



# EAST WEST UNIVERSITY

## Project Report – online train ticket management system



### - TixFriend BD

**Course Title** : Information System Analysis and Design  
**Course Code** : CSE-347  
**Section** : 02  
**Semester** : Fall 2024

#### **Submitted To**

Anika Tabassum  
Lecturer  
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# Letter of Transmittal

Anika Tabassum  
Lecturer  
Department of Computer Science and Engineering  
East West University

**Subject:** Submission of Term Report on "TixFriend BD: Online Train Ticket Management System"

Ma'am,

With due respect, we are pleased to submit our term report on Software Requirement Specification for the above-mentioned topic as per your assignment. This report highlights our efforts to analyze and document the requirements for creating an efficient train ticket management system.

Throughout the process, we have followed the necessary steps to gather, analyze, and document the requirements in detail. We have also included our proposed solutions and models to reflect our understanding of the project objectives.

We sincerely hope that you will find our work up to your expectations. Kindly excuse any errors and provide your valuable feedback for improvement.

Yours sincerely,

On behalf of the group

Mohua Akter

2022-3-60-112  
Department of Computer Science and Engineering

# Acknowledgement

We are deeply grateful for the opportunity to prepare this report on the **TixFriend BD: Train Ticket Management System**. We extend our heartfelt gratitude to our respected course teacher, Anika Tabassum, Lecturer, Department of Computer Science and Engineering, for her guidance and continuous support throughout the preparation of this report.

We also acknowledge the invaluable input and feedback provided by our peers and stakeholders, which greatly enriched our understanding of the requirements for this system. Their contributions were instrumental in shaping the content and quality of this report.

Lastly, we appreciate the collaborative efforts of our team members in accomplishing this task effectively.

# Abstract

**TixFriend BD: Train Ticket Management System** is an innovative solution designed to manage and simplify the process of train ticket reservations, cancellations, and travel history management for users while providing a robust administration system. This report presents the **Software Requirement Specification (SRS)** for the system, detailing the requirements, functionalities, and processes identified during our analysis phase.

The objective of this system is to create an efficient platform that benefits multiple stakeholders, including users, administrators, employees, and regional ticket managers, through features like real-time seat availability, live train locations, customer support, and route management.

Our analysis emphasizes developing a user-friendly, scalable, and secure system using **Oracle APEX** to meet both functional and non-functional requirements. This document serves as a foundation for the system's design and development, reflecting the goals and scope of this project.

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# Chapter 1: Introduction

This chapter outlines the purpose, audience, and foundational details of the Software Requirements Specification (SRS) for "TlxFriend BD," a train ticket management system developed by Mohua Akter under the supervision of Anika Tabassum.

## 1.1 Purpose

The SRS defines the functional, non-functional, and support requirements for "TlxFriend BD." It serves as a comprehensive reference for stakeholders and ensures clarity during system development. Key objectives include:

- Establishing requirements baseline for developers.
- Bridging communication between stakeholders and developers.
- Facilitating design, development, and testing processes.

This document evolves through collaborative efforts to validate, clarify, and expand its contents.

## 1.2 Intended Audience

The SRS targets the following groups:

- **Customers:** Verify the system meets their requirements.
- **Project Managers:** Plan milestones, track progress, and maintain timelines.
- **Designers:** Use the SRS as a foundation for system design.
- **Developers:** Translate requirements into functional software.
- **Testers:** Create and execute test cases to ensure requirements are met.

## 1.3 Conclusion

This document ensures all stakeholders have a clear understanding of the project's objectives, aiding smooth communication and efficient development.

## Chapter 2: Inception

The inception phase sets the groundwork for "TIxFriend BD" by identifying stakeholders, viewpoints, and initial requirements.

### 2.1 Introduction

Inception marks the starting point of requirements engineering. It involves defining the problem scope, understanding stakeholder needs, and aligning objectives. Key activities include:

- Identifying stakeholders.
- Recognizing multiple viewpoints.
- Establishing collaboration.
- Asking foundational questions.

#### 2.1.1 Identifying Stakeholders

Key stakeholders for "TIxFriend BD" include:

- **Users:** Individuals booking train tickets, accessing schedules, and managing trips.
- **Admin:** Oversees ticketing, user management, and system maintenance.
- **Employees:** Provide customer support and operational assistance.
- **Regional Managers:** Manage regional operations and monitor system performance.

#### 2.1.2 Recognizing Multiple Viewpoints

Stakeholders have unique requirements:

- **Users:**
  - Easy navigation.
  - Secure transactions.
  - Access to train schedules and booking history.
- **Admin:**
  - Comprehensive control panel.
  - Real-time reports and analytics.
- **Employees:**
  - User-friendly interfaces.
  - Efficient tools for query management.
- **Regional Managers:**
  - Streamlined data access for regional oversight.

#### 2.1.3 Working Towards Collaboration

To reconcile differing viewpoints, we:

- Identified common and conflicting requirements.
- Prioritized needs through stakeholder discussions.

- Finalized system objectives based on consensus.

#### 2.1.4 Asking the First Questions

Key questions addressed:

1. Who are the primary users of the system?
2. What are the main challenges with the current ticketing process?
3. What specific features will enhance user satisfaction?

#### 2.2 Conclusion

The inception phase provided a foundational understanding of "TIXFriend BD," paving the way for detailed requirement elicitation.

### Chapter 3: Elicitation

This chapter details the process of gathering and validating requirements for "TIXFriend BD."

#### 3.1 Introduction

Elicitation is a collaborative process involving stakeholders to identify precise system requirements. Challenges included time constraints and aligning diverse viewpoints, which were overcome through systematic methods.

#### 3.2 Eliciting Requirements

Key tasks included:

1. Collaborative requirements gathering.
2. Quality Function Deployment (QFD).
3. Usage scenarios.
4. Documentation of elicitation work products.

#### 3.3 Collaborative Requirements Gathering

Steps taken:

- Conducted meetings with stakeholders to discuss needs and expectations.
- Documented existing challenges with manual ticketing systems.
- Prioritized features through iterative discussions.

#### 3.4 Quality Function Deployment (QFD)

**Normal Requirements:**

1. Online ticket booking.
2. Train schedule access.
3. Secure login/logout.
4. User feedback collection.
5. Database for users and tickets.

### **Expected Requirements:**

1. User-friendly interface.
2. Real-time seat availability.
3. Secure payment methods.
4. Notifications for upcoming trips.
5. Backup and recovery of data.

### **Exciting Requirements:**

1. Live train location tracking.
2. Integration with mobile apps.
3. Chat support for users.
4. Personalized trip recommendations.
5. Social media login options.

## **3.5 Elicitation Work Products**

Outputs include:

- Comprehensive list of stakeholder needs.
- Prioritized system features.
- Documentation of user scenarios and workflows.

## **3.6 Conclusion**

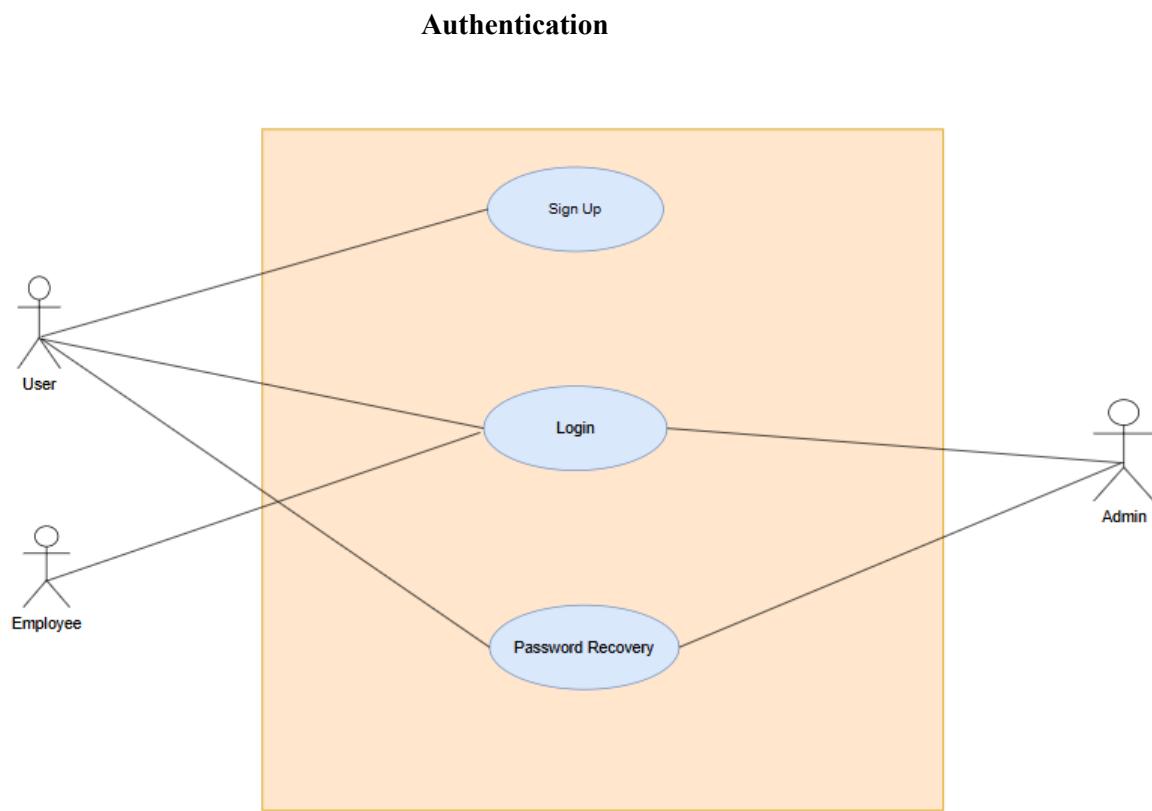
The elicitation phase established clear and actionable requirements for "TIXFriend BD," ensuring alignment between stakeholders' expectations and the system's capabilities.

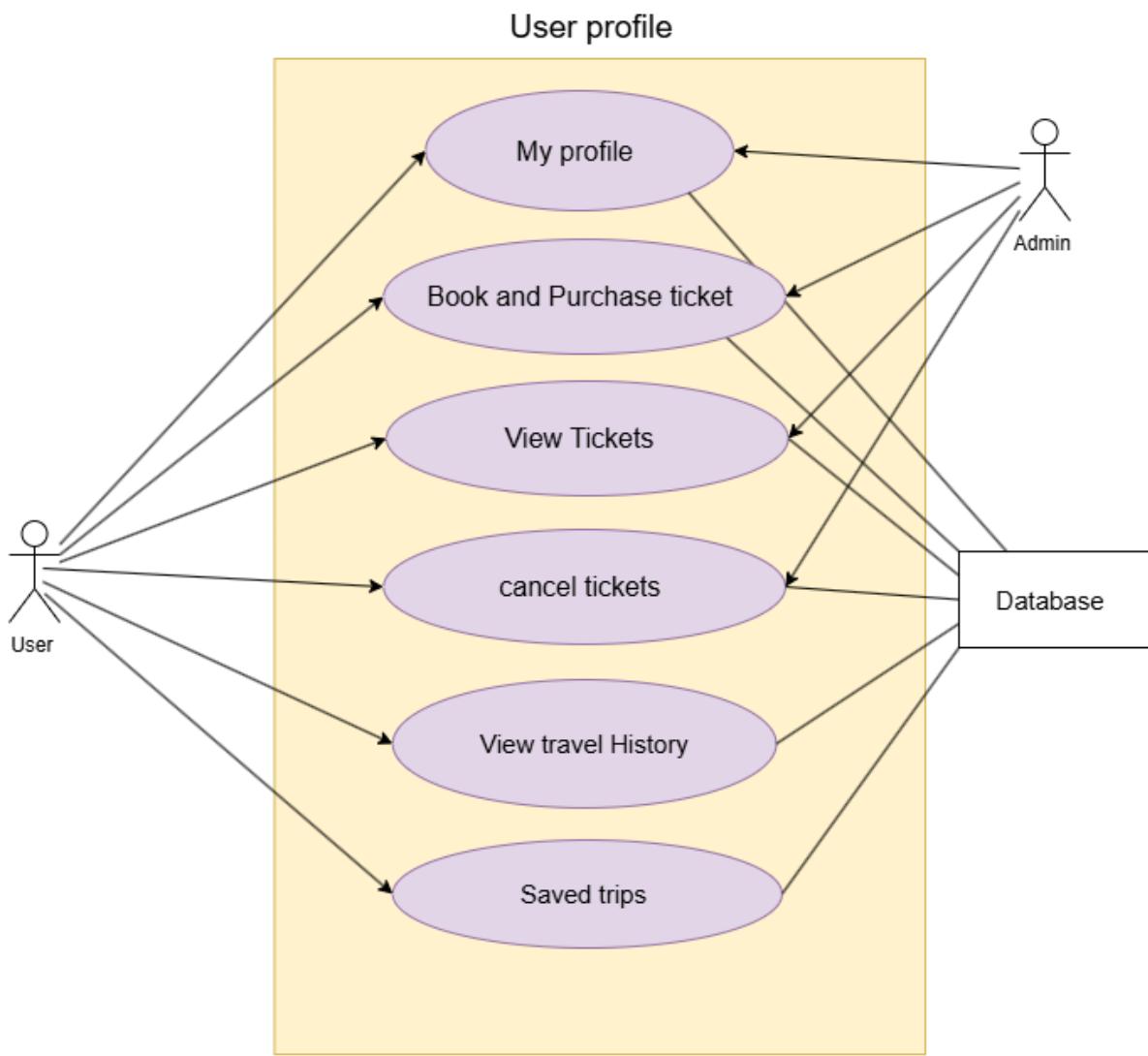
## Chapter 4: Scenario Based Modeling

level-0	Level -1	Level -2
An online based train ticket management system	Authentication  User profile  Ticket Management  Route information	Register (user)  Login (admin , employee, user)  Password Recovery (admin, user)  My profile (admin,user)  Book & Purchase Tickets (admin,user)  View tickets (admin,user)  Cancel tickets (admin,user)  View Travel History(user)  Saved trips (user)  System reports (admin)  Manage Tickets (admin)  Upload new trip (admin)

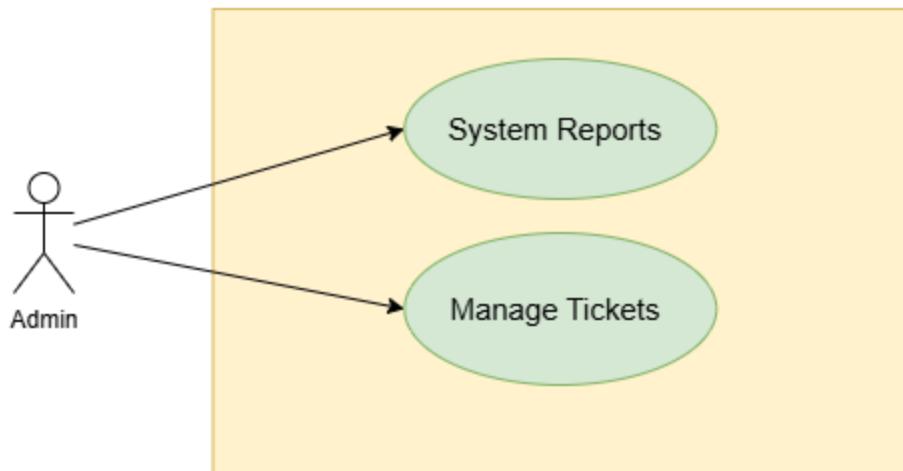
		Update trip(admin)
		Delete route (admin)
	Train ticket dashboard	<p>View Train Schedule (user)</p> <p>Check Seat Availability (user)</p> <p>View Route Details (user)</p> <p>Train live Location (user, admin)</p>
	Customer support	<p>Live chat (user)</p> <p>Call (user)</p> <p>Connect Regional Ticket Manager via email (admin,user)</p>
	Feed back	<p>Rate Trip Experience (user)</p> <p>Comment (user)</p> <p>Give suggestion(user, admin)</p>
	Payment	<p>Card</p> <p>Mobile Banking (bkash, Nagad, Rocket)</p>

