

PROJECT PROPOSAL
GROUP 48

Details of Project Supervisor, Co-supervisor, Advisor and Client

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Signature of the supervisor:

Date: 26.06.2021

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Name of the co-supervisor: Ms. M. M. A. Devindi

Signature of the co-supervisor:

Date: 26.06.2021

Project Advisor

Name of the advisor: Dr. A. R. Weerasinghe

Signature of the advisor:

Date: 26.06.2021

The Client of the Project

This project was initiated as a generalized solution to meet a variety of needs of the community of fish enthusiasts spread across the country. Therefore, there is no specific client for this project.

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1 Problem Statement

Sri Lanka has an active community of fish owners and enthusiasts spread across several different social media platforms. Most of these platforms are dedicated either for information exchange and socializing or buying and selling of fish and related equipment. Even though the community is very big, to raise a fish in Sri Lanka one must waste a lot of time and money as they underestimate what it takes to raise one. This is mainly due to the information needed to raise a fish being very inaccessible and scattered across various platforms.

- Marketplaces, both online and offline (e.g., Ikman.lk, newspaper ads), only provide a medium for buying and selling fish. Unless a buyer has previous knowledge of raising a fish, they cannot outright predict the necessary equipment the fish might need and sometimes might not even know basic care information needed. This leads to a waste of time and money and oftentimes discourages owners from raising fish.
- Social media platforms (e.g., Facebook, WhatsApp) on the other hand only provide a way of connecting with other fish owners. Even though users join expecting a place for information sharing, oftentimes questions about basic fish care go unanswered for long periods of time or ignored. It is not a reliable way of obtaining necessary information.
- The lack of proper information on raising fish has also led to an alarming number of ornamental fish getting thrown into our freshwater systems. This has become a serious issue as this disrupts the careful balance maintained in our aquatic ecosystem. Recent studies show that 74% of the endemic fish in Sri Lanka now face the threat of extinction as these ornamental fish have started to invade their habitats and force them out.
- The people who successfully identify such areas have a hard time clearing them out as they do not have a proper method to connect with others willing to help out and no proper method of finding owners or aquariums willing to take in those fish.

Adoption, a good solution for the above-mentioned problem, is not a popular method among fish owners in Sri Lanka. This is because it is usually exceedingly difficult to locate people willing to adopt a fish near them in a short period of time. For most, re-homing their fish instead of abandoning is not even an option they ever considered as they do not think it possible.

By creating this platform, we aim to provide the community of fish owners with a solution for all the above-mentioned issues by bringing the necessary functionalities into one centralized place. We hope to help fish owners easily locate fish and equipment for sale based on their location and to provide them with the basic care instructions needed to look after their fish. As an effort to meet the needs of the community of fish enthusiasts, we shall also provide them with information on the community events regarding cleaning up areas with invasive species, that would also serve as a medium to connect with other passionate individuals in the community.

Figures 1.1 to 1.14 depict the responses of the community regarding the implementation of such a platform,

ඉහත සඳහන් සේවාවන් ලබා දෙන වෙබ් අඩවියක් ඔබට ප්‍රයෝජනවත් වෙයිද?

294 responses

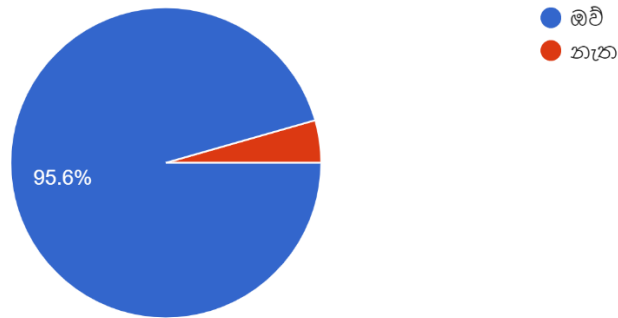


Figure 1.1 Survey Response 1 (Sinhala)

Would a website that offers the above mentioned services be of use to you?

59 responses

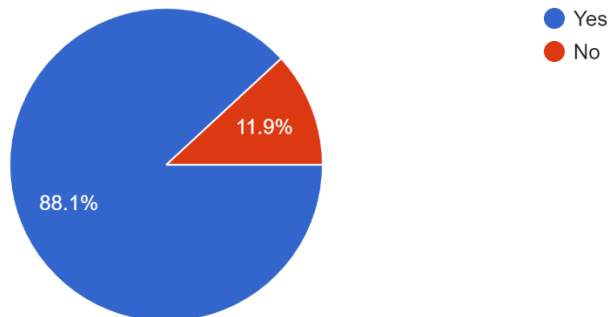


Figure 1.2 Survey Response 1 (English)

ඔබ,

294 responses

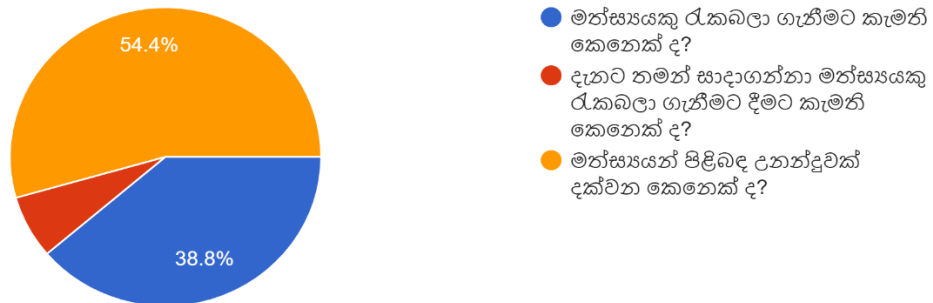


Figure 1.3 Survey Response 2 (Sinhala)

You are,

59 responses

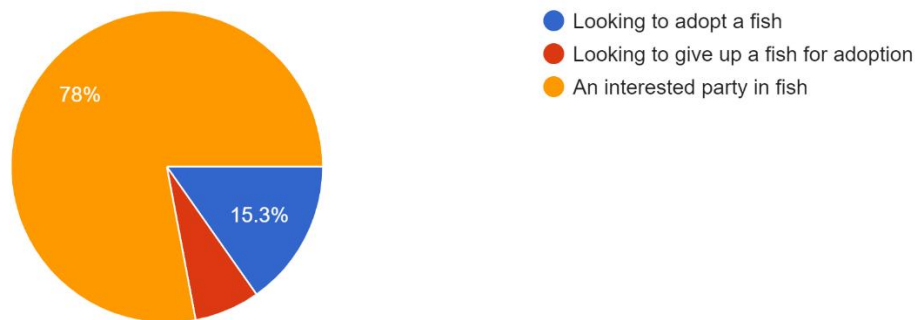


Figure 1.4 Survey Response 2 (English)

ඔබ මසුන් ඇති කරන්නෙකු නම්, ඔබට තවදුරටත් එම මත්ස්‍යයන් බලා ගැනීමට නොහැකිවූ අවස්ථාවක, පරිසර පද්ධතියට අනහැර දැමීම වෙනුවට රැකබලා ගැනීමට දීමට කැමති ද ?
294 responses

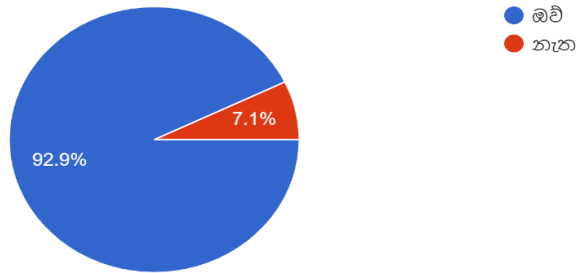


Figure 1.5 Survey Response 3 (Sinhala)

If you are a fish owner, and in the case you can no longer look after your fish, would you be willing to put them up for adoption?
59 responses

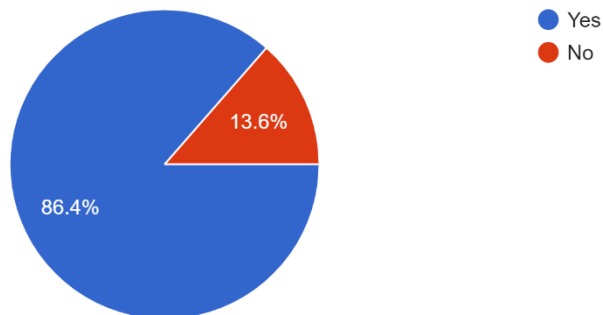


Figure 1.6 Survey Response 3 (English)

ඔබ මත්ස්‍යයන් ඇති කිරීමට බලාපොරොත්තු වෙන කෙනෙක් නම්, මත්ස්‍යයන් මිලදී ගැනීම වෙනුවට රැකබලා ගැනීමට කැමති ද?

294 responses

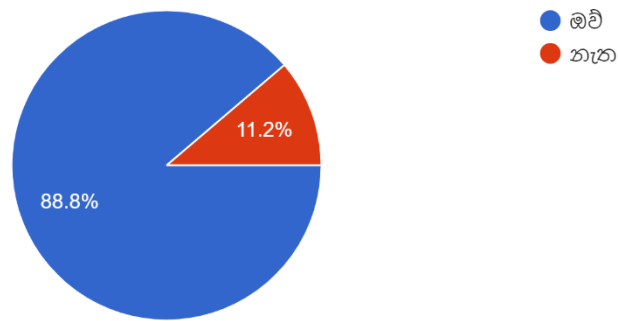


Figure 1.7 Survey Response 4 (Sinhala)

If you are looking to acquire a fish, would you be willing to adopt instead of buy?

59 responses

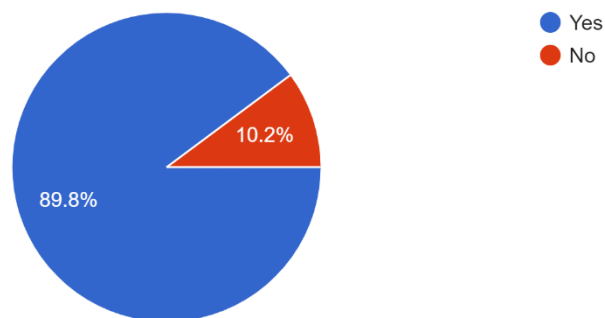


Figure 1.8 Survey Response 4 (English)

ඔබ අවට මත්ස්‍යයන් රැකබලා ගැනීමට දීමට කැමති පුද්ගලයන් පහසුවෙන් සොයා ගැනීමට හැකි වීම ඔබට ප්‍රයෝජනවත් ද?

294 responses

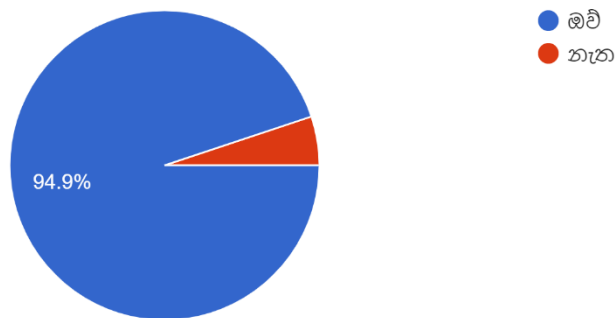


Figure 1.9 Survey Response 5 (Sinhala)

Do you think it would be useful if you can locate people near you who are offering their fish up for adoption?

59 responses

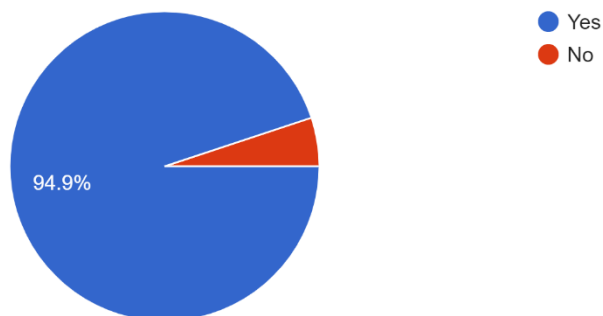


Figure 1.10 Survey Response 5 (English)

මෙම වෙබ් අඩවිය තුළින් මත්ස්‍ය විශේෂඥයකුගෙන් මසුන් ඇති කිරීම පිළිබඳ උපදෙස් ලබා ගැනීමේ සේවාවක් ඔබට ප්‍රයෝජනවත් වේ ද ?

294 responses

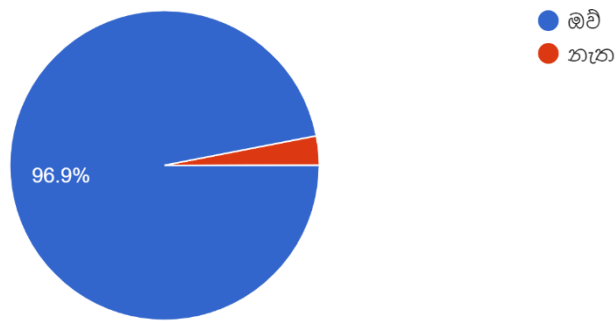


Figure 1.11 Survey Response 6 (Sinhala)

Do you think it would be useful if you could get advice on pet-care from a vet from this site?

59 responses

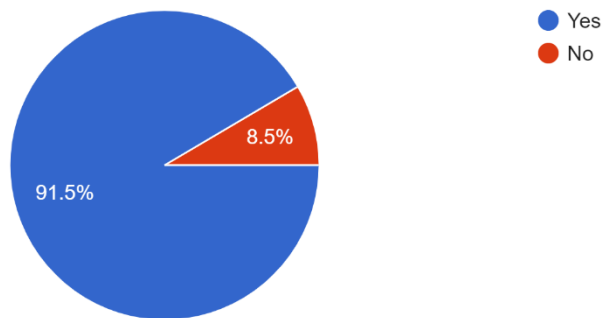


Figure 1.12 Survey Response 6 (English)

ඔබ අසල තිබෙන (aquarium shops) මත්ස්‍ය උපකරණ වෙළෙඳසල් ගැන දැන ගැනීම ඔබට ප්‍රයෝජනවත් ද?

294 responses

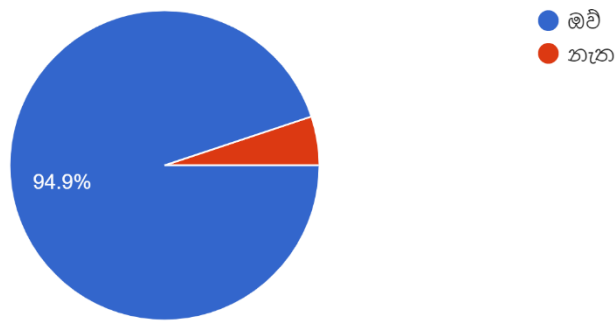


Figure 1.13 Survey Response 7 (Sinhala)

Do you think it would be useful for you to be able to locate stores that offer aquarium supplies near you?

59 responses

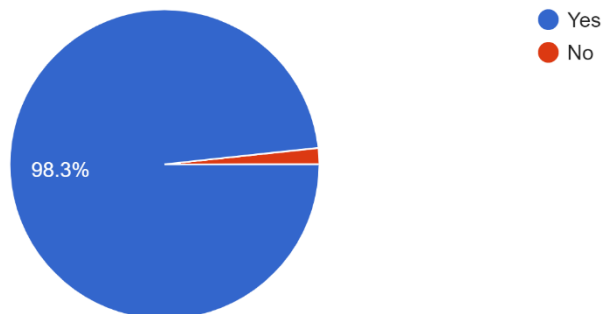


Figure 1.14 Survey Response 7 (English)

2 Project Goal

To provide the community of fish enthusiasts and store owners with a platform that allows them to connect with each other easily and to provide the community a place to share information to save time and money.

3 Project Objectives

- The main objective of this project is to create a location based online platform where users are able to obtain fish, along with the necessary basic care instructions and equipment needed for that specific type of fish all in one place.
- To promote adoption among the community instead of abandonment to water bodies by giving them a platform that will connect them with willing adoptees nearby efficiently.
- To connect store owners with potential clients and to help build a consumer base with owners near them.

4 Scope

- The platform will be made in the form of a web application.
- Four types of actors can be identified in our system and the registered users and the store owners are given the opportunity to advertise their fish as well as their equipment.
- Posts of fish put up for adoption will be prioritized.
- Only the payment for creating a post will be paid online and handled by the system.
- Online payments will be handled through a sandbox.
- Articles for the information hub can only be added, edited, or removed by a moderator or the administrator.
- Users can send requests to moderators to add more information.
- Users who are logged into the system can rate the articles in the information hub.
- Review method for stores.
- The details regarding the community events will be added by the moderators and will be displayed as posts as well as by using a map indicating the locations.

5 Constraints and Assumptions

5.1 Constraints

The project must be completed within the academic year and all communication must be done online due to Covid-19

No frameworks will be used for the implementation of this platform.

In terms of functionality,

- Truthfulness of the users who buy/ adopt fish cannot be guaranteed through the system.
- Transport of fish and equipment will not be handled by our system.
- Cash payments for fish/equipment will not be handled through our system. The sandbox will only be used to simulate the subscription payments made by the store owners and the fee that is required to be paid by the registered users when creating posts related to selling fish/equipment.
- Users cannot inquire for contact details included in a post without registering to the system.
- Users cannot request to add information or events without registering to the system.
- Payment for moderators will not be handled through the system.

5.2 Assumptions

- All users will have access to the internet and own an email address.
- All users will have basic English literacy skills.
- Users will enter valid details when putting up a post.
- Users will upload all images in .jpeg format due to size restrictions.

6 Feasibility Study

6.1 Operational Feasibility

To see how well our proposed system would solve the identified issues, we conducted a preliminary survey among the community of fish owners and enthusiasts.

- From the roughly 350 responses we obtained, more than 95% of them were positive responses and thought the functionalities offered by such a system were sufficient.
- More than 92% of them were willing to give their fish up for adoption if the need ever arises and over 88% were willing to adopt a fish instead of buying.
- Majority of the users were interested in a platform where they could easily find stores and fish based on their location.
- The information hub was well received as most commented on how the lack of a centralized database with basic care instructions has been the cause of many misunderstandings.
- Most fish owners have also mentioned how it would be convenient to have a method of knowing if it is within their capabilities to raise the fish they intend to obtain.

Considering the reaction and the feedback from the community we can conclude that 'AquaSpace' is operationally feasible.

6.2 Technical Feasibility

The project will be a complete web-based application and our team will be utilizing HTML, CSS, JavaScript for the front end and SQL, PHP services for the backend implementation. Visual Studio Code will be used as the primary IDE.

Other software tools to be used,

- XAMPP localhost software will be used to simulate the server and database.
- Google maps API
- GitHub Organizations will be used for task management as well as version control of the source code.

For diagramming,

- Adobe XD
- Adobe Illustrator
- Draw.io

For documentation and reports,

- Microsoft Office 365

Each of the above-mentioned programs are free or are available freely for the use of students. The technical skills required are not too demanding and within the capabilities of the team members.

From the above-mentioned points, it is clear that the project is technically feasible.

6.3 Economic Feasibility

The development costs for the platform are expected to be at a minimum and all expenditures will be listed below.

- The platform being a web-based application will require a hosting fee, but for the initial deployment a free hosting service like AWS, which offers a 1-year free service, may be used.
- There will be no software cost as mentioned under technical feasibility, all software tools and programs that will be used are free or available freely for students and require no expenses.
- There will be no additional hardware costs as personal computers will be used for the development of the project.

At the initial stage we are expecting to give users a maximum number of free posts before they get charged for using the service while the store owners will be charged based on a subscription method for advertising their goods and supplies.

Initially volunteers who step forward to act as moderators will not be compensated but after a certain time period, we hope to pay them per their contribution to the platform.

Therefore, the system hosting expenditures can be covered using the generated revenue after a period of time and we conclude that the project is economically feasible in the long run.

6.4 Legal and Ethical Feasibility

Concerning the handling of the data that will be provided by the user to our system,

- The proposed system will not be revealing user data to any of the other users without the user's consent.
- Only the administrator of the system has access to all user data.
- The administrator and moderator will be taking the necessary actions to handle misuse of the platform.
- Sensitive user data will not be sold to third parties under any circumstance.

