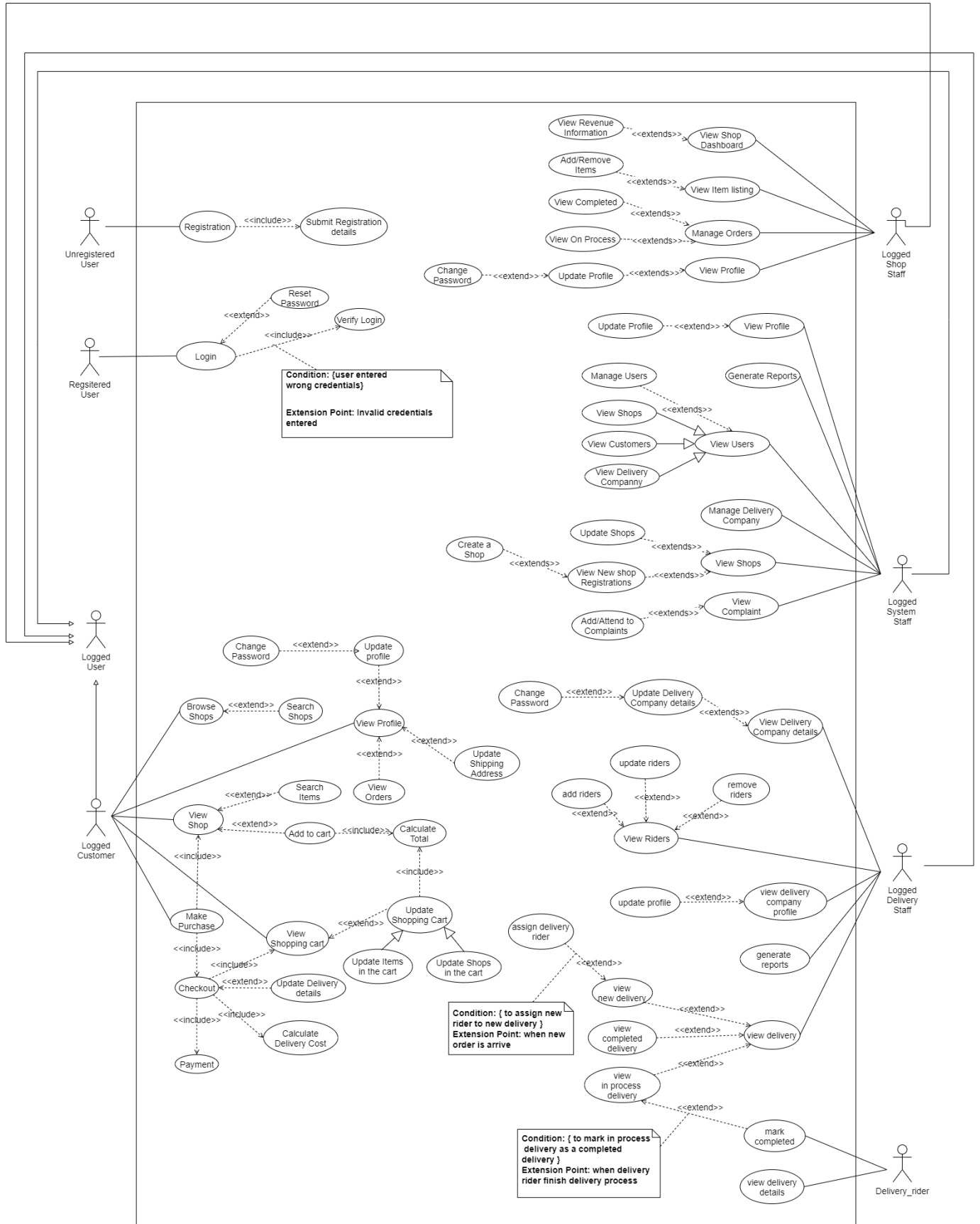
Figure 3: Use Case Diagram

8.1.3 Component Diagram

A summary about the above components are as follows,
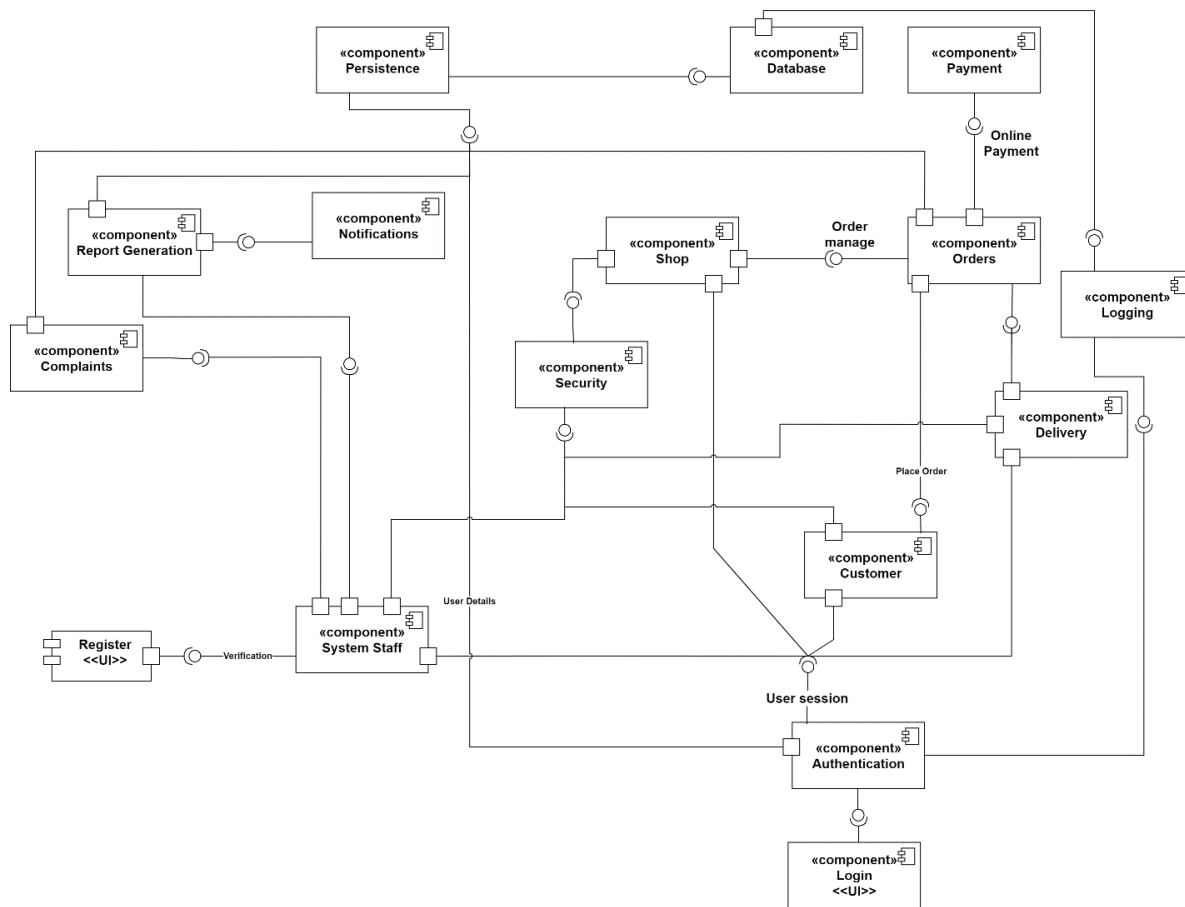
Figure 4: Component Diagram

- Customer, Shop, Delivery, System Staff Components: UI interfaces are given by the system to respective stakeholders.

- Register Component: Used when shops are registering for the system.

- Login Component: UI to get the login details from the user.

- Authentication Component: Verifies the given details that are entered into the system to the user then authorizes them based on the role.

- Report Generation Component: Used in generating reports weekly and monthly.

- Complaints Component: Used in handling stakeholder issues within the system. Used solely by system staff.

- Notification Component: Module to send the notifications to the stakeholder via email or SMS.

- Security Component: This component will be used to secure the website using HTTPS, a Rate-limiting application to avoid brute force attacks.

- Persistence Component: Used to convert runtime instances of the system (transient Objects) to persistence objects for storing in the database. In this module, transient objects will be transformed into persistent objects by a process called serialization.
- Payment Component: To manage the payment gateway.
- Orders Component: Record current and past orders done by the system.
- Logging Component: Store critical system events for non-repudiation purposes.

Refer to appendix for Use Case narratives (*page 2929*) and Activity Diagrams (*page 5757*).

8.2 Quality Attributes

Following Quality Attributes are found out to ensure the system meets the required excellence. In each subtopic, we will go through them one by one concisely.

8.2.1 Availability

The system shall be available 24/7. If using a reputed cloud service provider like an AWS[5], or GCP[6] they provide an uptime of >95% monthly. For a cost of roughly Rs.20000[7]. Going with a cloud provider shall give the system more stable uptime and, in the future, we can also scale rapidly. In summary to ensure system availability,

- Using a cloud provider for infrastructure.
- The system shall log the activities, in case of omission or crash of the system, the administrator of the system will be informed via email.
- The system shall be reliable. It shall log the errors and recover from faults.
- Daily database backups shall ensure the system is recoverable in an event of failure.

8.2.2 Modifiability

The system shall be developed component-wise, such as the logging module and the orders module. Ensuring each module depends on the minimal dependency of another module, thus archiving a modifiable system. Each component will give out interfaces that can be interconnected with each other making the inner changes of such components will not affect the whole system.

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[5] https://aws.amazon.com/compute/sla/
[6] https://cloud.google.com/compute/sla
[7] Approx. 100USD

The system shall be using configuration files to get the credentials and details that are needed to run the system in one centralized place (ex: Config/ directory), making the system easy to configure.

Developers will be using the database connector PDO. In a change of RDBMS, minor changes in queries and code will suffice[8]. As for interfaces developers shall use architecture like MVC. Thus, making the interfaces act independently of the system making it more modifiable[9].

In summary,

- The system shall be developed similarly to MVC architecture. Each component shall have minimal dependency on the other.
- Configuration files are kept in a specified directory. Making changes easier.
- Unified code conventions shall be used throughout.
- As an RDBMS connector, PDO shall be used as changes are minimal when migrating to a different RDBMS.
- PHP/MySQL is a widely used language/RDBMS in both Windows and Linux Operating Systems. Changing the runtime environment shall not be a problem.

8.2.3 Performance

To ensure the system is performed under acceptable terms underperformance following,
- Normalize the Database such that minimal queries run to get the required information.
- The system shall be stress tested for high traffic to the system. By using PWA technology lot of static content can be cached. Making fewer HTTP requests to the server[10].

8.2.4 Security

In the system, passwords will be not stored plaintext. Minimum required number of details shall be collected from each user to ensure in case of a data breach, not all personal information of a user is given out. (Ex: Birthday of a user is not required to system functionality; this will be not stored by the system). Also, the system will provide suggestions for strong password practices to the user.

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[8] https://code.tutsplus.com/tutorials/pdo-vs-mysqli-which-should-you-use--net-24059
[9] https://www.freecodecamp.org/news/the-model-view-controller-pattern-mvc-architecture-and-frameworks-explained/
[10] https://developers.google.com/web/ilt/pwa/caching-files-with-service-worker

All the critical activities such as creating a user, deleting a user will be logged out by the system with timestamps. And such activities shall be done by the authorized personnel only. The system will use Role-Based Authentication to control which components it has access to.

The system will utilize a payment gateway for handling payments. This will ensure that payments are handled securely and such sensitive details leave no trace in the system itself.

In summary,

- Passwords are not stored in plaintext. Developers shall take acceptable measures to store such details.
- Critical system events will be logged.
- Databases will be backed up between reasonable periods to ensure the system can be recovered after an incident.
- A payment gateway is used to securely handle customer payments. This external component shall ensure that sensitive details such as credit card numbers are not stored with the system.
- Role-based authentication to control users' privileges to access the system components.

8.2.5 Usability

The system is web-based and responsive. The system shall be developed in mobile-first driven design. System UI shall be designed similar to existing popular online shopping websites to ensure smooth customer onboarding.

- The system will provide hints for users if the user is stuck during a process. Such as tooltips.
- UIs will be clean and less cluttered and shall follow acceptable UX design principles.
- Consistency of the UIs shall be maintained throughout the system

9   Technologies to be used
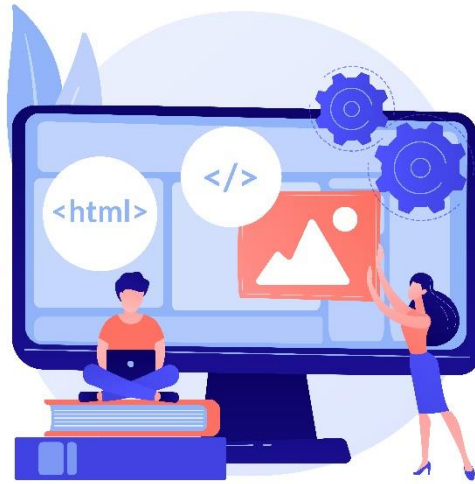
Technologies that will be used to develop the system as follows,

- Frontend: HTML5, CSS3, JavaScript
- Backend: PHP
- DBMS: MySQL
- Additional Technologies: Email API, SMS gateway API, Push Notifications API

For better communication with the customer, the team shall be using additional services that shall be used to provide convenient methods of communications such as SMS and Emails.

Furthermore, this application shall be packaged as a progressive web app, to have much closer integration with mobile devices.