## Chapter 5: Use Case Diagram

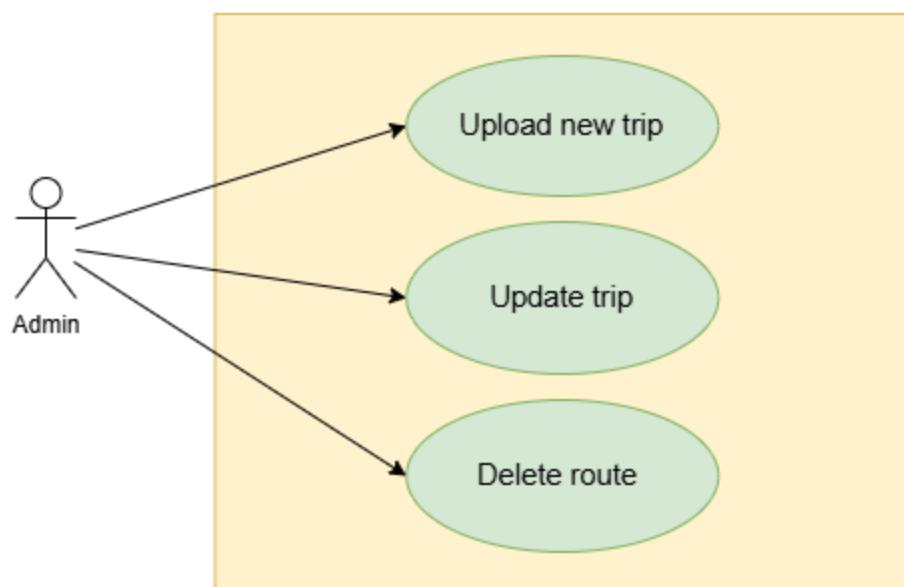




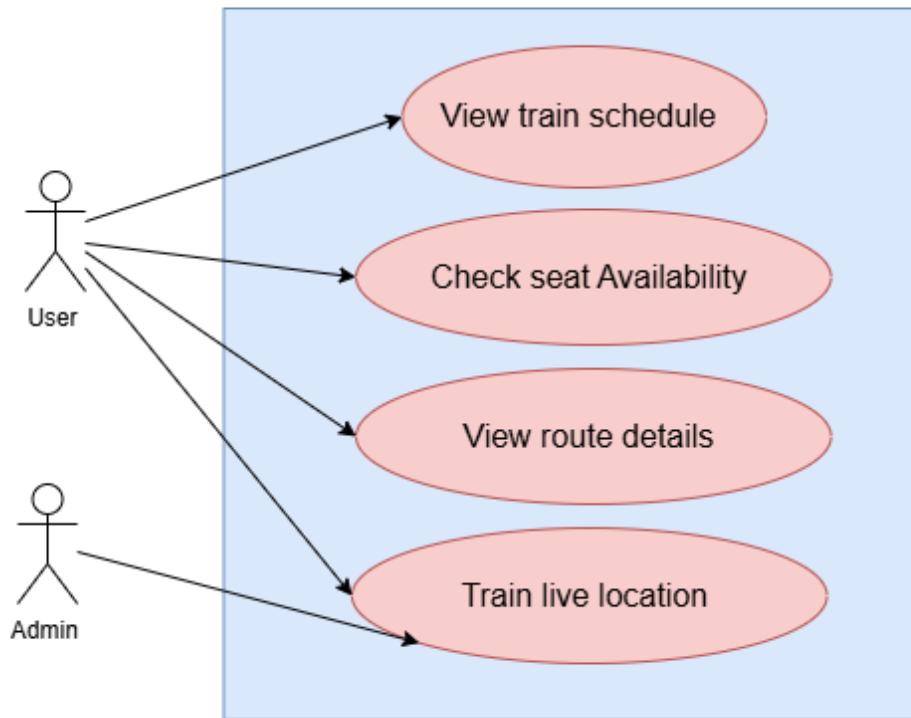
## Ticket Management



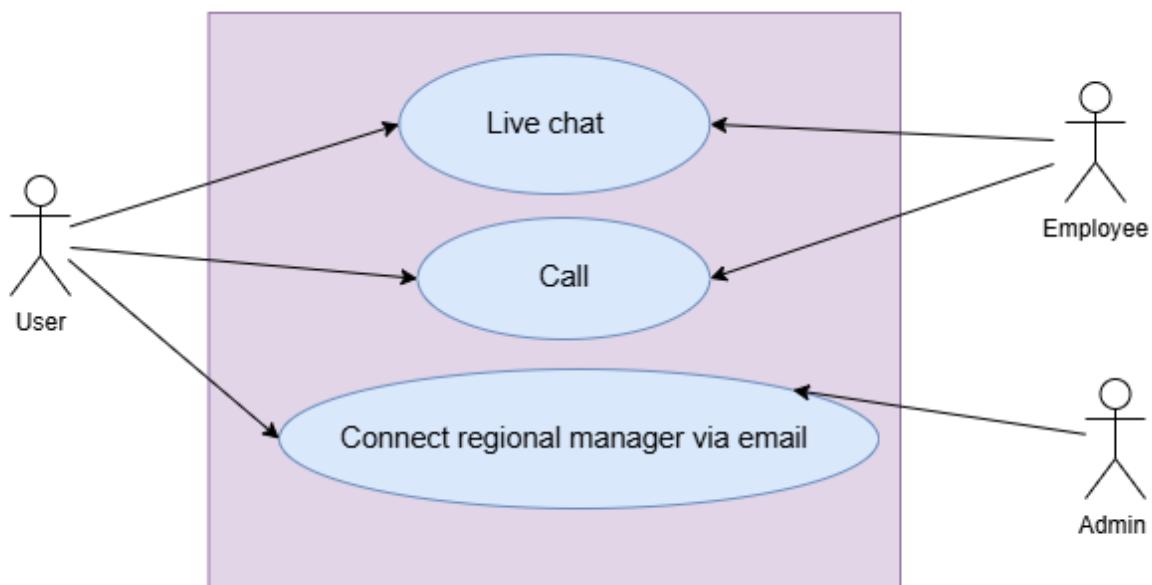
## Route Information



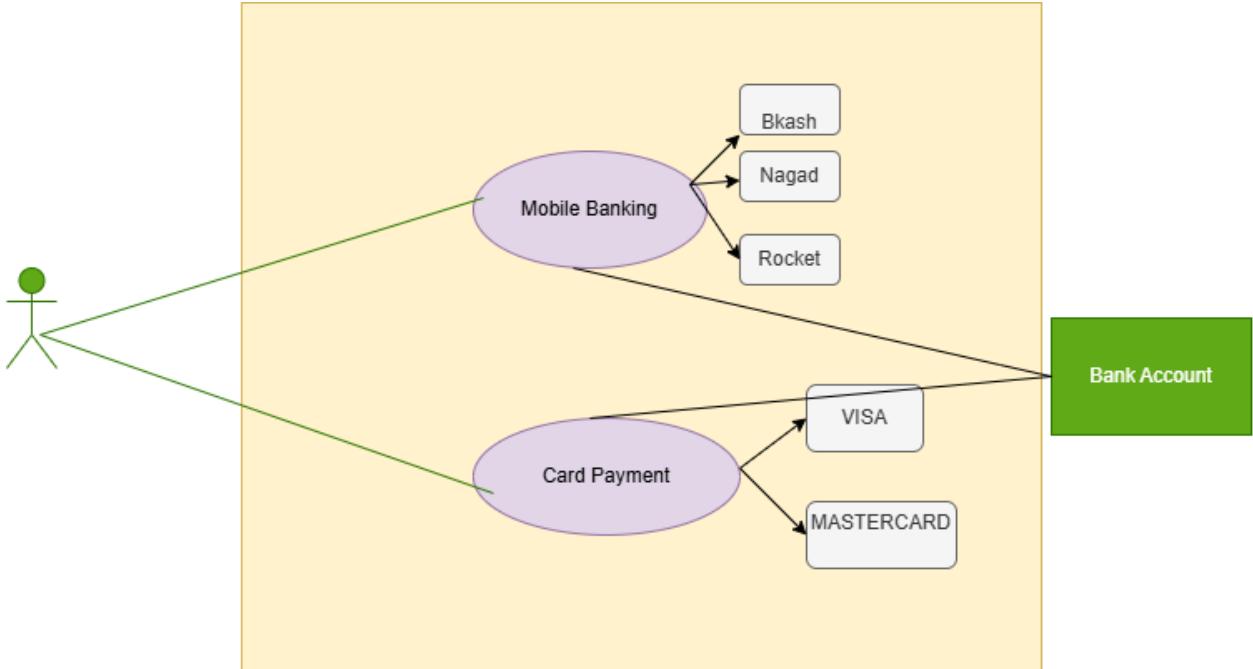
### Customer support



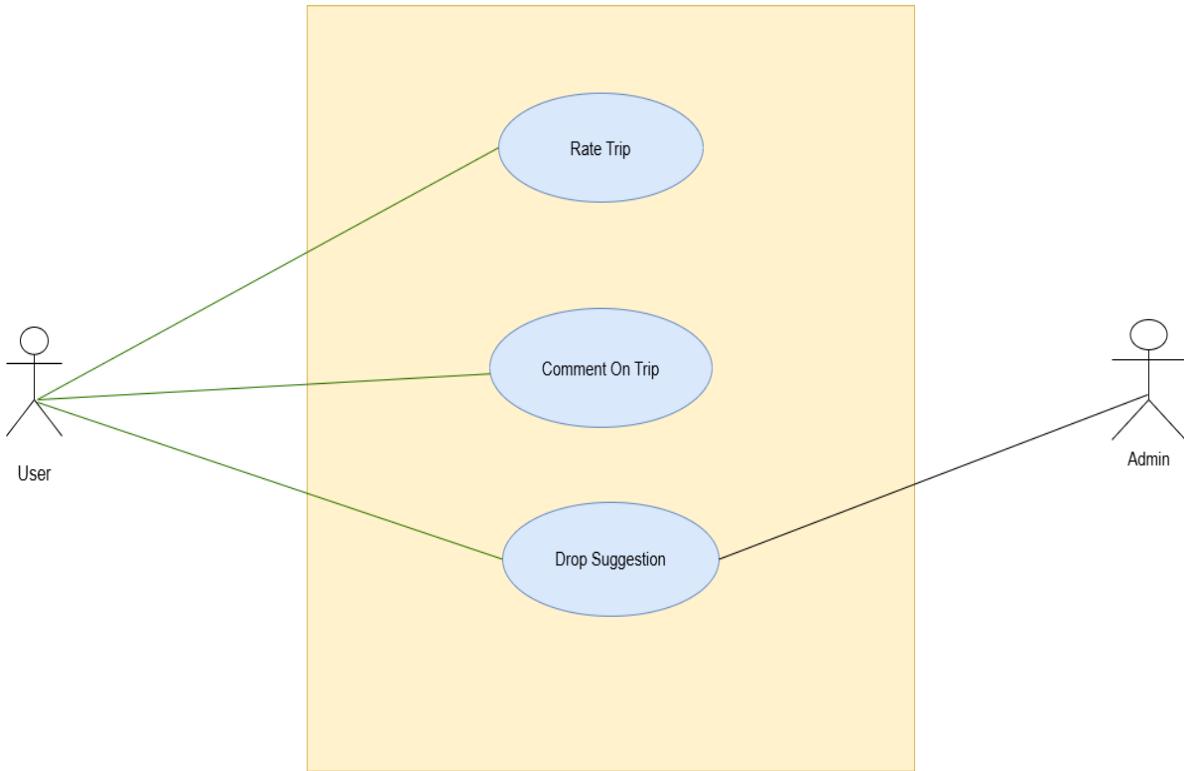
### Route Information



**Payment:**

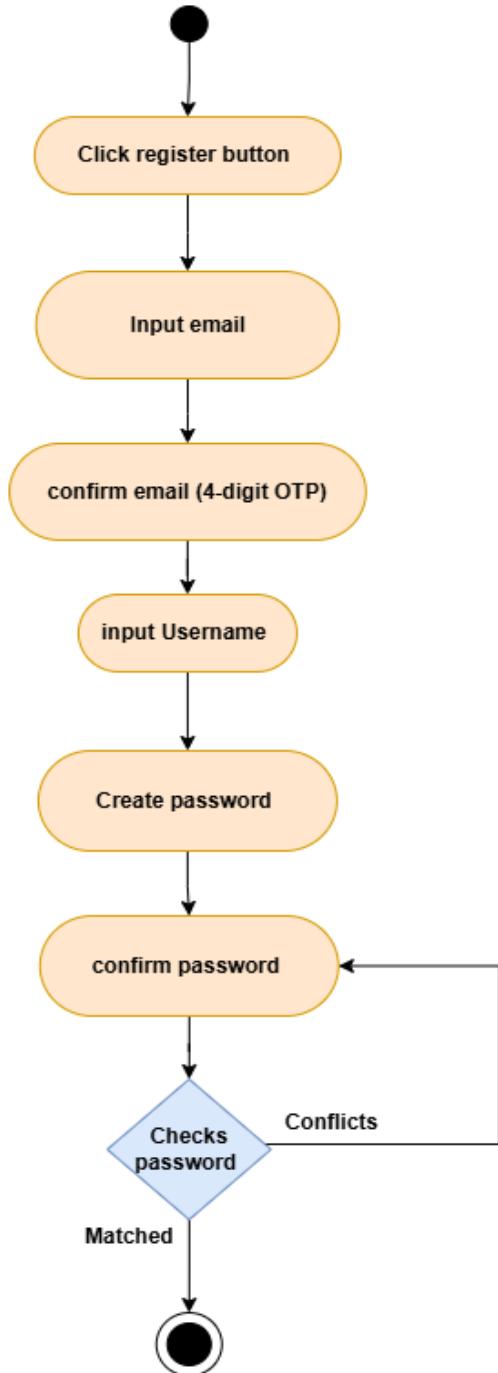


**Feedback:**

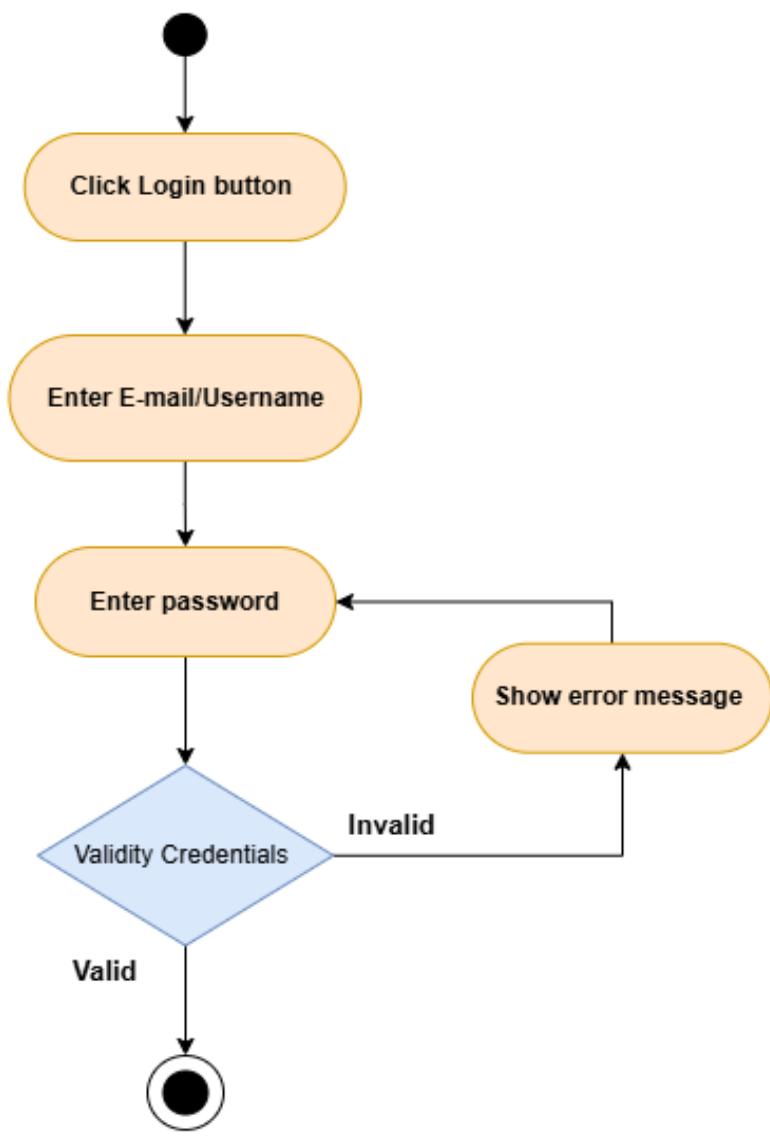


## Chapter 6: Activity Diagram

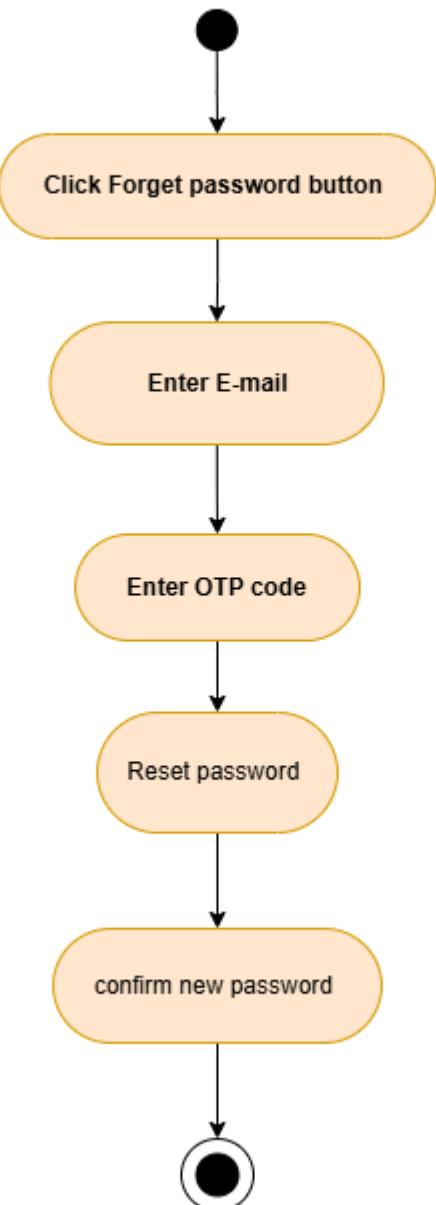
**Activity diagram of Registration**



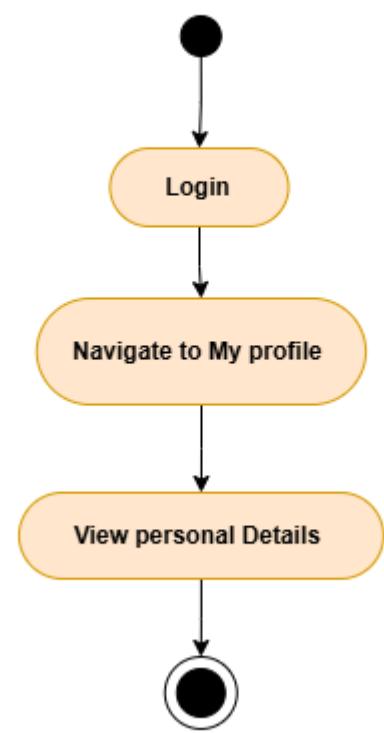
**Activity diagram of login**



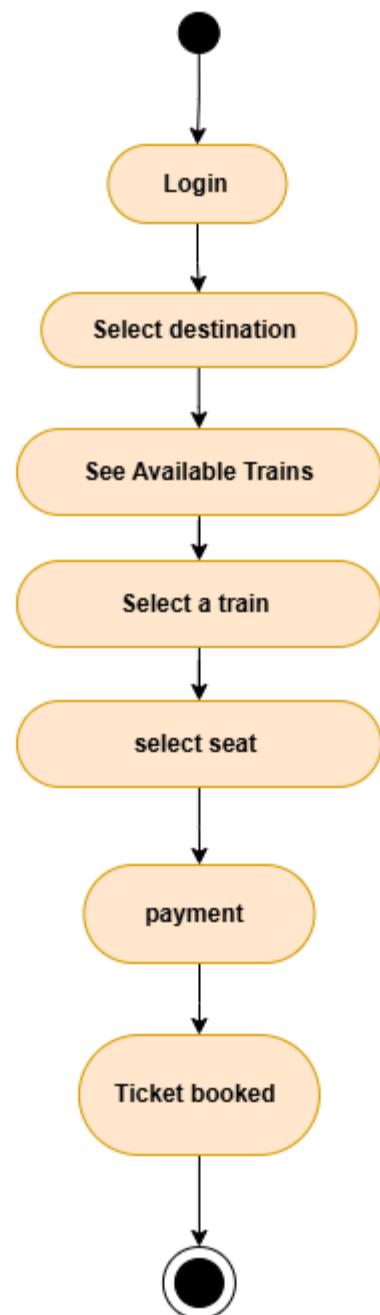
**Activity diagram of Password Recovery**