The payment data will be provided to an external party with the users consent and all transfers are expected to be done with trusted payment providers.

There will be no legal issues over software licenses for the software being used for development of the system.

The platform also does not break any of the rules and regulations placed in Sri Lanka.

As mentioned above the proposed system is free from any legal risks and is legally and ethically feasible.

6.5 Schedule Feasibility

The timeframe provided for the project is from the start to the end of the academic year. We have opted to follow the waterfall methodology when developing the system as the requirements gathered have been satisfactory and are noticeably clear. The number of features to be implemented as decided will be possible within the given timeline.

Accordingly, we can guarantee that this project will be completed before the expected deadlines.

The following chart depicts the projected timeline,

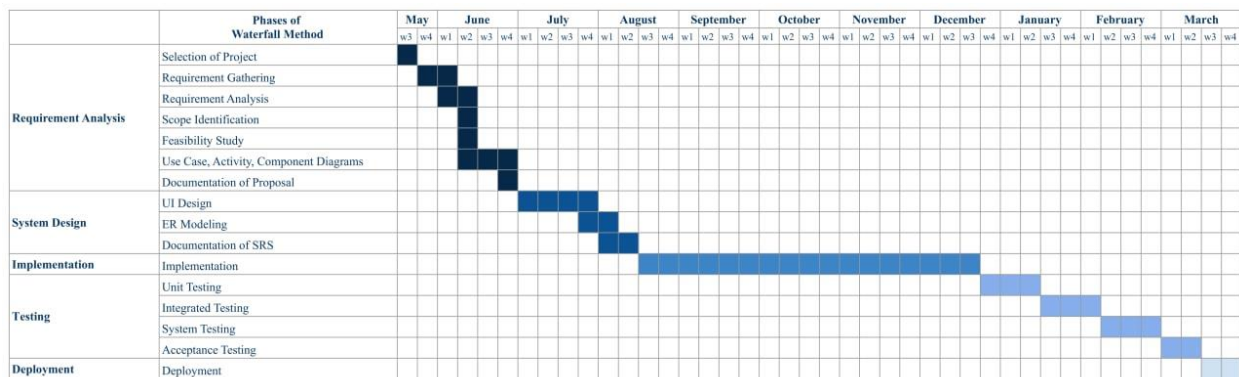


Figure 6.1 Gantt chart for projected timeline

7 Deliverables

A web application with a central database that will cover the needs of all the fish owners across Sri Lanka.

8 Requirements

8.1 Functional Requirements

The system consists of five types of users,

- Guest User
- Registered User
- Store Owner
- Moderator
- Administrator

The functionalities that have been identified for each user has been listed below.

All Users,

- **View and search all available posts under fish and equipment**

All users should be able to view all available posts when they visit the website regardless of whether they have registered to the system or not. For registered users, posts will be filtered by location automatically while guest users will have to manually enter relevant location data.

- **View and search through articles presented in the information hub**

All users should be able to see all available articles under the information hub and to search for relevant articles.

Guest User,

- **Register to the system**

Guest users need to register to the system if they want to view contact details of a post, add a post or to rate an article. Registration can be done via e-mail, Facebook or google.

Registered User

- **Add posts under both fish and equipment categories**

Users can create posts to sell their fish for a fee or to put the fish up for adoption for free. They also can sell their equipment under the equipment category. The time-duration for a post can be selected from a set of available durations. ‘

The user can also choose to let interested parties contact them through an inquiry requesting exact details of obtaining the fish/equipment such as offer, possible pick up locations, possible dates and other questions.

- **View and update profile**

- **View all active posts**

Users can view all their currently active posts through their profile for easy monitoring.

- **Request details from a post**

If a user is interested in obtaining the fish or equipment advertised through a post, they may contact the owner through an inquiry to obtain the exact details for the transaction including offer, pick-up locations and exchange options.

- **Respond to requests**

A user should be able to either accept or reject an inquiry made about their posts.

- **View past requests**

A user should be able to see all requests that have been made regarding a certain post if it is still active.

- **Make payments**

When creating a post with the intention of selling users must pay the necessary fee.

- **Rate articles**

A user should be able to rate an article with an upvote or a downvote depending on their level of satisfaction with the information presented in the article.

- **Review Store**

A user should be able to leave a review as well as a rating on a store accounts page displaying their level of satisfaction with their services.

Store Owner

- **Add posts under the fish and equipment category**

A store owner should be able to add an unlimited number of posts under both the fish and equipment category for the time duration they have subscribed to the platform.

- **View and update profile**
- **View all active posts**

Their profile page should display all posts they currently have active.

Moderator

- **Add articles**

A moderator should be able to add articles under the information hub based on user requests.

- **Update and delete articles**
- **Add events**

A moderator should be able to add events that depict locations that have invasive alien species based on user requests.

- **Update and delete events**
- **Remove posts**

Admin

The admin has access to all the functionalities a moderator has and additionally can,

- **Upgrade a user to moderator status**

An admin can make the decision to upgrade a user to a moderator if the user has displayed interest and has the necessary qualifications.

- **Downgrade a moderator to user status**

An admin can downgrade a moderator back to normal user status if the need arises.

- **View moderator contribution**

An admin can view the amount of contribution a moderator has made to the information hub by adding, updating posts or responding to user requests.

- **Remove an account**

8.1.1 Use Case Diagrams

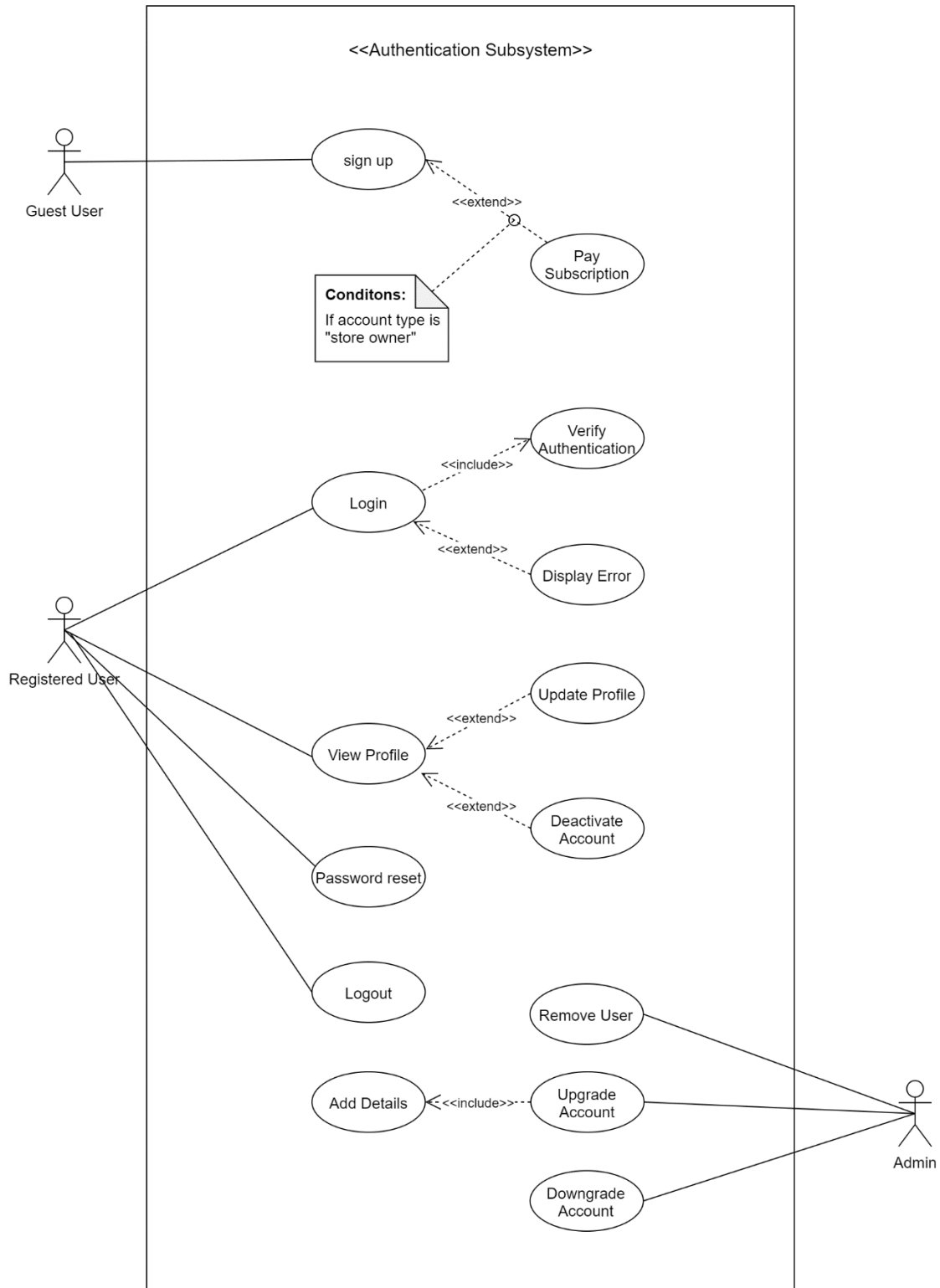


Figure 8.1 Use case diagram for Authentication

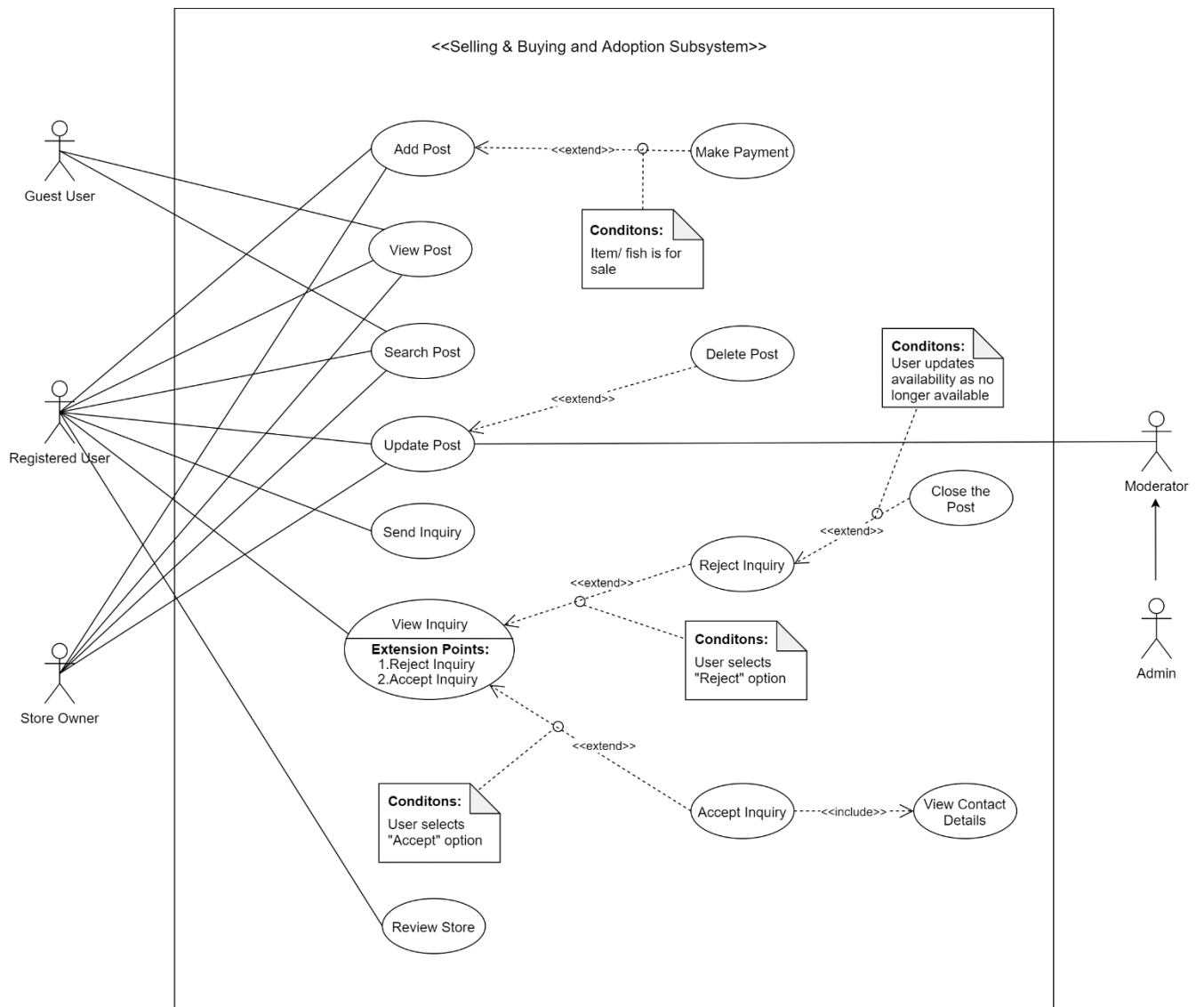


Figure 8.2 Use case diagram for Selling and Adoption

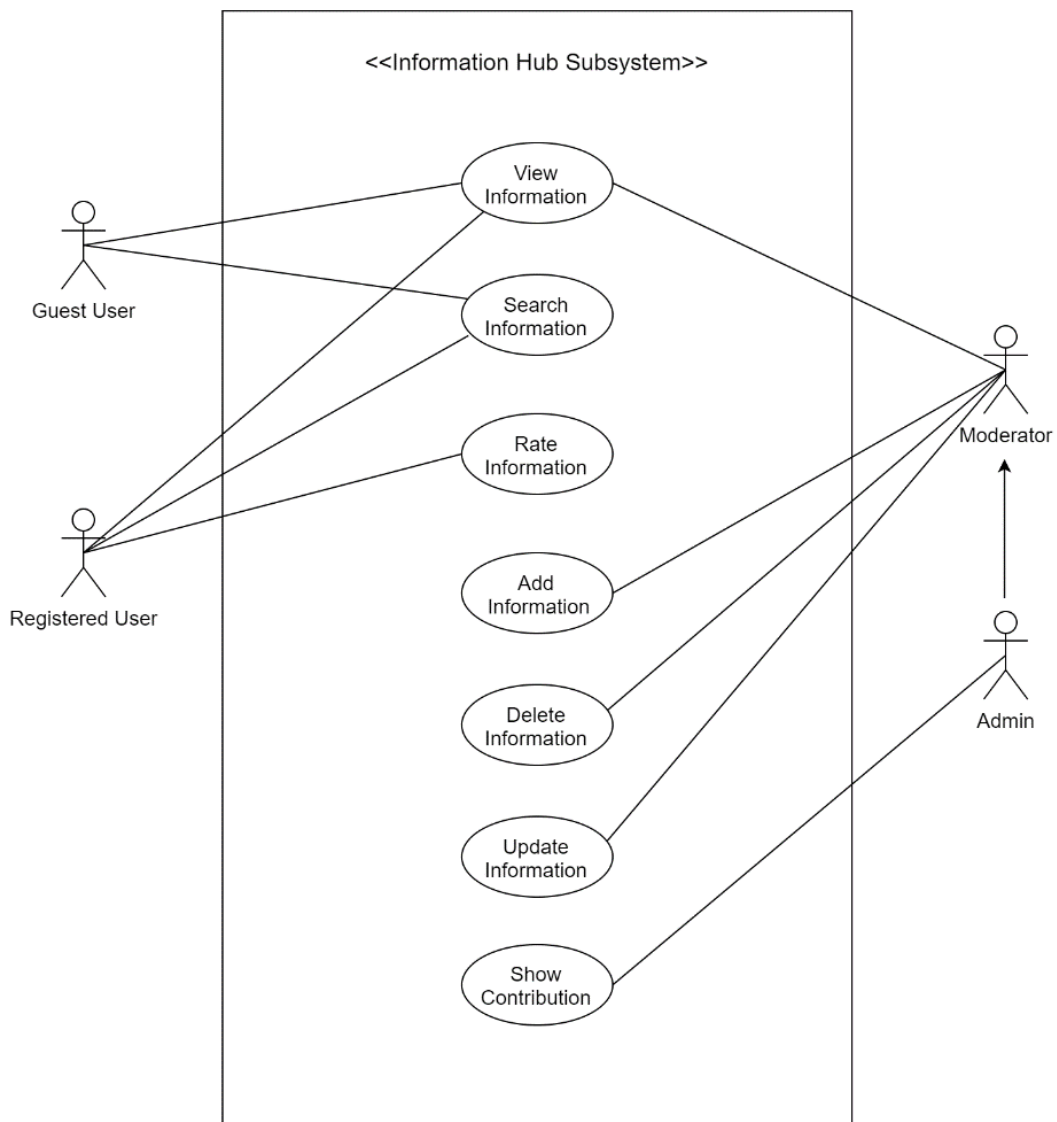


Figure 8.3 Use case diagram for Information Hub

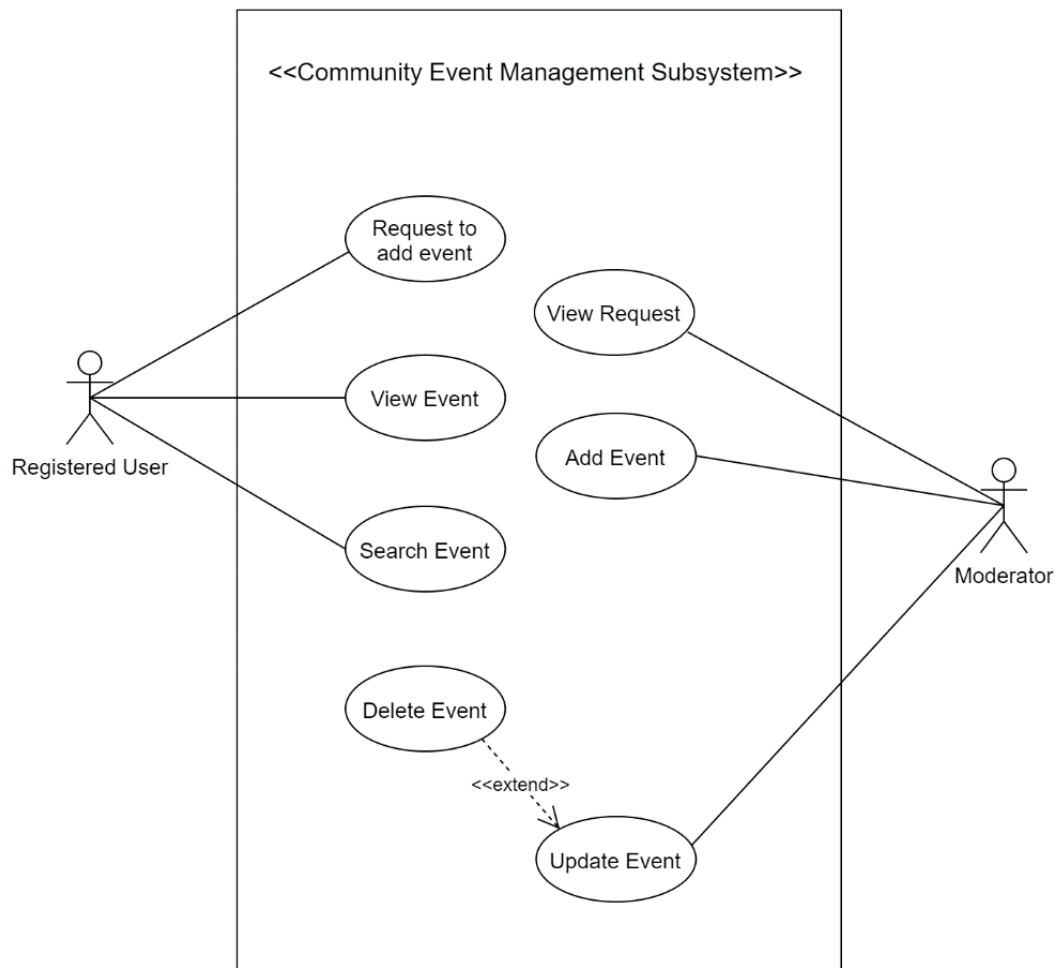


Figure 8.4 Use case diagram for Community Events

8.1.2 Use Case Narratives

Authentication*Table 8.1 Narrative for Sign Up Use case*

Use case	Sign up
Summary	User can create an account
Actors	Guest user
Pre-conditions	Users must go to the web site by using a browser and have a valid email address or Facebook account and a phone number.
Description / Main flow	<ol style="list-style-type: none"> 1. Select “Sign Up” 2. Select account type as user or store owner 3. Enter e-mail, name, address and phone number 4. Provide password 5. Verify phone number and email address 6. Register to the site
Alternate Flows	If the account type is a store owner, <ol style="list-style-type: none"> 6. Pay subscription fee 7. Register to the system
Post-conditions	User can login to the system