10 Project Timeline.

Task	May 2021				Jun 2021				Jul 2021				Aug 2021				Sep 2021				Oct 2021				Nov 2021				Dec 2021				Jan 2022				Feb 2022				Mar 2022				Apr 2022			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1 Project Idea				▓																																												
2 Requirement Analysis					▓	▓	▓																																									
3 Feasibility Study					▓	▓	▓																																									
4 Project Proposal							▓	▓	▓																																							
5 SRS document									▓	▓	▓																																					
6 Interim Presentation										▓	▓																																					
7 Final Presentation																																									▓	▓						
8 Component diagram							▓																																									
9 Use case diagram						▓	▓																																									
10 Activity Diagram						▓	▓																																									
11 ER Diagram									▓	▓																																						
12 Class diagram									▓	▓																																						
13 Front end development										▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓															
14 Back end development									▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓															
15 Develop test cases																																	▓	▓	▓	▓	▓										
16 Unit testing																																	▓	▓	▓	▓											
17 Integration testing																																		▓	▓	▓	▓									
18 System testing																																			▓	▓	▓	▓								
19 Deployment																																					▓	▓	▓							

10.1 Work breakdown structure of the project
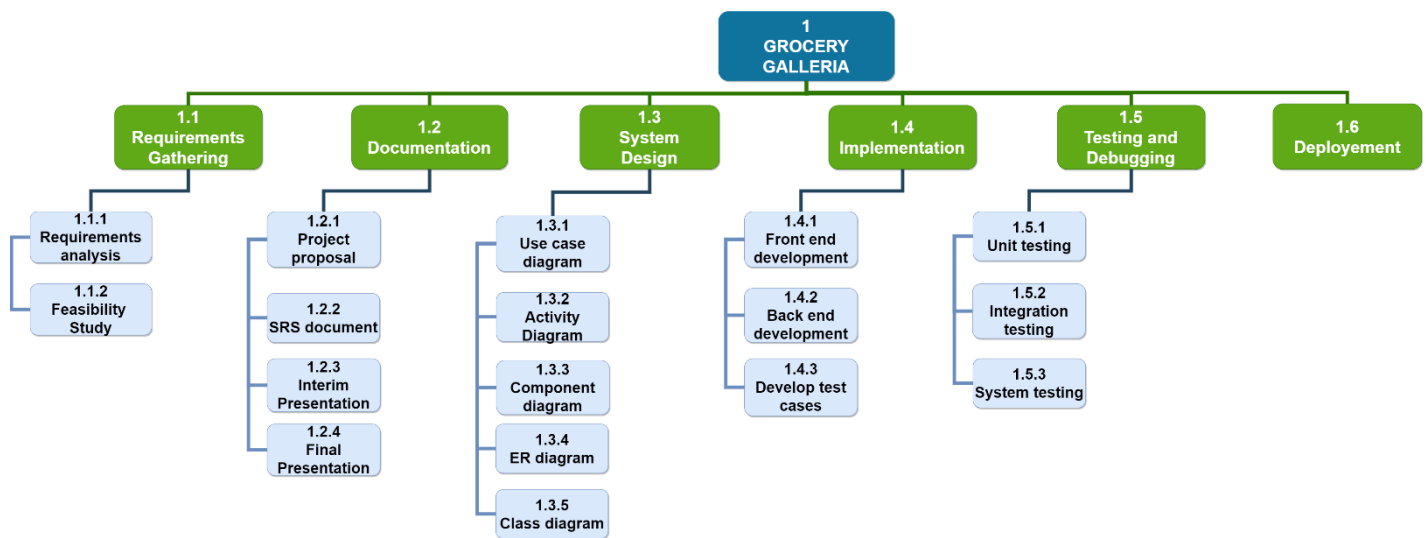
10.2 Time Frame Analysis

Task	Duration	Milestones
1.1.1 Requirement Analysis 1.1.2 Feasibility Study	3 weeks	Finalize the project scope.
1.2.1 Project Proposal 1.3.1 Use case diagram 1.3.2 Activity diagram 1.3.3 Component diagram	3 weeks	Project proposal submission
1.2.2 SRS document	3 weeks	SRS document submission
1.3.4 ER diagram 1.3.5 Class diagram 1.4.1 Front end development 1.4.2 Back-end development 1.4.3 Develop test cases 1.5.1 Unit test 1.5.2 Integration test 1.5.3 System testing 1.2.3 Interim presentation	32 weeks (Work shall be done iteratively)	Interim presentation
1.6 Deployment 1.2.4 Final Presentation	4 weeks	Final presentation

11 Declaration

*We as members of the project titled "**Grocery Galleria**", Certify that we will carry out this project according to the guidelines provided by the coordinators and supervisors of the course as well as we will not incorporate, without acknowledgement, any material previously submitted for a degree or diploma in any university. To the best of our knowledge and brief, the project work will not contain any material previously published or written by another person or ourselves except where due reference is made in the text of appropriate places.*

Index Number	Name of the Student	Signature
19001789	K.K.W. VISHWAJITH	*wathsala*
19001673	S.A. DILSHAN THENUKA	
19001541	S.S.D. SANDUNI SANDEEPA	
19001509	W. LAHIRU SAMPATH	

12 Appendix

12.1 Use case narratives

12.1.1 Common Use Cases

Use Case ID:	1		
Use Case Name:	**Registration**		
Created By:	S.A Dilshan Thenuka	Last Update By:	
Date Created:	*6/13/2021*	*Date Last Updated:*	

Actors:	Unregistered User (Unregistered Customers, Shops)
Purpose:	Allows an unregistered user to register to the system by submitting a sign-up form.
Preconditions:	None
Description:	To use the system functionalities, the users should have to register inside the system first. So that, unregistered users should have to register using the registration process by submitting a registration form to the system.
Exceptions:	None
Special Requirements:	None
Postconditions:	The **Submit Registration details** use case must be triggered.
Assumptions:	None

Table 1: Unregistered User – Registrations

Use Case ID:	2		
Use Case Name:	**Submit Registration details**		
Created By:	S.A Dilshan Thenuka	Last Update By:	
Date Created:	6/13/2021	Date Last Updated:	

Actors:	Unregistered User (Unregistered Customers, Shops)
Purpose:	Directs the signup form to the system staff for further verifications.
Preconditions:	The unregistered user should fill the sign-up form before submitting it.
Description:	Unregistered user fills the sign-up form provided by the system and process the sign-up foam and directs the foam to the system staff for the further verification. If an immediate validation error caused while processing the submitted form by the system, it will be displayed to the user and him/she has to resubmit the foam before proceed further.
Exceptions:	• Unregistered customer registration will be handled directly by the system without final verification from system staff. • If the registration is not successful, the user has to resubmit the sign-up form.
Special Requirements:	None
Postconditions:	The sign-up form must be directed to the system staff.
Assumptions:	None

Table 2:Unregistered User - Submit Registration Details

Use Case ID:	3		
Use Case Name:	**User Login**		
Created By:	S.A Dilshan Thenuka	Last Update By:	
Date Created:	6/13/2021	Date Last Updated:	

Actors:	Registered User
Purpose:	Allows a registered user to login to the system:
Preconditions:	The user must be a registered user.
Description:	When a registered user enters Username & Password. The **Verify Login** use case verifies the login credentials and if the login verification failed, the appropriate message will be shown to the registered user.
Exceptions:	None
Special Requirements:	The Reset Password option must be displayed and the **Reset Password** use case must be triggered if the user requests it.
Postconditions:	The **Verify Login** use case must be triggered.
Assumptions:	None

Table 3:Unregistered User - User Login

Use Case ID:	4		
Use Case Name:	**Verify Login**		
Created By:	S.A Dilshan Thenuka	Last Update By:	
Date Created:	6/13/2021	Date Last Updated:	

Actors:	Registered User
Purpose:	Verifies the login of a registered user.
Preconditions:	The **Login** use case must be triggered.
Description:	Once the registered user enters the login credentials using the Login process, it will be redirected to the Verify Login process to validate the login credentials. There could be four results from this Verify Login process, they are following, i. User name & Password is correct: The message "Successfully Logged in.' ii. The username is correct but Password is incorrect OR The username is incorrect. Message "Wrong Username or Password."
Exceptions:	If the login failed, the registered user has to resubmit the login credentials.
Special Requirements:	None
Postconditions:	None
Assumptions:	None

Table 4:Registered User - Verify Login

Use Case ID:	5		
Use Case Name:	**Reset Password**		
Created By:	S.A Dilshan Thenuka	Last Update By:	
Date Created:	6/13/2021	Date Last Updated:	

Actors:	Registered User
Purpose:	Allows the user to reset the password for a given username
Preconditions:	Registered users must be unable to log in.

Description:	i. User Enters Username.
	ii. User Enters Email or Mobile telephone number for the respective account.
	iii. If the account details are correct
	Then send a reset link to your Email or Mobile Number.
	     Reset Password
	     Update database
	iv. Else Re-enter details

Exceptions:	None
Special Requirements:	None
Postconditions:	None
Assumptions:	None

Table 5: Registered User - Reset Password

12.1.2 Customer

Use Case ID:	6		
Use Case Name:	**Make Purchase**		
Created By:	S.A Dilshan Thenuka	Last Update By:	
Date Created:	6/13/2021	Date Last Updated:	

Actors:	Logged Customer
Purpose:	Allows logged customers to make purchases through the system.
Preconditions:	**View Shop** use case must be triggered.
Description:	A logged customer can make purchasing through this process. For that customer has to browse items from the shops and add items to the cart from the relevant shops before make proceed to the purchasing. And then after the customer can proceed to the checkout and purchase the system.
Exceptions:	None
Special Requirements:	Proceed to checkout button should be displayed in the shopping cart area to trigger the Make purchase use case if the customer requests it.
Postconditions:	**Checkout** use case must be triggered.
Assumptions:	None

Table 6: Customer - Make Purchase

Use Case ID:	7		
Use Case Name:	**View Shop**		
Created By:	S.A Dilshan Thenuka	Last Update By:	
Date Created:	6/13/2021	Date Last Updated:	

Actors:	Logged Customer
Purpose:	Allows logged customers to view the chosen shop.
Preconditions:	The customer should select a shop first to view the shop.

Description:	Once the customer selects a shop by clicking the shop and then he/she can view the inside of the shop. When the customer inside, the customer can see:
	  i. The shop items with pricing.
	  ii. The shop details

Exceptions:	None
Special Requirements:	Search item field and the Add to cart options should be displayed to trigger the **Search Items** and **Add to cart** use cases if the customer requests it by clicking.
Postconditions:	None
Assumptions:	Customer can only view the items which are relevant to the shop.

Table 7: Customer - View Shop

Use Case ID:	8		
Use Case Name:	**Search Items**		
Created By:	S.A Dilshan Thenuka	Last Update By:	
Date Created:	6/13/2021	Date Last Updated:	

Actors:	Logged Customer
Purpose:	Allows logged customers to search items inside the shop.
Preconditions:	The **View Shop** use case must be triggered.
Description:	Once the customer inside a shop, he/she can search for an item that is relevant to the shop. Only the items available inside the shop can be searched.
Exceptions:	None
Special Requirements:	None
Postconditions:	None
Assumptions:	None

Table 8: Customer - Search Items

Use Case ID:	9		
Use Case Name:	**Add to cart**		
Created By:	S.A Dilshan Thenuka	Last Update By:	
Date Created:	6/13/2021	Date Last Updated:	

Actors:	Logged Customer
Purpose:	Allows logged customers to add items to the shopping cart from the selected shop.
Preconditions:	The **View Shop** use case must be triggered.
Description:	Once the customer insides a shop, he/she can add items to the shopping cart from that shop. When adding the items to the shopping cart, the **Calculate Total** use case must be triggered to calculate the total of the items.
Exceptions:	None
Special Requirements:	None
Postconditions:	The **Calculate Total** use case must be triggered.
Assumptions:	None

Table 9:Logged Customer – Add to cart

Use Case ID:	10		
Use Case Name:	**View Shopping Cart**		
Created By:	S.A Dilshan Thenuka	Last Update By:	
Date Created:	6/14/2021	Date Last Updated:	

Actors:	Logged Customer
Purpose:	Allows the logged customer to view the shopping cart and get the total item cost.
Preconditions:	None
Description:	The logged customer can simply view the shopping cart by clicking the cart icon on the home page and it will trigger the View Shopping cart use case and It will show the following details, i. Shop list with the total price. ii. Separated item lists with details for each shop in the cart and the total price for each. iii. Update Shopping cart options.
Exceptions:	None
Special Requirements:	The update shopping card option should be displayed to trigger the **Update Shopping cart** use case if the customer requests it.
Postconditions:	None
Assumptions:	None

Table 10:Logged Customer - View Shopping Cart

Use Case ID:	11		
Use Case Name:	**Checkout**		
Created By:	S.A Dilshan Thenuka	Last Update By:	
Date Created:	6/13/2021	Date Last Updated:	

Actors:	Logged Customer
Purpose:	Allows the logged customer to proceed to finalize the order.
Preconditions:	**Make purchase** use case must be triggered.

Description:	Once the logged customer is done with the shopping, he/she can proceed to finalize the order and make the payments for that. The flow is:
	    i. View the final shopping cart and get the item total.
	    ii. Get the delivery cost from the Calculate Delivery cost process.
	    iii. Calculate the total payment (Item total + delivery cost).
	    iv. Get customer approval.
	    v. Make payment

Exceptions:	If the payment failed, the customer can retry again without losing the shopping cart.
Special Requirements:	The update delivery details option should be displayed to trigger the **Update delivery details** use a case in case of billing address is different from the delivery address which makes it available to the customer to change it if need.
Postconditions:	**View Shopping cart, Calculate Shipping, Payment** use cases must be triggered.
Assumptions:	- Once the payment is completed, the customer cannot cancel the order. - If the customer approval or the payment failed the order will be fully cancelled and only the shopping cart will remain in the profile. - Once the order is successful, the shopping cart will be cleared for the next order.

Table 11:Logged Customer - Checkout

Use Case ID:	12		
Use Case Name:	**Update Shopping Cart**		
Created By:	S.A Dilshan Thenuka	Last Update By:	
Date Created:	6/14/2021	Date Last Updated:	

Actors:	Logged Customer
Purpose:	Allows logged customer to update their shopping cart.
Preconditions:	The **View shopping cart** use case must be triggered.

Description:	Customer can update the shopping cart as an option when he/she view the shopping cart. Customers can update the shopping cart in two ways:
	    i. Update the shops in the cart**.**
	        If a customer needs to remove a shop from the cart with the items.
	    ii. Update the items in the cart**.**
	        If the customer needs to change the quantity or remove an item from a shop.