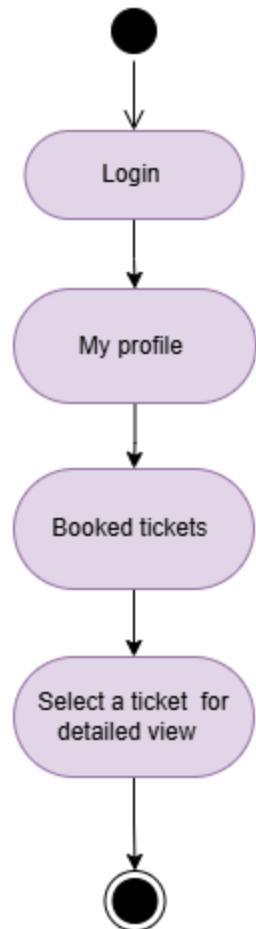
**Activity diagram for View profile**



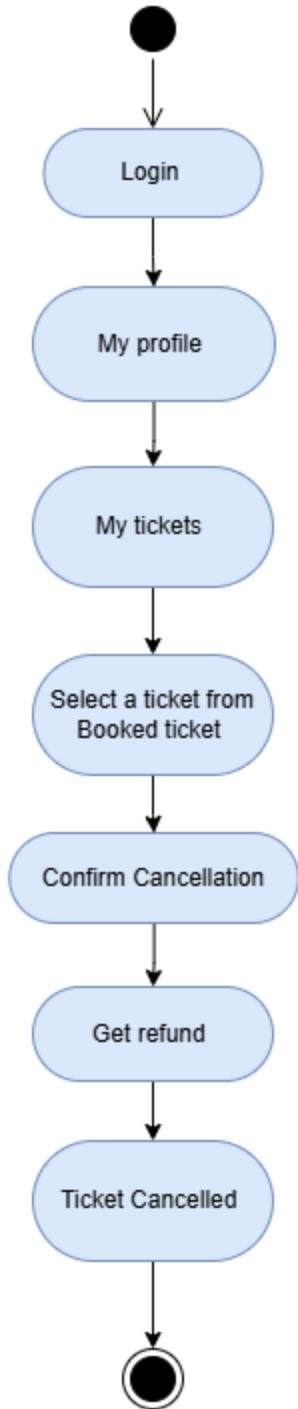
**Activity diagram for book tickets**



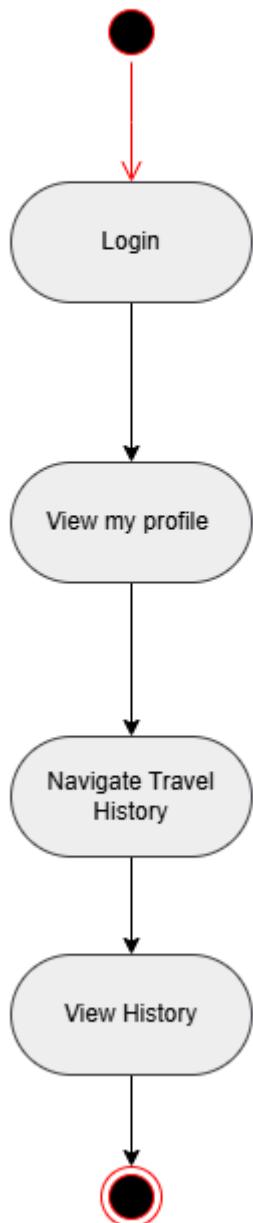
### Activity diagram for View Tickets



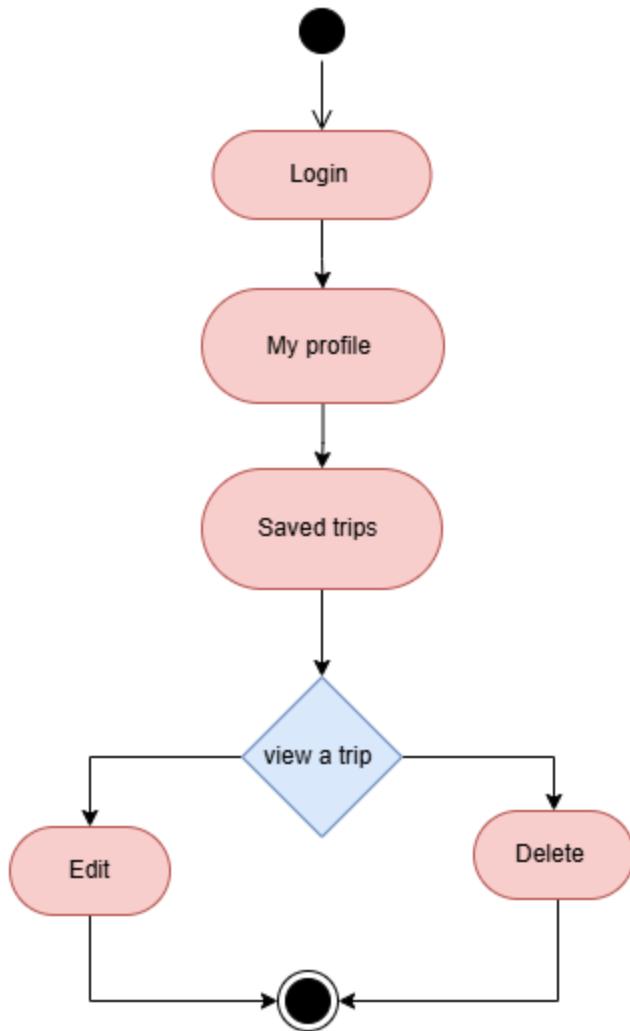
### Activity diagram for cancel Tickets



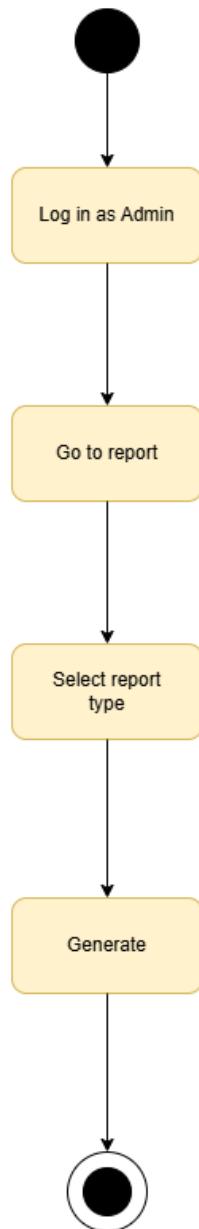
View Travel History



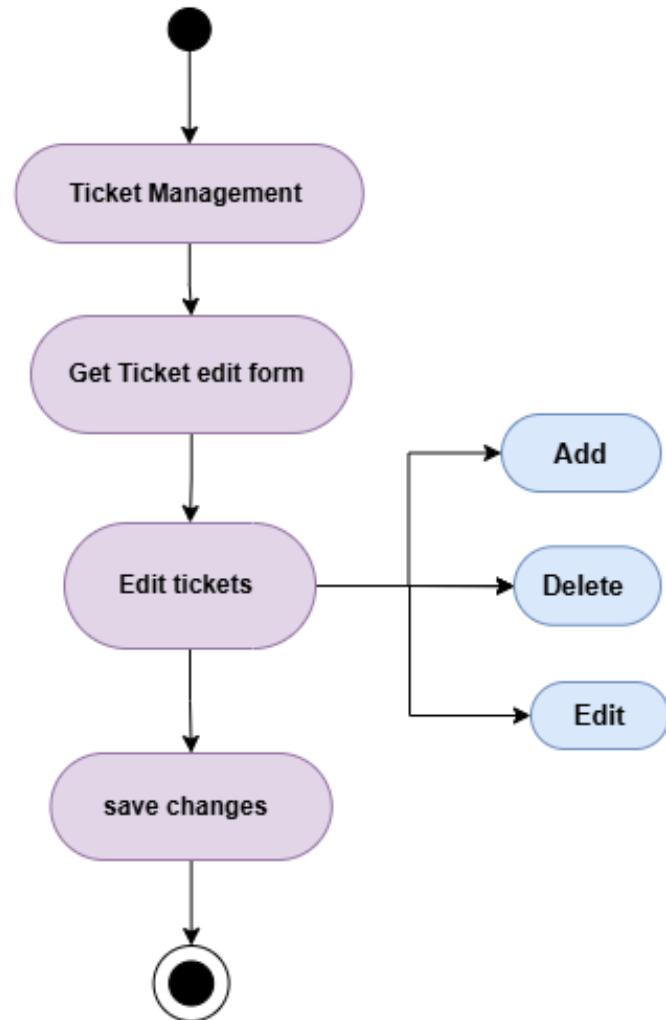
### Activity diagram for save trips



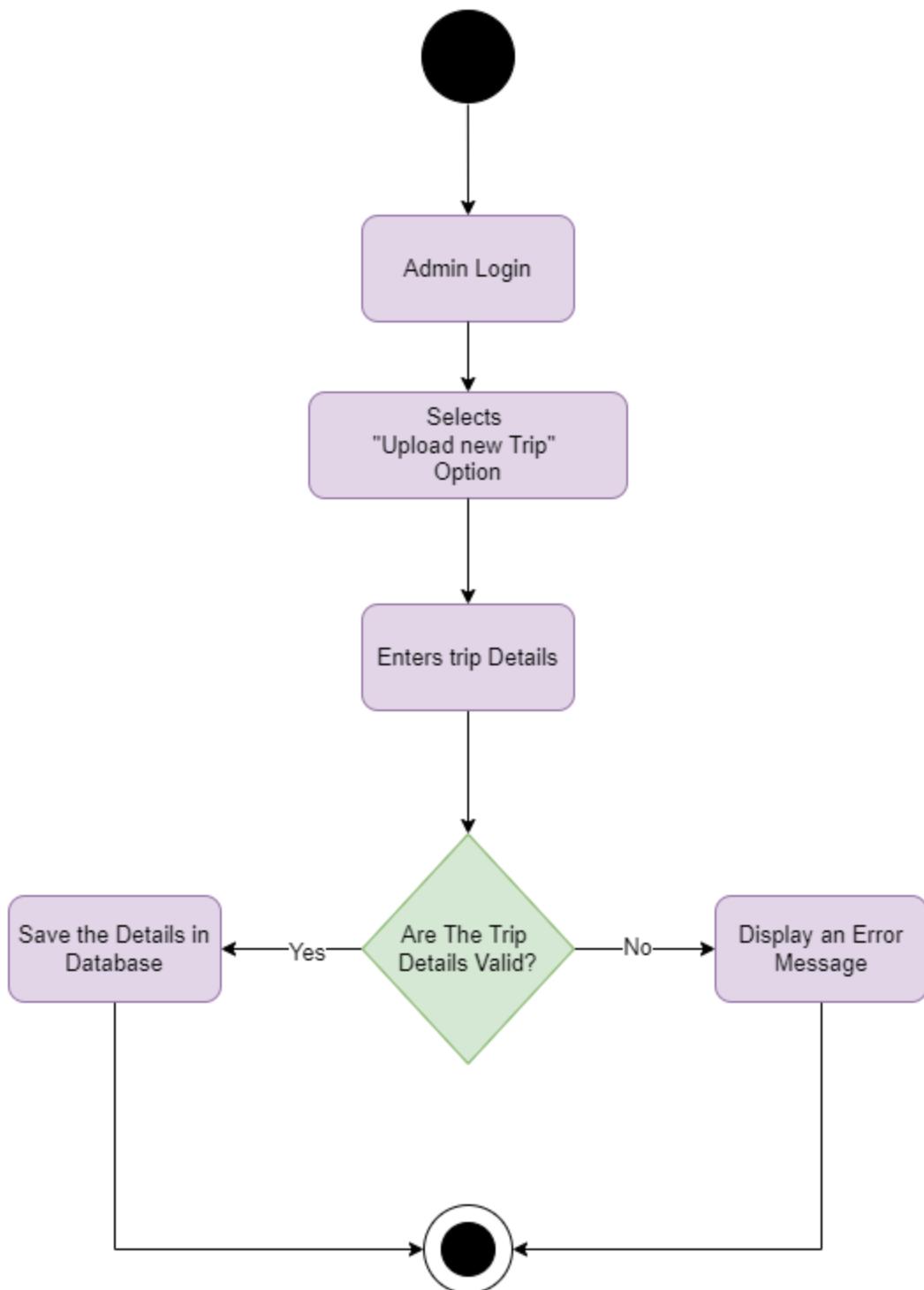
## System Reports



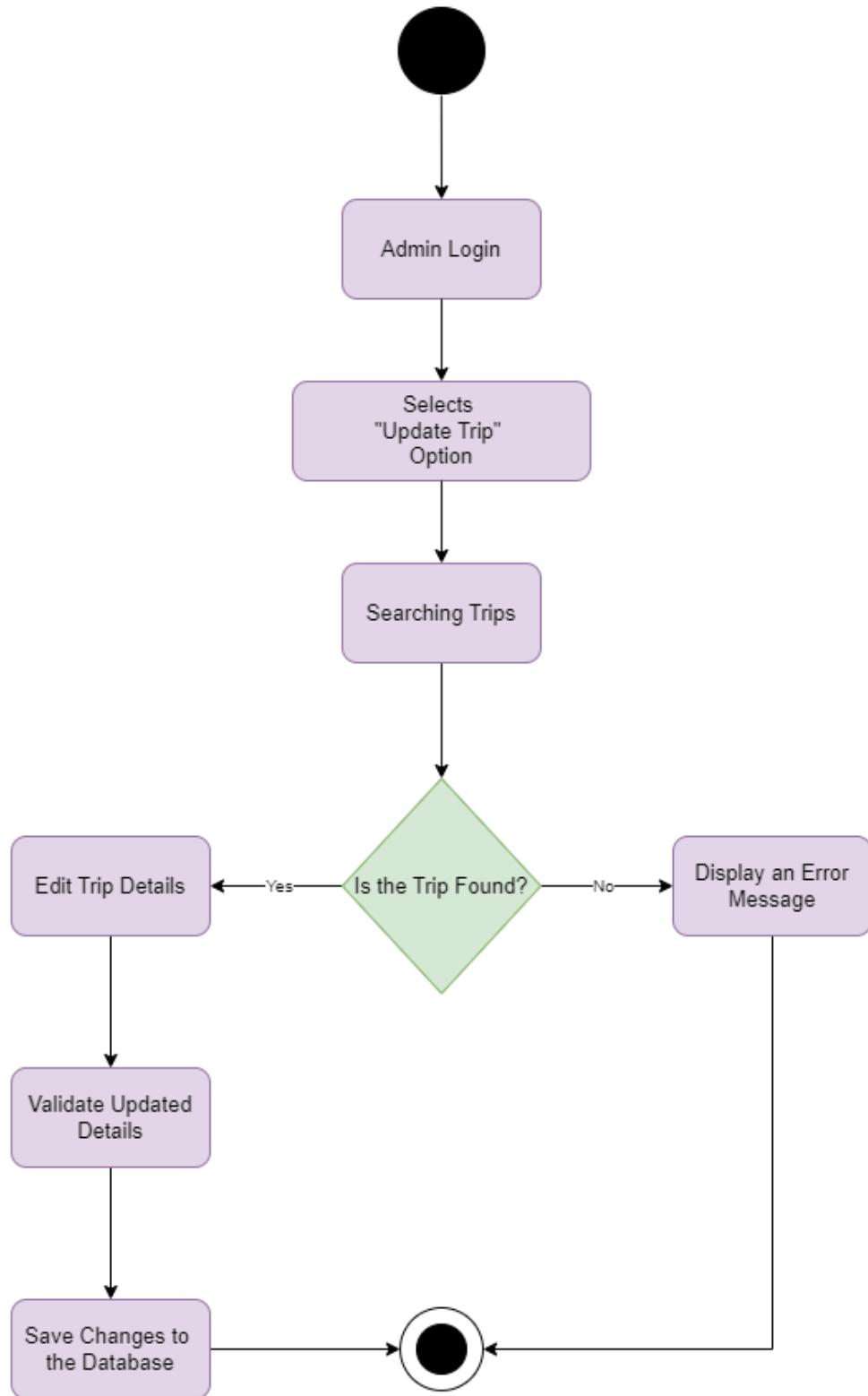
## Activity diagram of Manage tickets



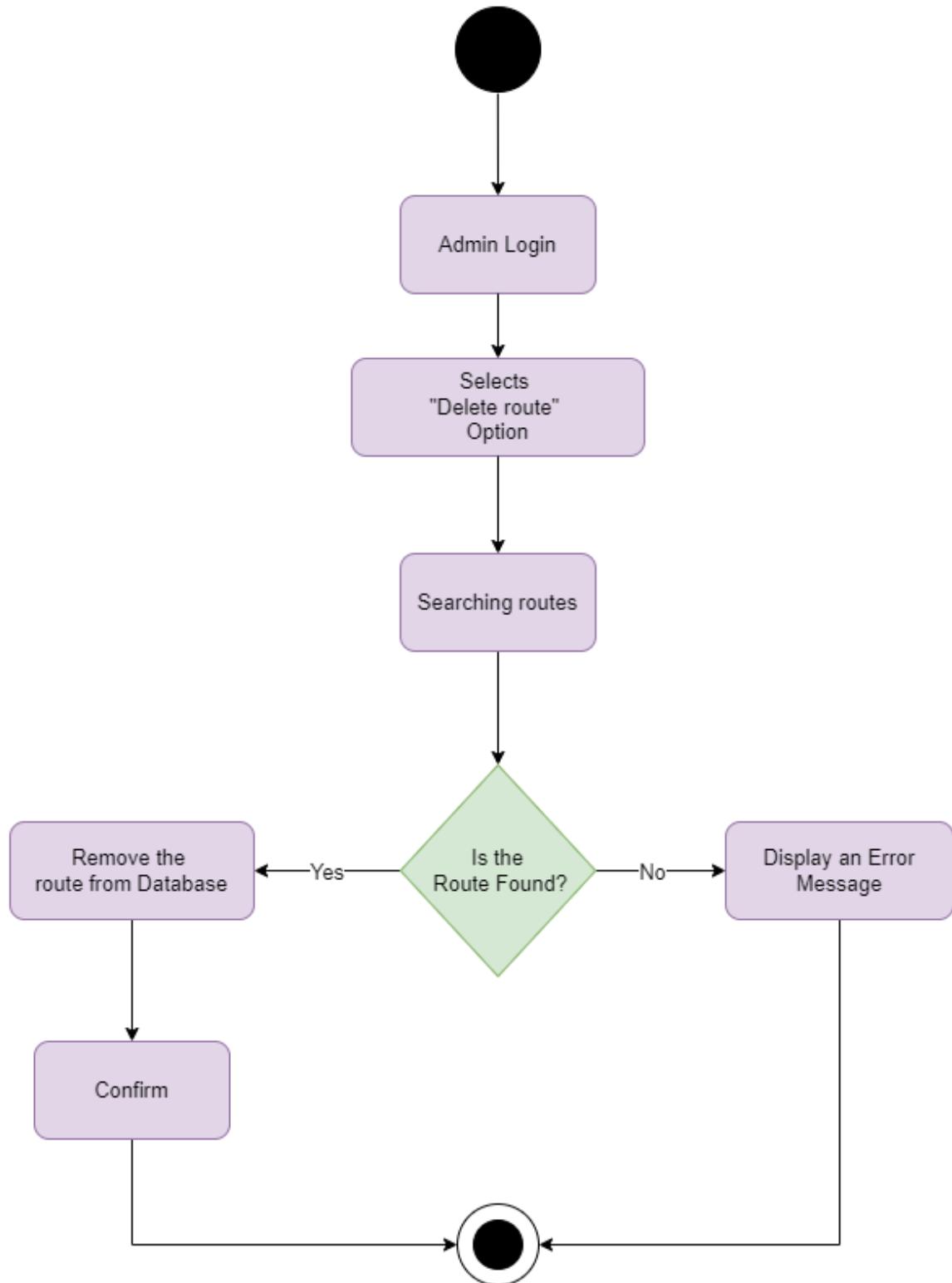
### Upload New Trip



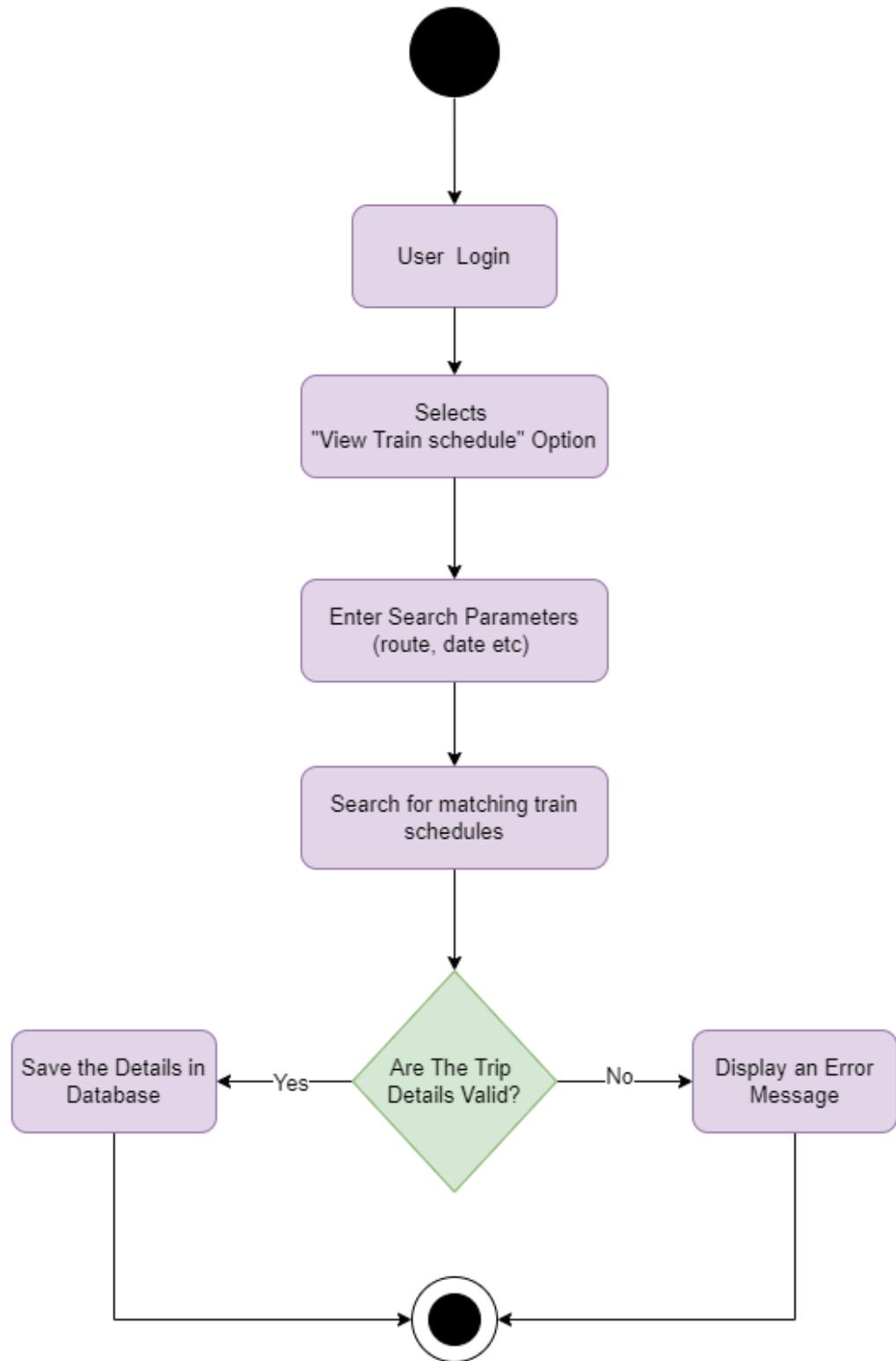
### Update Trip



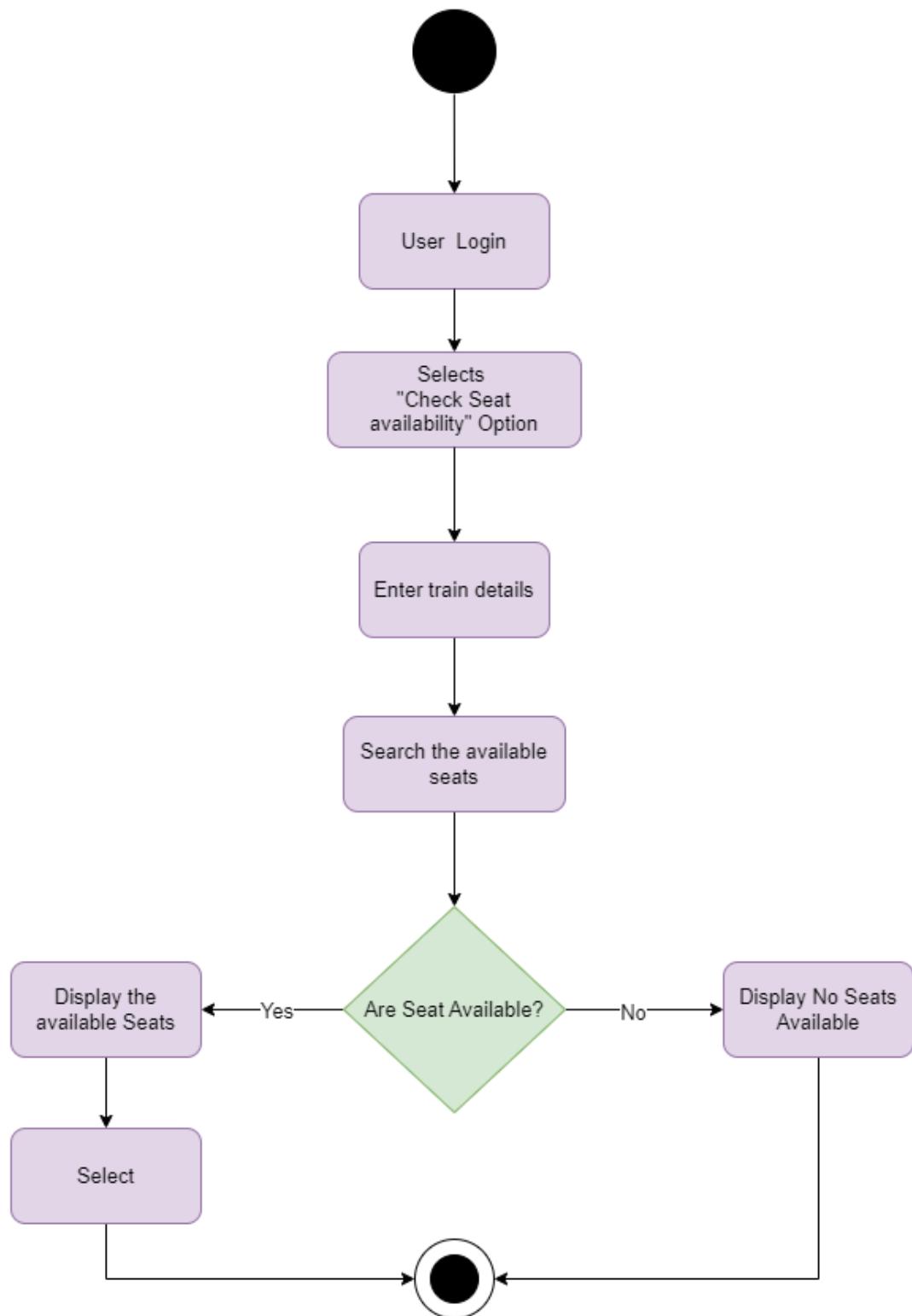