Table 8.2 Narrative for Pay Subscription Use case

Use case	Pay subscription
Summary	If a store owner account is created a user must pay the subscription
Actors	Store Owner
Pre-conditions	User should have a store owner account
Description / Main flow	<ol style="list-style-type: none"> 1. User should relevant transaction details 2. Verify transaction 3. System will provide the user with a receipt via email 4. Finish the payment
Alternate Flows	None
Post-conditions	User can login to the account

Table 8.3 Narrative for Login case

Use case	Login
Summary	In order to gain the necessary privileged user access, they should login to the system
Actors	Registered user, store owner
Pre-conditions	User should have a pre-existing account
Description / Main flow	<ol style="list-style-type: none"> 1. User should enter username and password 2. System verifies the password 3. Finish the login
Alternate Flows	If there is an error in login process system should display error
Post-conditions	User can visit their profile

Table 8.4 Narrative for Logout Use case

Use case	Logout
Summary	User can clean the login session
Actors	Registered user
Pre-conditions	User must login to the system
Description / Main flow	<ol style="list-style-type: none"> 1. Click the logout button 2. Finish the logout process
Alternate Flows	None
Post-conditions	User has logged out of the system

Table 8.5 Narrative for Display Error Use case

Use case	Display error
Summary	Login error should be displayed
Actors	Registered user, Store Owner
Pre-conditions	User should have an unsuccessful login attempt
Description / Main flow	If there is any kind of error when logging in it should be displayed.
Alternate Flows	None
Post-conditions	Error is displayed for the user

Table 8.6 Narrative for View Profile Use case

Use case	View profile
Summary	User can view all account details relevant to their account
Actors	Registered user, Store Owner
Pre-conditions	User should login to the system
Description / Main flow	<ol style="list-style-type: none"> 1. Click the profile icon 2. Visit the profile
Alternate Flows	None
Post-conditions	User can view account details

Table 8.7 Narrative for Update Profile Use case

Use case	Update profile
Summary	User can update his account details
Actors	Registered user, store owner
Pre-conditions	User should login to the system
Description / Main flow	<ol style="list-style-type: none"> 1. Select “Update Profile” button 2. Give the details which user need to update such as name, email, phone number etc. 3. Verify changes 4. Click the save button 5. Go to the profile page
Alternate Flows	None
Post-conditions	Go to the profile page

Table 8.8 Narrative for Deactivate Account Use case

Use case	Deactivate account
Summary	User can take a break from the system
Actors	Register user
Pre-conditions	User should login to the system
Description / Main flow	<ol style="list-style-type: none"> 1. Click the deactivate button in the profile page 2. Enter the email and password 3. Confirm deactivation 4. Finish the deactivation process
Alternate Flows	None
Post-conditions	Go to the home page as a guest user

Table 8.9 Narrative for Remove a User Use case

Use case	Remove a user
Summary	Admin can remove any account in the system
Actors	Admin
Pre-conditions	Should login to the system
Description / Main flow	<ol style="list-style-type: none"> 1. Search the account 2. Send the account owner an email notifying them 3. Remove the account
Alternate Flows	None
Post-conditions	Go to the profile
Includes	None

Table 8.10 Narrative for Upgrade Account Use case

Use case	Upgrade account
Summary	Admin can upgrade registered user account as a moderator
Actors	Admin
Pre-conditions	Admin has contacted user and confirmed they are qualified to be a moderator
Description / Main flow	<ol style="list-style-type: none"> 1. Search user account 2. Select “Upgrade Account” 3. Enter bank details 4. Confirm upgrade 5. System notifies user via email
Alternate Flows	None
Post-conditions	User account is upgraded to a moderator account

Table 8.11 Narrative for Downgrade Account Use case

Use case	Downgrade account
Summary	Admin can degrade moderator account to a registered user
Actors	Admin
Pre-conditions	User should be logged in as administrator
Description / Main flow	<ol style="list-style-type: none"> 1. Search user profile 2. Select “Downgrade Account” button 3. System notifies user via email
Alternate Flows	None
Post-conditions	Moderator account has been downgraded to a normal user account

Selling and Adoption

Table 8.12 Narrative for Add Post Use case

Use case	Add Post
Summary	A user can create a post to sell/adopt fish or equipment.
Actors	Registered User, Store owner
Pre-conditions	User must be logged in to the system
Description / Main flow	<ol style="list-style-type: none"> 1. Select “New Post” button 2. Enter necessary details 3. Select duration of post 4. After making the payment the post will be added to the website
Alternate Flows	<p>If user selects to put a fish for adoption</p> <ol style="list-style-type: none"> 4. After confirming details, the post will appear on the website.
Post-conditions	A post is created displaying the fish that is to be sold or adopted
Assumptions	The user will be truthful about their contact details and availability of the fish

Table 8.13 Narrative for View Post Use case

Use case	View Post
Summary	A user can view a specific post
Actors	Guest user, Registered user, Store owner
Pre-conditions	None
Description / Main flow	<ol style="list-style-type: none"> 1. Go to website 2. View list of available posts 3. Click on specific post to see details of that post
Alternate Flows	None
Post-conditions	User can view details of a post

Table 8.14 Narrative for Search Post Use case

Use case	Search Post
Summary	A user can search for posts
Actors	Guest user, Registered user, Store owner
Pre-conditions	None
Description / Main flow	<ol style="list-style-type: none"> 1. Go to website 2. Select “Search” button 3. Enter the keyword 4. Select filters 5. Select sort options 6. Confirm search
Alternate Flows	If user is a guest user, <ol style="list-style-type: none"> 3. Enter location 4. Enter keyword 5. Select filters 6. Select sort options 7. Confirm search
Post-conditions	User can search for a post

Table 8.15 Narrative for Update Post Use case

Use case	Update Post
Summary	A user can change the details entered in their post or delete it
Actors	Registered User, Store owner, Moderator
Pre-conditions	User must be the owner of the post and logged in
Description / Main flow	<ol style="list-style-type: none"> 1. Go to user profile 2. Select relevant post 3. Select “Update” button 4. Change the relevant data fields 5. Submit changes
Alternate Flows	If the user wants to delete the post, <ol style="list-style-type: none"> 3. Select “Delete” button 4. Confirm deletion
Post-conditions	The post will be updated in the system

Table 8.16 Narrative for Send Inquiry Use case

Use case	Send Inquiry
Summary	A user interested in adopting or buying a fish can send the owner of the post an inquiry about exact details
Actors	Registered User
Pre-conditions	User must be logged in
Description / Main flow	<ol style="list-style-type: none"> 1. Select post 2. Select 'Send inquiry' option 3. Fill in the form requested by the owner of the post 4. System sends email with information of inquiry to sender 5. Confirm inquiry
Alternate Flows	None
Post-conditions	An inquiry will be sent to the owner of the post

Table 8.17 Narrative for View Inquiry Use case

Use case	View Inquiry
Summary	Owners of a post can view the inquiries sent in by other users.
Actors	Registered User, Store Owner
Pre-conditions	User must be owner of the post
Description / Main flow	<ol style="list-style-type: none"> 1. Go to profile 2. Select view inquiries 3. A list of inquiries will be shown 4. Select inquiry 5. Accept or reject the inquiry
Alternate Flows	<p>If the user wants to accept an inquiry,</p> <ol style="list-style-type: none"> 6. Select "Accept inquiry" 7. Send reply to inquiry details. <p>If the user wants to reject an inquiry,</p> <ol style="list-style-type: none"> 6. Select "Reject inquiry" <p>If user wants to close the post,</p> <ol style="list-style-type: none"> 7. Select "Close Post"
Post-conditions	The viewed inquiry will be cleared from the list

Table 8.18 Narrative for Review Store Use case

Use case	Review Store
Summary	User can leave a rating and a review on a store account
Actors	Registered User
Pre-conditions	User must be logged in
Description / Main flow	<ol style="list-style-type: none"> 1. Go to store owner's page 2. Select "Rate" button 3. Give a rating 4. Write in the review 5. Submit rating
Alternate Flows	None
Post-conditions	The store account receives a rating

Information hub

Table 8.19 Narrative for View Information Use case

Use case	View information
Summary	User can view information of a specific fish
Actors	Guest User, Registered User, Moderator, Administrator
Pre-conditions	The fish is already in the system
Description / Main flow	<ol style="list-style-type: none"> 1. Go to information section 2. Select article 3. View details
Alternate Flows	None
Post-conditions	User can view details about a specific fish

Table 8.20 Narrative for Search Information Use case

Use case	Search information
Summary	User can search for information of a specific fish
Actors	Guest User, Registered User, Moderator, Administrator
Pre-conditions	None
Description / Main flow	<ol style="list-style-type: none"> 1. User inserts the search key word 2. Click on the search button
Alternate Flows	None
Post-conditions	User can view the search result

Table 8.21 Narrative for Rate Information Use case

Use case	Rate information
Summary	User can rate an article with an upvote or downvote
Actors	Registered User
Pre-conditions	Login to the system
Description / Main flow	<ol style="list-style-type: none"> 1. Go to relevant article 2. Select upvote button
Alternate Flows	To downvote, <ol style="list-style-type: none"> 2. Select downvote button
Post-conditions	An article gets a rating

Table 8.22 Narrative for Add Information Use case

Use case	Add information
Summary	New information can be added
Actors	Moderator
Pre-conditions	Login to the system
Description / Main flow	<ol style="list-style-type: none"> 1. Go to information section 2. Select “Add new” 3. Write the article 4. Press “Publish” button
Alternate Flows	None
Post-conditions	New information is added to the system

Table 8.23 Narrative for Update Information Use case

Use case	Update information
Summary	Information added previously can be modified
Actors	Moderator
Pre-conditions	The article already exists in the system
Description / Main flow	<ol style="list-style-type: none"> 1. Select information added before 2. Select “Edit” button 3. Change the necessary information fields 4. Press “Save” button
Alternate Flows	None
Post-conditions	View the change information on the information tab

Table 8.24 Narrative for Delete Information Use case

Use case	Delete information
Summary	Delete an article
Actors	Moderator
Pre-conditions	The article already exists in the system
Description / Main flow	<ol style="list-style-type: none"> 1. Select article 2. Press “Delete” button 3. Confirm deletion
Alternate Flows	None
Post-conditions	Remove the information post added before

Community Events

Table 8.25 Narrative for Request to Add Event Use case

Use case	Request to add an event
Summary	Registered users can send a request to add a community event
Actors	Registered User
Pre-conditions	The user must be logged into the system
Description / Main flow	<ol style="list-style-type: none"> 1. Go to the Community Events page 2. Click on “Request” button 3. Fill the form 4. Submit the form 5. Send a notification to the moderators
Alternate Flows	None
Post-conditions	Request will be sent to the moderators

Table 8.26 Narrative for View Request Use case

Use case	View Request
Summary	Moderators can view the requests sent by the users
Actors	Moderator
Pre-conditions	A registered user has sent a request
Description / Main flow	<ol style="list-style-type: none"> 1. Receive notifications for each request submitted 2. View the list of requests sent in by the registered users 3. Review them
Alternate Flows	None
Post-conditions	Notifications disappear once reviewed

Table 8.27 Narrative for Add Event Use Case

Use case	Add Event
Summary	Once the moderators go through the requests, they can post them on the community section of the site
Actors	Moderator
Pre-conditions	There must be requests sent in by the registered users
Description / Main flow	<ol style="list-style-type: none"> 1. Select “Add Event” 2. Fill in necessary event details 3. Post it under events
Alternate Flows	None
Post-conditions	The even should be added to the event list and the location must be displayed in the map

Table 8.28 Narrative for Search Event Use case

Use case	Search Event
Summary	Users can search for events
Actors	Guest user, Registered User, Store Owner, Moderators, Admin
Pre-conditions	Moderators have already added the events
Description / Main flow	<ol style="list-style-type: none"> 1. Go to community events section 2. Search event by “location” or “type of fish” 3. View results
Alternate Flows	None
Post-conditions	User can search events

Table 8.29 Narrative for View Event Use case

Use case	View Event
Summary	Users must be able to view the added posts about community events
Actors	Guest User, Registered User, Moderator, Admin
Pre-conditions	Moderators have already added the events
Description / Main flow	<ol style="list-style-type: none"> 1. Go to community events section 2. Select post 3. View details of the post
Alternate Flows	None
Post-conditions	View Events

Table 8.30 Narrative for Update Event Use case

Use case	Update Event
Summary	Moderators can edit the posts about community events
Actors	Moderator
Pre-conditions	Details about a community event have already been posted
Description / Main flow	<ol style="list-style-type: none"> 1. Select the post 2. Edit the post 3. Press “Save” button
Alternate Flows	None
Post-conditions	Post updated

Table 8.31 Narrative for Delete Event Use case

Use case	Delete Event
Summary	Moderators can delete posts about community events
Actors	Moderator
Pre-conditions	Details about a community event have already been posted
Description / Main flow	<ol style="list-style-type: none"> 1. Select the post 2. Delete the post
Alternate Flows	None
Post-conditions	Post is deleted from the community events section