Exceptions:	None
Special Requirements:	None
Postconditions:	The **Calculate Total** use case must be triggered.
Assumptions:	The only use case where the customer can update the shopping cart before proceeding to checkout.

Table 12: Logged Customer - Update Shopping Cart

Use Case ID:	13		
Use Case Name:	**Calculate Total**		
Created By:	S.A Dilshan Thenuka	Last Update By:	
Date Created:	6/15/2021	Date Last Updated:	

Actors:	Logged Customer
Purpose:	Allows logged customers to get the total value of the items in the shopping cart.
Preconditions:	**Add to cart** or **Update Shopping Cart** use case must be triggered.
Description:	Whenever the customer adds items to the cart or updates the cart, the Calculate total process must be triggered to have the current total value of the shopping cart.
Exceptions:	None
Special Requirements:	None
Postconditions:	The calculated value must be redirected to the Shopping cart.
Assumptions:	None

Table 13: Logged Customer – Calculate Total

Use Case ID:	14	
Use Case Name:	**Update Delivery details**	
Created By:	S.A Dilshan Thenuka	Last Update By:
Date Created:	6/15/2021	Date Last Updated:

Actors:	Logged Customer
Purpose:	Allows customers to change the delivery address.
Preconditions:	**Checkout** use case must be triggered.
Description:	If the customer's billing address is different from the delivery address, he/she can change the delivery address.
Exceptions:	
Special Requirements:	Update Delivery details option must be displayed to trigger the **Update Delivery details** use case if the customer requests it.
Postconditions:	None
Assumptions:	The address change will affect only the current order.

Table 14:Customer – Update Delivery Details

Use Case ID:	15	
Use Case Name:	**Calculate Delivery Cost**	
Created By:	S.A Dilshan Thenuka	Last Update By:
Date Created:	6/15/2021	Date Last Updated:

Actors:	Logged Customer
Purpose:	Allows checkout process to get the total delivery cost.
Preconditions:	**Checkout** use case must be triggered.
Description:	When the customer in the checkout window, he/she can see the total delivery cost based on the number of shops in the shopping cart.
Exceptions:	None
Special Requirements:	The calculated delivery cost must be shown in the checkout process window.
Postconditions:	None
Assumptions:	Standard delivery costs will be maintained for every shop.

Table 15: Customer - Calculate Delivery Cost

Use Case ID:	16		
Use Case Name:	**Payment**		
Created By:	S.A Dilshan Thenuka	Last Update By:	
Date Created:	6/15/2021	Date Last Updated:	

Actors:	Logged Customer
Purpose:	Allows logged customers to make payments through the platform.
Preconditions:	**Checkout** use cases must be triggered.
Description:	Once the customer allows proceeding further with the payment, the customer will redirect to the payment gateway to make the payment via card and finalize the order placement.
Exceptions:	If the payment has failed, the order will not be placed and the customer will return to the checkout window and the customer can try again to make the payment.
Special Requirements:	The customer has to approve the pop-up message to proceed further with the payment process to make the placement.
Postconditions:	The order placement details should be sent to the relevant stakeholders to process the order.
Assumptions:	The customer can make the payment only as a card payment (No cash on delivery). Customers can take the refund as an immediate cash refund in case of sudden item unavailability.

Table 16:Customer – Payment

Use Case ID:	17		
Use Case Name:	**Browse Shops**		
Created By:	S.A Dilshan Thenuka	Last Update By:	
Date Created:	6/15/2021	Date Last Updated:	

Actors:	Logged Customer
Purpose:	The logged customer can browse the shops available on the site.
Preconditions:	The customer has to log into the system to browse the shops.
Description:	Once the customer logged into the system, he/she can see the available shops on the site on the homepage. And then the customer can browse the shops on the homepage. It has several shops which are categorized into All, Vegetables, Fruit, Fish, Meat and Grocery.
Exceptions:	None
Special Requirements:	The search Shops option should be displayed to trigger the **Search Shops** use case if the customer wants it.
Postconditions:	None
Assumptions:	None

Table 17:Customer - Browse Shops

Use Case ID:	18		
Use Case Name:	**Search Shops**		
Created By:	S.A Dilshan Thenuka	Last Update By:	
Date Created:	6/15/2021	Date Last Updated:	

Actors:	Logged Customer
Purpose:	Allows logged customers to search a shop available on the site.
Preconditions:	**Browse shops** use case must be triggered.
Description:	Once the customer logged in to the site, if the customer needs to directly buy the items from a particular shop, then the customer can search the shop by providing the shop name on the search bar.
Exceptions:	If the searched shop is not available, the not available message will be displayed.
Special Requirements:	Shop search suggestions should be provided when typing the shop name on the search bar by the customer.
Postconditions:	None
Assumptions:	None

Table 18:Customer - Search Shops

Use Case ID:	19		
Use Case Name:	**View Profile**		
Created By:	S.A Dilshan Thenuka	Last Update By:	
Date Created:	6/15/2021	Date Last Updated:	

Actors:	Logged Customer
Purpose:	Allows logged customers to view the profile.
Preconditions:	None
Description:	Once the customer logged in the customer can view the profile page and check the profile details. And the customer can update their profile, change the password, update the shipping address and view the orders as options from the view profile page.
Exceptions:	None
Special Requirements:	Update Profile, Change Password, Update Shipping and View Orders options should be displayed to trigger the relevant use case when the customer wants it.
Postconditions:	None
Assumptions:	None

Table 19:Customer - View Profile

Use Case ID:	20		
Use Case Name:	**Update Profile**		
Created By:	S.A Dilshan Thenuka	Last Update By:	
Date Created:	6/15/2021	Date Last Updated:	

Actors:	Logged Customer
Purpose:	Allows logged customers to update the profile details.
Preconditions:	**View Profile** use case must be triggered.
Description:	When the logged customer wants to update the profile information like Email, Name, Contact, Billing Address, etc. Then the customer can use this process. The customer has to refill the relevant fields of the provided form and hit the save.
Exceptions:	If the customer missed pressing the save button before leave, the update will not be saved.
Special Requirements:	None
Postconditions:	None
Assumptions:	None

Table 20:Customer - Update Profile

Use Case ID:	21		
Use Case Name:	**View Orders**		
Created By:	S.A Dilshan Thenuka	Last Update By:	
Date Created:	6/15/2021	Date Last Updated:	

Actors:	Logged Customer
Purpose:	Allows logged customers to view the orders.
Preconditions:	**View Profile** use case must be triggered.
Description:	This area will provide all the orders the customer has made from this system including past and current order details as well, as a list of orders. However, the orders will be sorted based on the date which makes the new orders on the top. The customer provides several valuable information regarding the order.
Exceptions:	If the customer has no orders made through the system, the view order area will be empty.
Special Requirements:	The customer should be able to view the order detail by selecting a particular order.
Postconditions:	None
Assumptions:	None

Table 21:Customer - View Orders

Use Case ID:	22		
Use Case Name:	**Change Password**		
Created By:	S.A Dilshan Thenuka	Last Update By:	
Date Created:	6/15/2021	Date Last Updated:	

Actors:	Logged Customer
Purpose:	Allows logged customers to change the current password.
Preconditions:	**View Profile** use case must be triggered.
Description:	If the logged customer needs to change the current password in case of any security issue, then the customer can change it using this process.
Exceptions:	If the customer enters a wrong password then the user cannot update the password.
Special Requirements:	The customer has to include the current password first.
Postconditions:	None.
Assumptions:	Once the customer changes the password, the previous password will not be valid anymore.

Table 22:Customer - Change Password

Use Case ID:	23		
Use Case Name:	**Update Shipping**		
Created By:	S.A Dilshan Thenuka	Last Update By:	
Date Created:	6/15/2021	Date Last Updated:	

Actors:	Logged Customer
Purpose:	Allows logged customers to update the billing address.
Preconditions:	**View Profile** use case must be triggered.
Description:	If the logged customer needs to change the current billing address then the customer can change it by refilling the relevant fields of the provided form and by saving it.
Exceptions:	If the customer has missed hitting the save button, then the address change will not be saved and the current address will be valid further.
Special Requirements:	None
Postconditions:	None
Assumptions:	Once the customer changes the billing address, the previous address will not be existing anymore.

Table 23:Customer - Update Shipping

12.1.3 Delivery

Use Case ID:	24		
Use Case Name:	**View Delivery Details**		
Created By:	S.S.D.S. Sandeepa	Last Update By:	
Date Created:	6/15/2021	Date Last Updated:	

Actors:	Delivery Rider
Purpose:	View delivery details for a delivery process
Preconditions:	None
Description:	The assigned delivery rider can view delivery details (customer information, shop addresses, order details) of the relevant order to accomplish the delivery process.
Exceptions:	None
Special Requirements:	Delivery rider's details must be pre-entered by the delivery company staff.
Postconditions:	**Mark, as completed of particular delivery after delivery rider,** finishes it.
Assumptions:	Only the rider assigned by the delivery company can view the relevant delivery details.

Table 24:Delivery Rider - View Delivery Details

Use Case ID:	25		
Use Case Name:	**Mark as completed**		
Created By:	S.S.D.S. Sandeepa	Last Update By:	
Date Created:	6/15/2021	Date Last Updated:	

Actors:	Logged Delivery Staff/Delivery Rider
Purpose:	To confirm the delivery process of relevant order is finished
Preconditions:	The delivery company have to trigger **view in-process deliveries**
Description:	After the rider hand over the ordered items to the relevant customer delivery rider or delivery company staff can mark that delivery is completed. Then particular delivery disappears from in-process status and saves in completed status.
Exceptions:	None
Special Requirements:	None
Postconditions:	None
Assumptions:	Each delivery is marked as completed only after it has actually been completed and only if the relevant rider does not mark it as completed then company staff will do it.

Table 25:Logged Delivery Staff / Delivery Rider - Delivery Mark as Completed

Use Case ID:	26		
Use Case Name:	**View Delivery**		
Created By:	SSDS Sandeepa	Last Update By:	
Date Created:	6/13/2021	Date Last Updated:	

Actors:	*Logged Delivery Staff*
Purpose:	View all types of deliveries
Preconditions:	None

Description:	Under view, delivery company can be selected three types of deliveries.
	  i. View new deliveries
	  ii. View in-process deliveries (not completed deliveries)
	  iii. View completed deliveries

Exceptions:	None
Special Requirements:	None
Postconditions:	**Assign rider** to each new delivery
Assumptions:	New delivery notification sends with the most essential details that assist the delivery process.

Table 26: Logged Delivery Staff - View Delivery

Use Case ID:	27		
Use Case Name:	**View new delivery**		
Created By:	SSDS Sandeepa	Last Update By:	
Date Created:	6/13/2021	Date Last Updated:	
Actors:	Logged Delivery staff		
Purpose:	View all new deliveries that have to deliver to a customer.		
Preconditions:	New delivery can be view through under **view delivery** process		
Description:	When a customer places an order through the system, a notification is sent to the delivery company for the delivery process. All new deliveries can be viewed by the company and can assign delivery rider work in the company for each new delivery to transport relevant orders to the customer.		
Exceptions:	None		
Special Requirements:	None		
Postconditions:	**Assign rider** to each new delivery		
Assumptions:	New delivery notification sends with the most essential details that assist in the delivery process.		

Table 27:Logged Delivery Staff - View new Delivery

Use Case ID:	28	
Use Case Name:	**View In-process Deliveries**	
Created By:	SSDS Sandeepa	Last Update By:	
Date Created:	6/13/2021	Date Last Updated:	

Actors:	Logged Delivery staff
Purpose:	To view all in-process deliveries
Preconditions:	Processing delivery can be view through under **view delivery** process
Description:	Once a delivery rider assigns to the order delivery by delivery company staff, it is saved in the in-process status until that delivery process is finished by the rider. Staff can view all the unfinished processing deliveries with relevant details.
Exceptions:	None
Special Requirements:	None
Postconditions:	If the rider assigned for delivery confirms that it is completed, then the staff will be able to **mark as completed** the particular delivery.
Assumptions:	None

Table 28:Logged Delivery Staff - View In-Process Deliveries

Use Case ID:	29	
Use Case Name:	**View Completed Deliveries**	
Created By:	SSDS Sandeepa	Last Update By:	
Date Created:	6/13/2021	Date Last Updated:	

Actors:	Logged Delivery Staff
Purpose:	To view all completed deliveries with relevant details
Preconditions:	Completed delivery can be view through under **view delivery** process
Description:	After in-process delivery is marked as completed then that delivery saves in completed status. Delivery company staff can view all these completed deliveries with every relevant detail (customer details, order details, shop details, delivery cost, times, and others) that concerned with the delivery process.
Exceptions:	None
Special Requirements:	None
Postconditions:	None
Assumptions:	Completed delivery details auto take from system and staff members cannot update or change those details.