### Delete Route



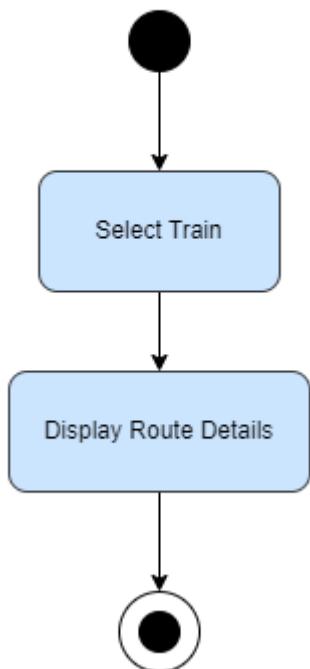
### View Train Schedule



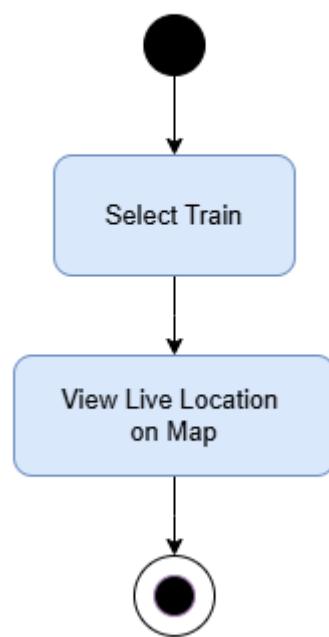
### Check Seat Availability



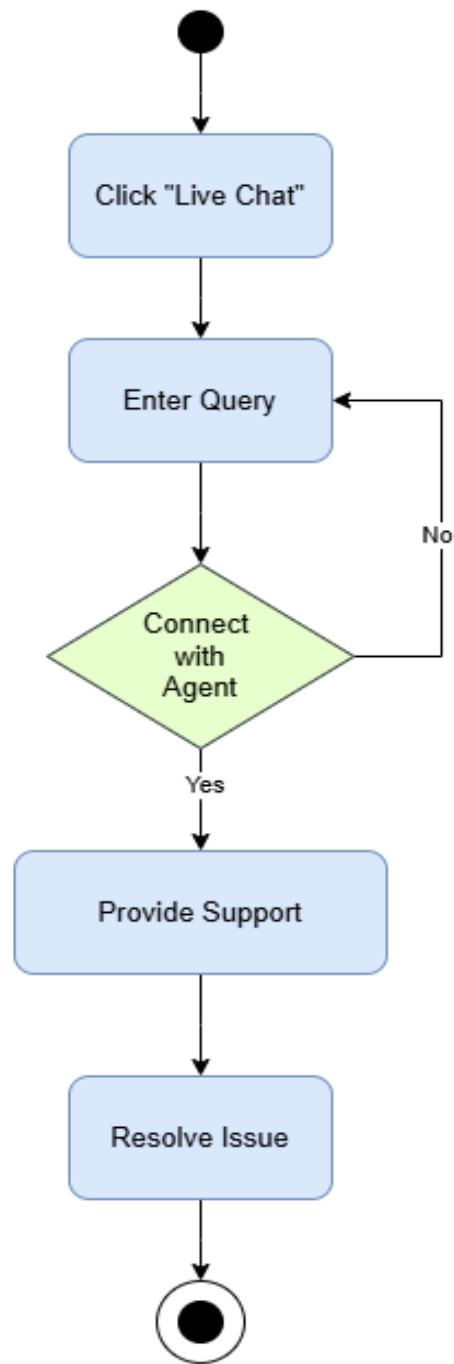
**View Route Details**



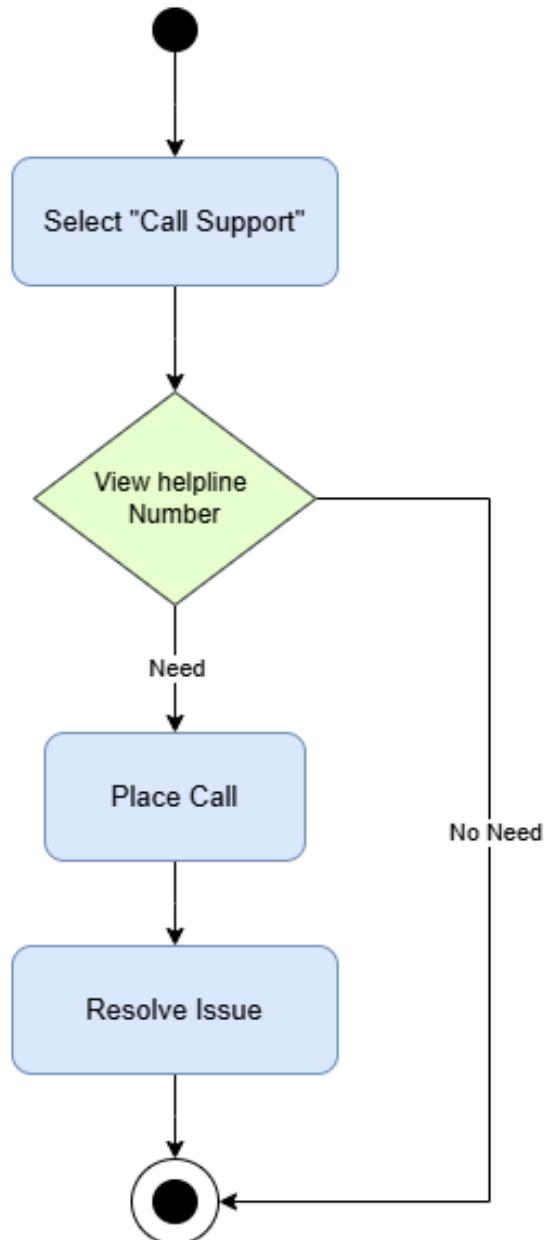
**Train Live Location**



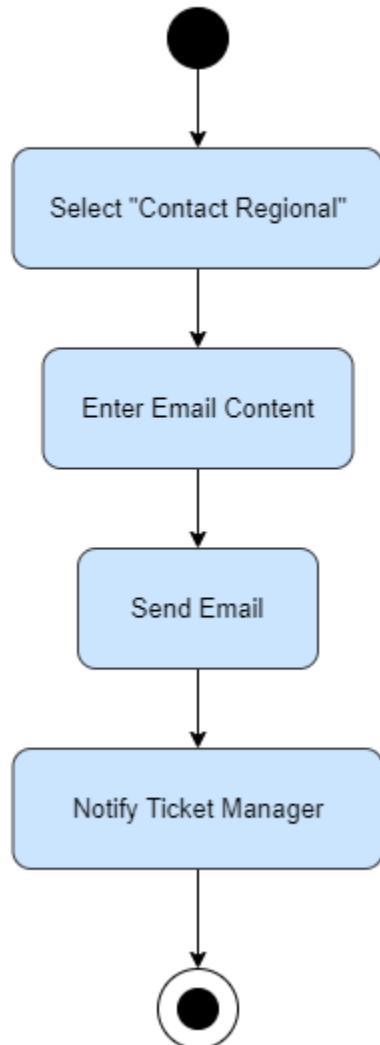
### Live Chat (Customer Support)



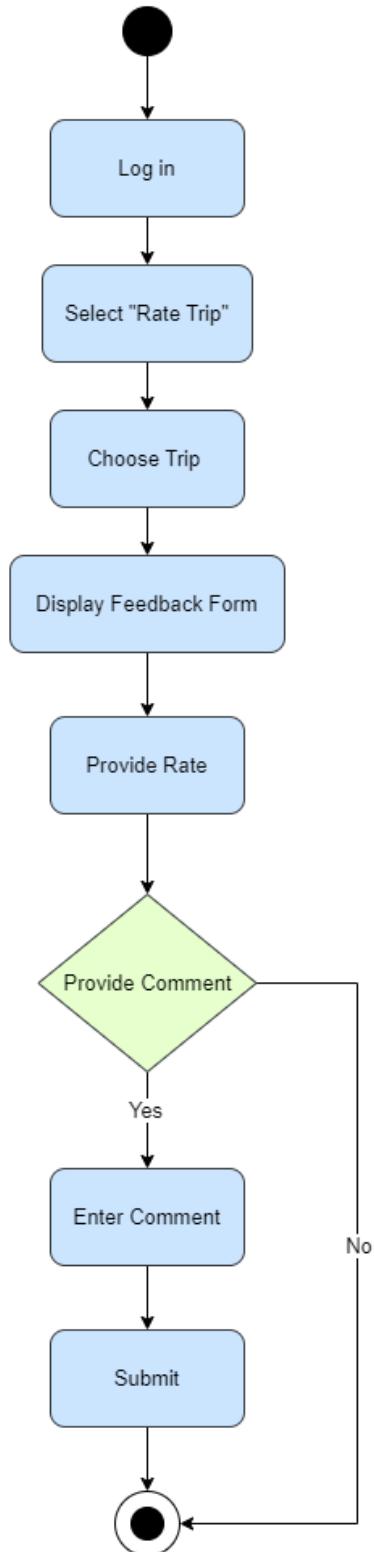
### **Call Support Steps**



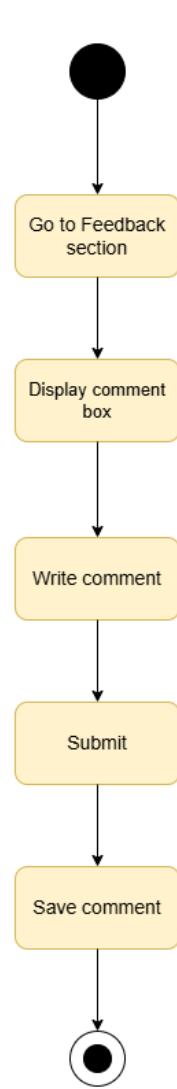
Connect Regional Manager Via Email



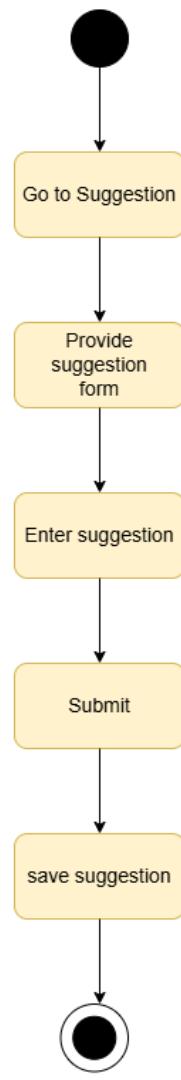
**Rate Trip Experience**



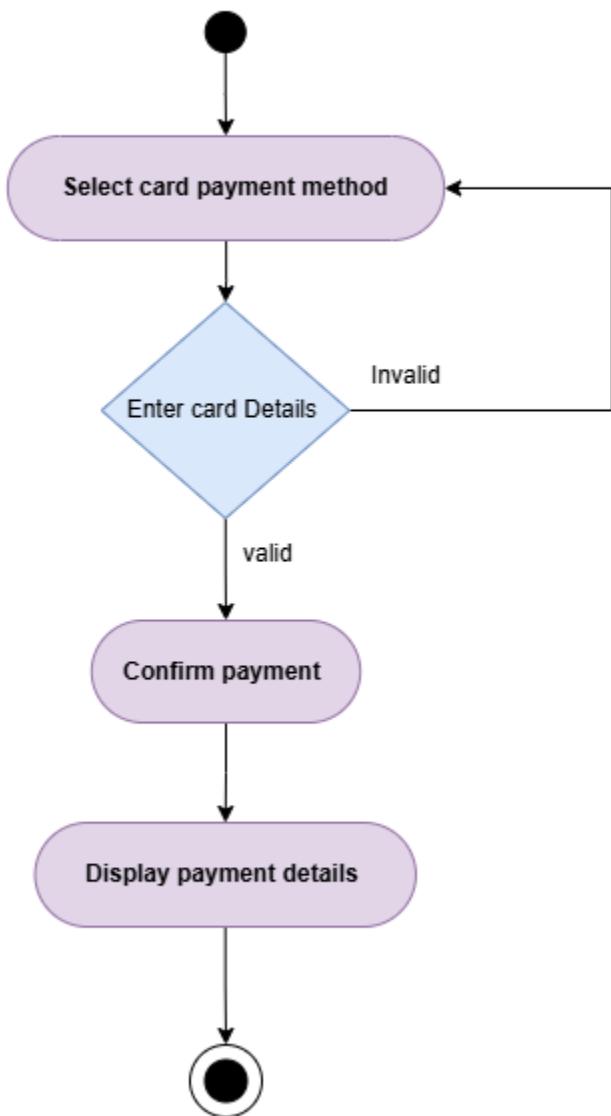
### **Comment Steps**



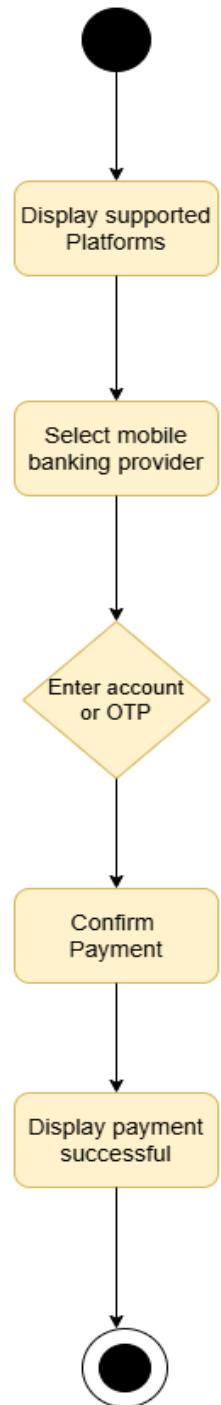
### **Give Suggestion Steps**



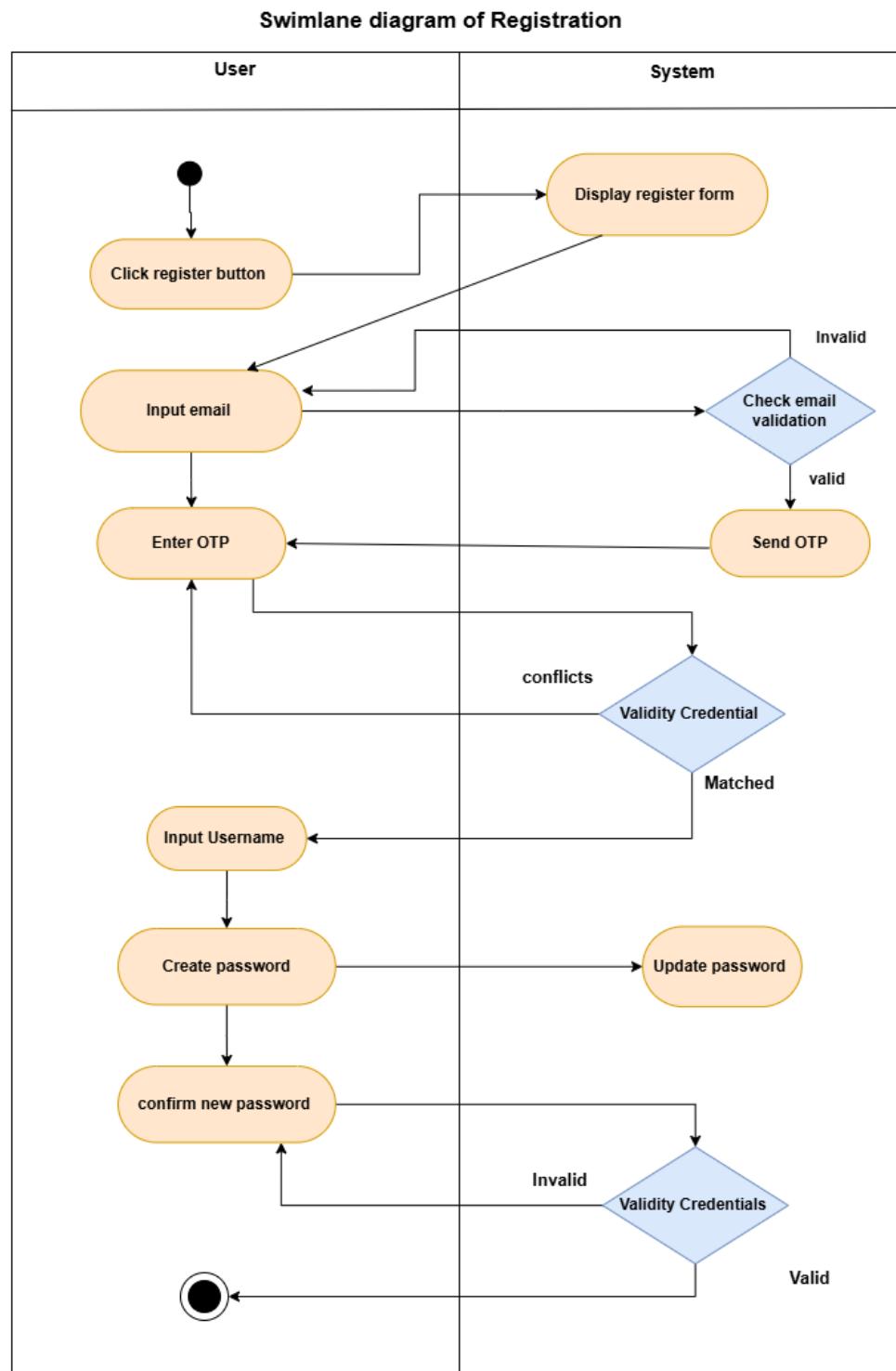
## Activity diagram of payment (card)