8.1.3 Activity Diagrams

Authentication

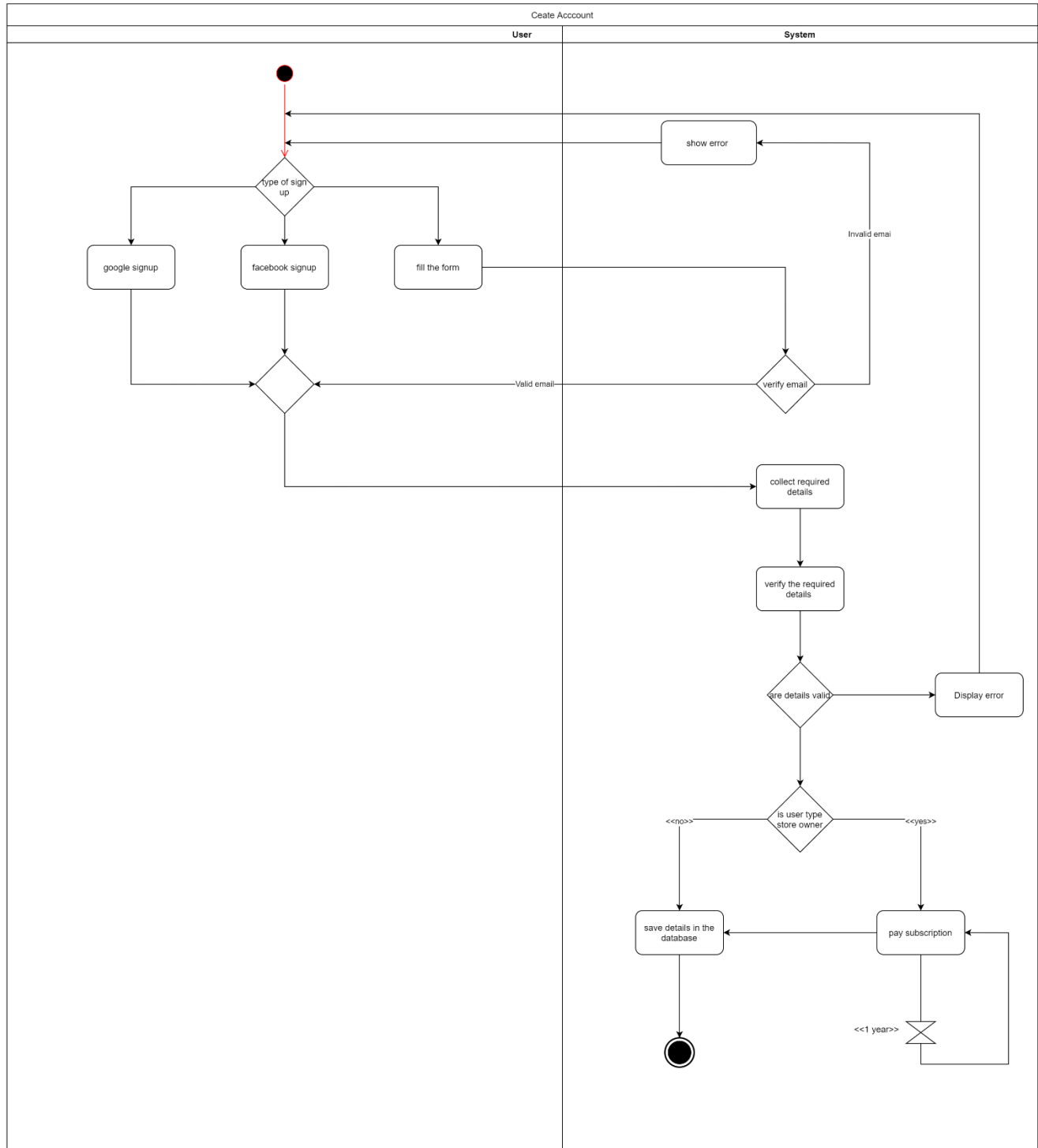


Figure 8.5 Activity diagram for Create Account

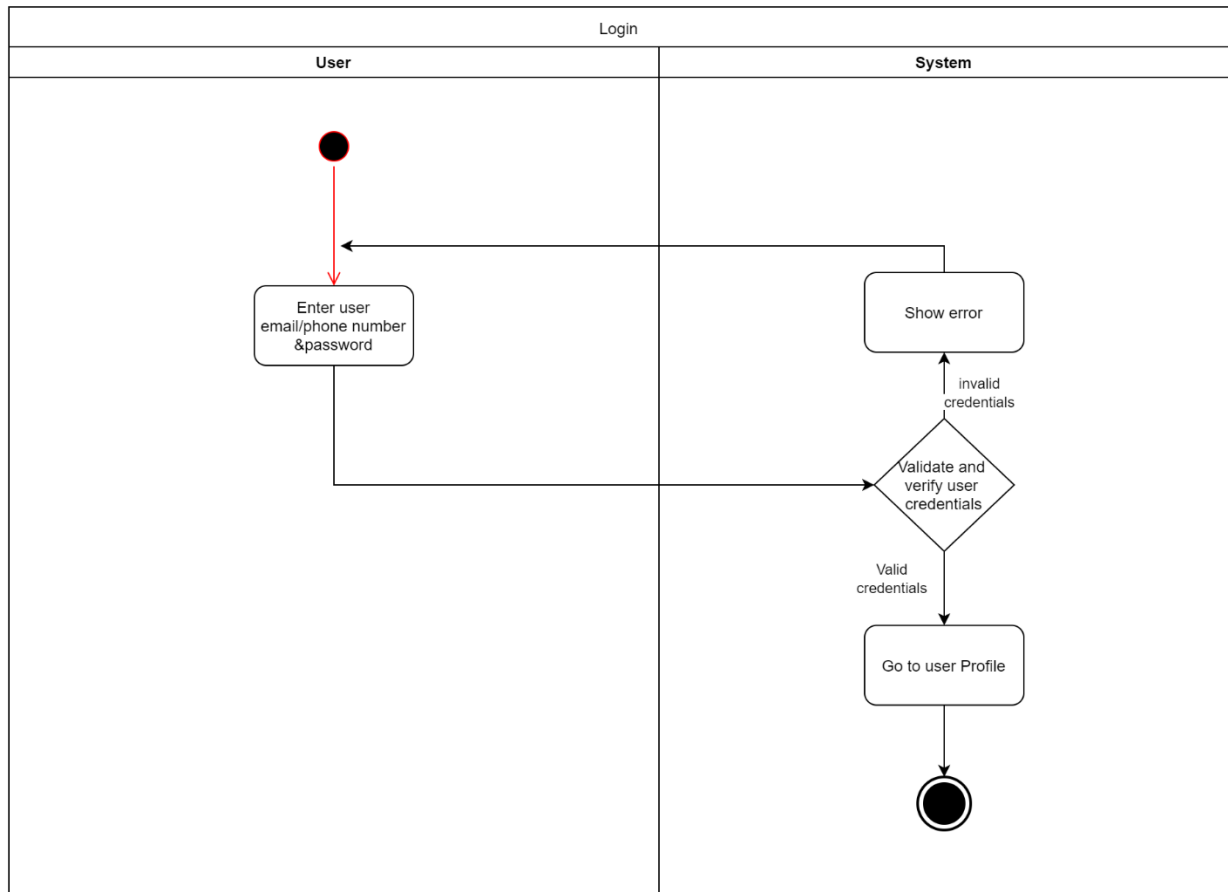


Figure 8.6 Activity diagram for Login

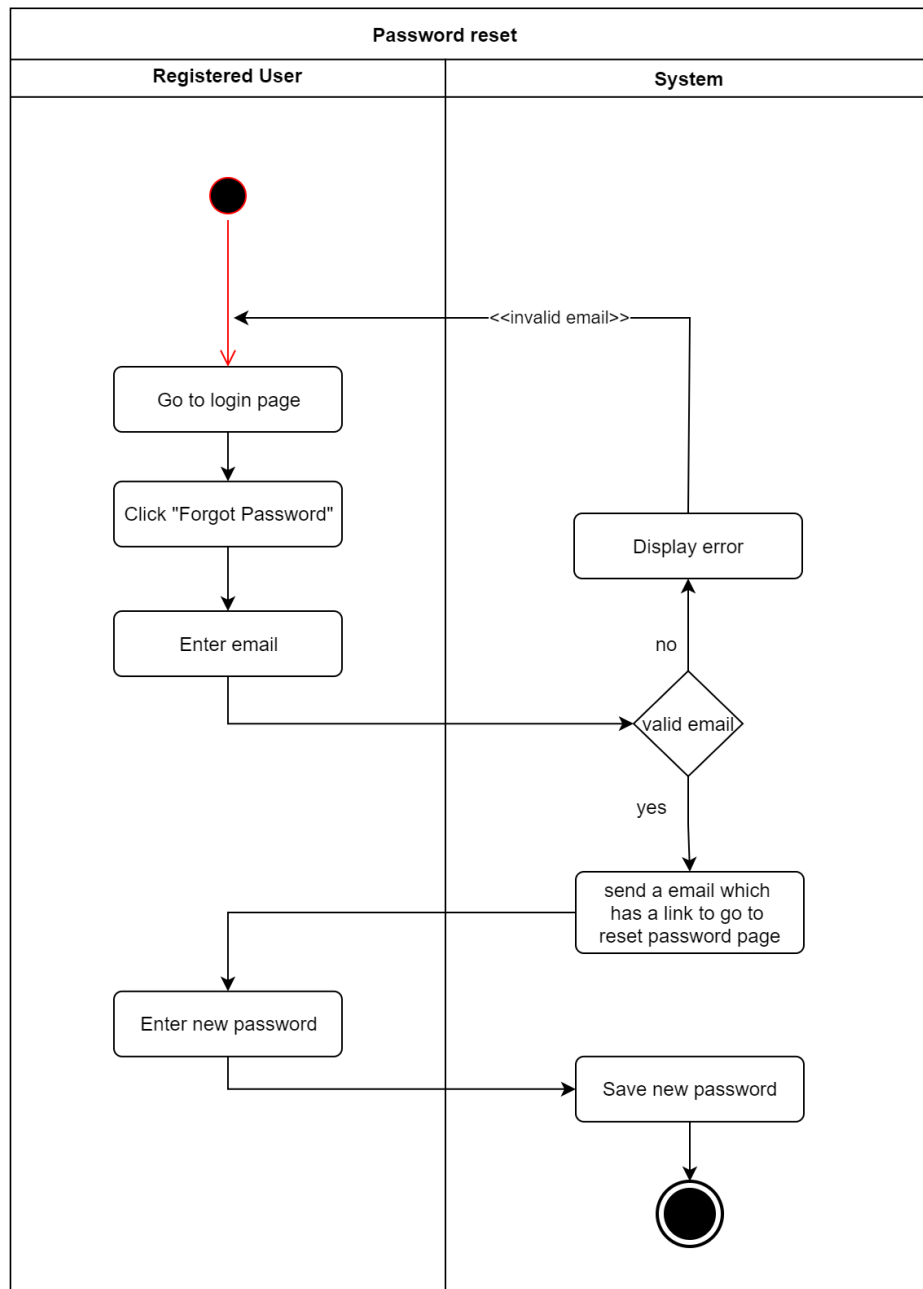


Figure 8.7 Activity diagram for Password Reset

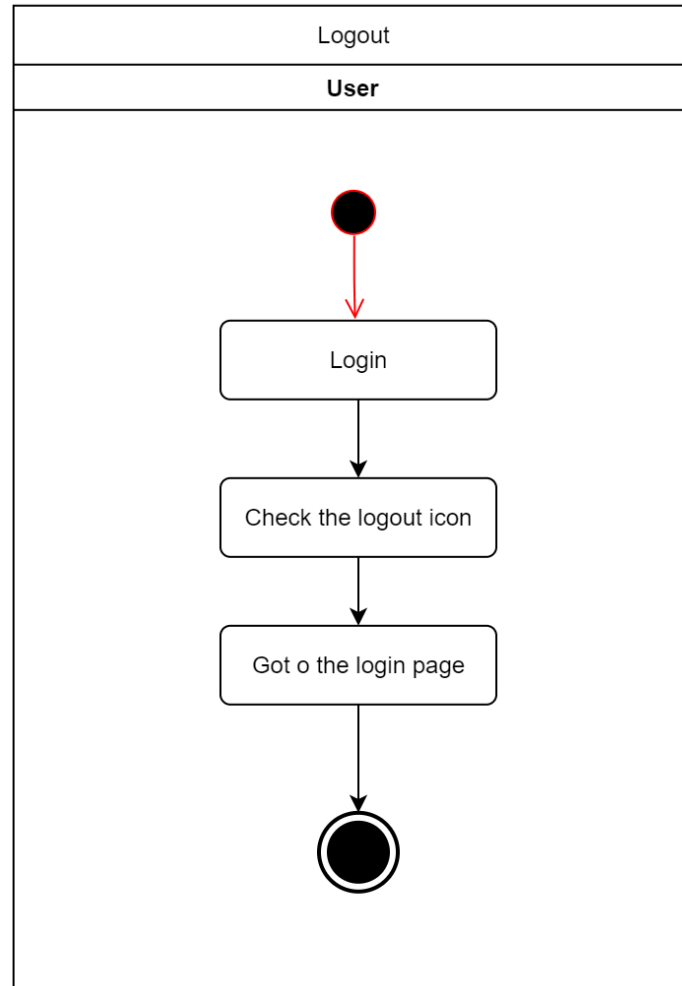


Figure 8.8 Activity diagram for Logout

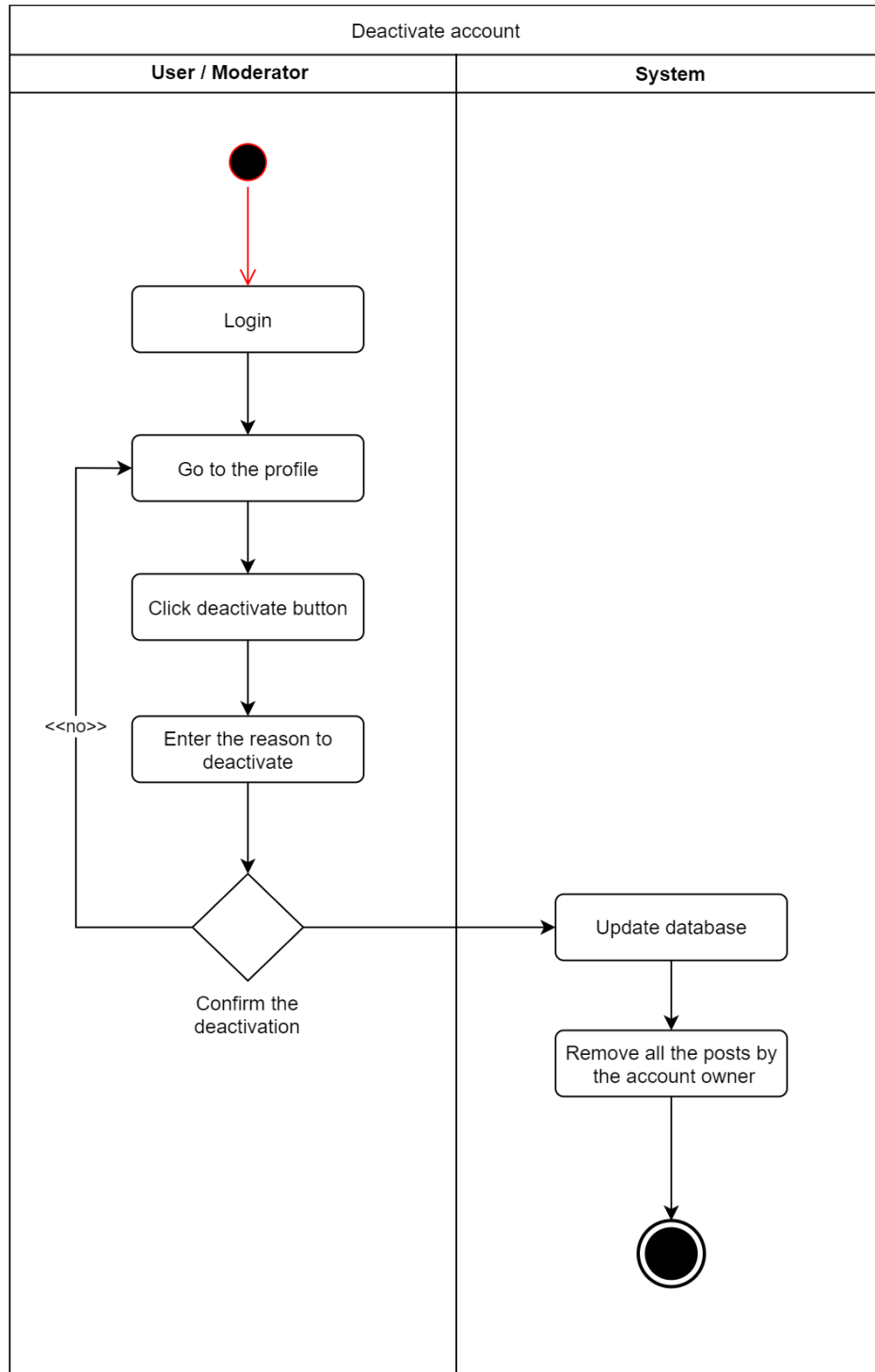


Figure 8.9 Activity diagram for Deactivate Account

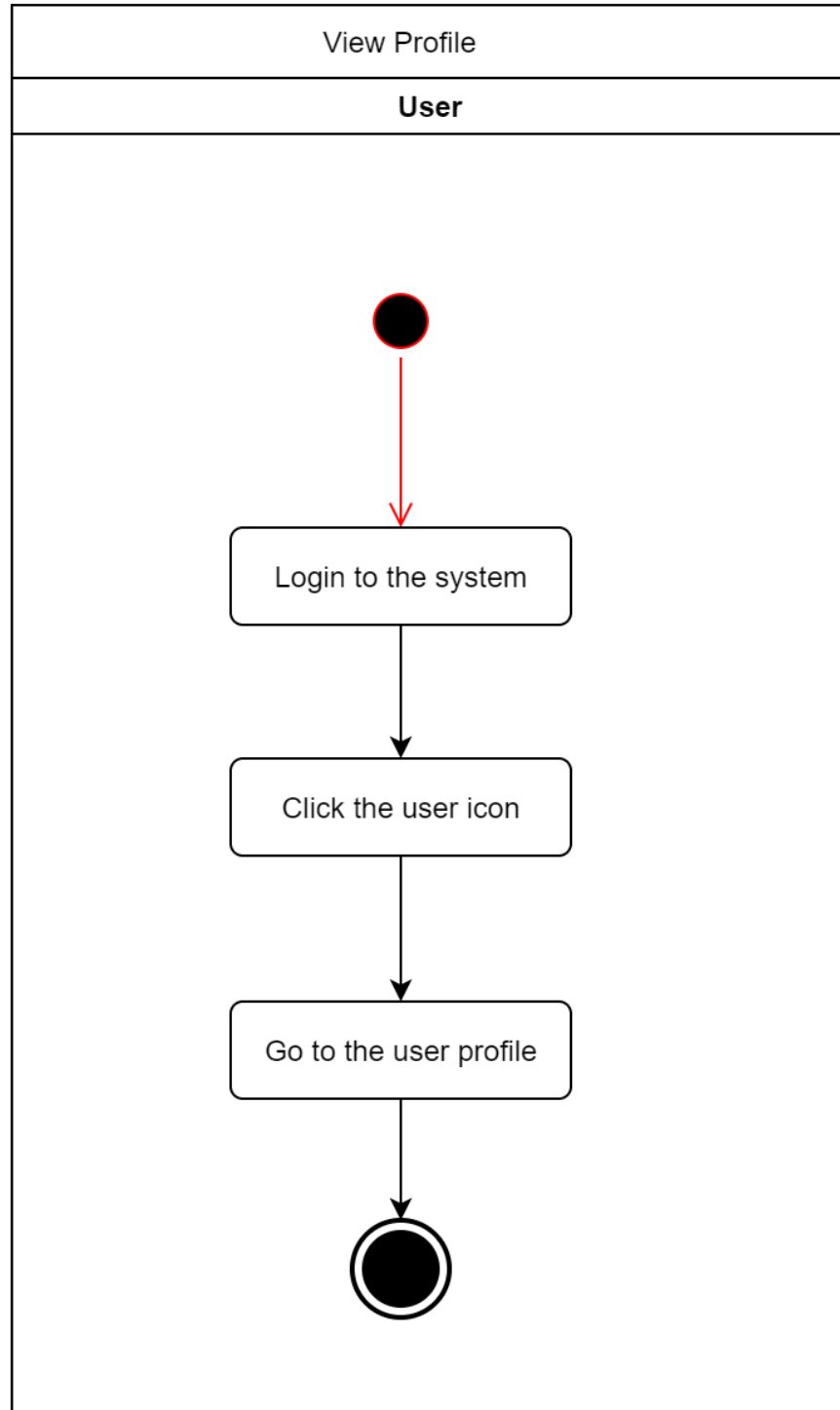


Figure 8.10 Activity diagram for View Profile

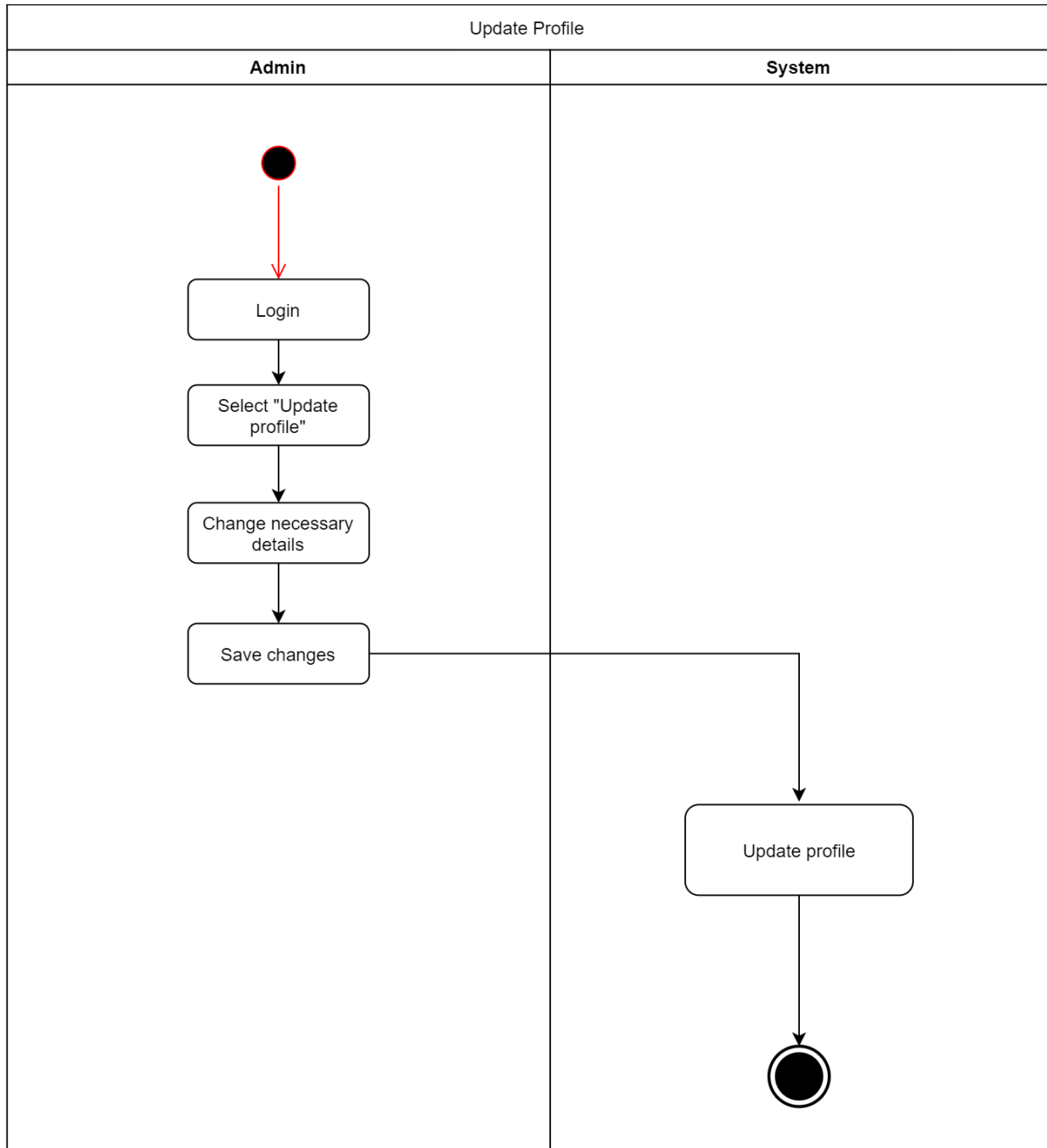


Figure 8.11 Activity diagram for Update Profile

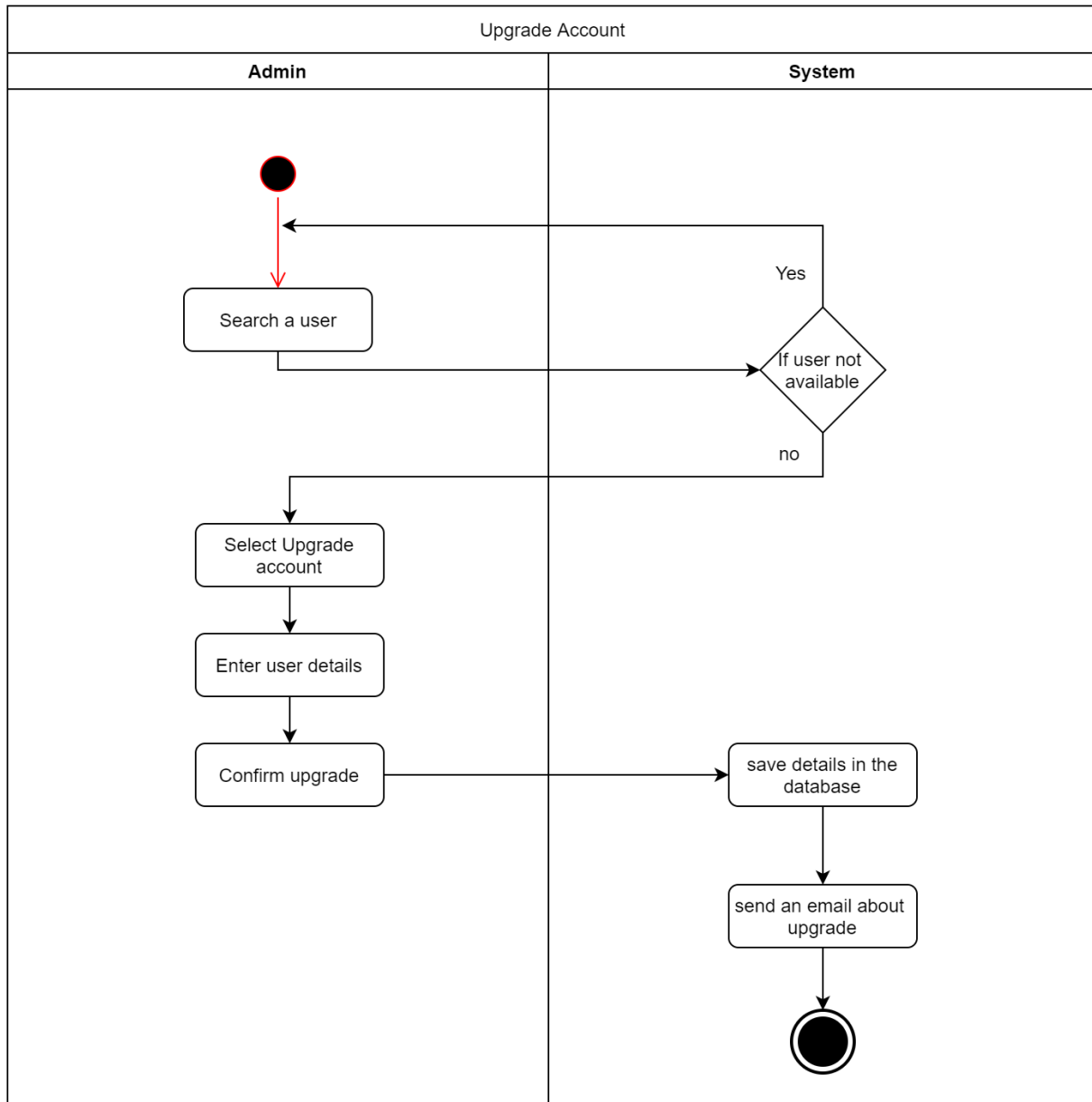


Figure 8.12 Activity diagram for Upgrade Account

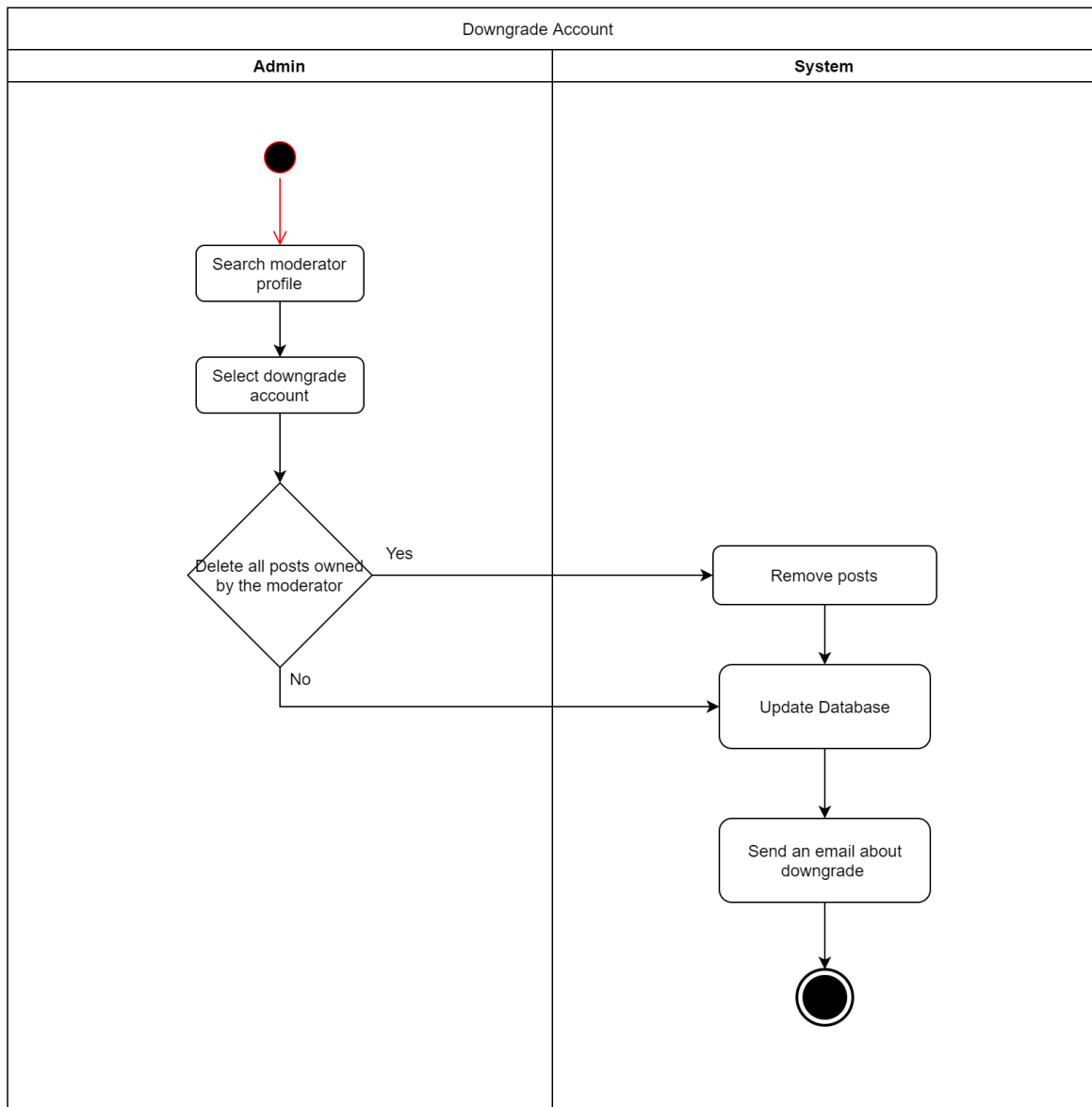


Figure 8.13 Activity diagram for Downgrade Account

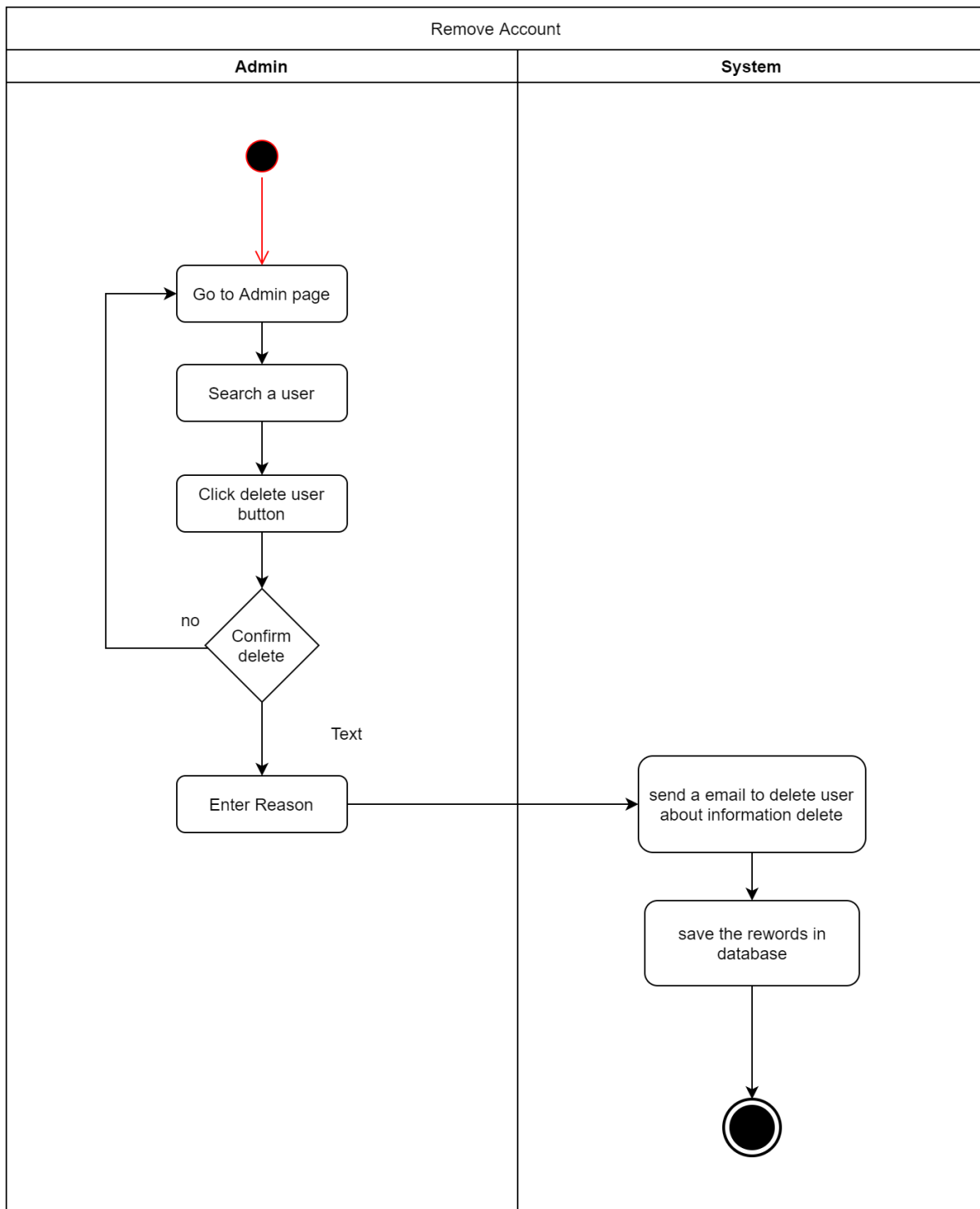


Figure 8.14 Activity diagram for Remove Account

Selling and Adoption

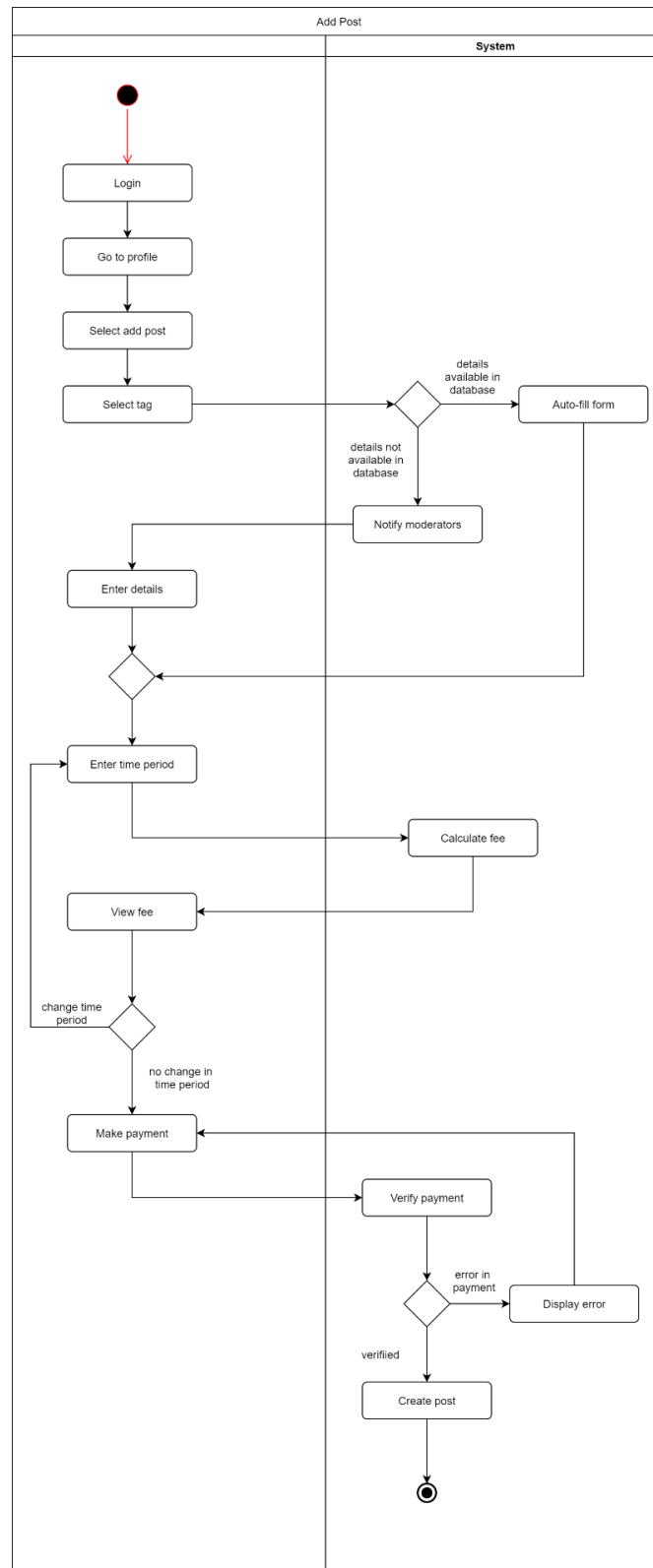


Figure 8.15 Activity diagram for Add Post