Table 29:Logged Delivery Staff - View Completed Deliveries

Use Case ID:	30		
Use Case Name:	**Assign Delivery Rider**		
Created By:	SSDS Sandeepa	Last Update By:	
Date Created:	6/13/2021	Date Last Updated:	

Actors:	Logged Delivery Staff
Purpose:	Assign riders to each new delivery
Preconditions:	The company must be triggered to **view new delivery**
Description:	The delivery company can assign a rider to each delivery by selecting a rider from the riders list to collect orders from shops and deliver them to the customer by selecting rider from the rider list.
Exceptions:	None
Special Requirements:	The delivery company must have previously provided the riders' details (such as ID and name) to the system
Postconditions:	After assigning rider, particular delivery disappears from the new status and saves in the in-process status.
Assumptions:	- This system does not affect the internal functionality of the company when selecting riders for deliveries. - The assigned rider will do the delivery process

Table 30: Logged Delivery Staff - View Completed Deliveries

Use Case ID:	31		
Use Case Name:	**View Delivery Company Profile**		
Created By:	S.S.D.S. Sandeepa	Last Update By:	K.K.W.Vishwajith
Date Created:	06/15/2021	Date Last Updated:	06/23/2021

Actors:	Logged Delivery Staff
Purpose:	Get an overview of the company details
Preconditions:	None
Description:	A delivery company can view its profile in the system
Exceptions:	None
Special Requirements:	None
Postconditions:	If company staff need to change company details, then **Update the profile** will trigger
Assumptions:	None

Table 31: Logged Delivery Staff - View Delivery Company Profile

Use Case ID:	32		
Use Case Name:	**Update profile**		
Created By:	S.S.D.S. Sandeepa	Last Update By:	K.K.W.Vishwajith
Date Created:	06/15/2021	Date Last Updated:	06/23/2021

Actors:	Logged Delivery Staff
Purpose:	Update delivery company profile data
Preconditions:	**View profile** must be triggered before update profile
Description:	Company staff can change their profile details in the system.
Exceptions:	Provide incorrect authentication will be caused to fail this use case
Special Requirements:	Have to provide valid authentication details to update profile
Postconditions:	None
Assumptions:	Special authentication details have to be used to update the profile data

Table 32:Logged Delivery Staff - Update Profile

Use Case ID:	33		
Use Case Name:	**View Rider Details**		
Created By:	S.S.D.S. Sandeepa	Last Update By:	K.K.W.Vishwajith
Date Created:	06/15/2021	Date Last Updated:	06/23/2021

Actors:	Logged Delivery Staff
Purpose:	Manage rider details in the system provided by the delivery company
Preconditions:	None
Description:	Under the manage rider details, company staff can 　i.　add new riders to the rider list 　ii.　remove riders from rider list 　iii.　update existing rider details from the pre-entered rider list
Exceptions:	None
Special Requirements:	None
Postconditions:	None
Assumptions:	None

Table 33: Logged Delivery Staff - View Rider Details

Use Case ID:	34		
Use Case Name:	**Add rider**		
Created By:	S.S.D.S Sandeepa	Last Update By:	
Date Created:	06/15/2021	Date Last Updated:	

Actors:	Logged Delivery staff
Purpose:	Add a rider to the rider list
Preconditions:	The add rider takes place under the **manage rider** process
Description:	The company can add riders with information (name, rider id, address, phone numbers, etc) to the system if they want to add a new rider.
Exceptions:	None
Special Requirements:	None
Postconditions:	None
Assumptions:	None

Table 34: Logged Delivery Staff - Add Rider

Use Case ID:	35		
Use Case Name:	**Remove Rider**		
Created By:	S.S.D.S Sandeepa	Last Update By:	
Date Created:	06/15/2021	Date Last Updated:	

Actors:	Logged Delivery Staff
Purpose:	Remove existing rider from the rider list
Preconditions:	The remove rider takes place under the **manage rider** process
Description:	The company can remove riders with information from the system if they want to remove existing riders from the rider list.
Exceptions:	None
Special Requirements:	None
Postconditions:	None
Assumptions:	None

Table 35: Logged Delivery Staff - Remove Rider

Use Case ID:	36		
Use Case Name:	**Update rider**		
Date Created:	06/15/2021	Date Last Updated:	
Created By:	S.S.D.S Sandeepa	Last Update By:	

Actors:	Logged Delivery Staff
Purpose:	Update existing rider details
Preconditions:	The update rider takes place under the **manage rider** process
Description:	Company staff can change details of existing riders that previously entered to the system in case of need
Exceptions:	None
Special Requirements:	None
Postconditions:	None
Assumptions:	None

Table 36:Logged Delivery Staff - Update Rider

12.1.4 Shop

Use Case ID:	37		
Use Case Name:	**View Overview**		
Created By:	K.K.W. Vishwajith	Last Update By:	K.K.W. Vishwajith
Date Created:	06/23/2021	Date Last Updated:	06/23/2021

Actors:	Logged Shop Staff
Purpose:	Get an overview of the shop
Preconditions:	The user must be logged in to the system.
Description:	Shop staff can see the overview details of the shop in the system. Including Monthly revenue, Glance at current orders.
Exceptions:	None
Special Requirements:	None
Postconditions:	None
Assumptions:	None

Table 37: Logged Shop Staff - View Overview

Use Case ID:	38		
Use Case Name:	**View Revenue**		
Created By:	K.K.W. Vishwajith	Last Update By:	K.K.W. Vishwajith
Date Created:	06/24/2021	Date Last Updated:	06/29/2021

Actors:	Logged Shop Staff
Purpose:	Get an overview of the revenue of the shop
Preconditions:	Must activate **View Overview**
Description:	Shop staff can see the revenue details of the shop in the system. Including, • Daily revenue • Monthly revenue
Exceptions:	None
Special Requirements:	None
Postconditions:	None
Assumptions:	None

Table 38: Logged Shop Staff - View Revenue

Use Case ID:	39		
Use Case Name:	**View Orders**		
Created By:	K.K.W. Vishwajith	Last Update By:	K.K.W. Vishwajith
Date Created:	06/23/2021	Date Last Updated:	06/23/2021

Actors:	Logged Shop Staff
Purpose:	View current orders to the shop that are ordered by the system.
Preconditions:	The user must be logged in to the system.
Description:	See new orders to the shop. With item list and the quantity of them. Also, will have the delivery rider details who will pick it up.
Exceptions:	None
Special Requirements:	None
Postconditions:	None
Assumptions:	None

Table 39:Logged Shop Staff - View Orders

Use Case ID:	40		
Use Case Name:	**View Profile**		
Created By:	K.K.W. Vishwajith	Last Update By:	K.K.W. Vishwajith
Date Created:	06/23/2021	Date Last Updated:	06/23/2021

Actors:	Logged Shop Staff
Purpose:	View the profile details of the shop.
Preconditions:	The user must be logged in to the system.
Description:	Users can view the details of the shop such as, • Shop Profile image: Real Image of the shop front. • Contact Numbers • Address
Exceptions:	None
Special Requirements:	User has to make sure the details are correct as to their knowledge.
Postconditions:	None
Assumptions:	None

Table 40: Logged Shop Staff - View Profile

Use Case ID:	41		
Use Case Name:	**Update Profile**		
Created By:	K.K.W. Vishwajith	Last Update By:	K.K.W. Vishwajith
Da Created:	06/23/2021	Date Last Updated:	06/23/2021

Actors:	Logged Shop Staff
Purpose:	Manage the profile details of the shop.
Preconditions:	The user must be logged in to the system.
Description:	Users can update the details of the shop such as, • Shop Profile image: Real Image of the shop front. • Contact Numbers • Address • Password
Exceptions:	None
Special Requirements:	Details that users enter should be authentic as possible. As some can abuse the system without actually having a shop etc.
Postconditions:	None
Assumptions:	None

Table 41:Logged Shop Staff - Update Profile

Use Case ID:	42		
Use Case Name:	**View Items**		
Created By:	K.K.W. Vishwajith	Last Update By:	K.K.W. Vishwajith
Date Created:	06/23/2021	Date Last Updated:	06/23/2021

Actors:	Logged Shop Staff
Purpose:	View items that are sold on the platform by the shop.
Preconditions:	The user must be logged in to the system.
Description:	Overview of the items that are to be sold by the system.
Exceptions:	None
Special Requirements:	None
Postconditions:	None
Assumptions:	None

Table 42: Logged Shop Staff - View Items

Use Case ID:	43		
Use Case Name:	**Add/Remove Items**		
Created By:	K.K.W. Vishwajith	Last Update By:	K.K.W. Vishwajith
Date Created:	06/23/2021	Date Last Updated:	06/29/2021

Actors:	Logged Shop Staff
Purpose:	Manage items that are sold on the platform by the shop.
Preconditions:	The user must be logged in to the system.
Description:	Staff can manage which items are available for selling on the platform. In this scenario, they can, 1. Add new items: Select items from a predefined list of items provided by the system. 2. Pause items from the listing: Remove items from the list of items that a customer can view. Used as if the shop doesn't have the item in the inventory. 3. Delete an item: Completely remove a product from the listing. Users can still add them using step 1.
Exceptions:	None
Special Requirements:	The shop owner must pause an item in the list if such an item has low inventory. As a standard rule of thumb if an item has less inventory than daily offline inventory sales. Remove it from the system.
Postconditions:	None
Assumptions:	None

Table 43:Logged Shop Staff - Add/Remove Items

Use Case ID:	44		
Use Case Name:	**Update Profile**		
Created By:	K.K.W. Vishwajith	Last Update By:	K.K.W. Vishwajith
Date Created:	06/23/2021	Date Last Updated:	06/23/2021

Actors:	Logged Shop Staff
Purpose:	Manage the profile details of the shop.
Preconditions:	The user must be logged in to the system.
Description:	Users can update the details of the shop such as, • Shop Profile image: Real Image of the shop front. • Contact Numbers • Address • Password
Exceptions:	None
Special Requirements:	Details that users enter should be authentic as possible. As some can abuse the system without actually having a shop etc.
Postconditions:	None
Assumptions:	None

Table 44: Logged Shop Staff - Update Profile

12.1.5 System Staff

Use Case ID:	45		
Use Case Name:	**View Profile**		
Created By:	K.K.W. Vishwajith	Last Update By:	K.K.W. Vishwajith
Date Created:	06/23/2021	Date Last Updated:	06/23/2021

Actors:	Logged System Staff
Purpose:	View the profile details of the system staff user
Preconditions:	The user must be logged in to the system.
Description:	Users can view the details of the shop such as, • Shop Profile image: Real Image of the shop front. • Contact Numbers • Address
Exceptions:	None
Special Requirements:	User has to make sure the details are correct as to their knowledge.
Postconditions:	None
Assumptions:	None

Table 45: Logged System Staff - View Profile

Use Case ID:	46		
Use Case Name:	**Update Profile**		
Created By:	K.K.W. Vishwajith	Last Update By:	K.K.W. Vishwajith
Date Created:	06/23/2021	Date Last Updated:	06/23/2021

Actors:	Logged System Staff
Purpose:	Updates details of the system user
Preconditions:	User must activate **View Profile**
Description:	System User can update their password from here.
Exceptions:	None
Special Requirements:	None
Postconditions:	None
Assumptions:	None

Table 46: Logged System Staff - Update Profile

Use Case ID:	47		
Use Case Name:	**View Users**		
Created By:	K.K.W. Vishwajith	Last Update By:	K.K.W. Vishwajith
Date Created:	06/23/2021	Date Last Updated:	06/23/2021

Actors:	Logged System Staff
Purpose:	Get an overview of the system users.
Preconditions:	The user must be logged in to the system.
Description:	Get a list of all the users currently in the system categorized as • Customers • Users • Shops
Exceptions:	None
Special Requirements:	None
Postconditions:	None
Assumptions:	None

Table 47: Logged System Staff - View Users

Use Case ID:	48		
Use Case Name:	**Manage Users**		
Created By:	K.K.W. Vishwajith	Last Update By:	K.K.W. Vishwajith
Date Created:	06/23/2021	Date Last Updated:	06/23/2021

Actors:	Logged System Staff
Purpose:	Add/Remove system users.
Preconditions:	User must activate **View Users**
Description:	Manage the system accounts such as, - Customers - Users - Shops Doing actions such that, - Adding Users: Delivery Companies and For Shops - Deleting Users - Updating User details: such as resetting the password
Exceptions:	None
Special Requirements:	None
Postconditions:	None
Assumptions:	None

Table 48: Logged System Staff - Manage Users

Use Case ID:	49		
Use Case Name:	**Generate Report**		
Created By:	K.K.W. Vishwajith	Last Update By:	K.K.W. Vishwajith
Date Created:	06/23/2021	Date Last Updated:	06/23/2021

Actors:	Logged System Staff, Shop, Generate Reports
Purpose:	Generate and View reports in the system.
Preconditions:	None
Description:	Generate reports about Weekly, Monthly Sames of the system.
Exceptions:	None
Special Requirements:	None
Postconditions:	None
Assumptions:	None

Table 49: Logged System Staff /Shop / Delivery Staff- Generate Reports

Use Case ID:	50		
Use Case Name:	**Manage Delivery Company**		
Created By:	K.K.W. Vishwajith	Last Update By:	K.K.W. Vishwajith
Date Created:	06/23/2021	Date Last Updated:	06/23/2021

Actors:	Logged System Staff
Purpose:	Manage the details of the delivery company.
Preconditions:	None
Description:	Staff users can, • Create login details for the delivery Company • Update the details of the company
Exceptions:	None
Special Requirements:	None
Postconditions:	None
Assumptions:	None

Table 50: Logged System Staff - Manage Delivery Company

Use Case ID:	51		
Use Case Name:	**View Complaints**		
Created By:	K.K.W. Vishwajith	Last Update By:	K.K.W. Vishwajith
Date Created:	06/23/2021	Date Last Updated:	06/23/2021

Actors:	Logged System Staff
Purpose:	View individual complaints gathered from the users.
Preconditions:	None
Description:	Staff users can view complaints that are given by customers, shops.
Exceptions:	None
Special Requirements:	None
Postconditions:	None
Assumptions:	None

Table 51: Logged System Staff - View Complaints

Use Case ID:	52		
Use Case Name:	**Add/Attend to a Complaint**		
Created By:	K.K.W. Vishwajith	Last Update By:	K.K.W. Vishwajith
Date Created:	06/23/2021	Date Last Updated:	06/23/2021

Actors:	Logged System Staff
Purpose:	Add/Attend to a complaint that comes from the customers.
Preconditions:	Must activate **View Complaints**
Description:	Staff users can, • Add the complaints from customers and shops • Update and keep tabs on the complaints
Exceptions:	None
Special Requirements:	None
Postconditions:	None
Assumptions:	None

Table 52: Logged System Staff - Add/Attend to a Complaint

Use Case ID:	53		
Use Case Name:	**View Shops**		
Created By:	K.K.W. Vishwajith	Last Update By:	K.K.W. Vishwajith
Date Created:	06/23/2021	Date Last Updated:	06/23/2021

Actors:	Logged System Staff
Purpose:	Overview of the registered and non-registered shops of the system
Preconditions:	None
Description:	Staff can view, • Current Shops in the system • Registrations from the shops
Exceptions:	None
Special Requirements:	None
Postconditions:	None
Assumptions:	None

Table 53: Logged System Staff - View Shops

Use Case ID:	54		
Use Case Name:	**Create Shops**		
Created By:	K.K.W. Vishwajith	Last Update By:	K.K.W. Vishwajith
Date Created:	06/23/2021	Date Last Updated:	06/23/2021

Actors:	Logged System Staff
Purpose:	Create the login details for the newly registered shops
Preconditions:	Must activate the **View New Shop Registrations**
Description:	Create shop login details and approve the shop within the system from the registration details.
Exceptions:	None
Special Requirements:	None
Postconditions:	None
Assumptions:	None

Table 54: Logged System Staff - Create Shops

Use Case ID:	55		
Use Case Name:	**Update Shops**		
Created By:	K.K.W. Vishwajith	Last Update By:	K.K.W. Vishwajith
Date Created:	06/23/2021	Date Last Updated:	06/23/2021

Actors:	Logged System Staff
Purpose:	Update the shop details.
Preconditions:	None
Description:	Updates the shop details in case the shop owner is having problems. • Updating login details • Updating profile
Exceptions:	None
Special Requirements:	None
Postconditions:	None
Assumptions:	None

Table 55: Logged System Staff - Update Shops

12.2 Activity Diagrams

Completed Activity Diagrams of the system as follows.