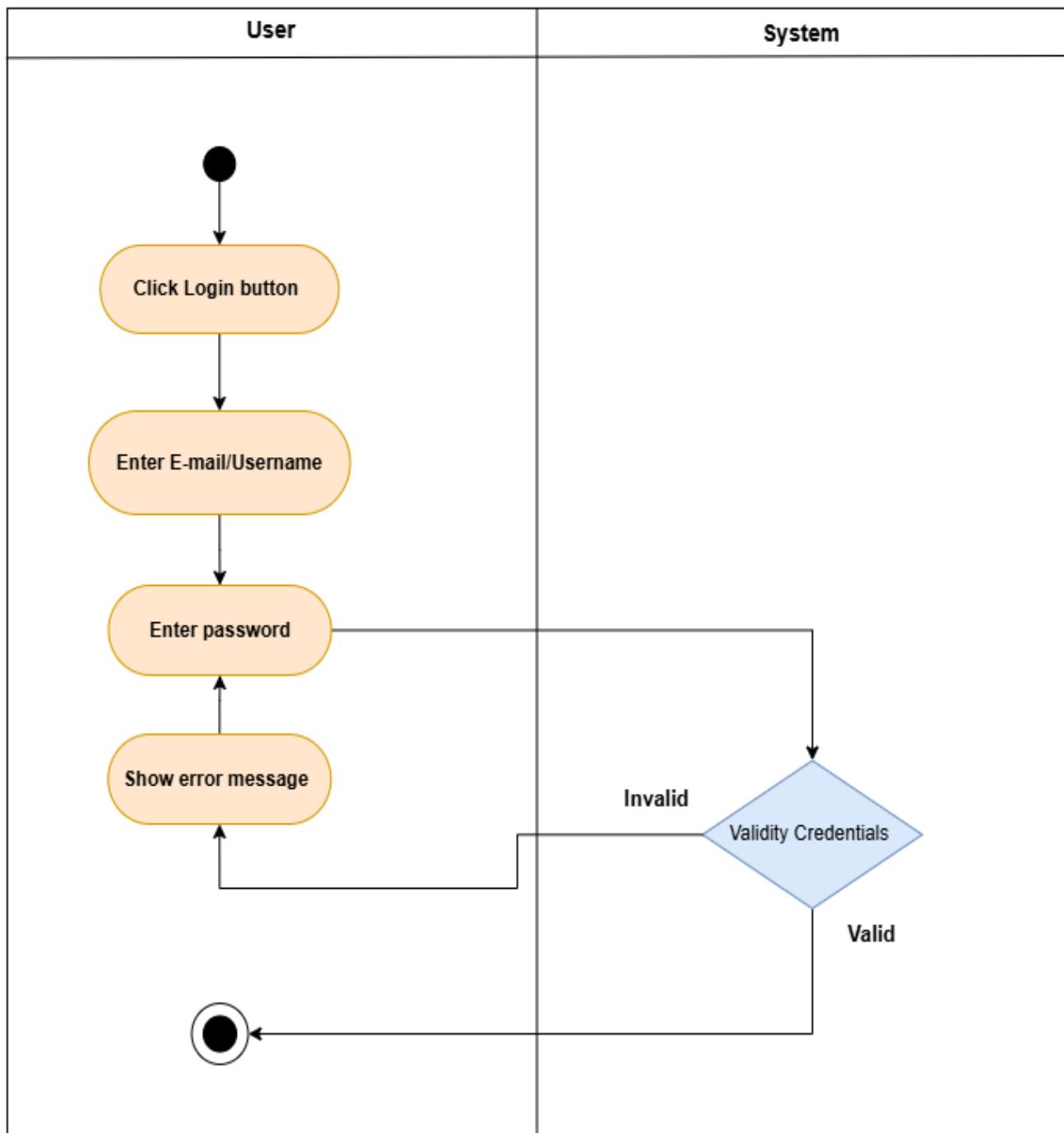
## **Payment (Mobile Banking)**



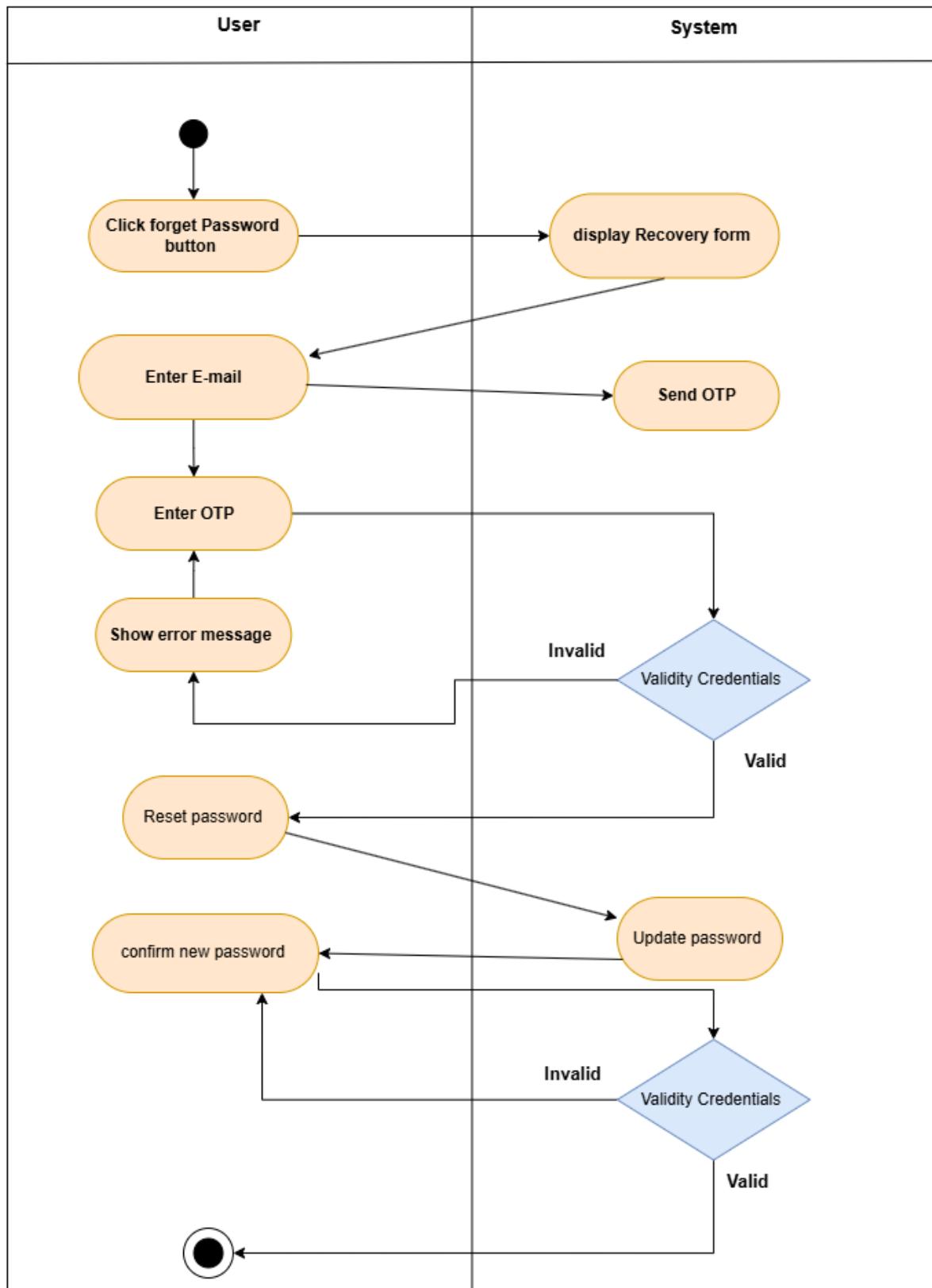
## Chatper 7: Swimlane Diagram



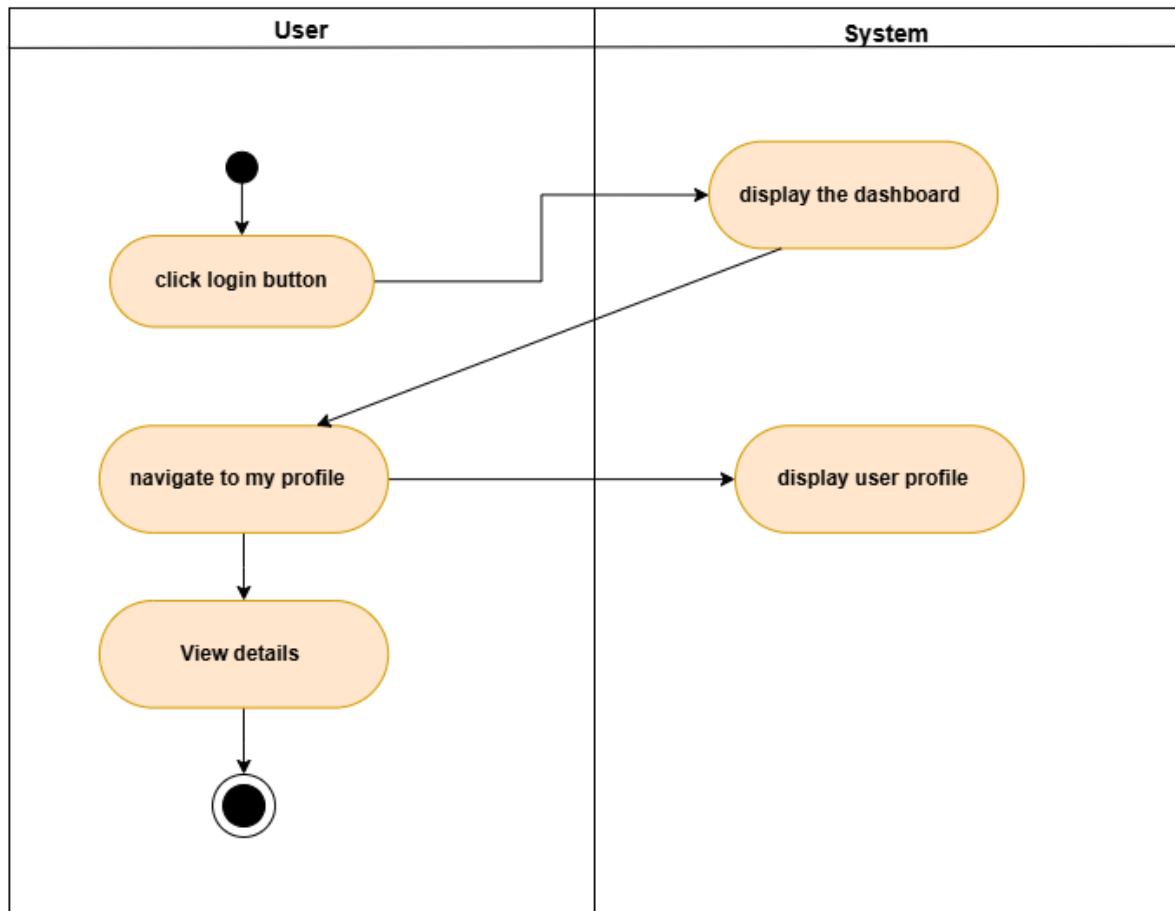
### Swimlane diagram of login



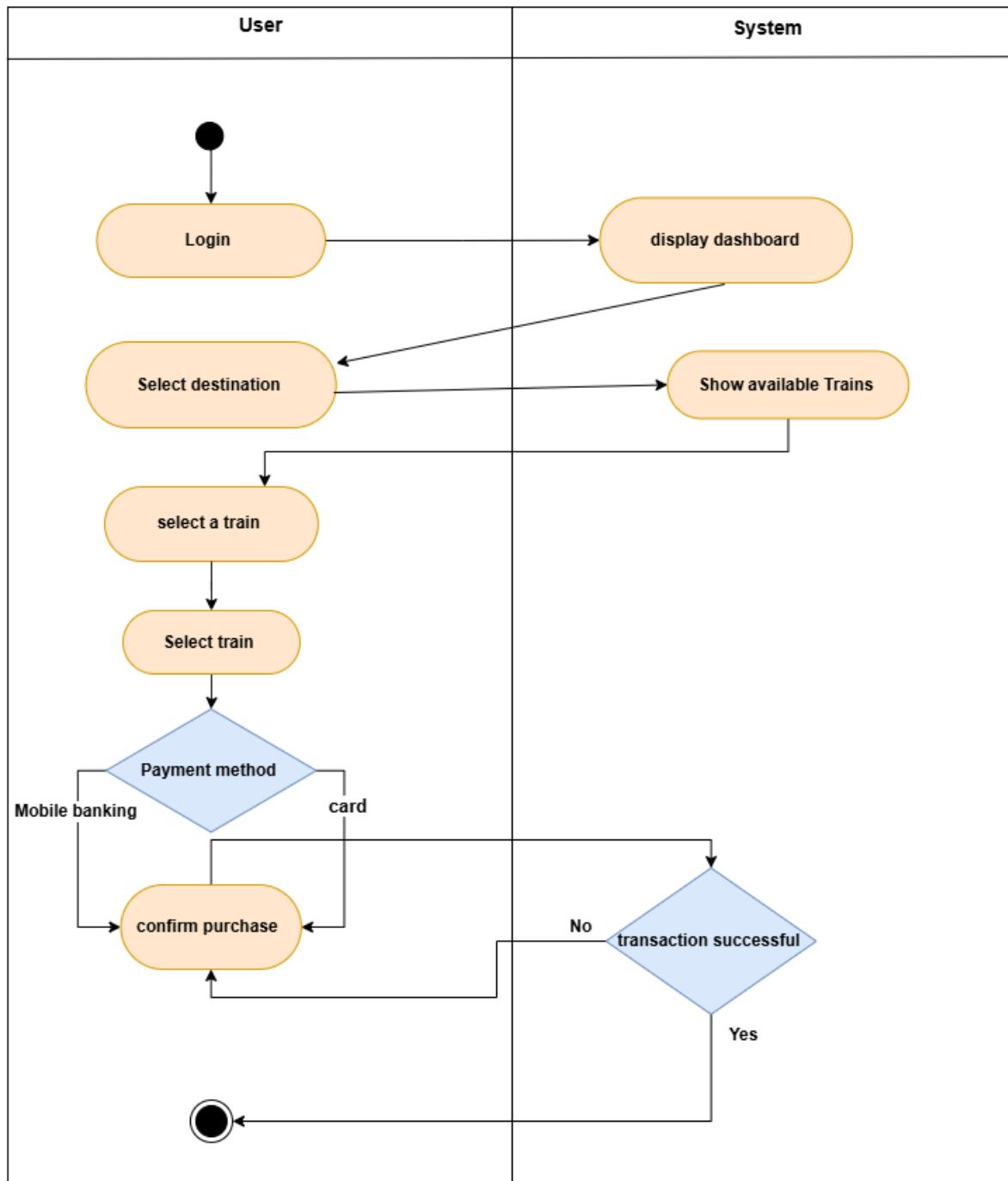
Swimlane diagram of password Recovery



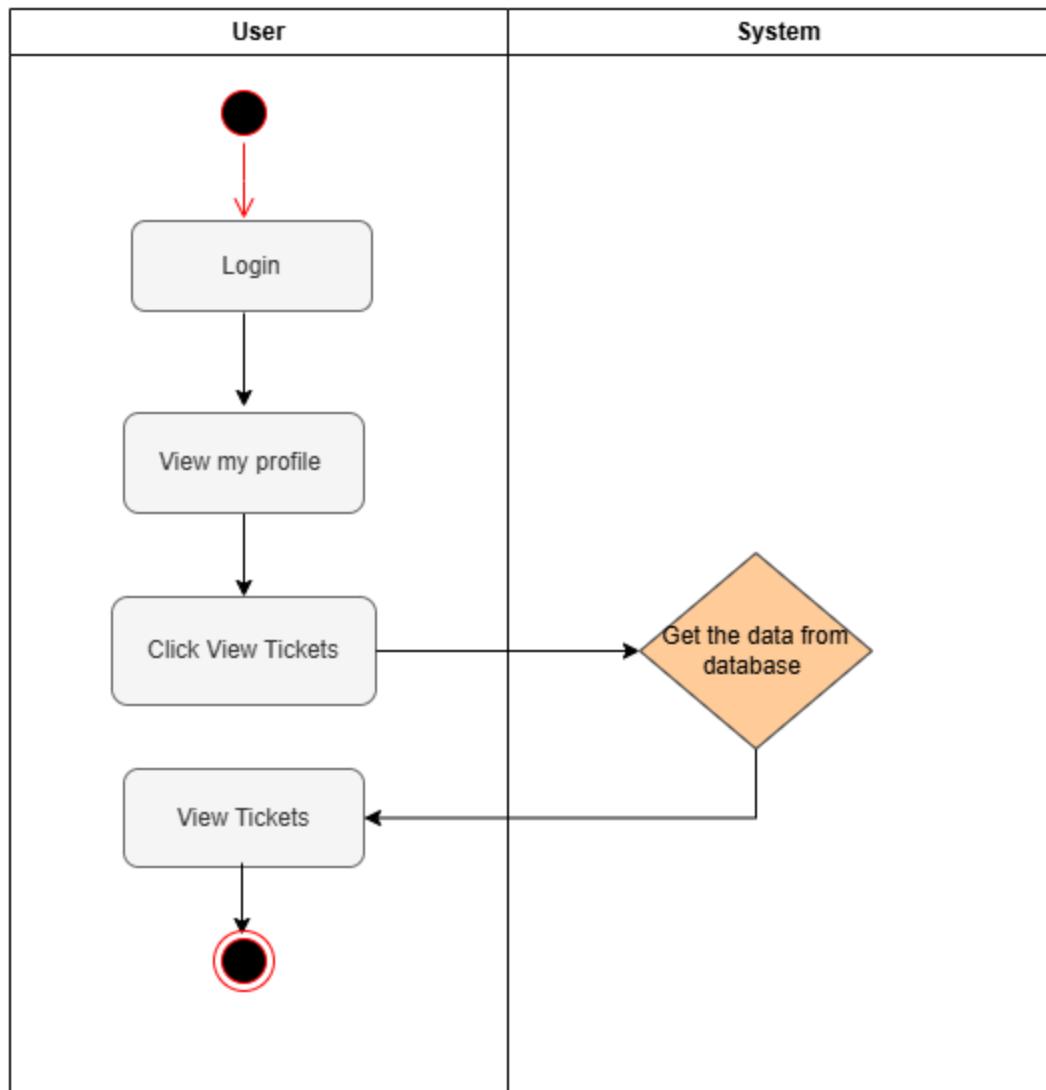
**Swimlane diagram of view Profile**

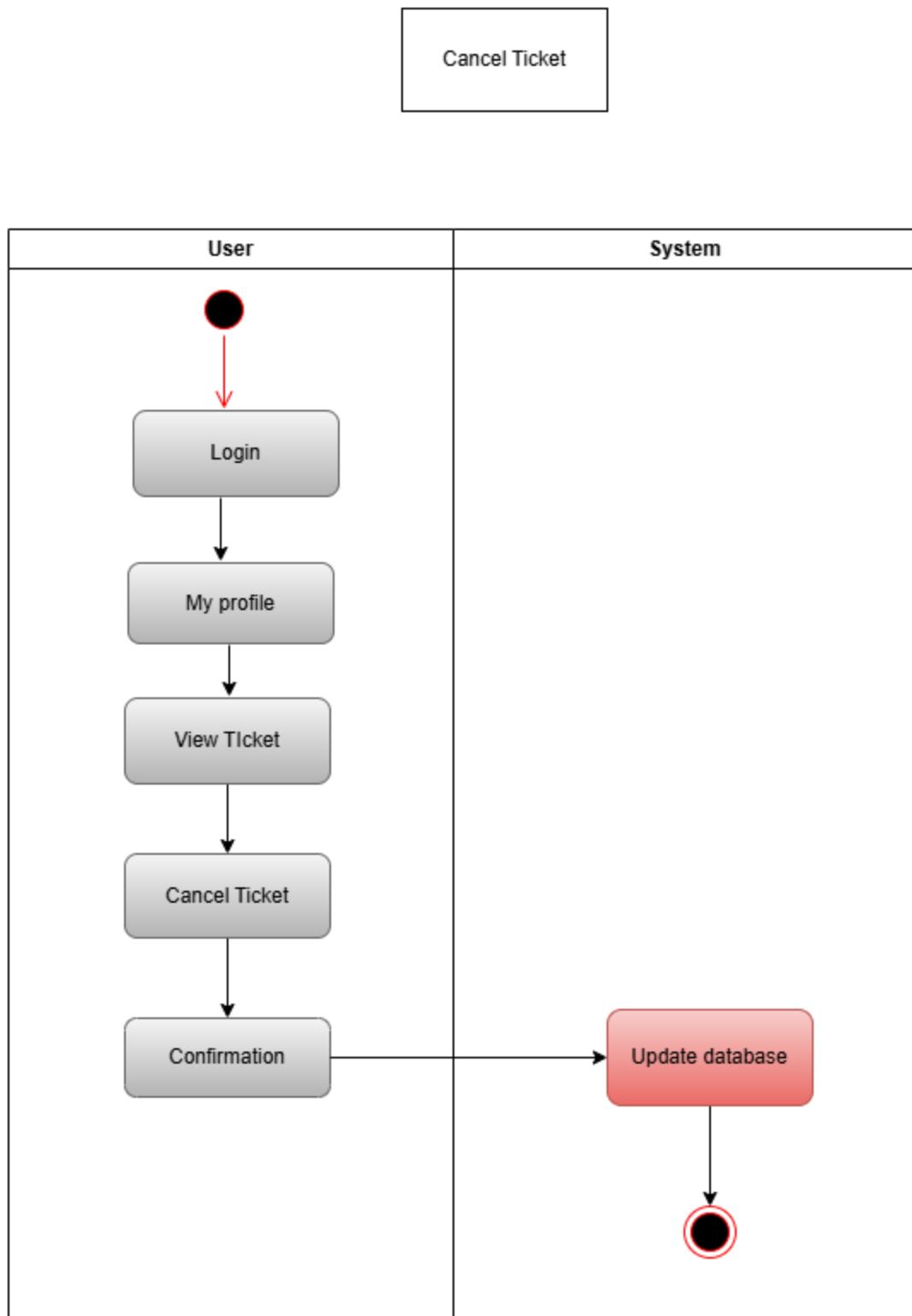


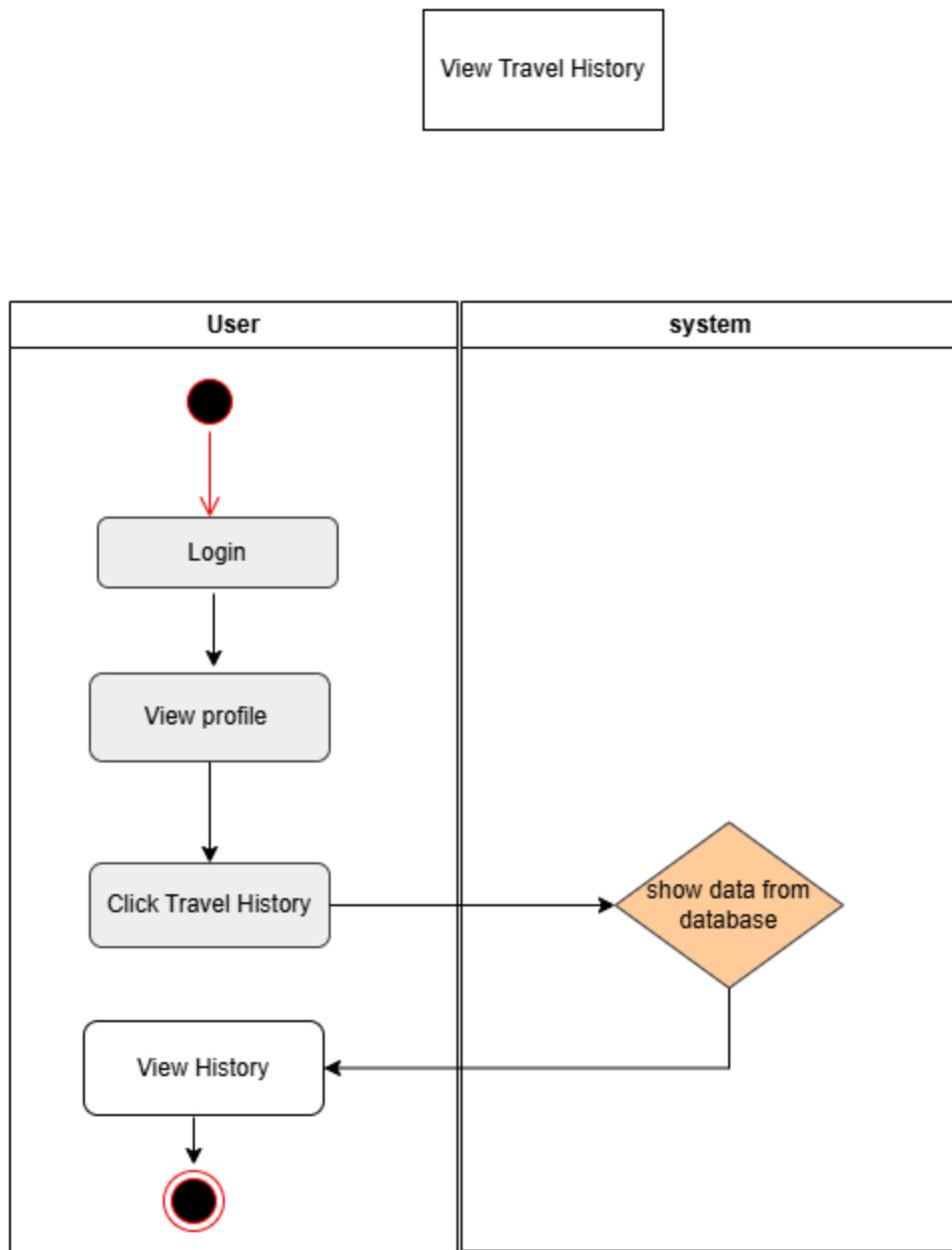
Swimlane diagram of book & purchase Tickets