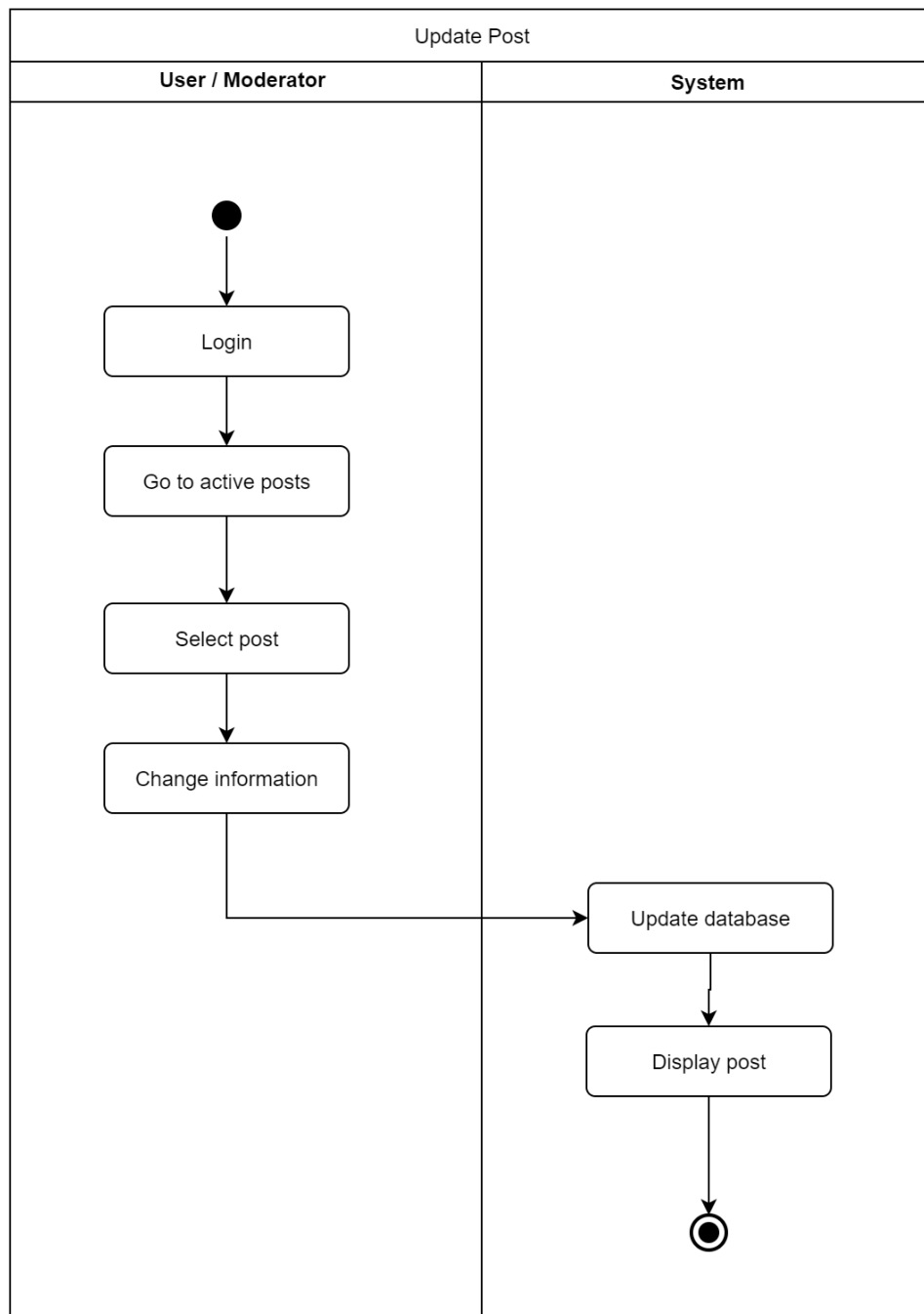


Figure 8.16 Activity diagram for Update Post

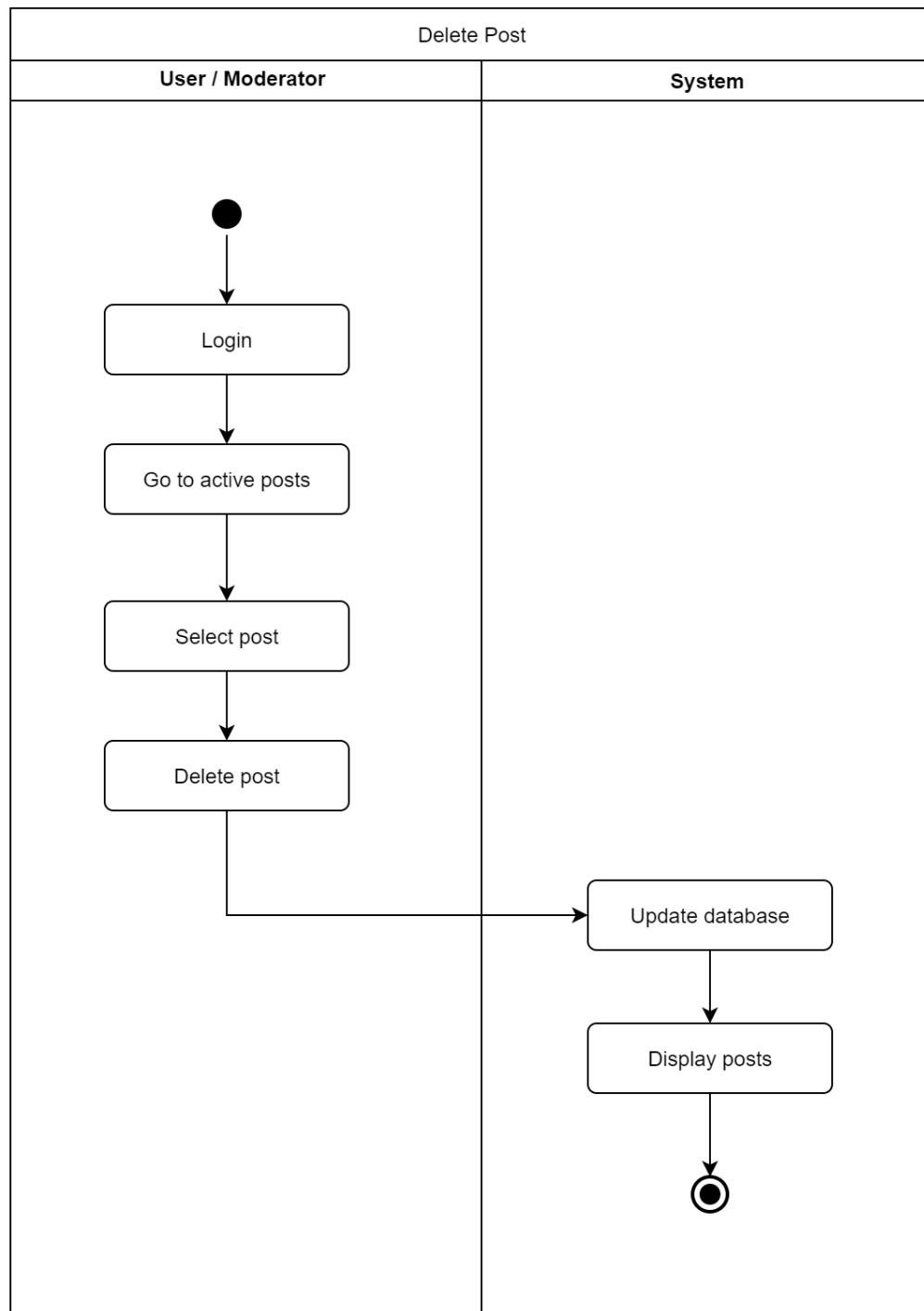


Figure 8.17 Activity diagram for Delete Post

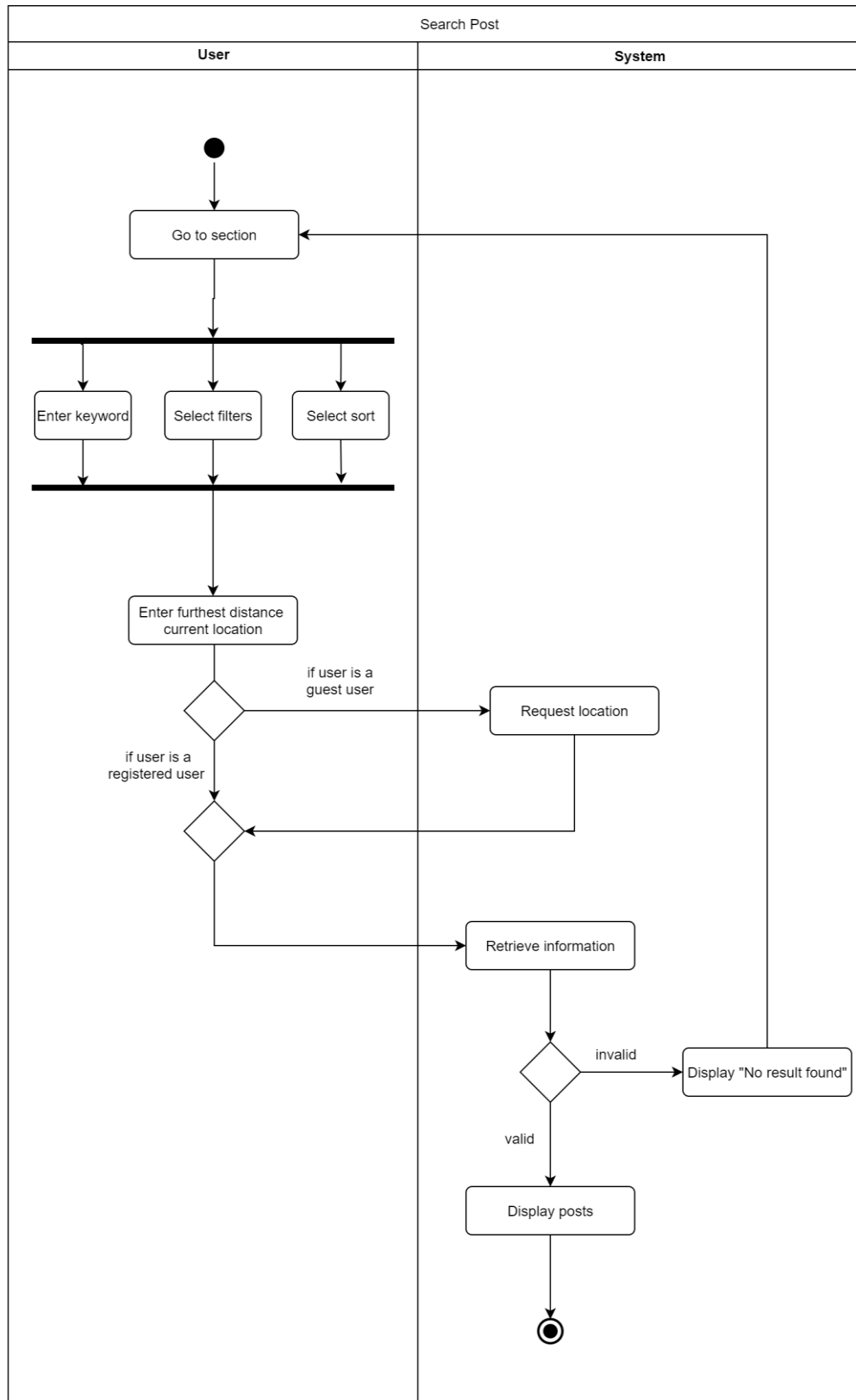


Figure 8.18 Activity diagram for Search Post

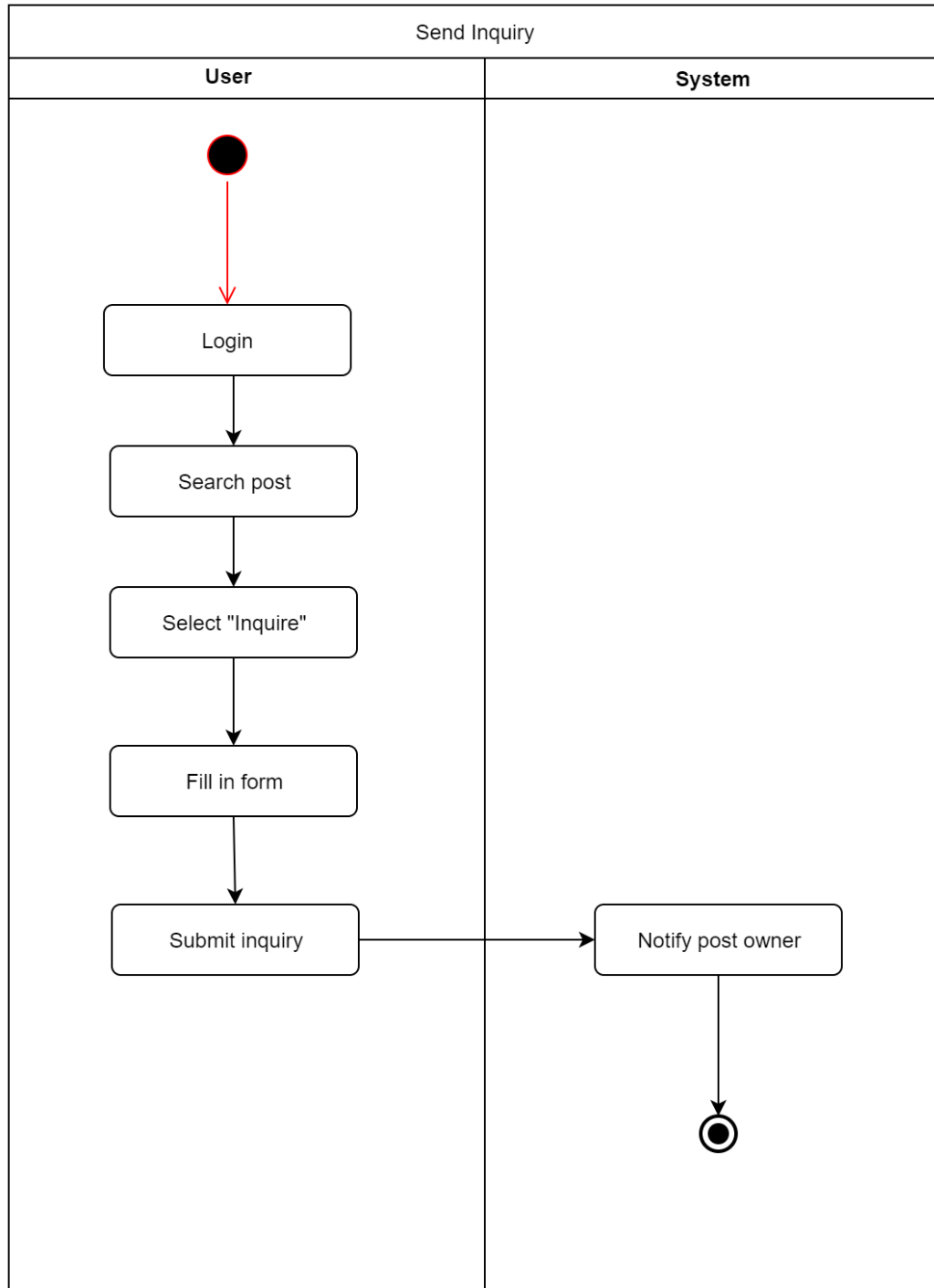


Figure 8.19 Activity diagram for Send Inquiry

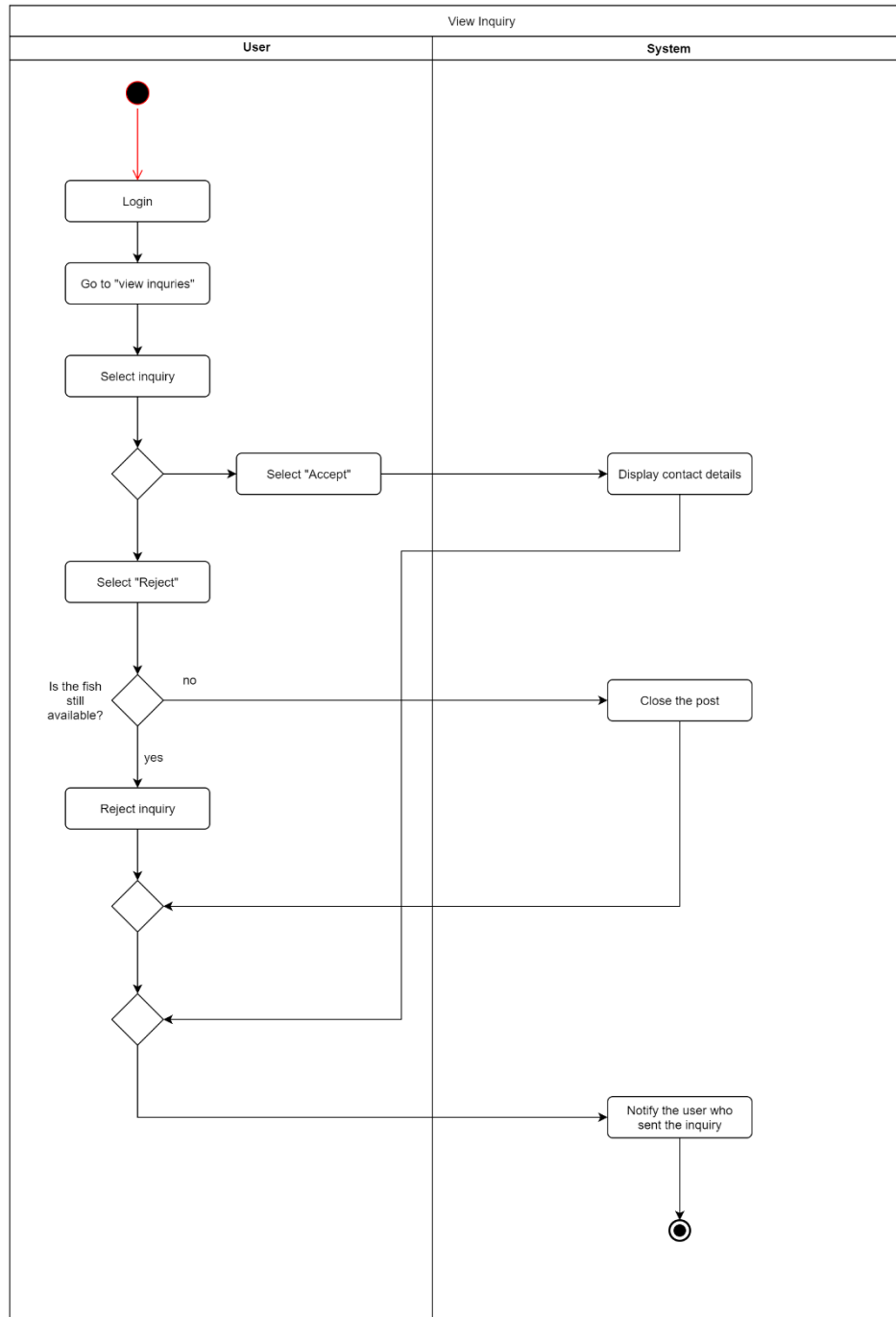


Figure 8.20 Activity diagram for View Inquiry

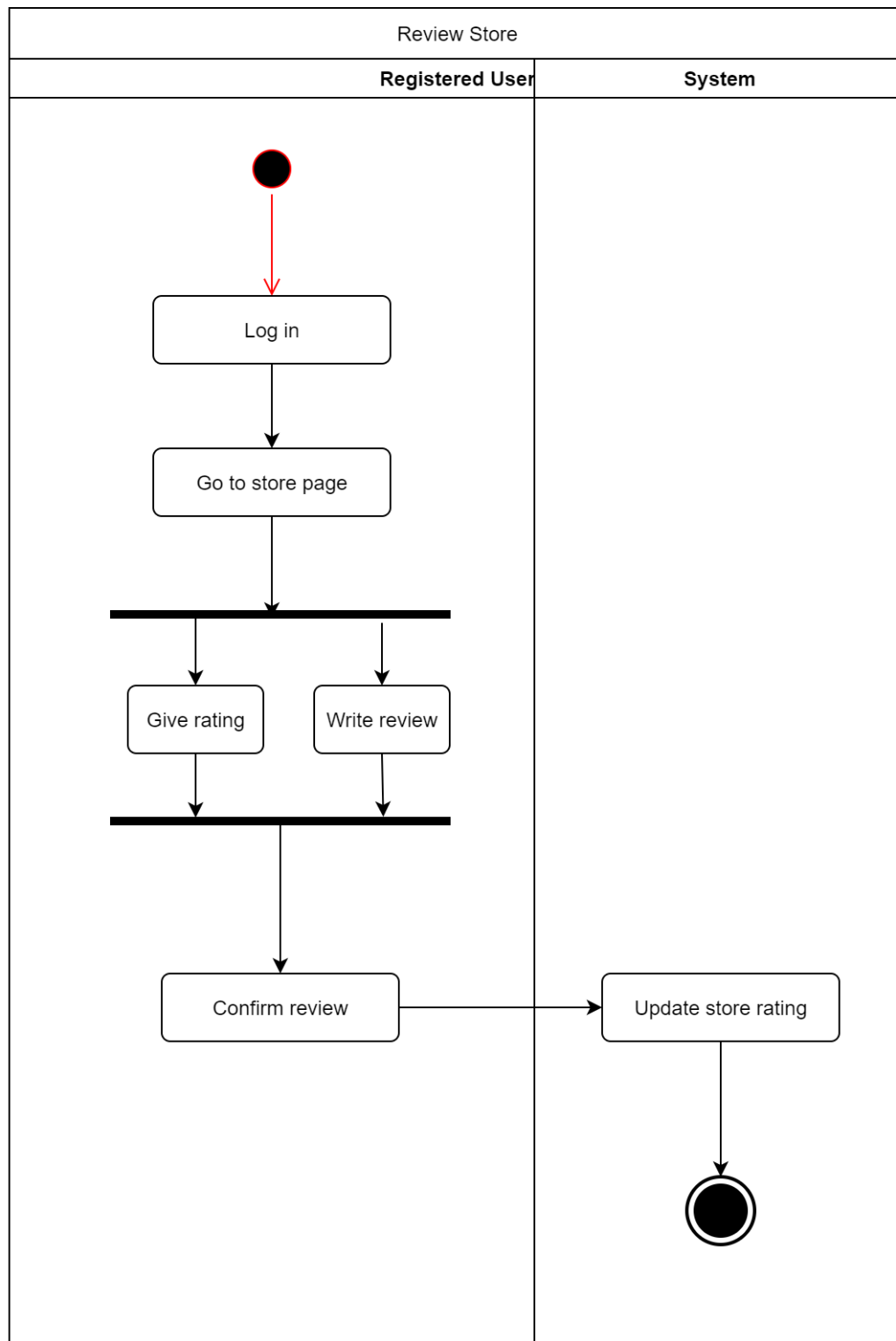


Figure 8.21 Activity diagram for Review Store

Information Hub

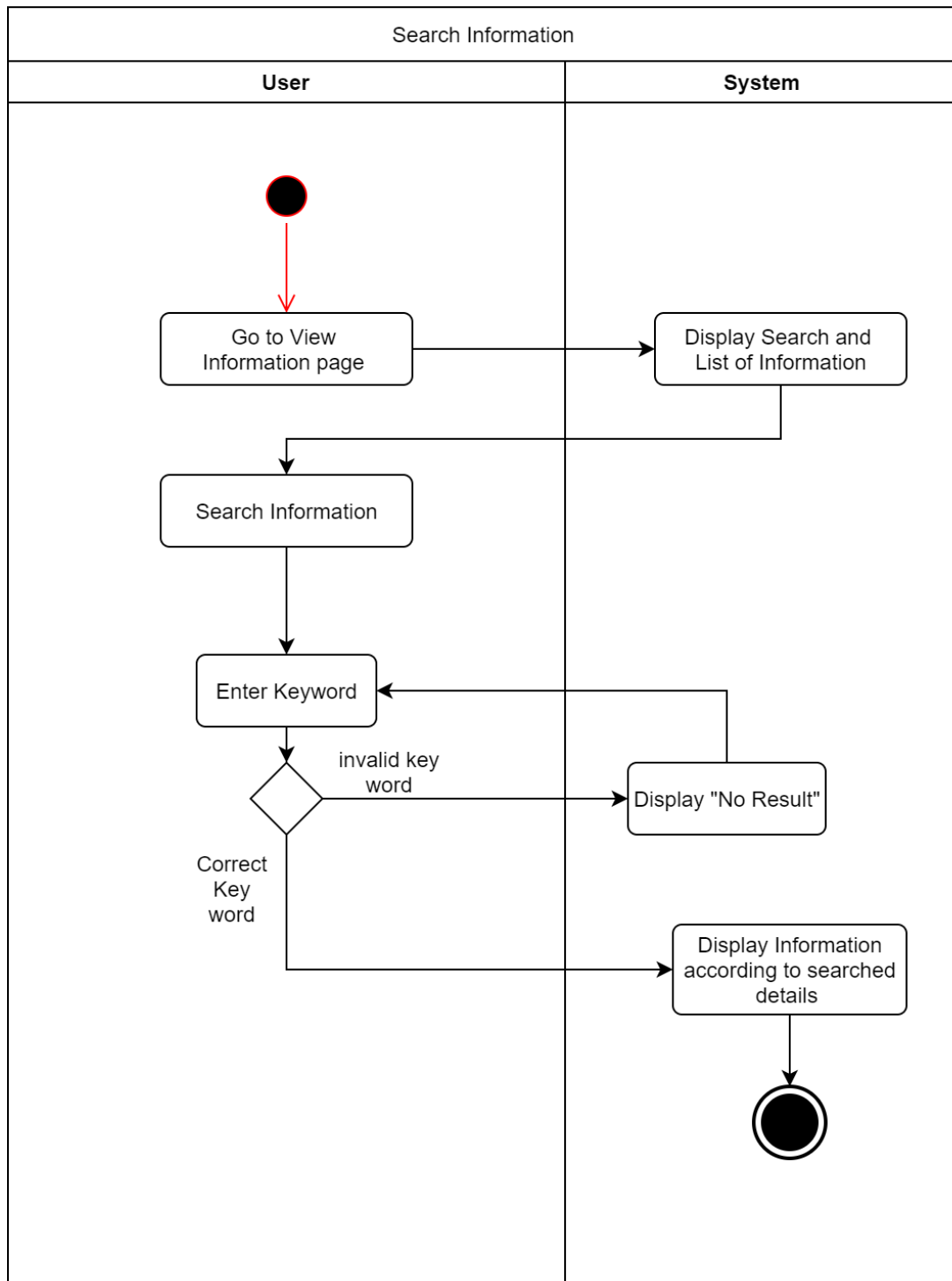


Figure 8.22 Activity diagram for Search Information

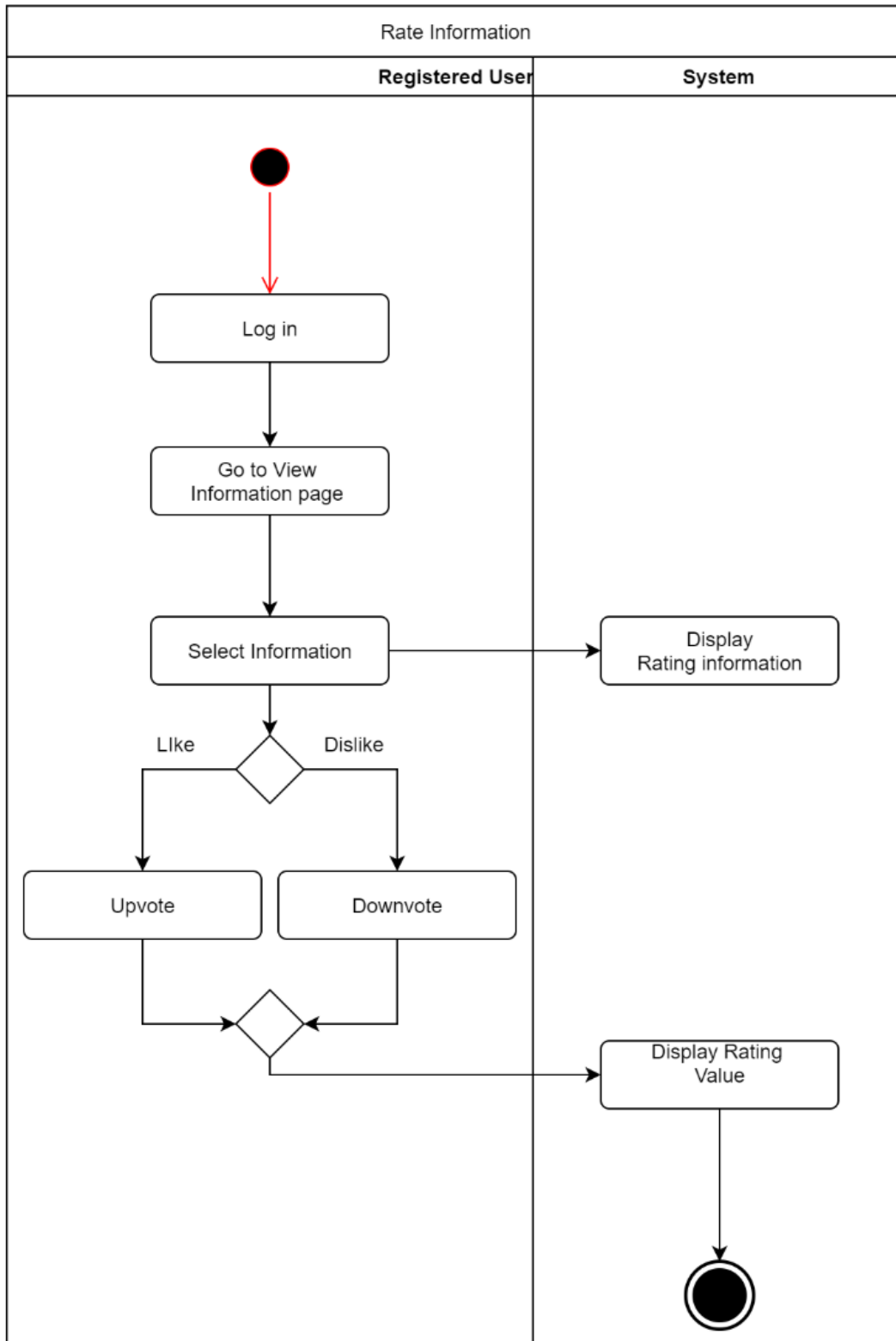


Figure 8.23 Activity diagram for Rate Information

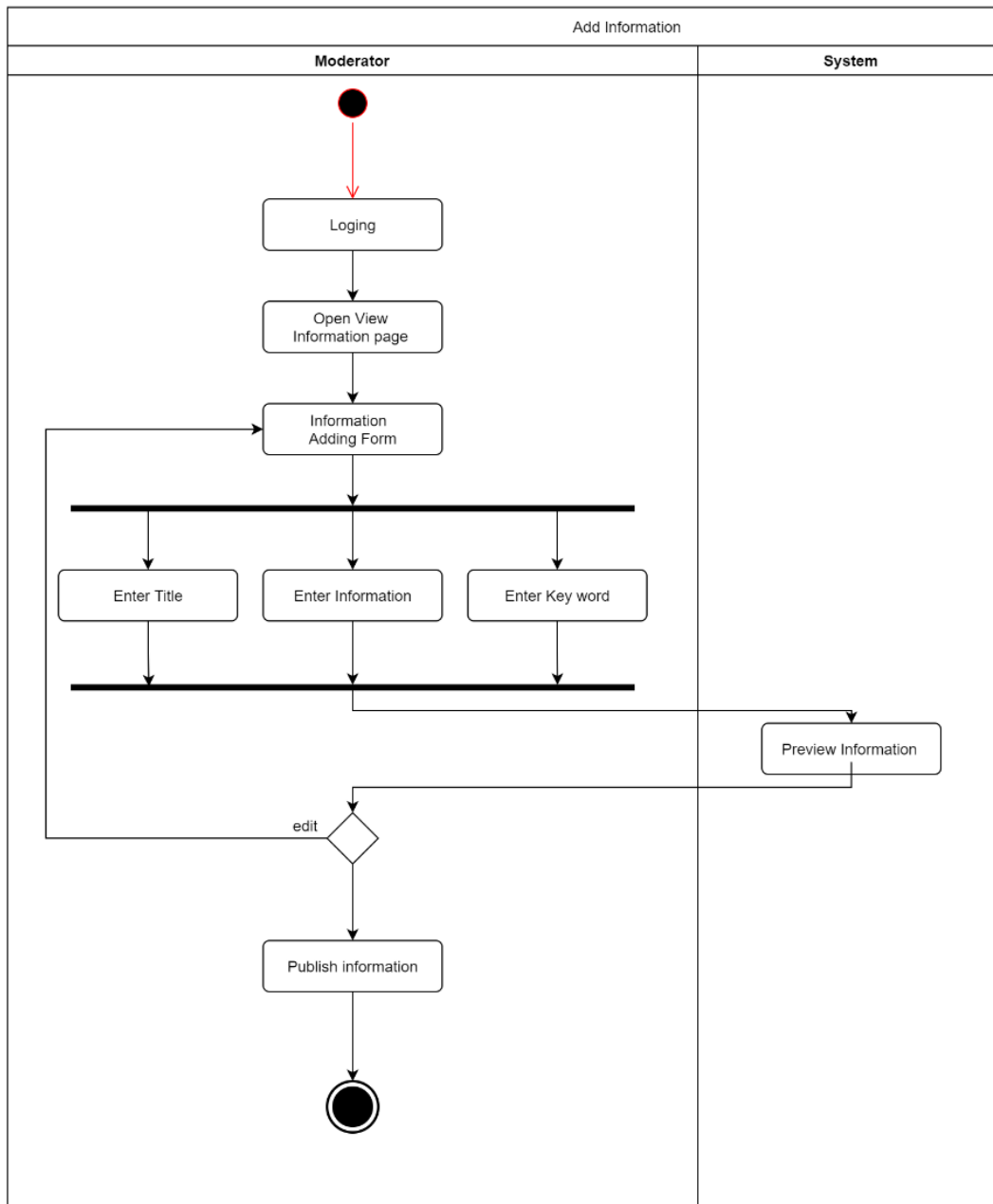


Figure 8.24 Activity diagram for Add Information

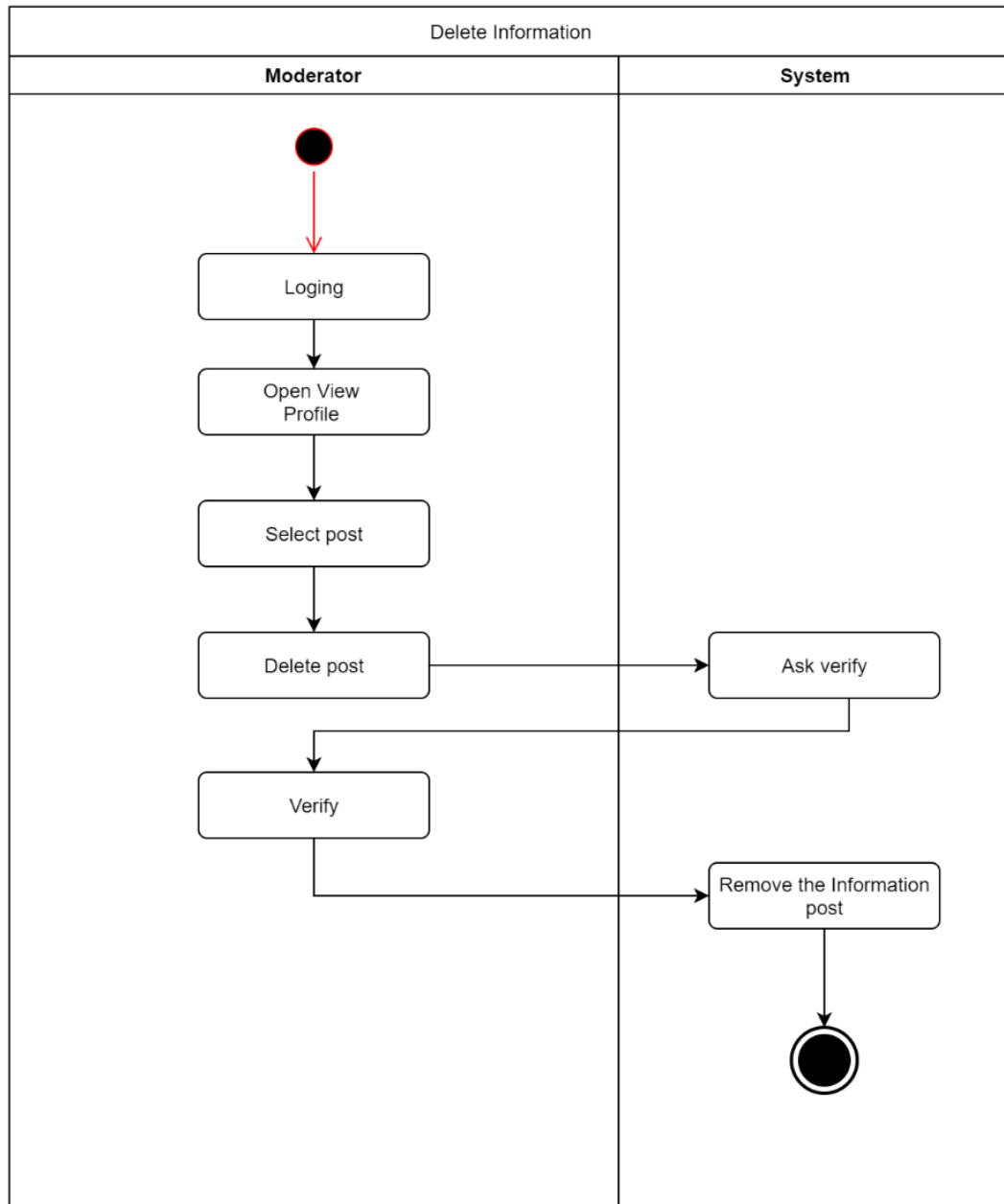


Figure 8.25 Activity diagram for Delete Information

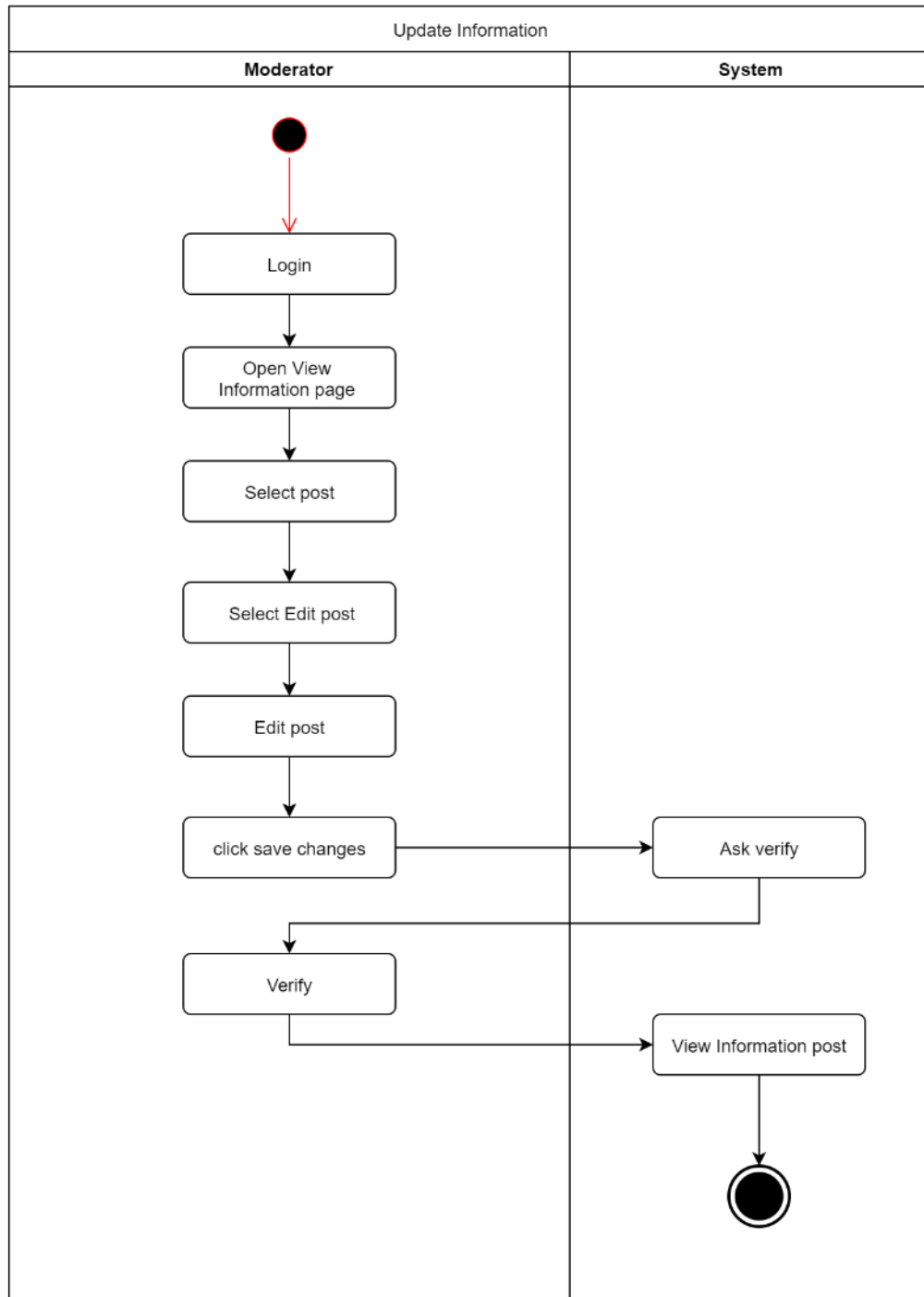


Figure 8.26 Activity diagram for Update Information

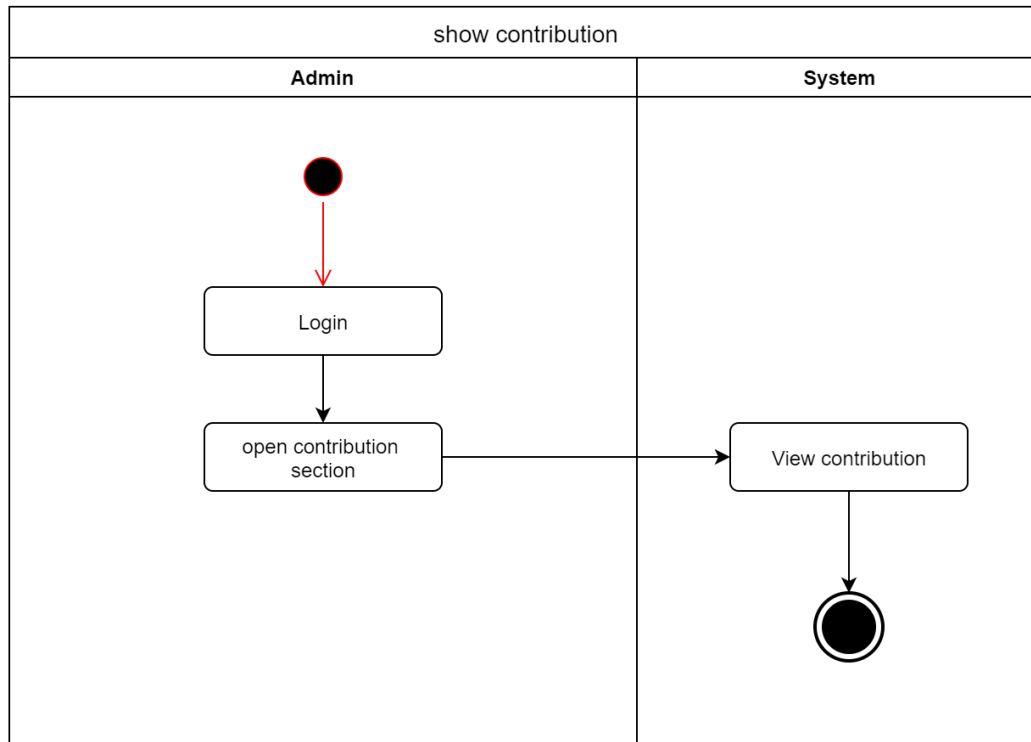