12.2.1 Customer
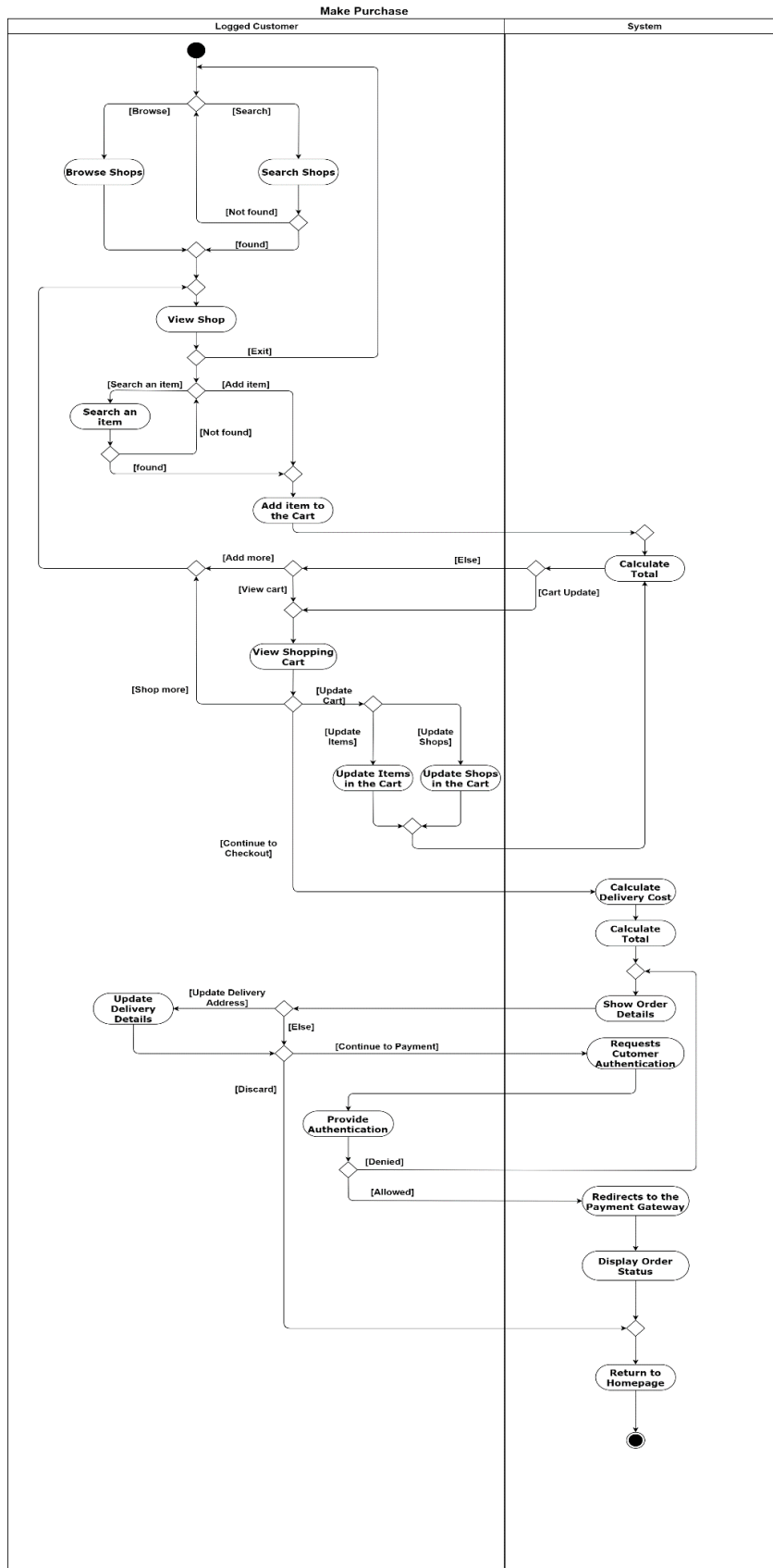
Figure 5: Customer - Make Purchase

View Profile

Logged Customer	System
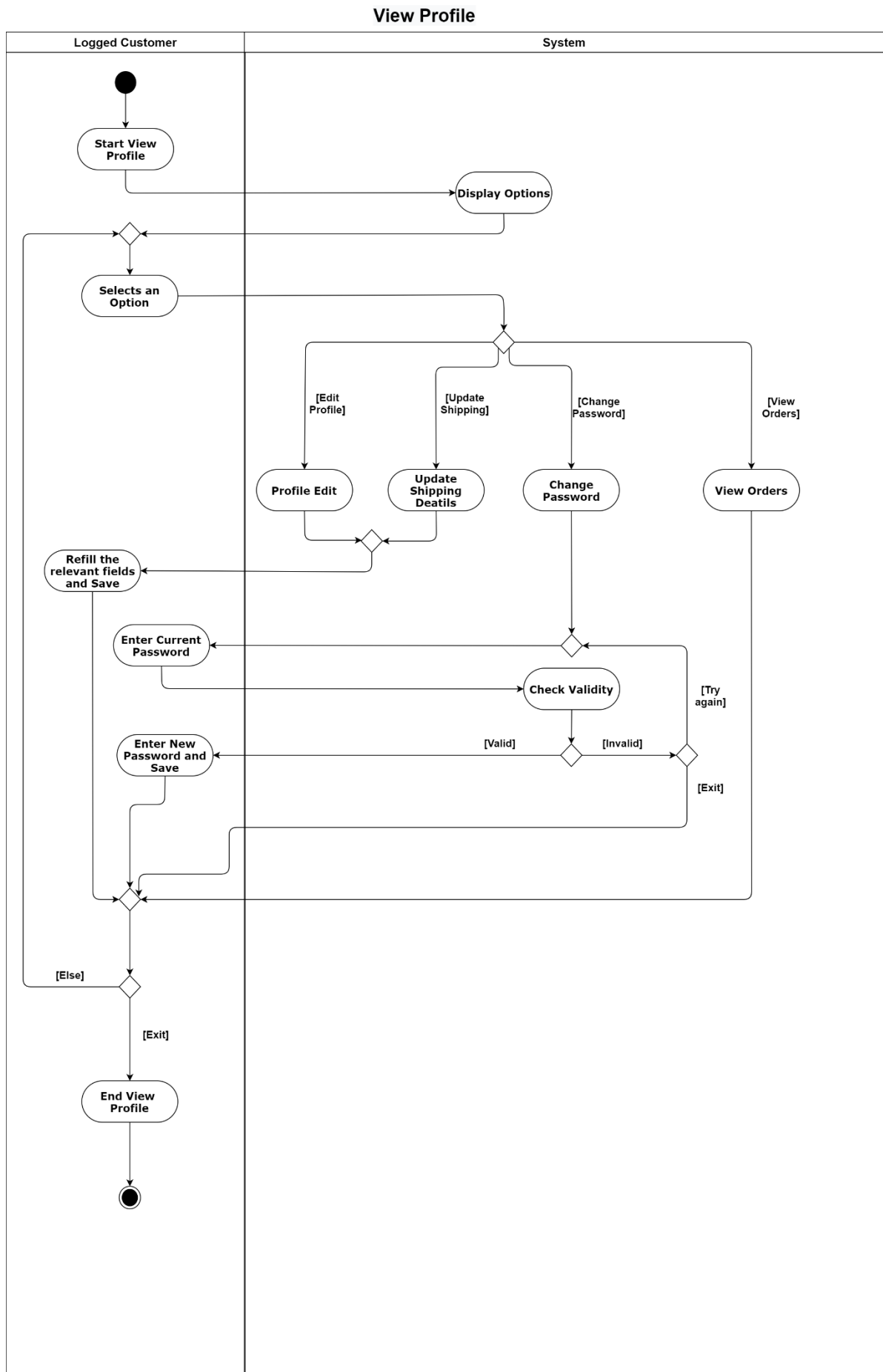
Figure 6: Customer - View Profile