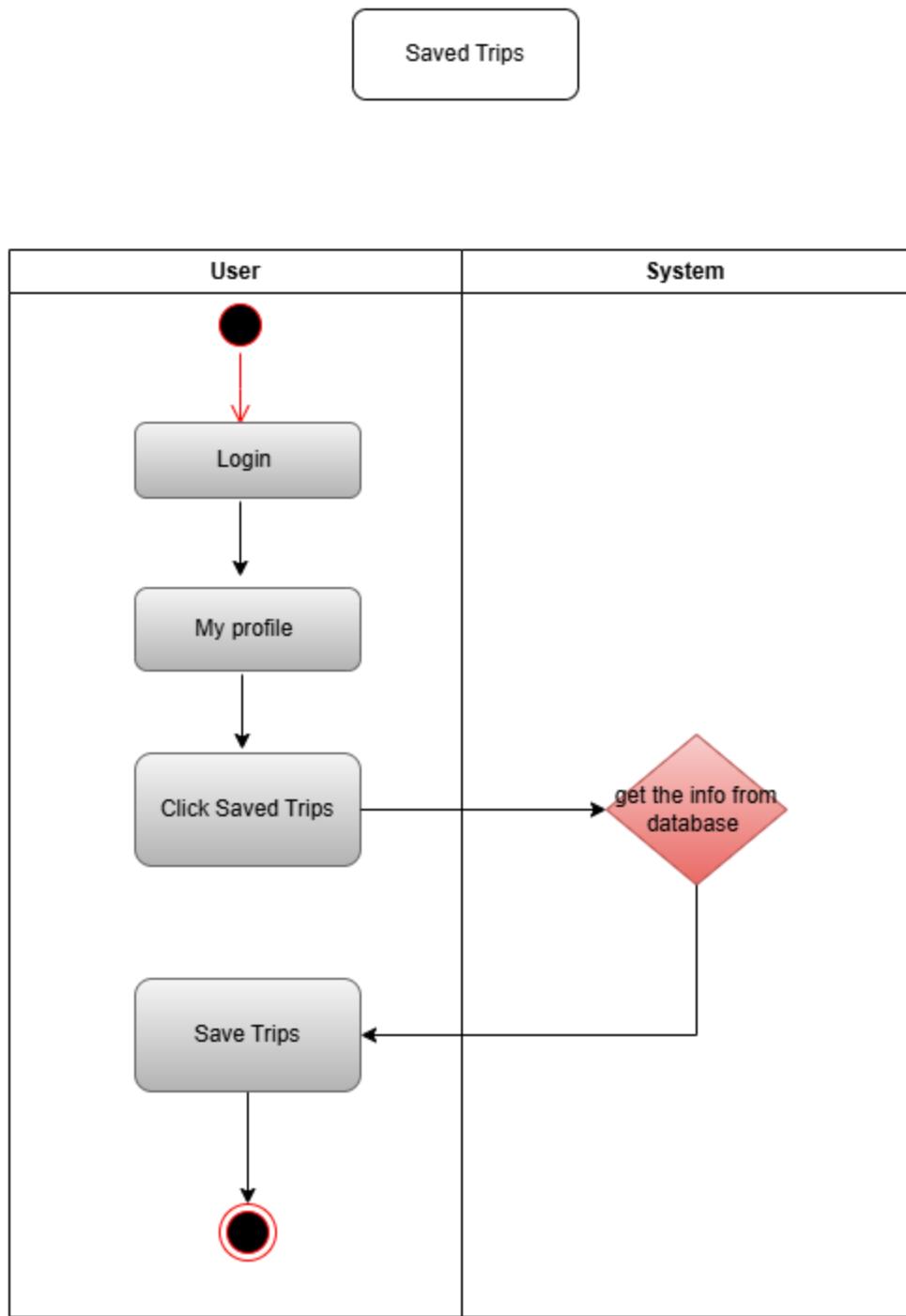


View Ticket Swimlane

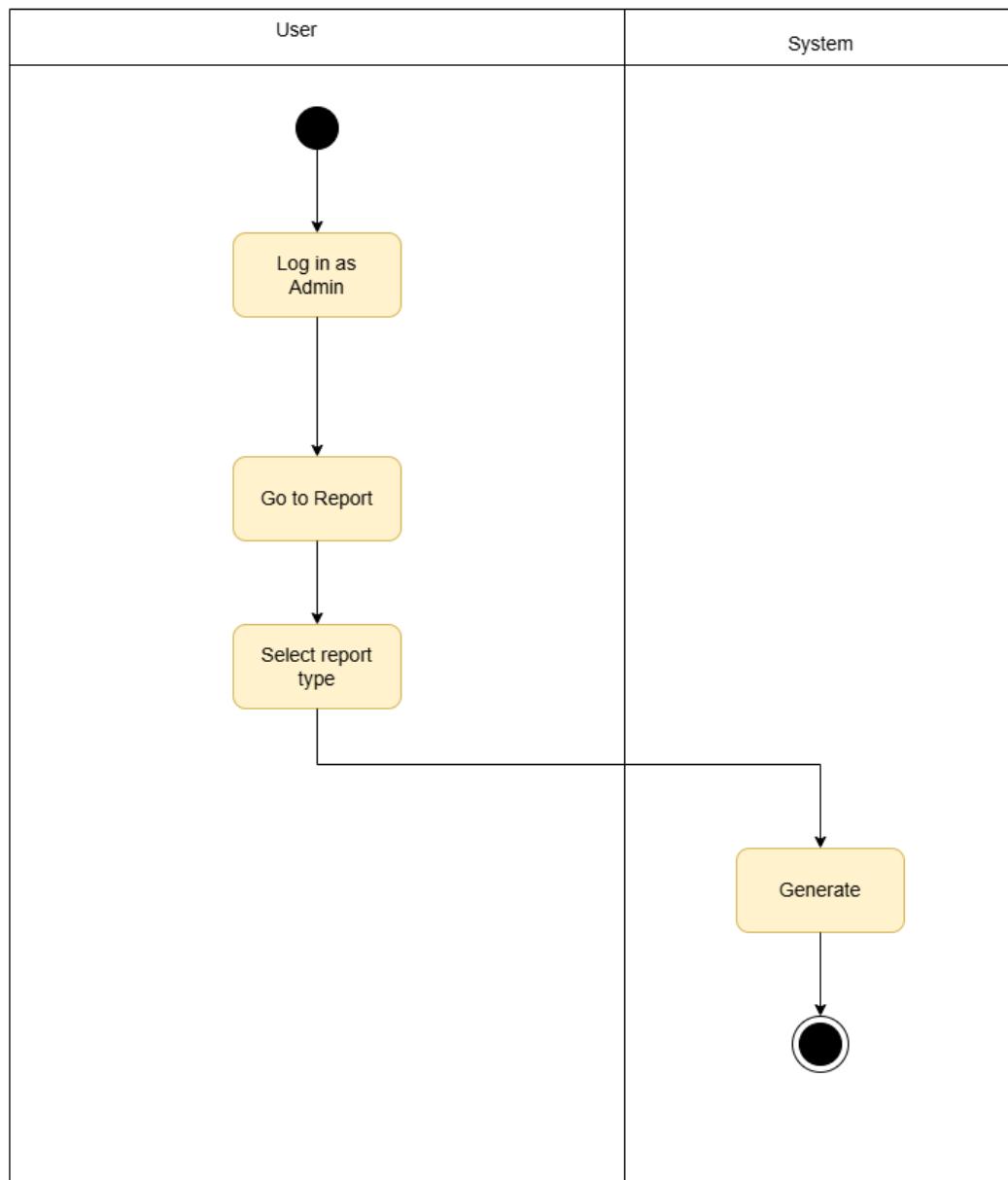




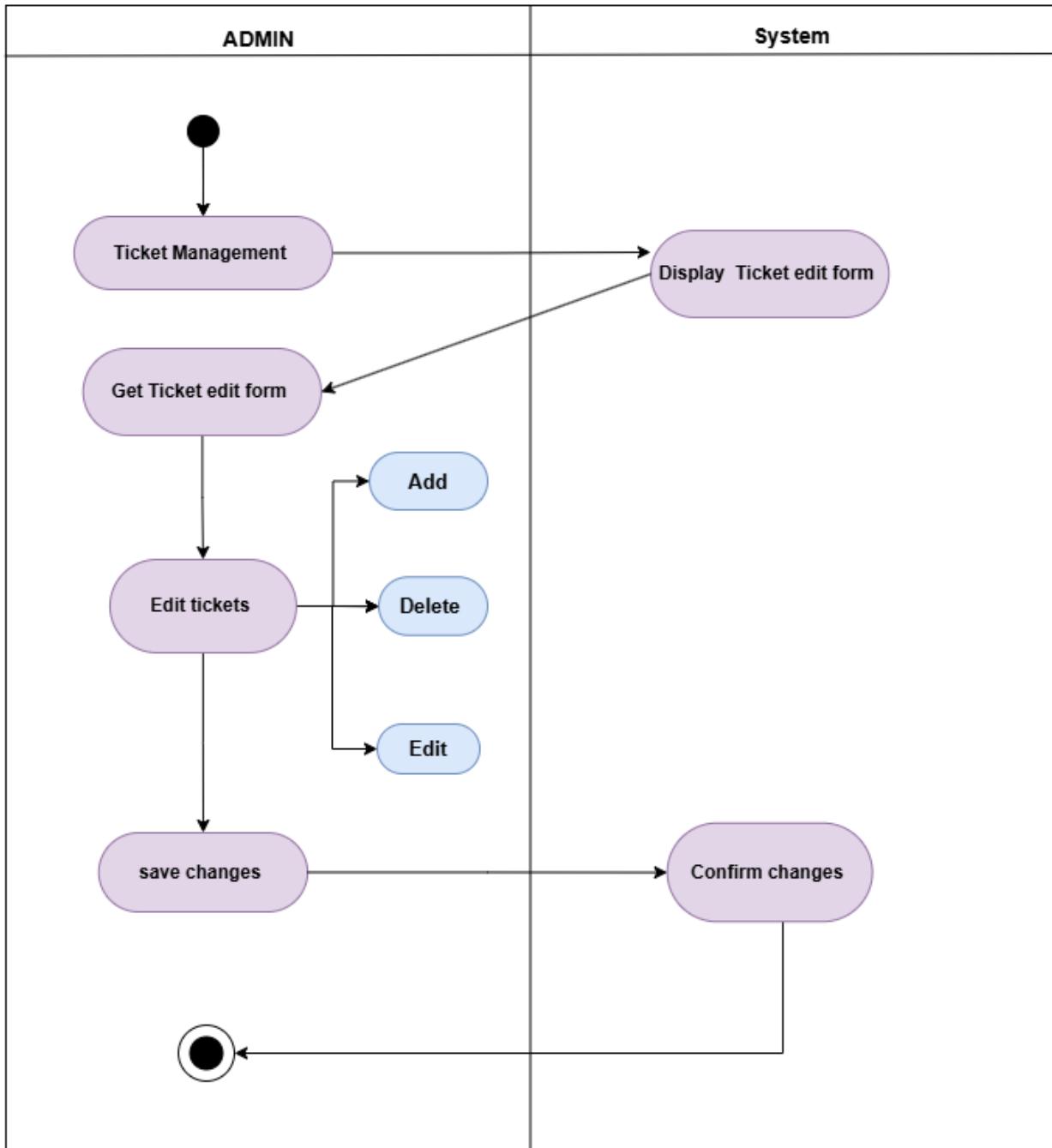




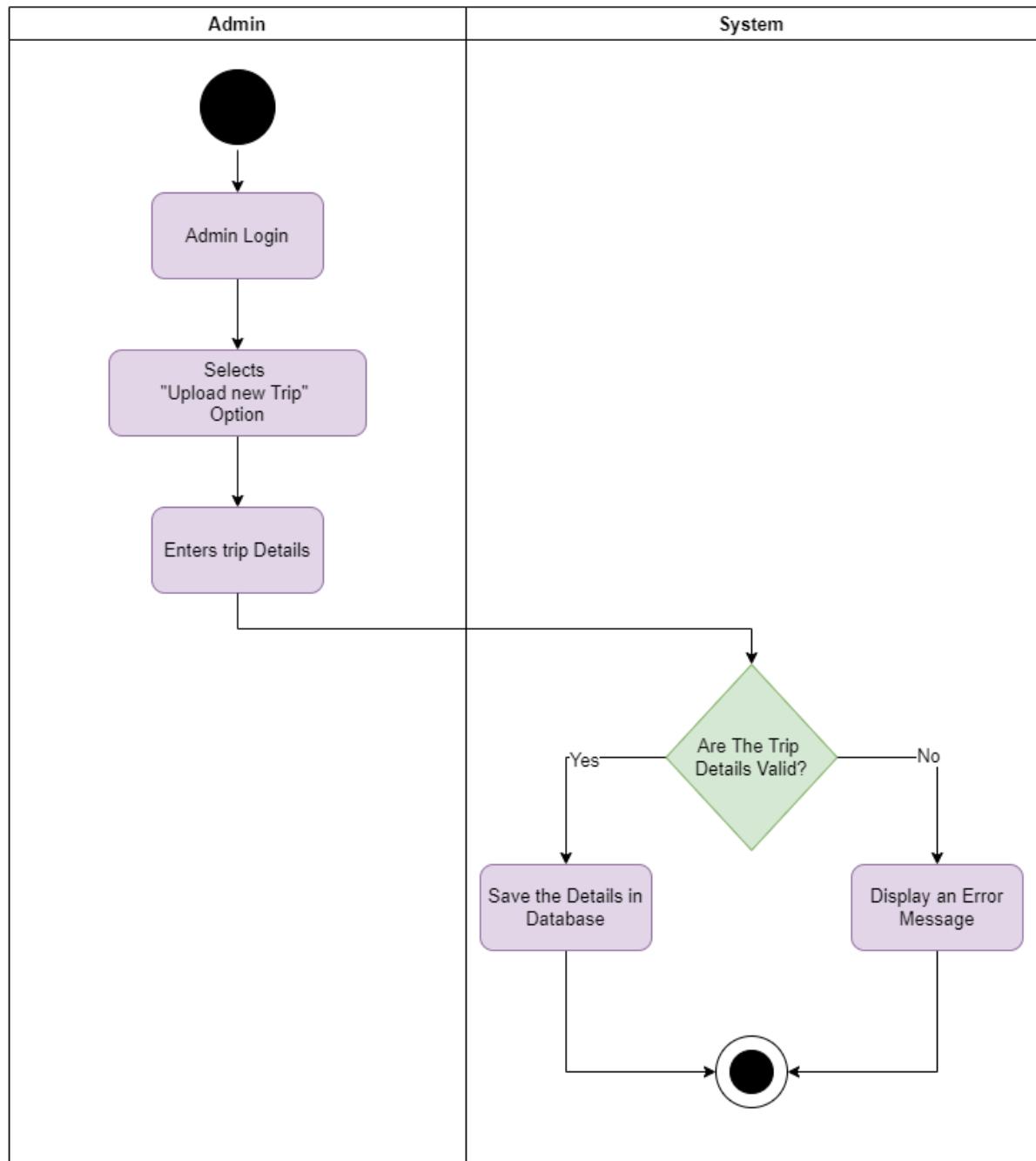
### Swine Diagram for System Reports(Admin)