Figure 8.27 Activity diagram for Show Contribution

Community Events

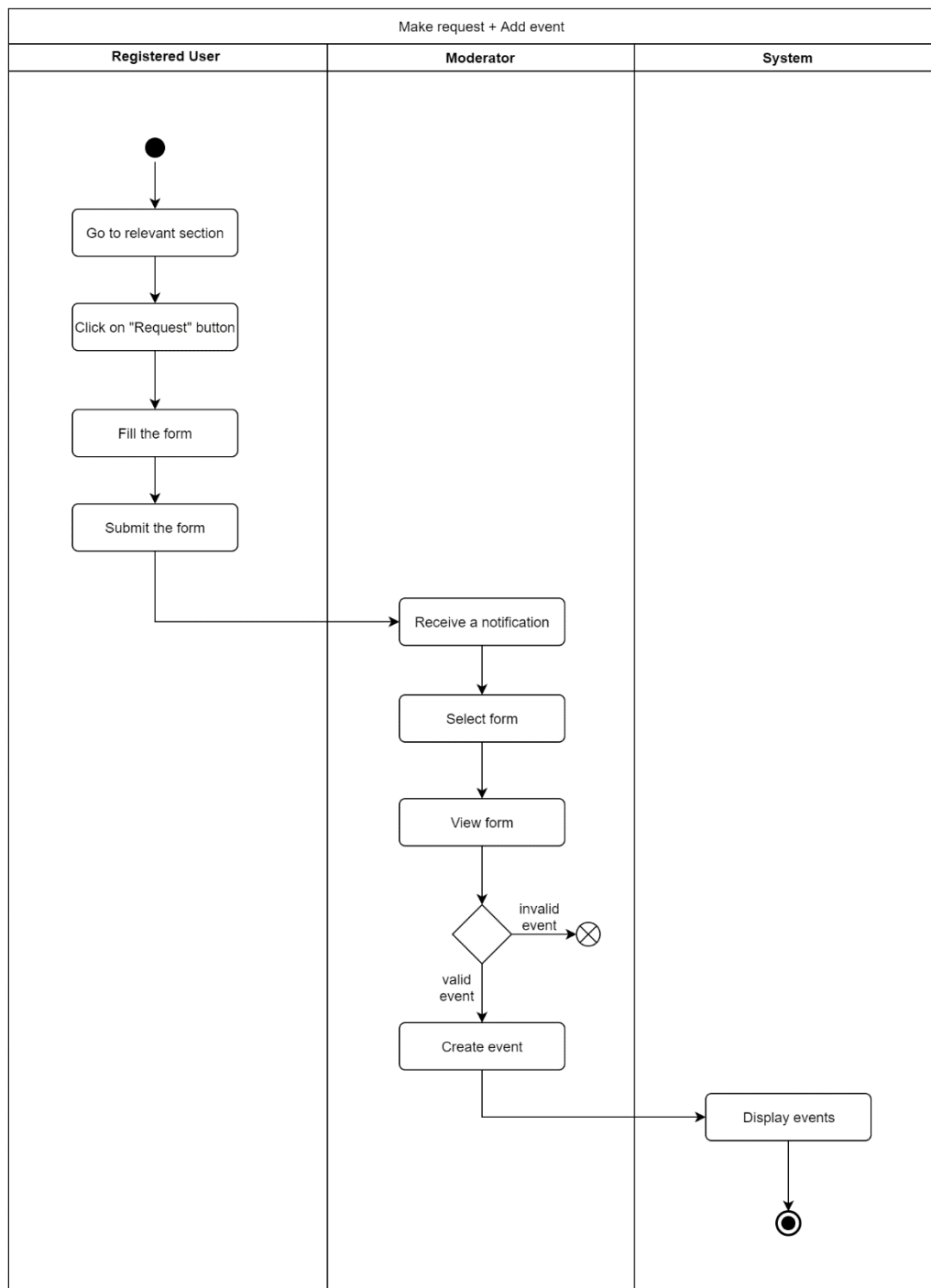


Figure 8.28 Activity diagram for Add Event

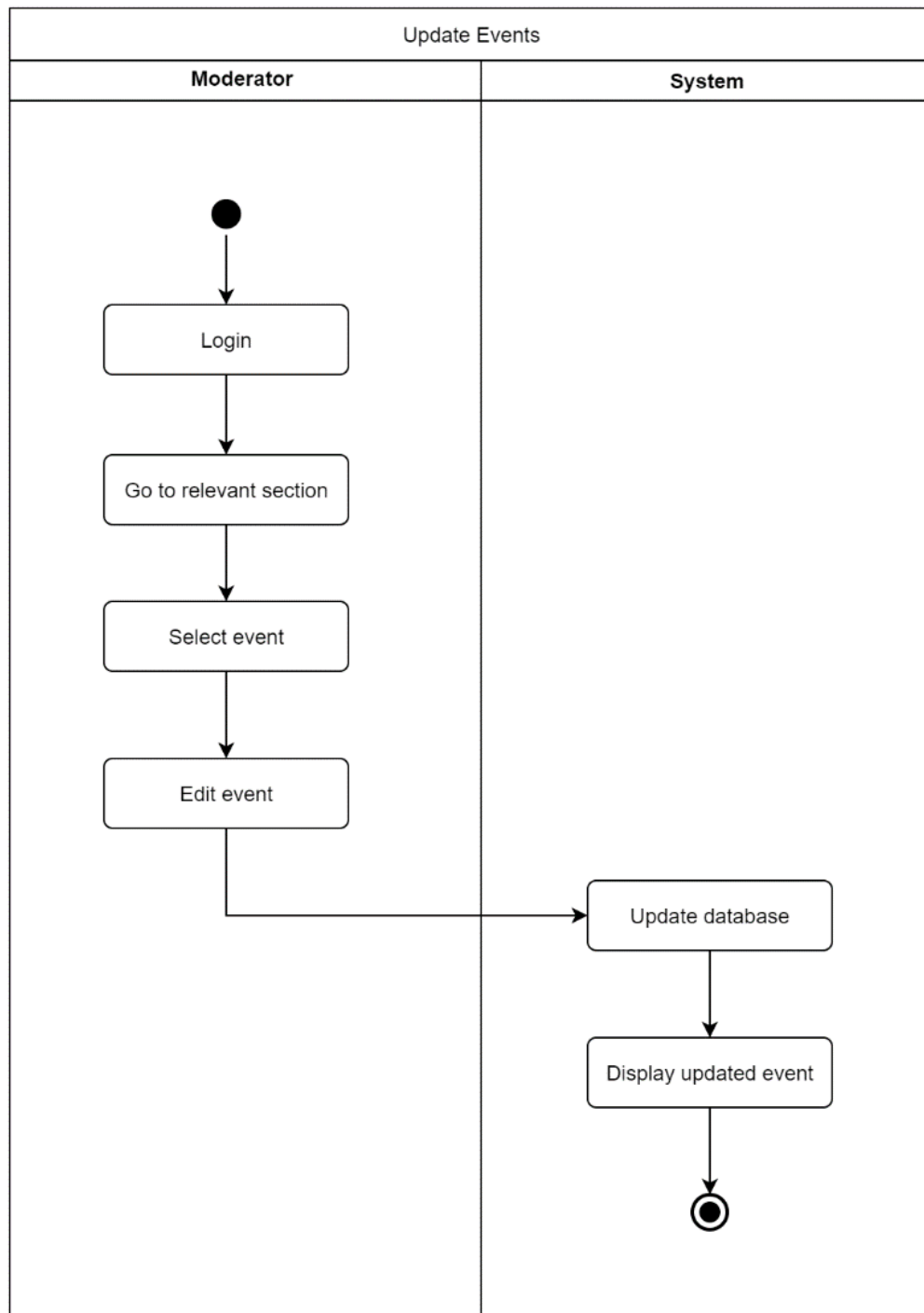


Figure 8.29 Activity diagram for Update Event

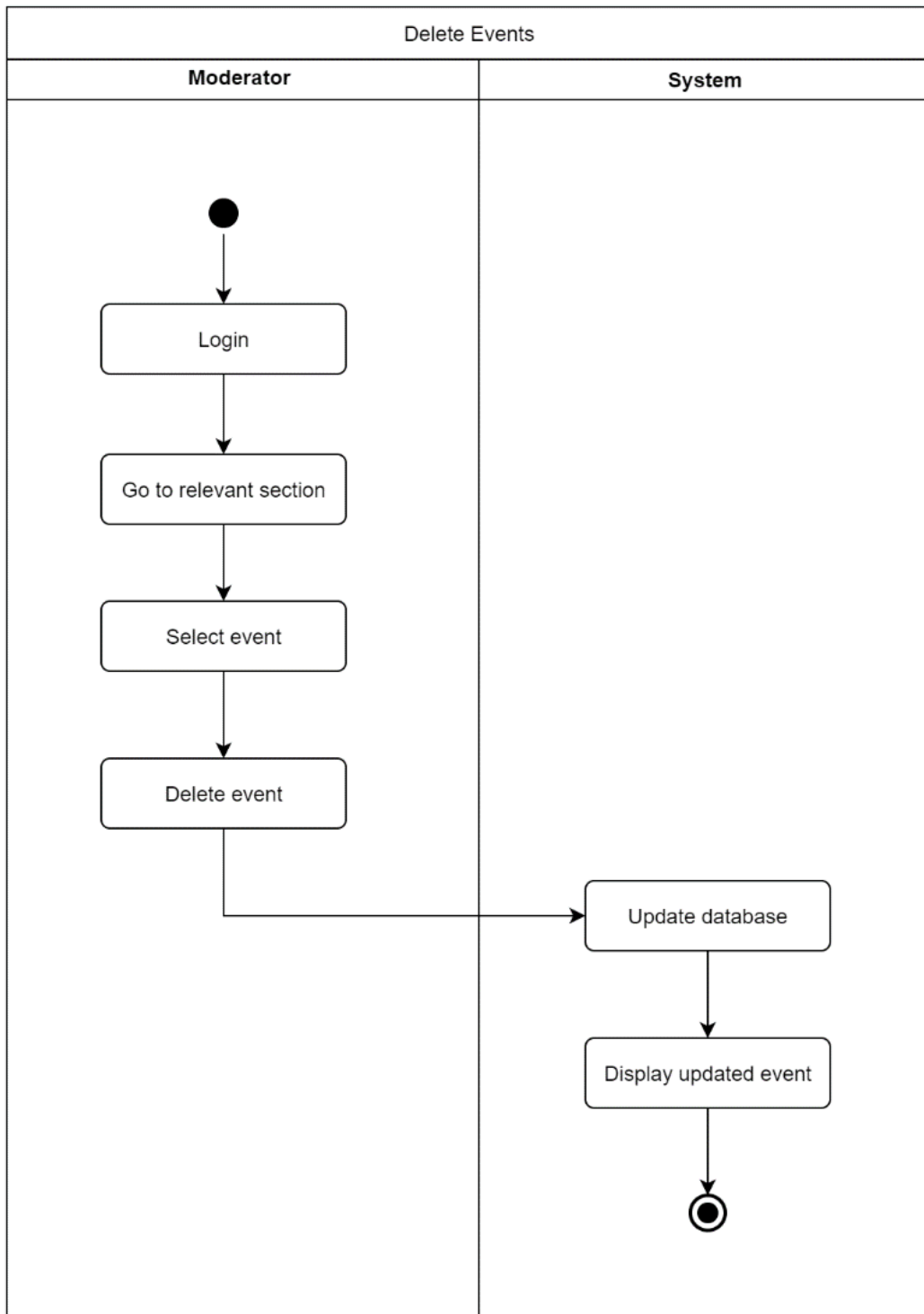


Figure 8.30 Activity diagram for Delete Event

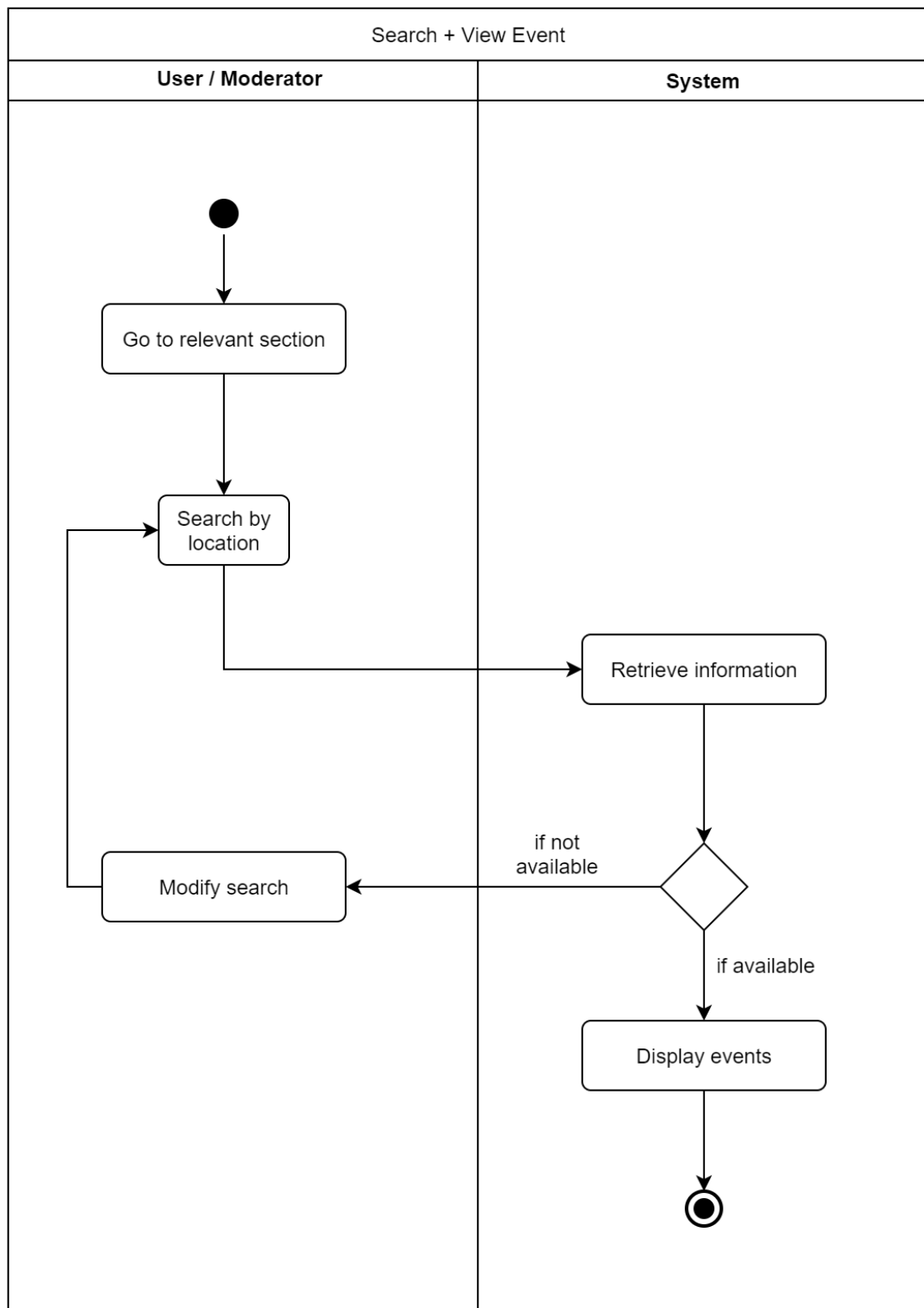


Figure 8.31 Activity diagram for Search Event

8.1.4 Component Diagram

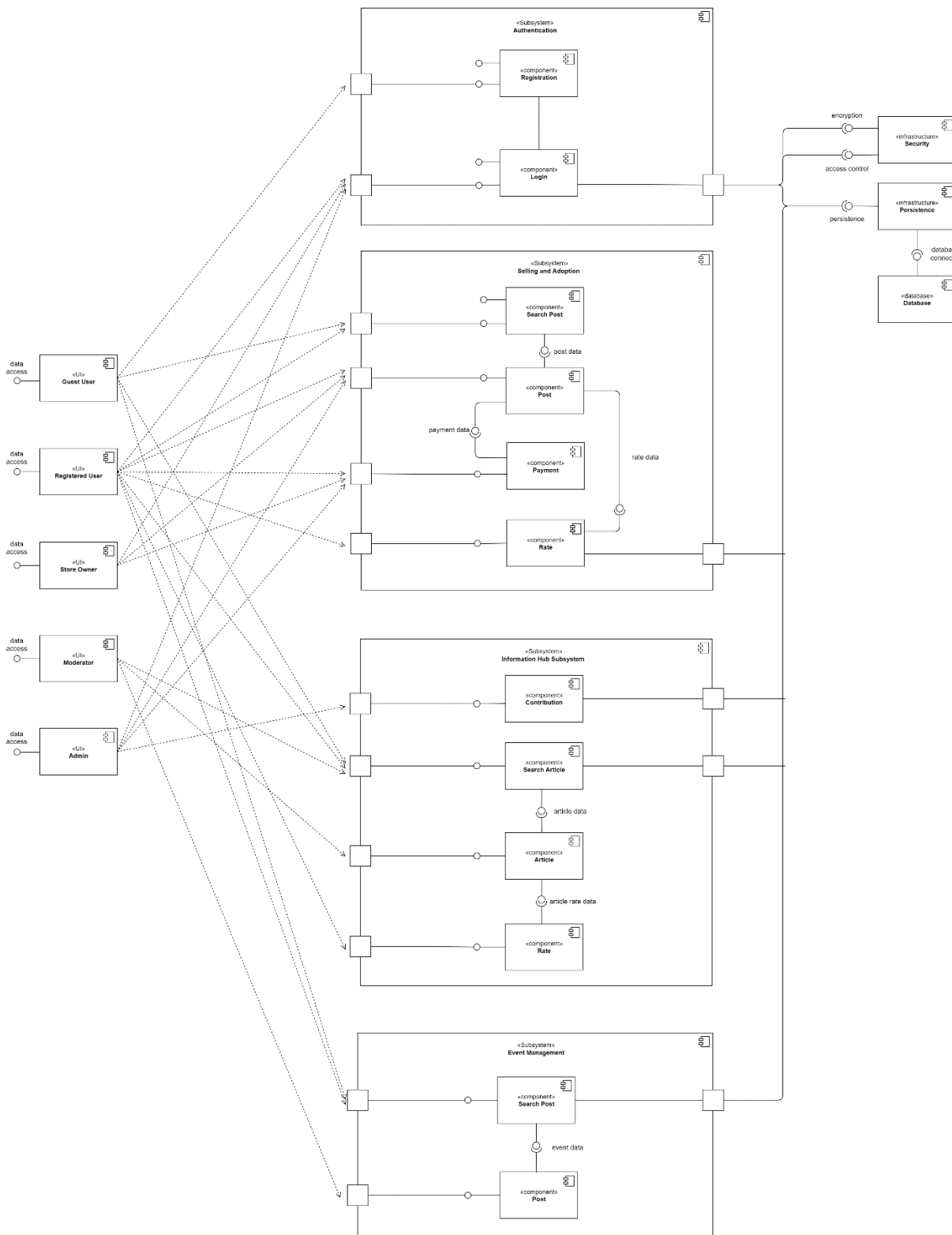


Figure 8.32 Component Diagram

8.2 Quality Attributes

Usability

- The system will maintain a simple user interface that will ensure that users unfamiliar with the system can easily familiarize themselves with it. The interface will also be responsive such that it will not affect a user's experience depending on the device they access the browser from.
- Icons, headings and text fields used will be modern and meaningful that will guide a user to use the webpage intuitively. Buttons will be clearly labelled to avoid confusions.