12.2.2 Delivery
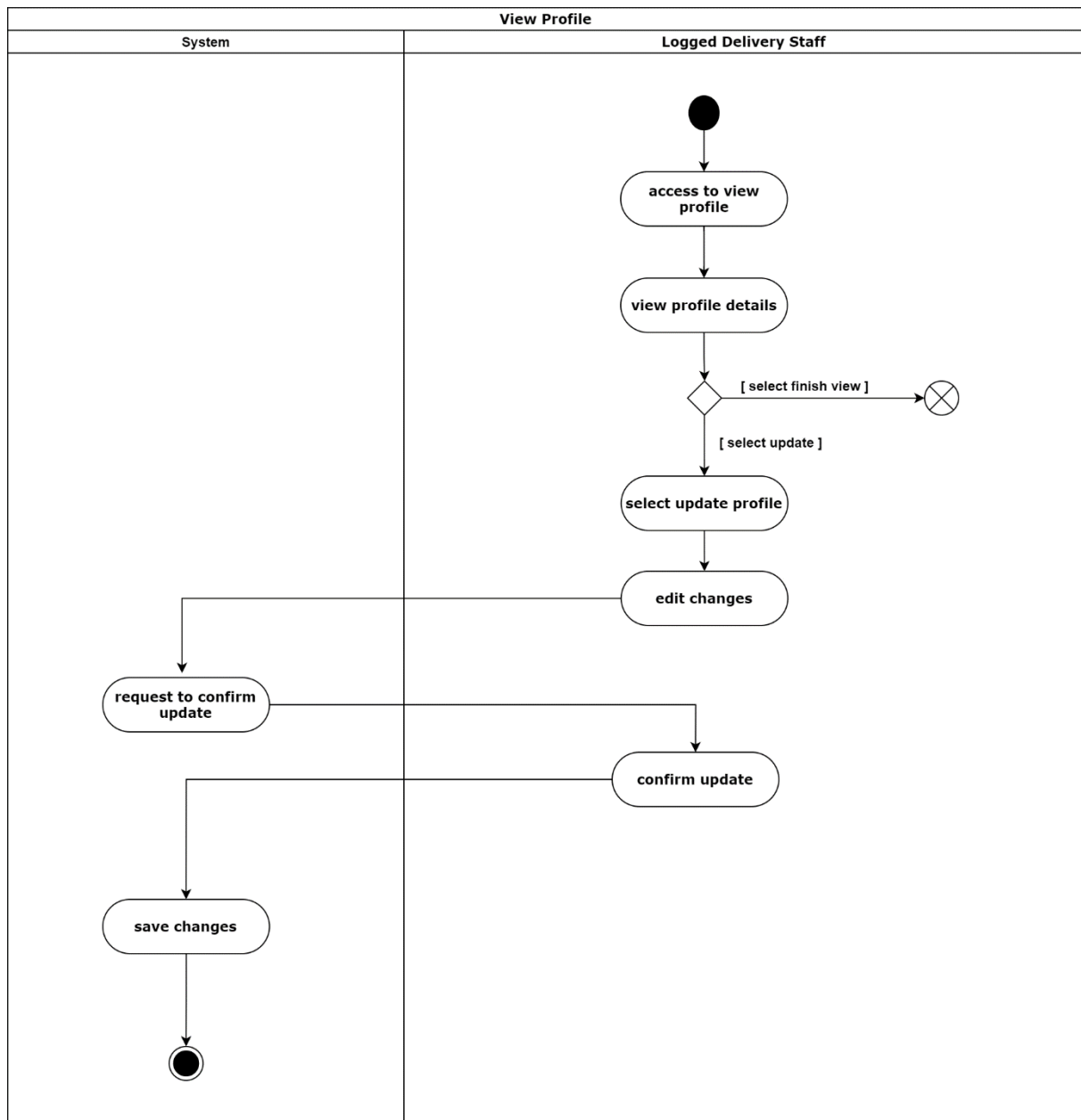
Figure 7: Delivery - View Profile
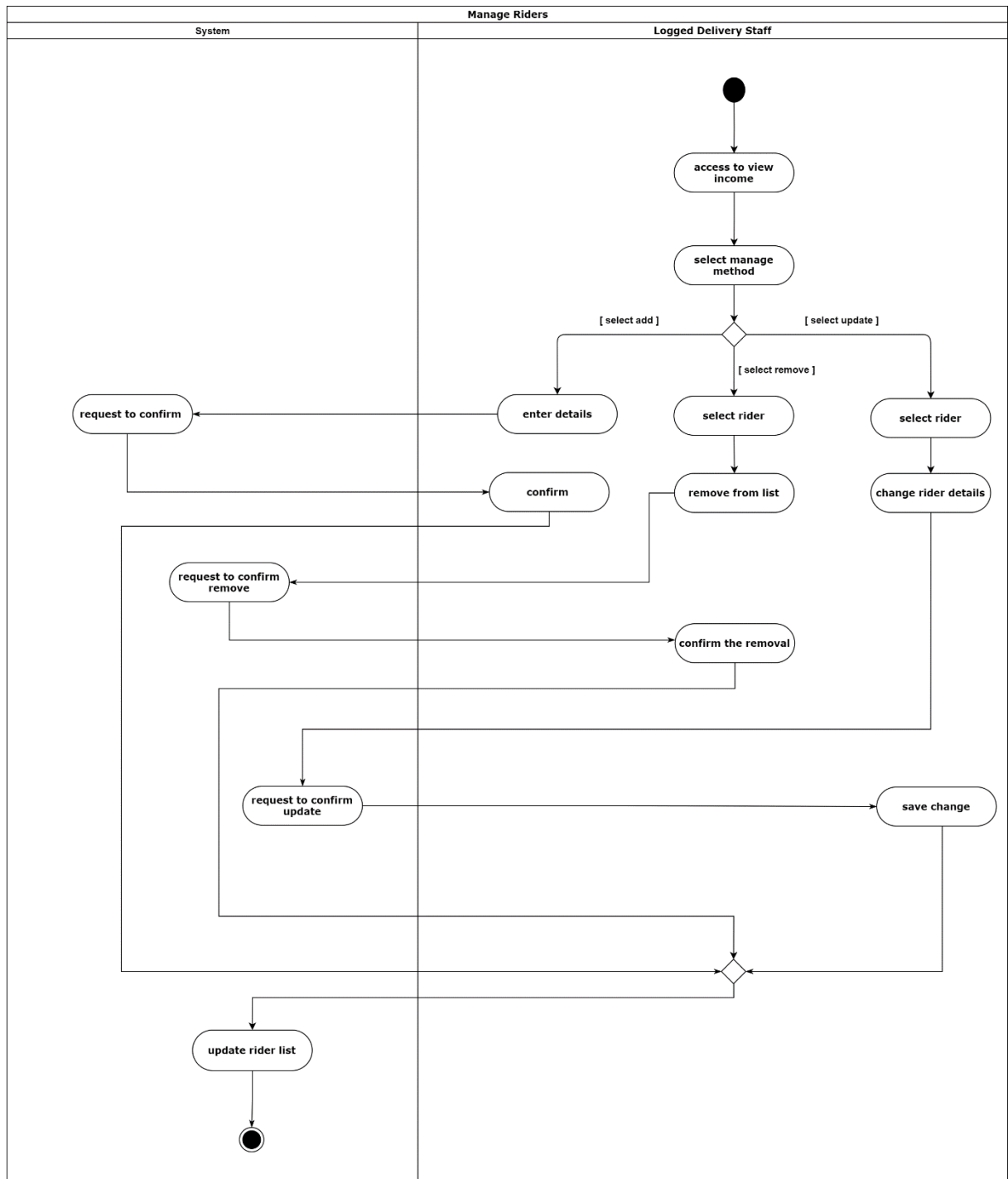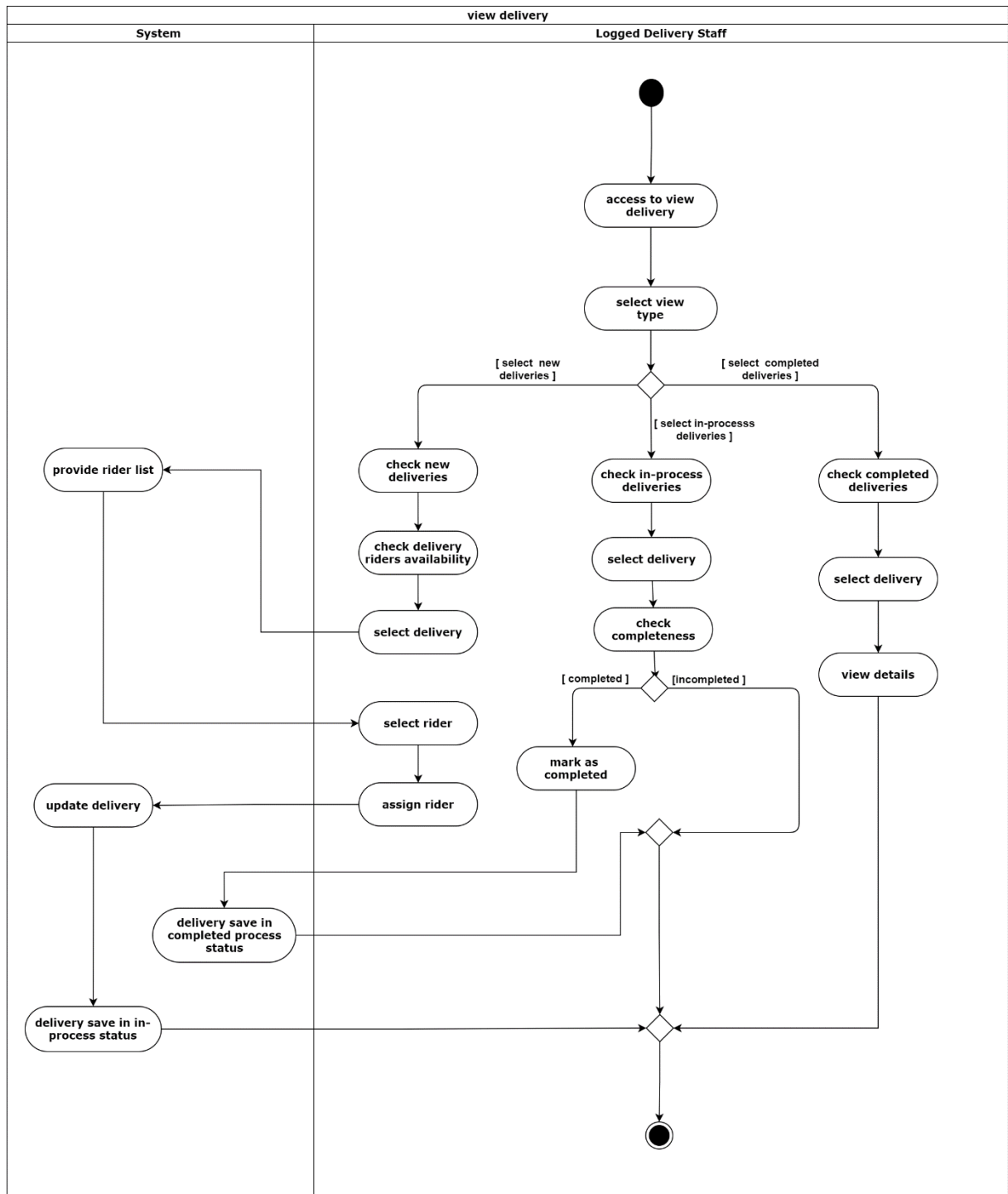
Figure 8: Delivery - Manage Riders
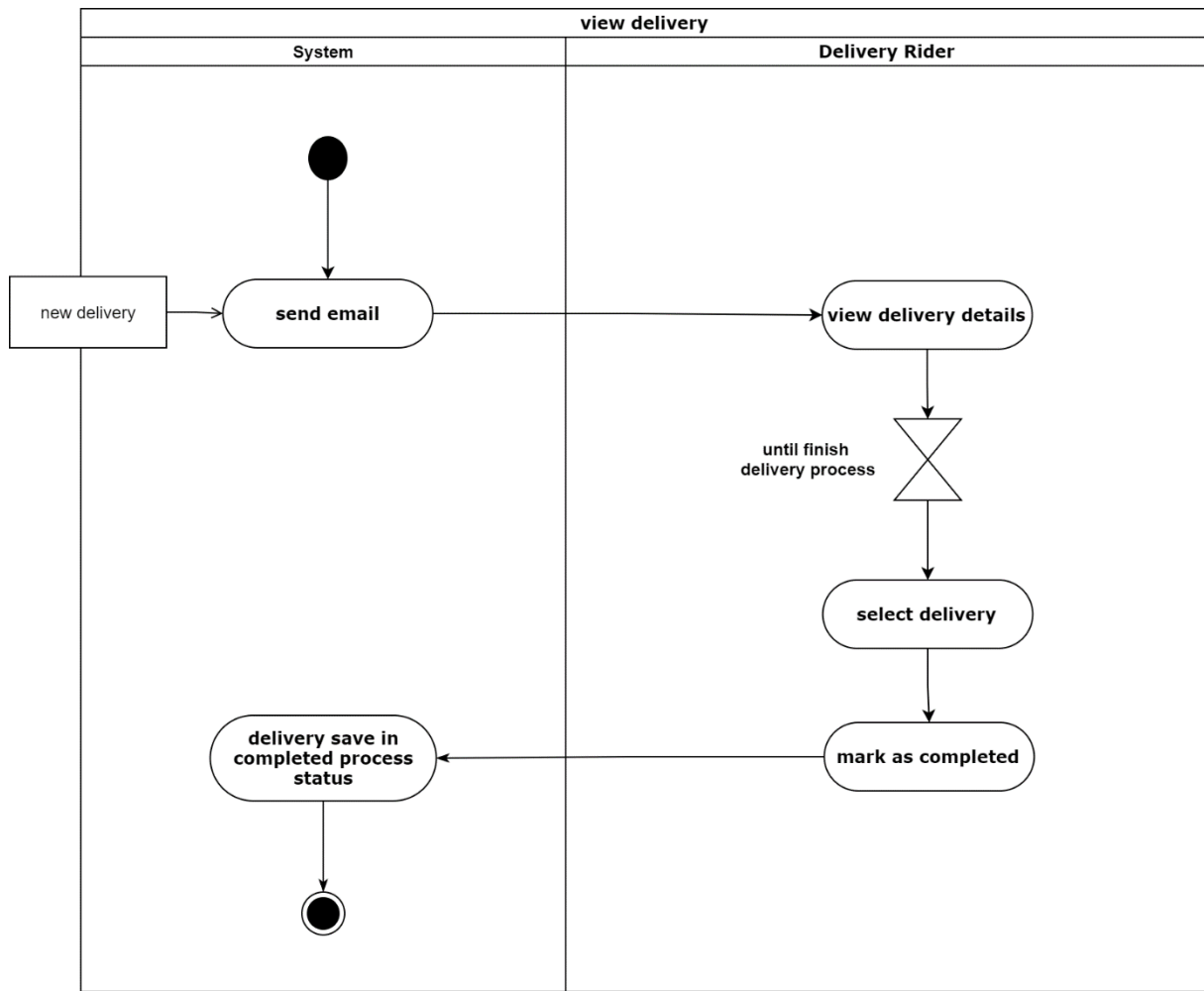
Figure 9: Delivery - View Delivery