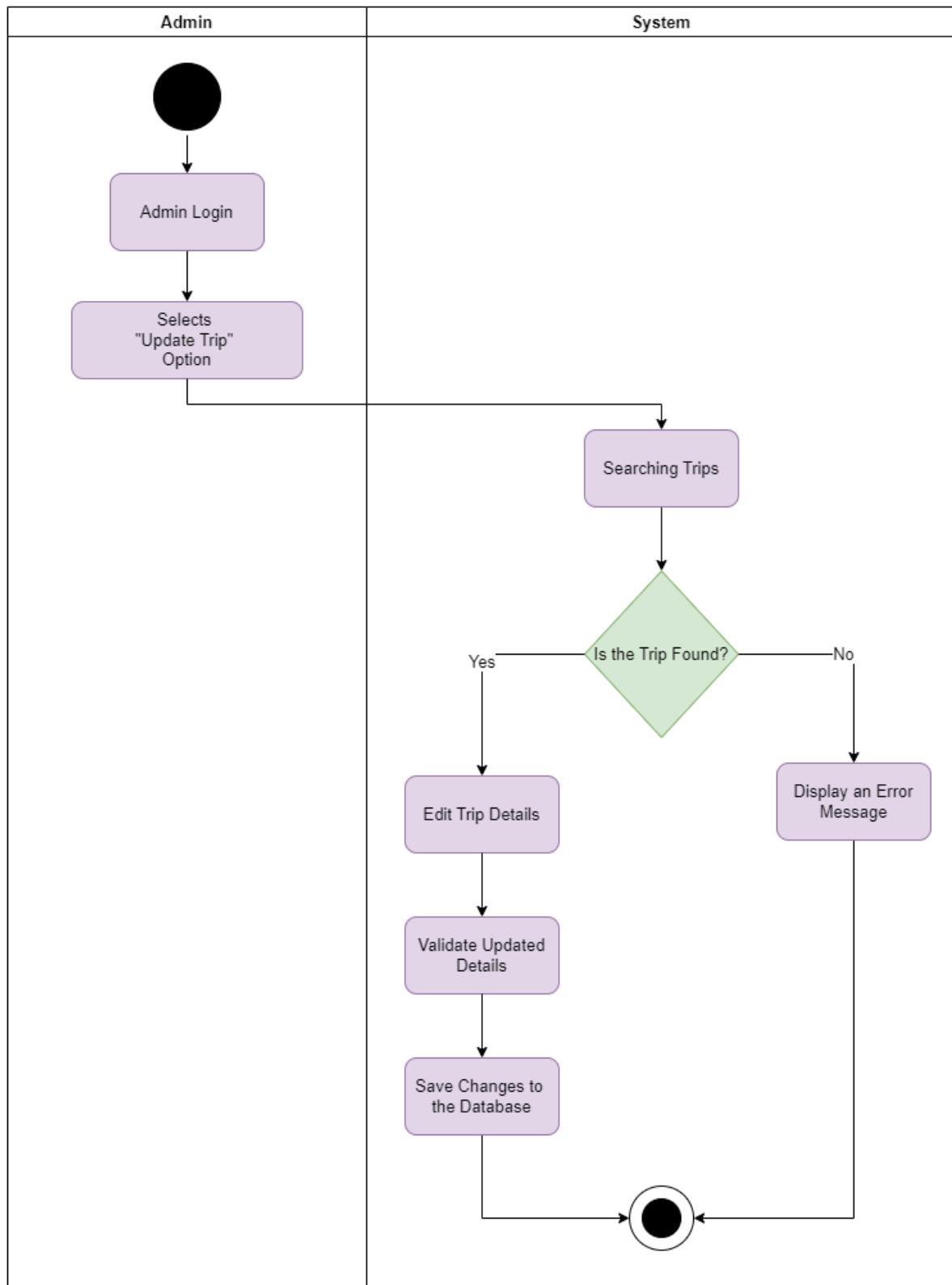
**Swimlane diagram of Manage Tickets**



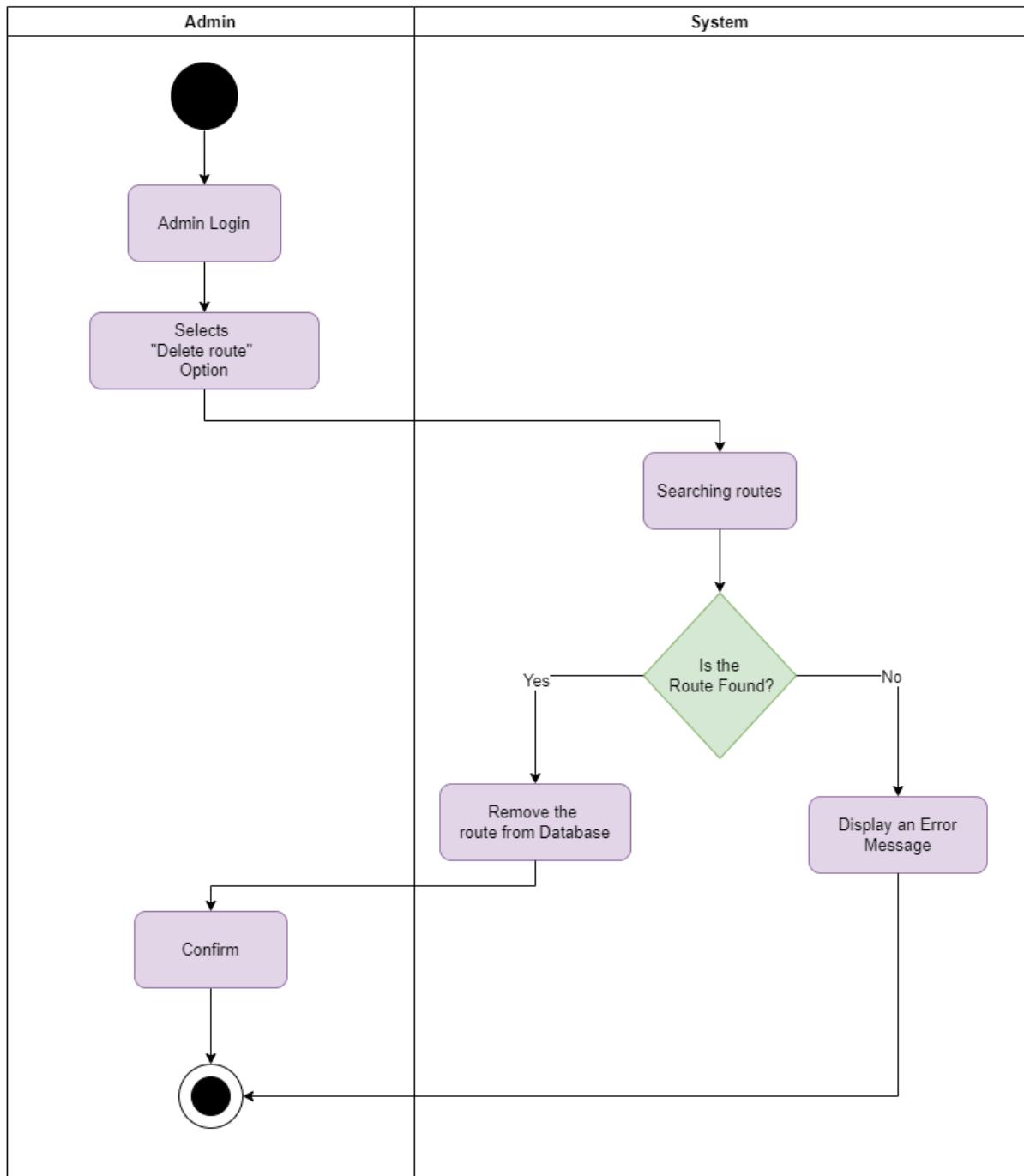
### Upload New Trip



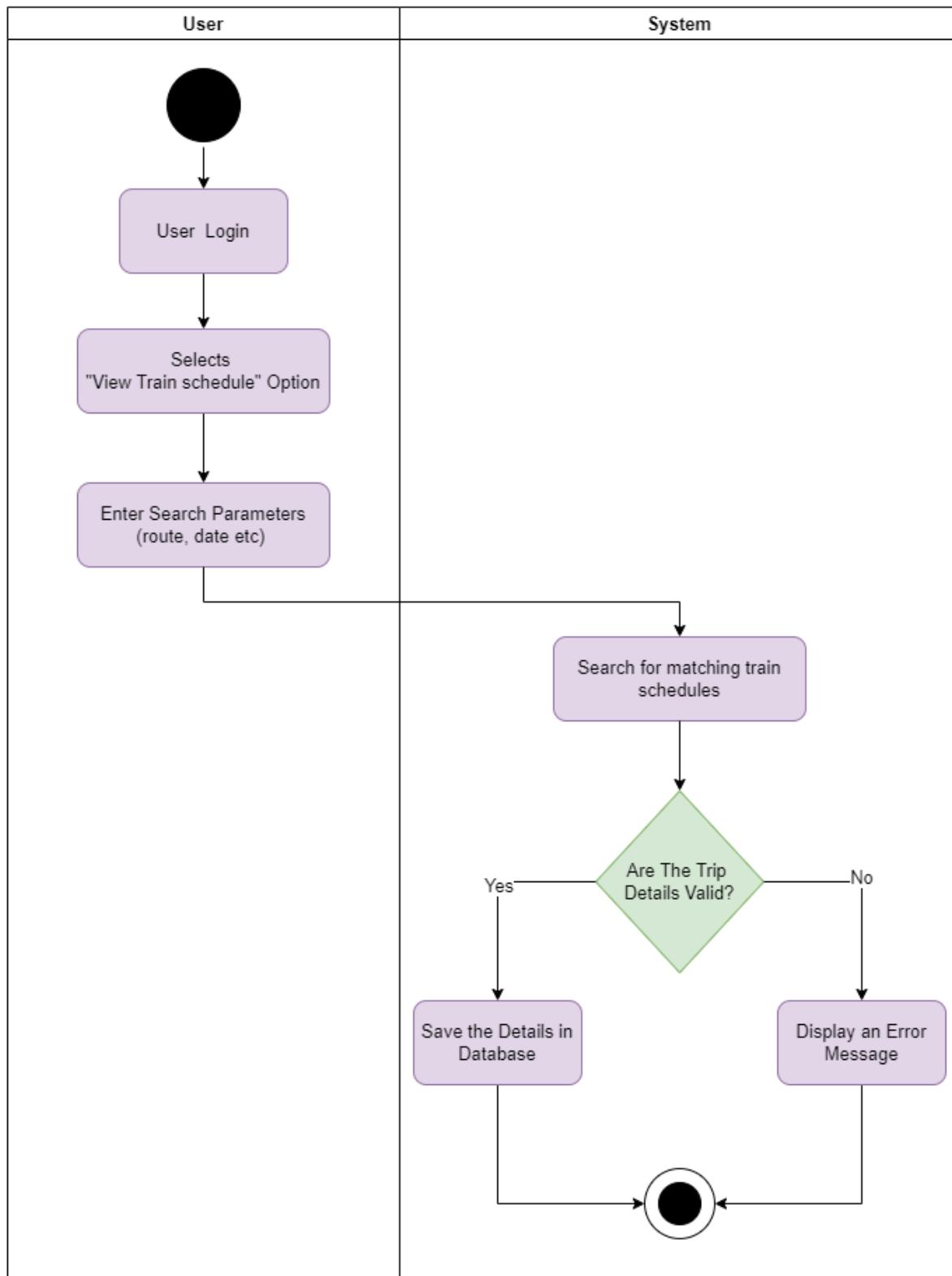
### Update Trip



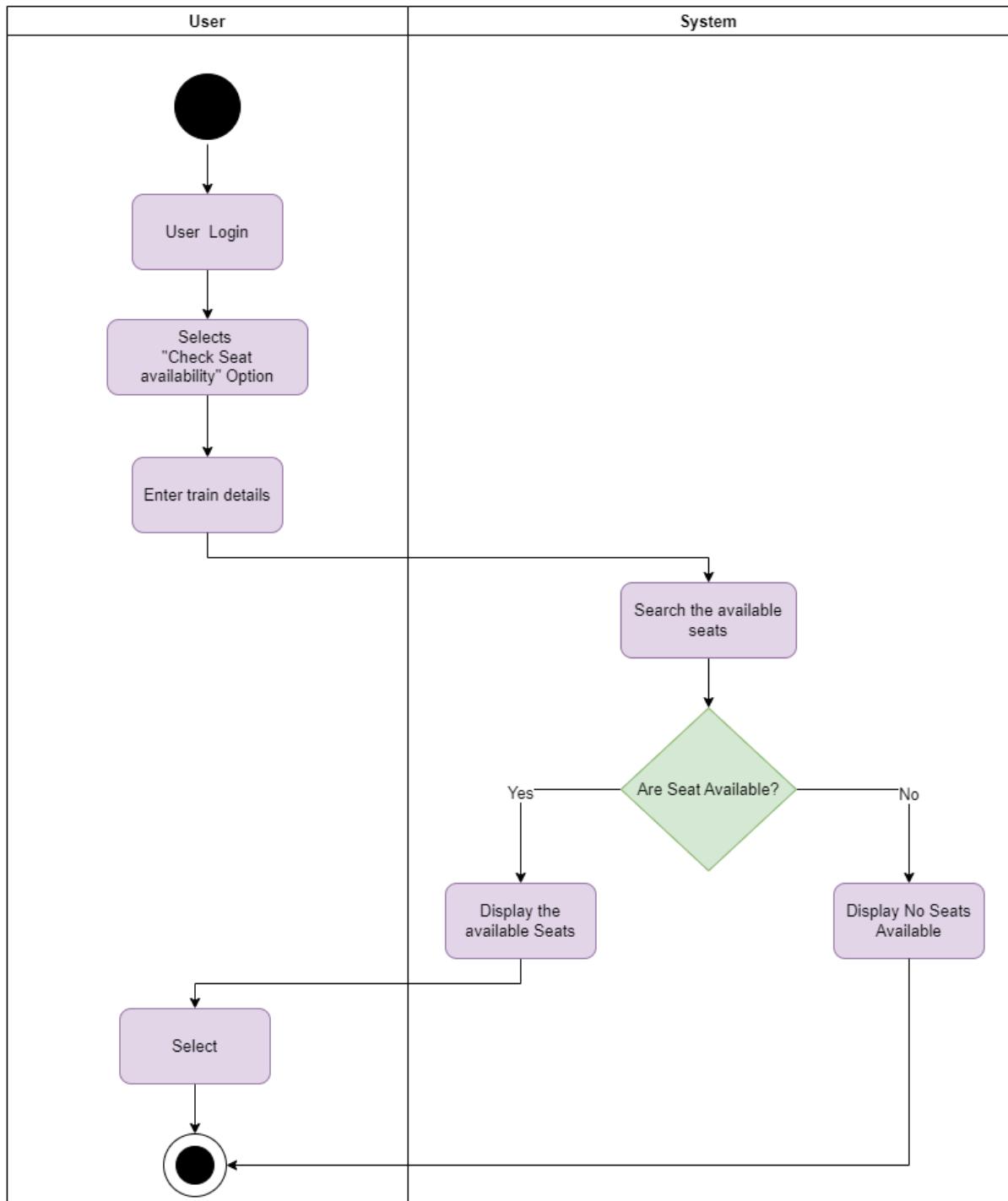
### Delete Route



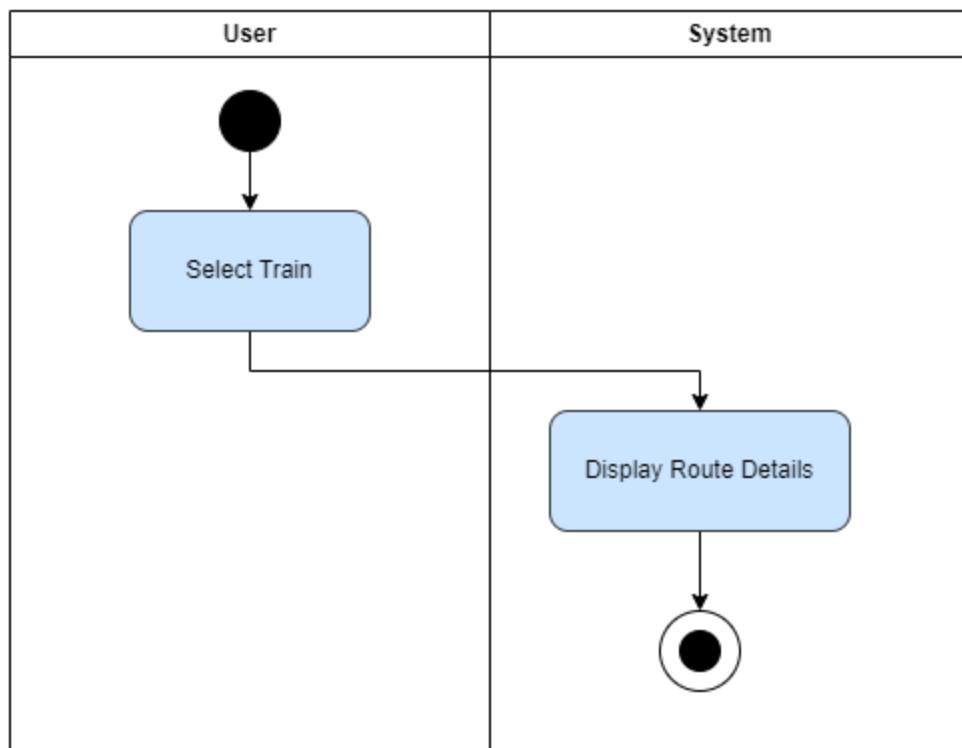