- Both Sinhala and English will be available for the user when searching through the website.

Availability

The website will be available for users 24 hours a day 365 days a year. To make sure the platform achieves this,

- We will maintain a good back-up system so that in the case of faults within the database no loss of data will occur.
- In the case of an update, users will be notified beforehand.

Security

The website will regularly deal with transactions and will store certain personal data of users. To ensure that the system remains safe and secure for the users,

- Registered users, moderators and the admin will have different access levels and privileges.
- Authentication will be carried out for every login.
- All passwords will be encrypted using a suitable method (MD5) to protect users' data.
- A secure and reliable payment gateway method will be used for money transactions.

Performance

- The system will use simple and effective algorithms for its functionalities.
- A good hosting service will be used to ensure that our website will always run smoothly.

Portability

- Standard programming languages such as HTML, CSS, JavaScript and PHP that can run on all browsers will be used in implementation.
- The system will be compatible with all hardware used to access the web application.

Maintainability

To ensure that the code used for the system remains readable, understandable and modifiable over time for uses such as maintenances, we will commit to maintaining,

- A good documentation throughout the software development life cycle
- Use clear comments that follow a singular format across all code files.
- Coding standards will be utilized.
- The system will be designed as modules.

9 Declaration

We, as members of the project titled **AquaSpace**, 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 acknowledgment, any material previously submitted for a degree or diploma in any university. To the best of our knowledge and belief, 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	Signature
19000405	D.M.D.S. Dissanayake	
19000499	I.M. Gunasekara	
19001495	K.P. Samarajeewa	
19000792	W.R. Lakshan	