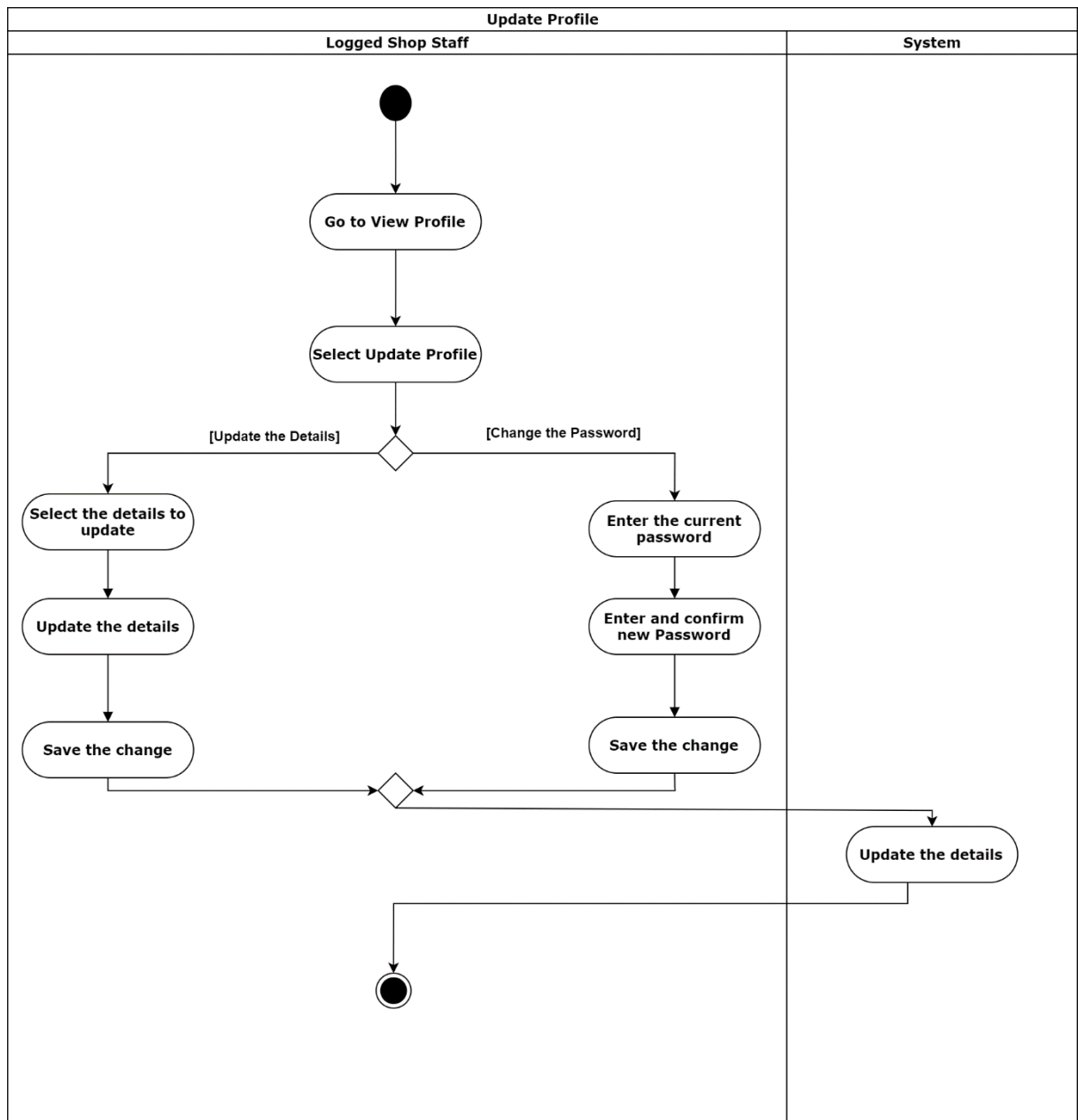*Figure 10: Delivery Rider - View Delivery*
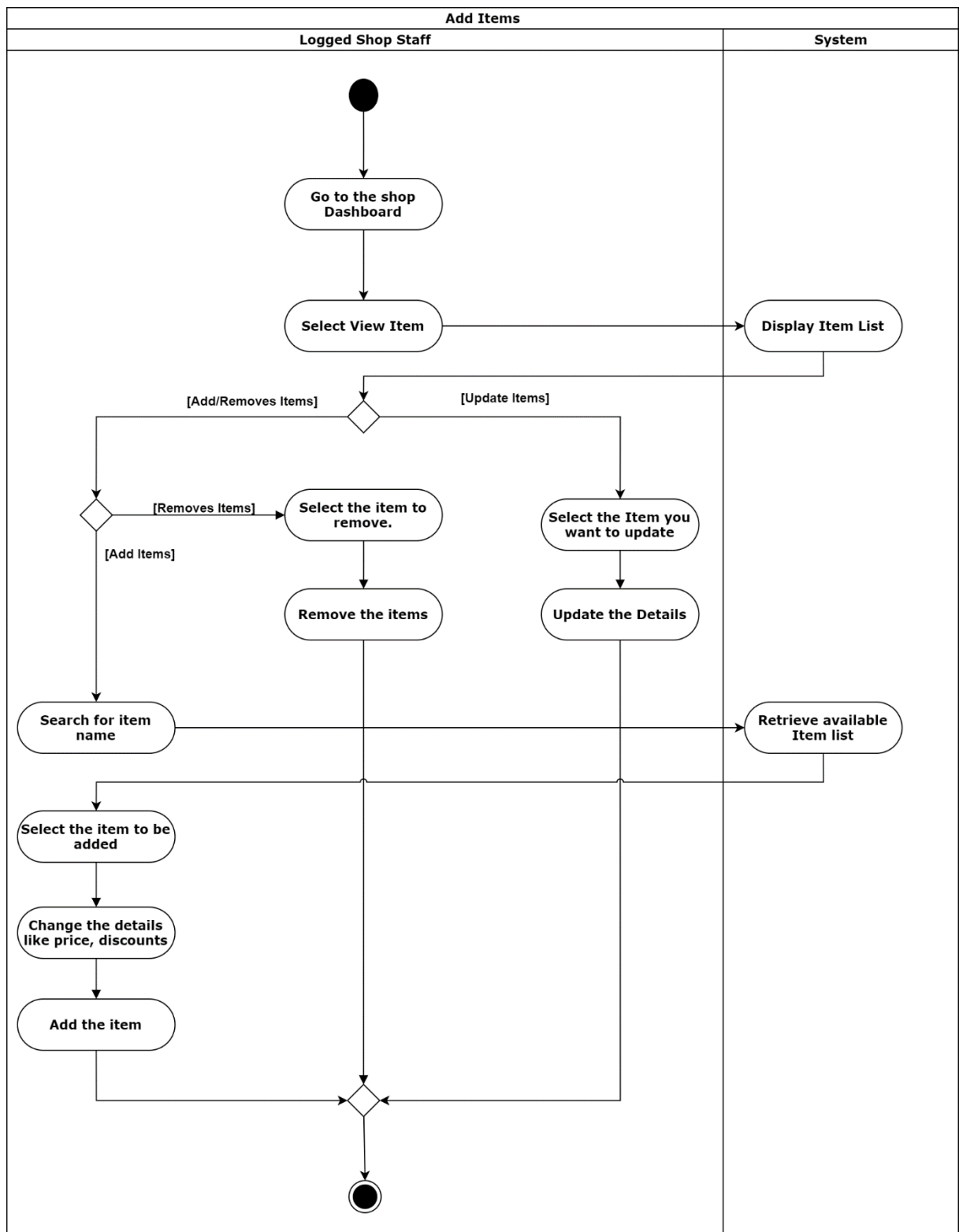
12.2.3 Shop

Figure 11: Shop - Update Profile

Figure 12- Shop - Add items
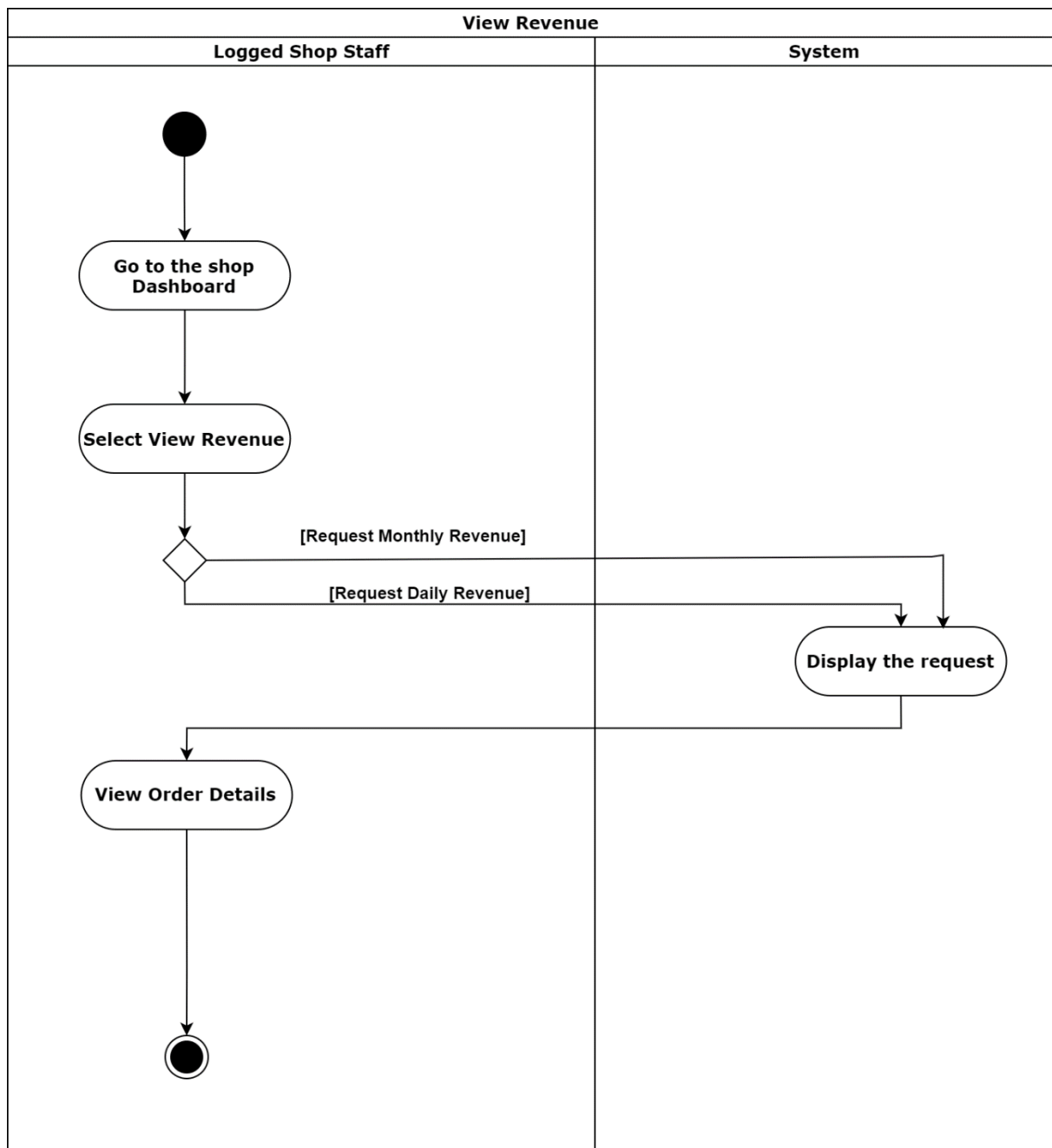
Figure 13- Shop - View Revenue

View Orders

Login Shop Staff	System

Go to the shop Dashboard

Select View Orders

[Request Completed Orders]

[Request New Orders]

Display the required Data

[New Orders]

[Completed Orders]

View New Orders

View Order Details

Select a New Orders

Fulfil the selected Order

Issue with fulfilling the order?

[Yes]

File a complaint in the system

Complete the Order as Best as you can

Record the request

Mark the Order is ready to pick-up

Figure 14 - Shop - View Orders

12.2.4 System Staff

Figure 15: System Staff - View Users
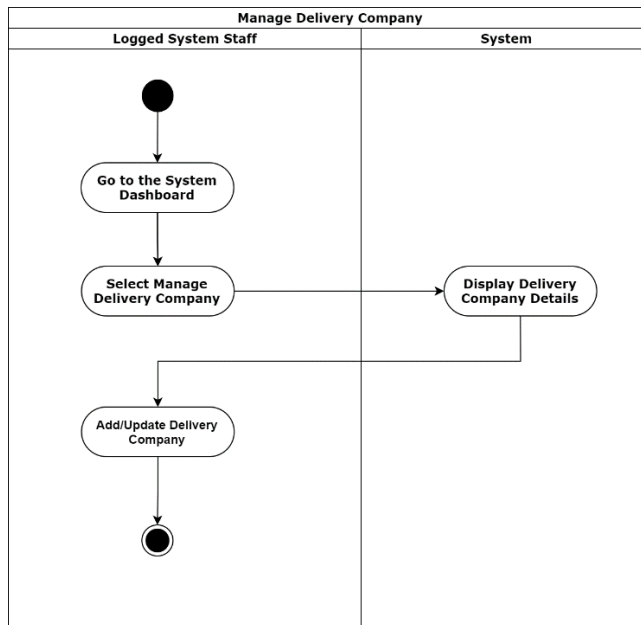
Figure 16: System Staff - Manage Delivery Company
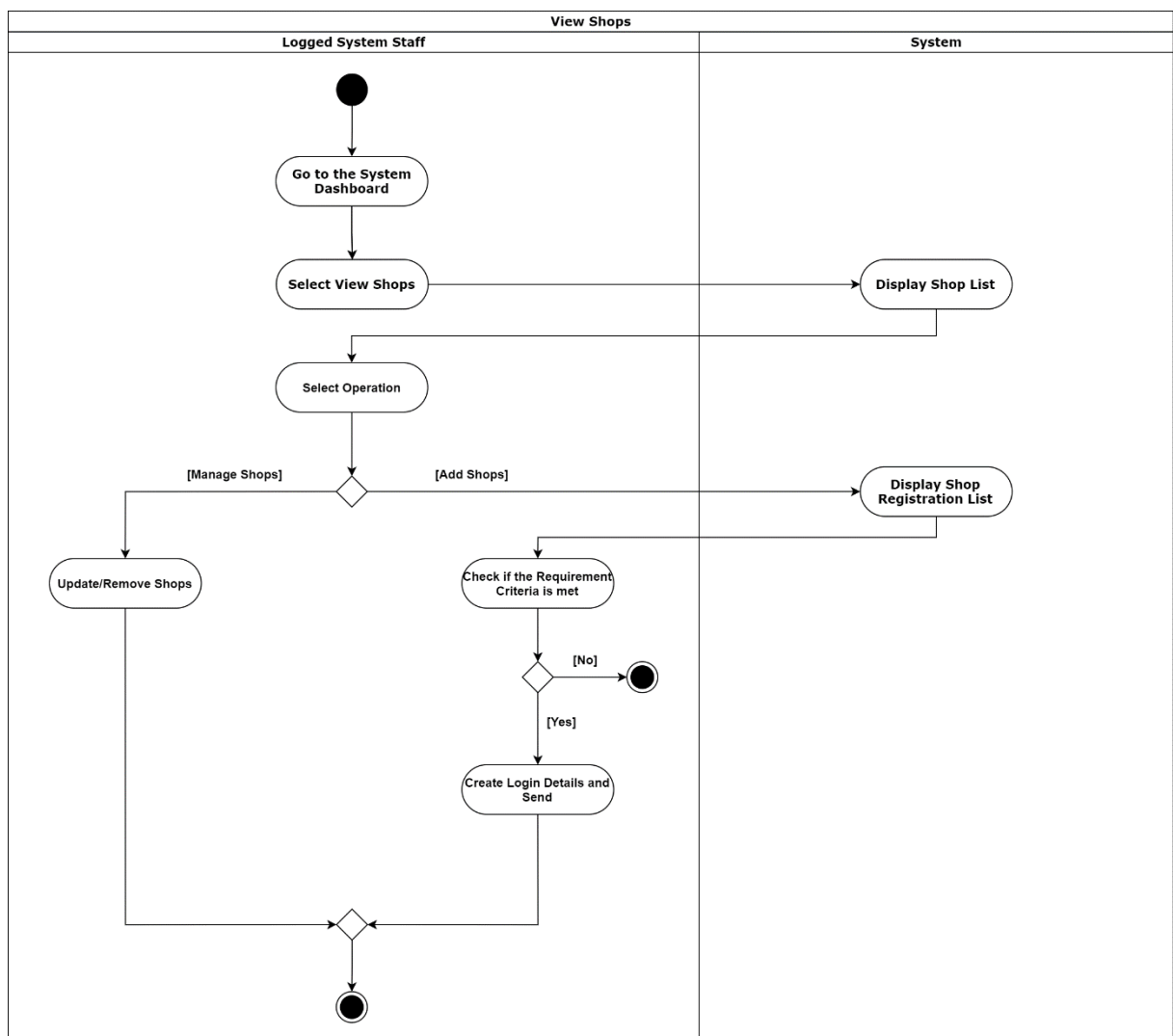
Figure 17: System Staff - View Shops
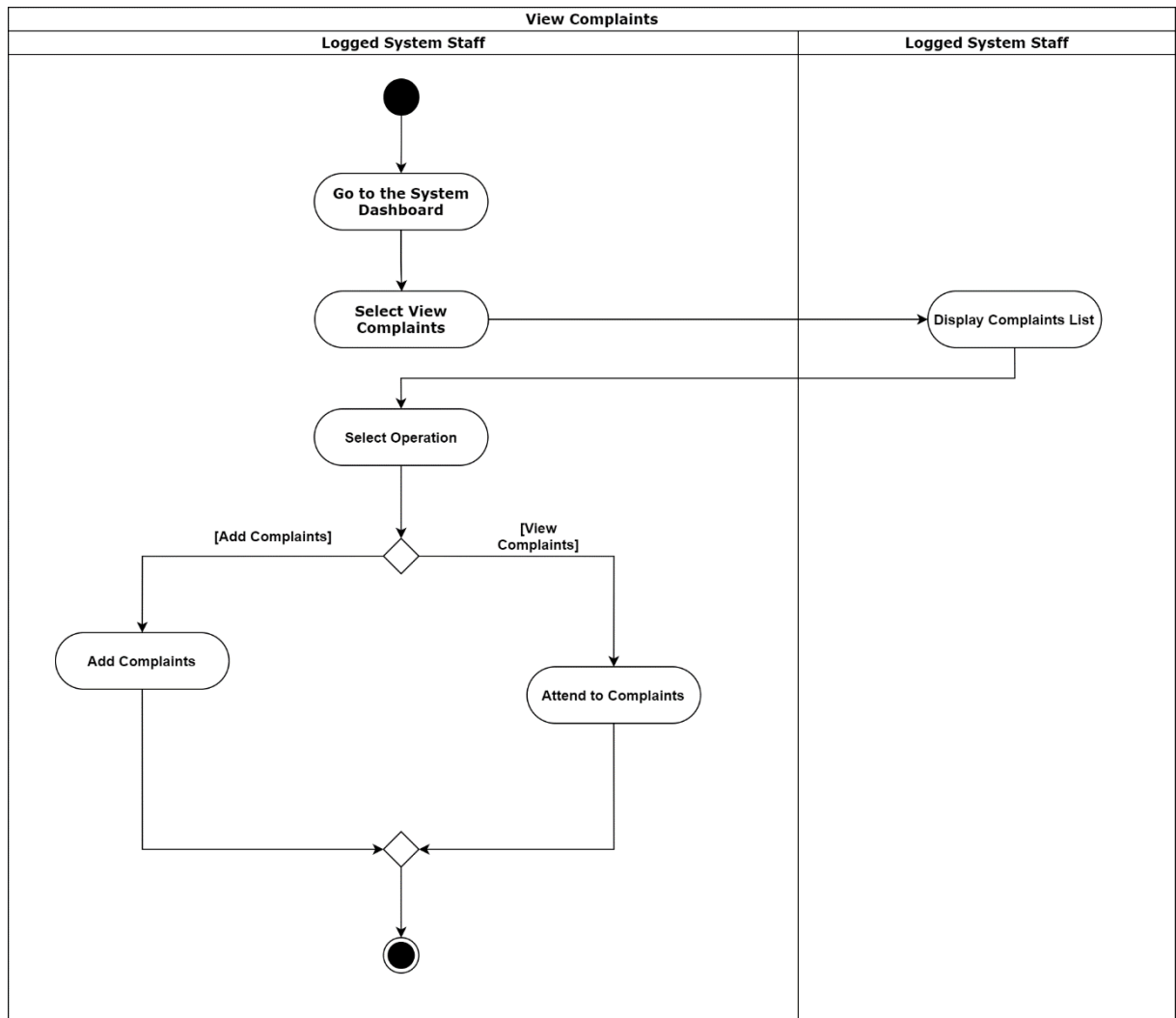
Figure 18: System Staff - View Complaints

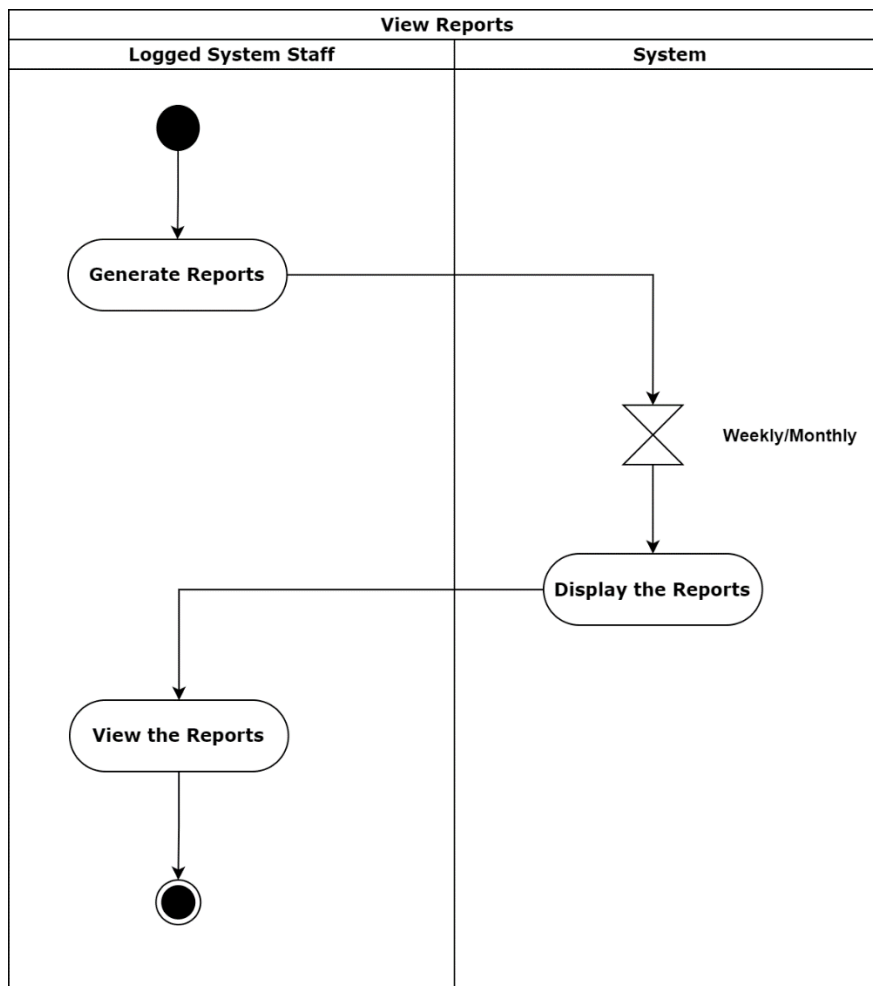*Figure 19: System Staff - View Reports*
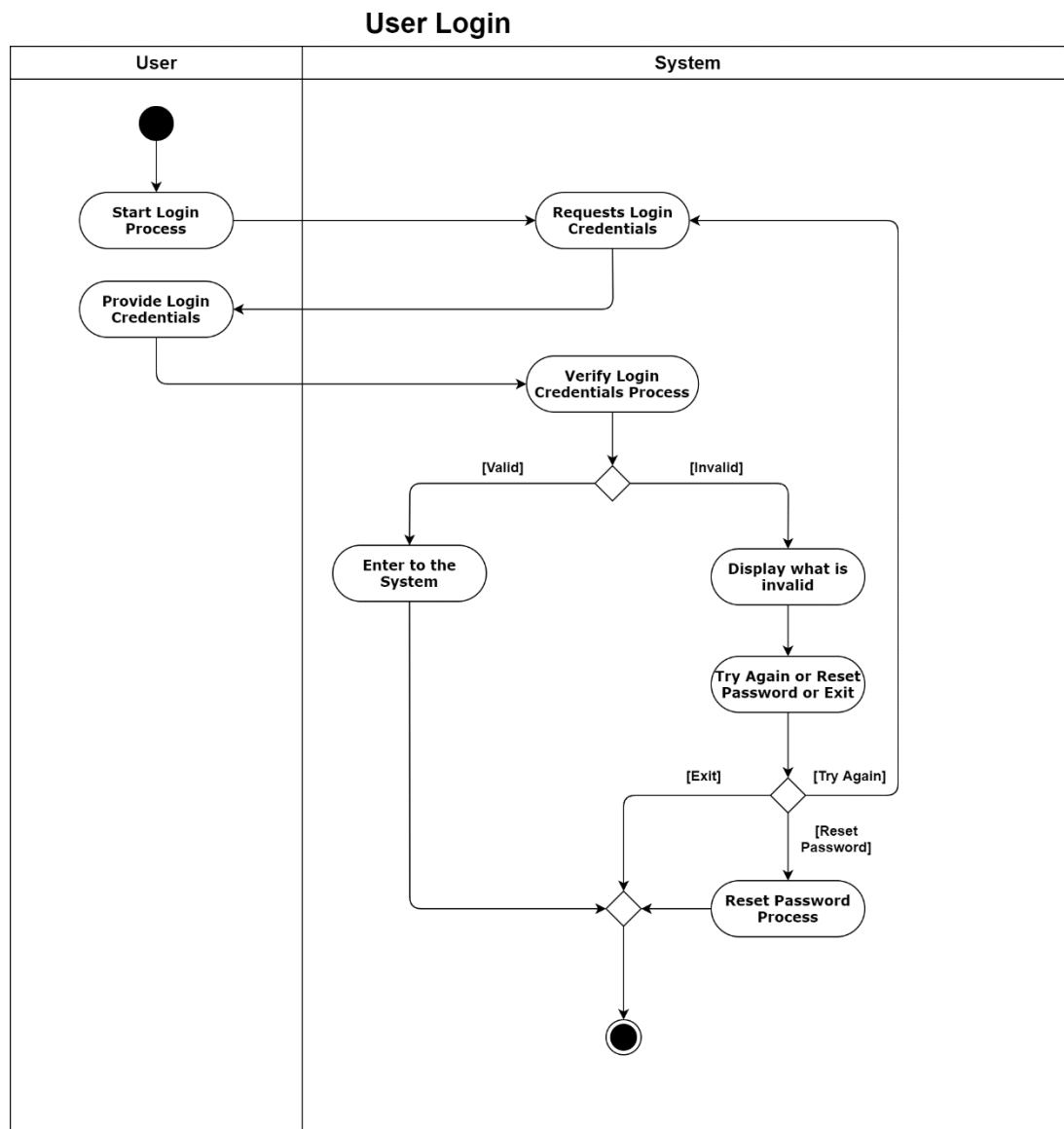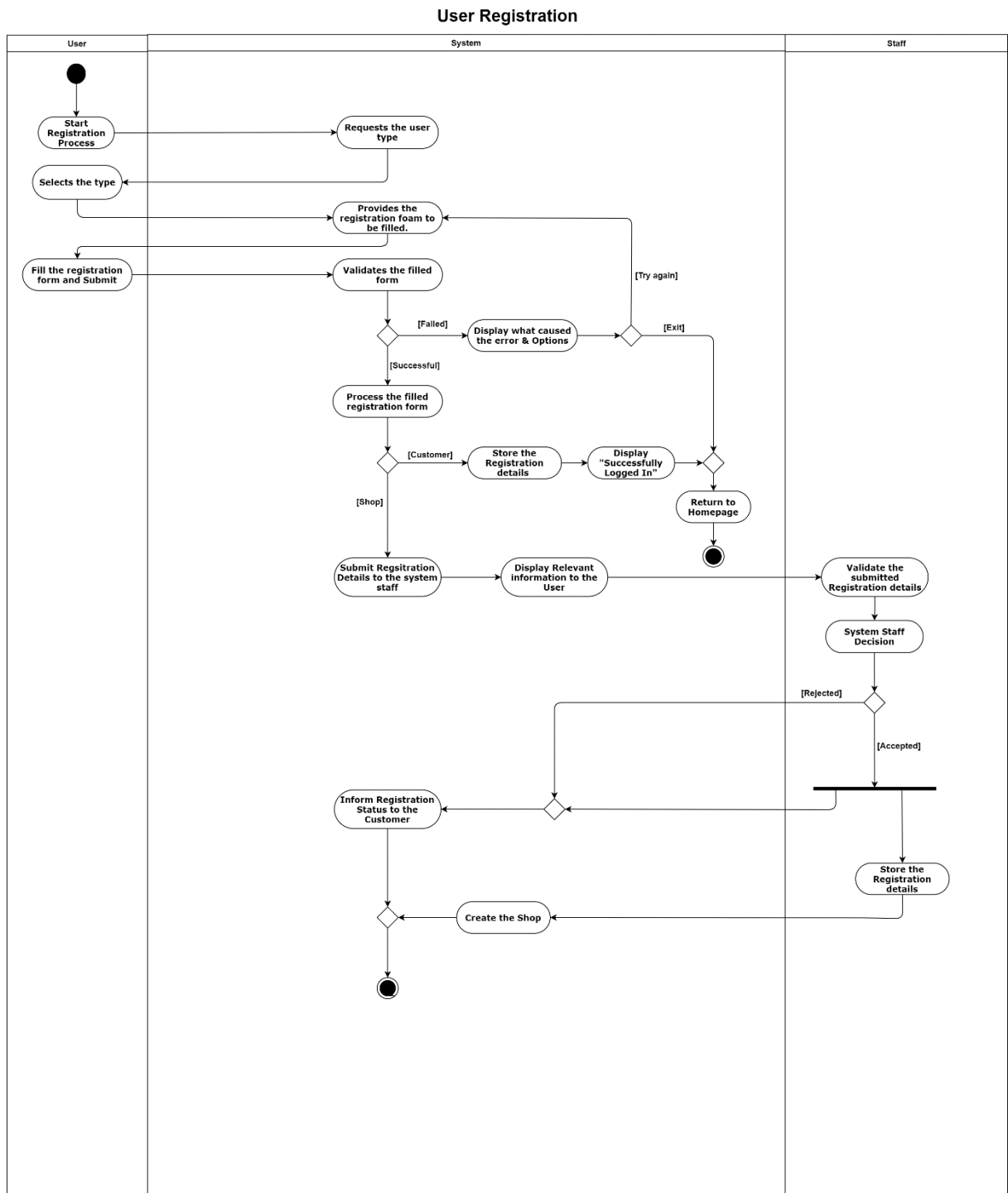
12.2.5 Common Activity diagrams

User Login

Figure 20: User Login

Figure 21: User Registration