### View Train Schedule



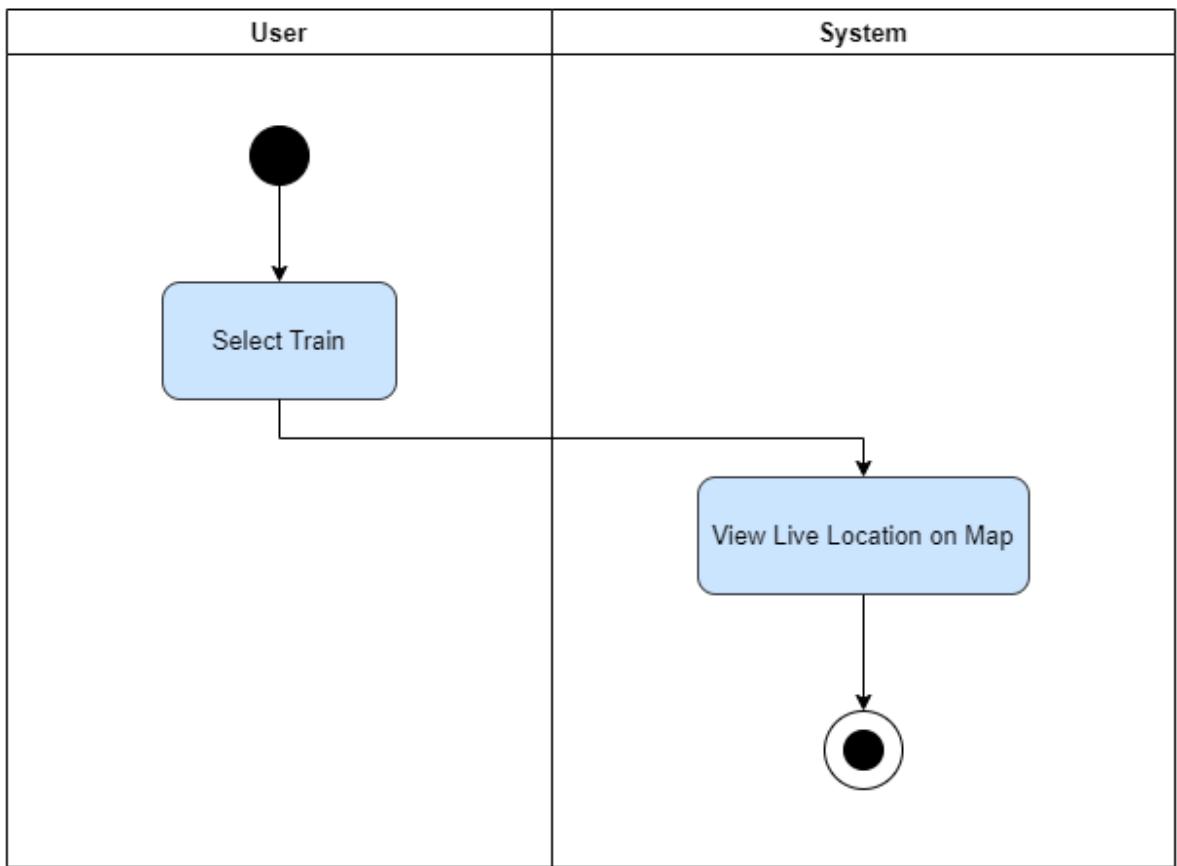
### Check Seat Availability



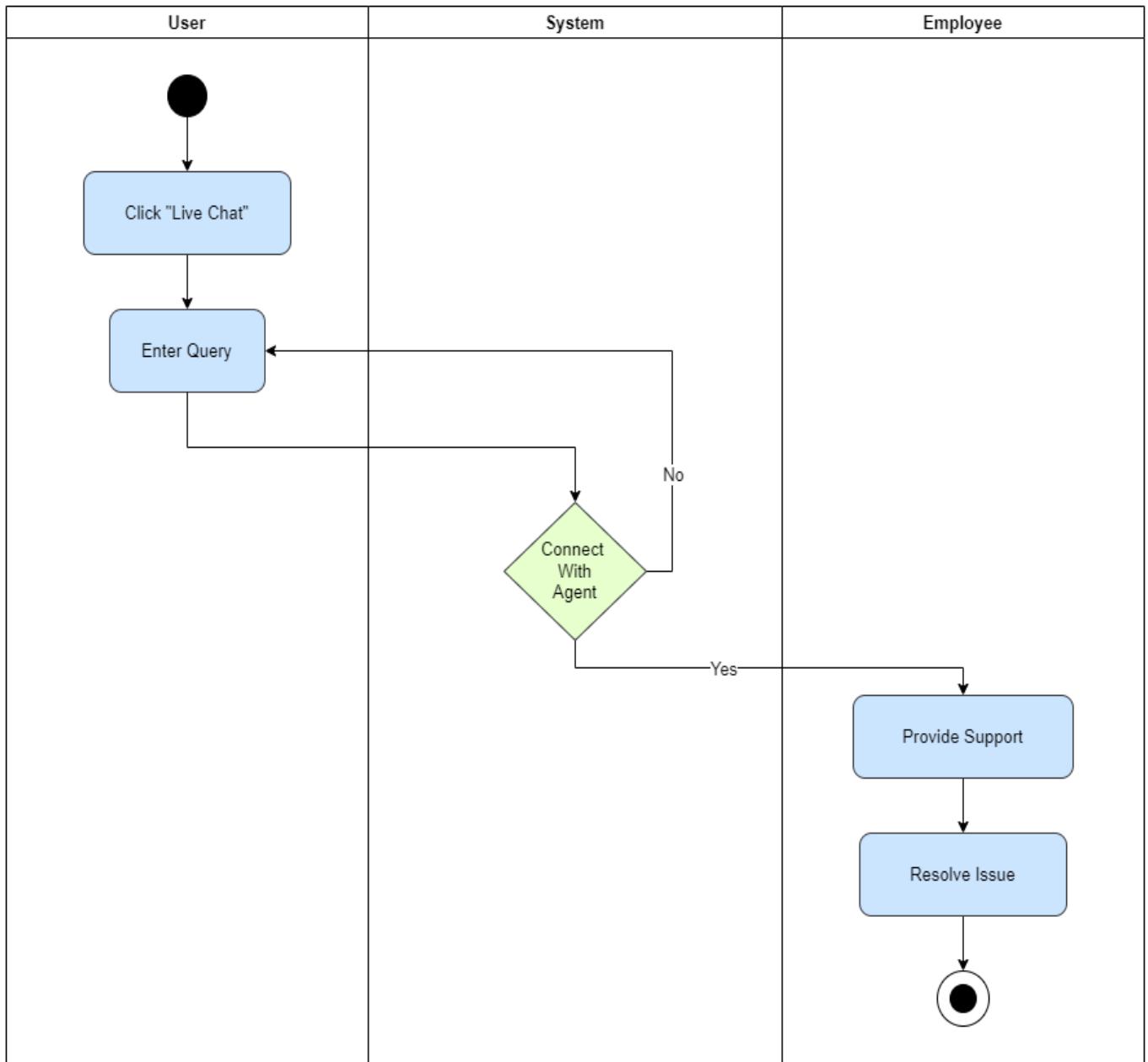
### View Route Details



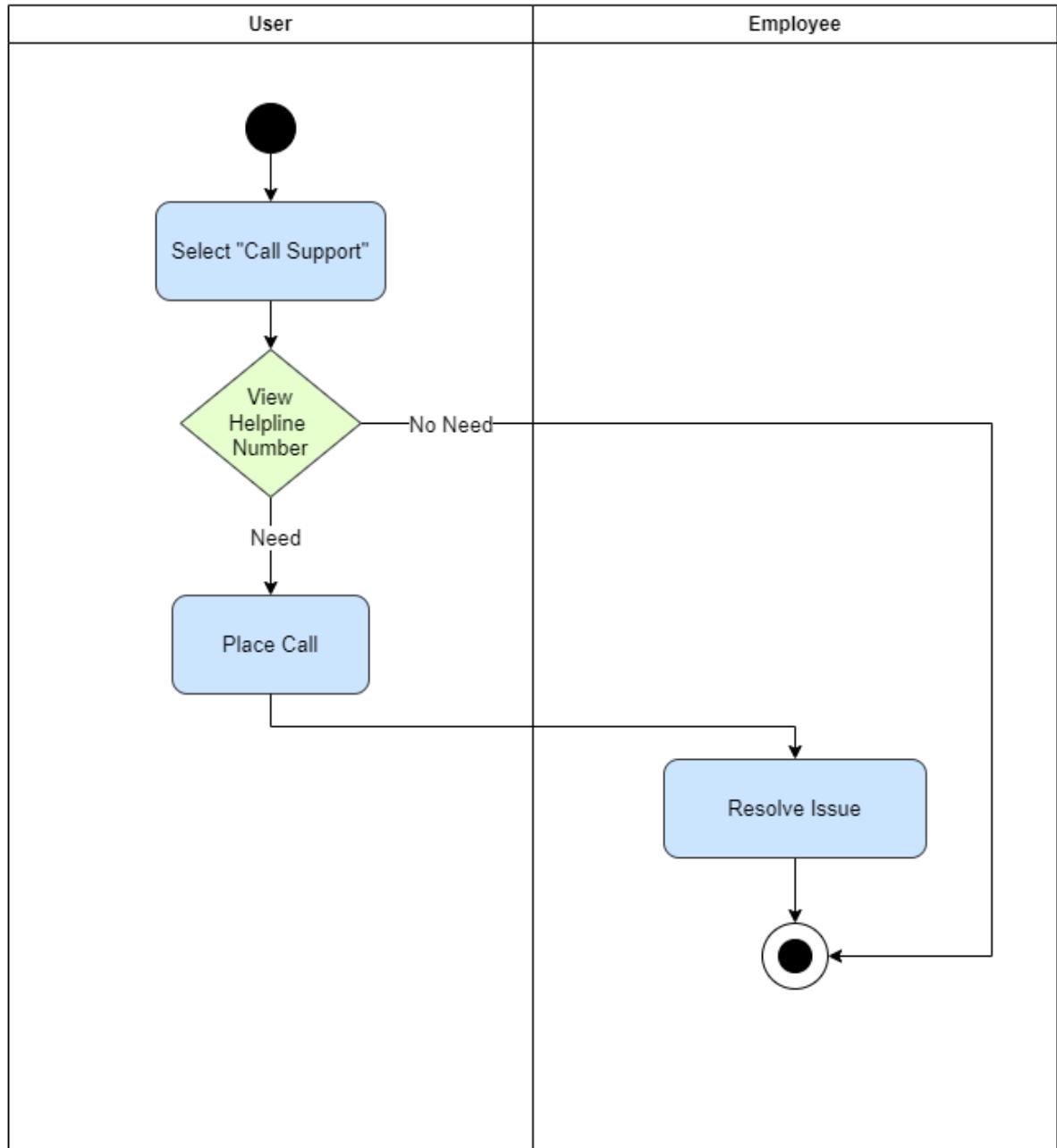
### Train Live Location



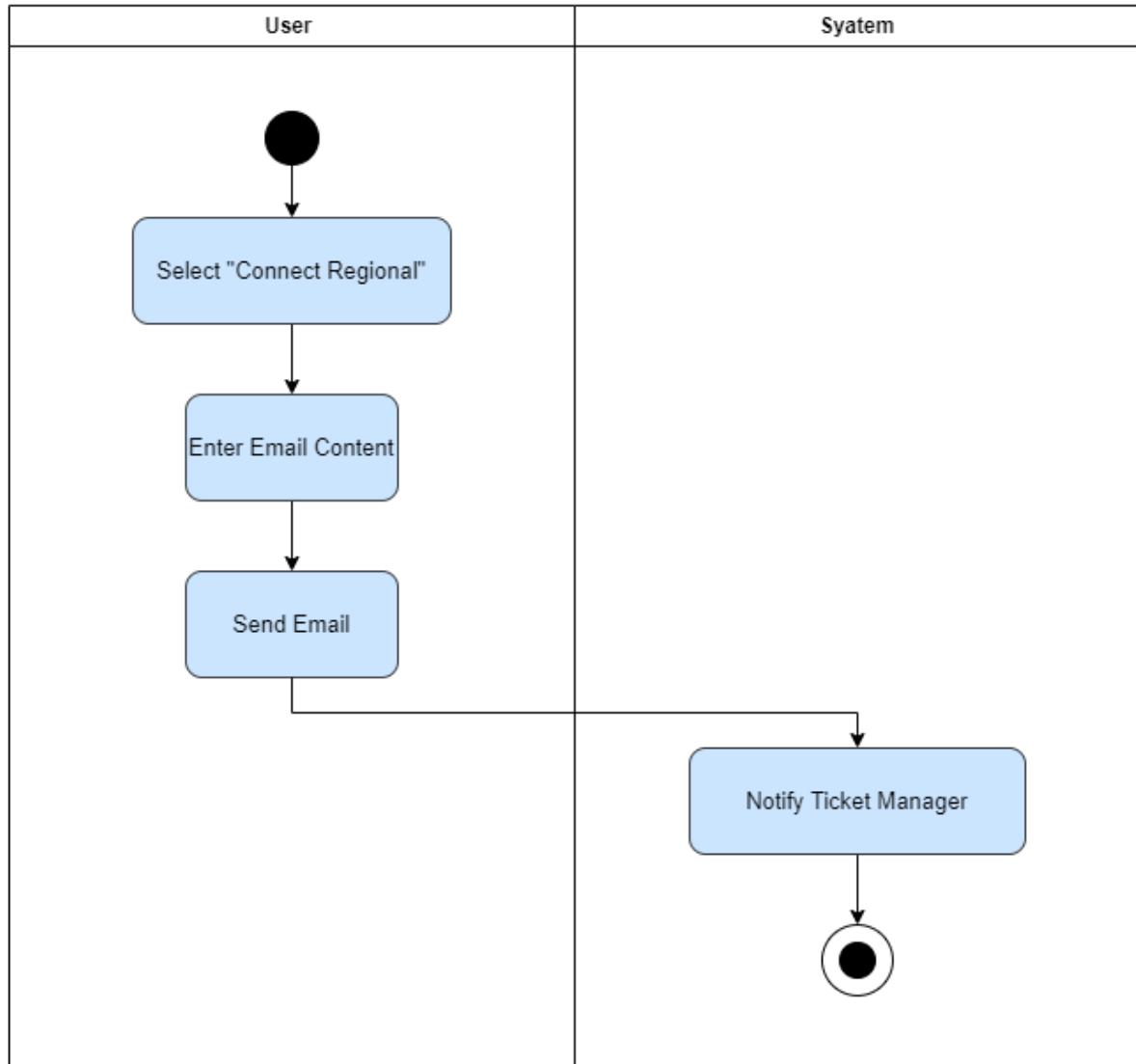
### Live Chat (Customer Support)



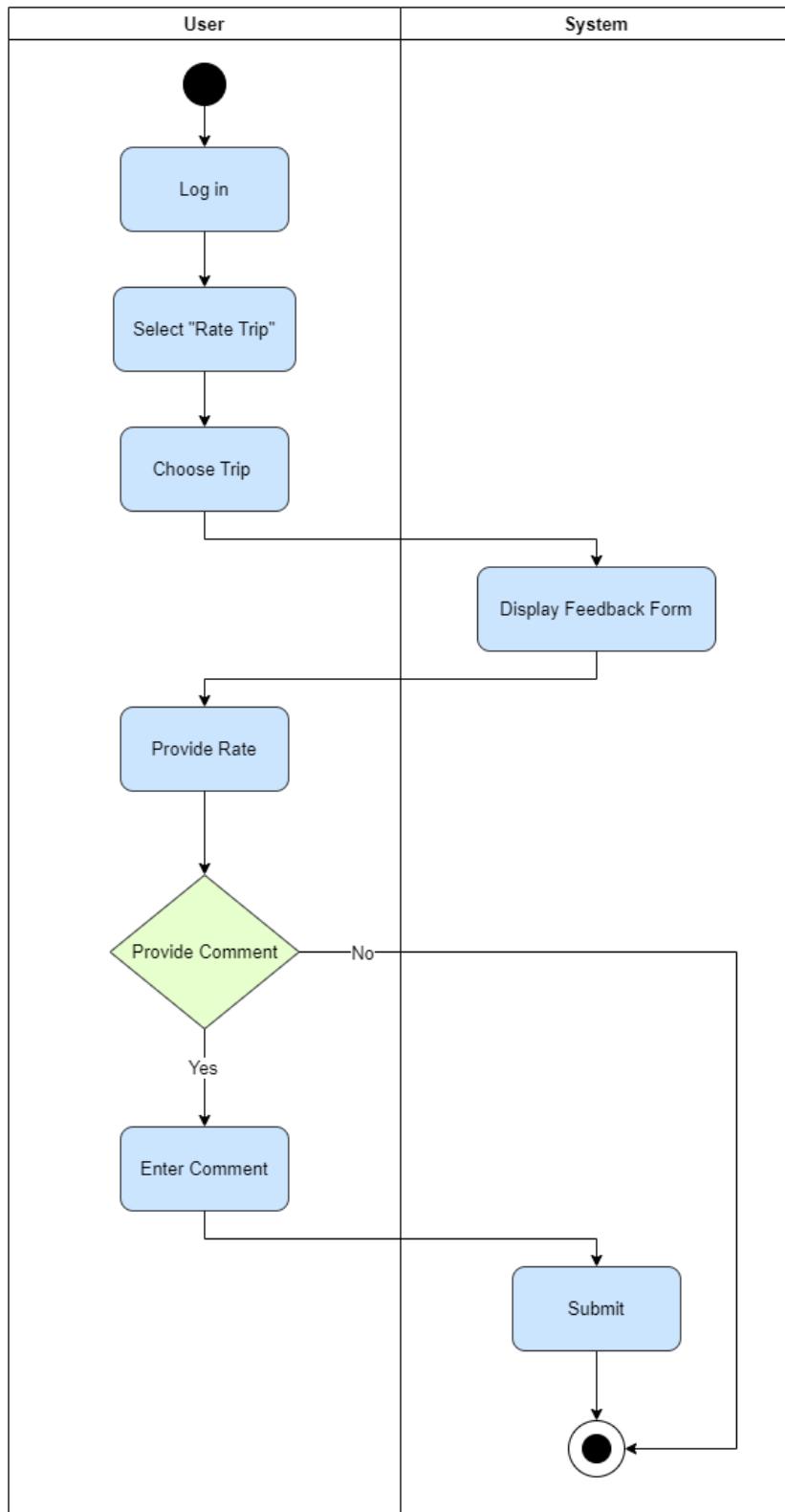
### Call Support



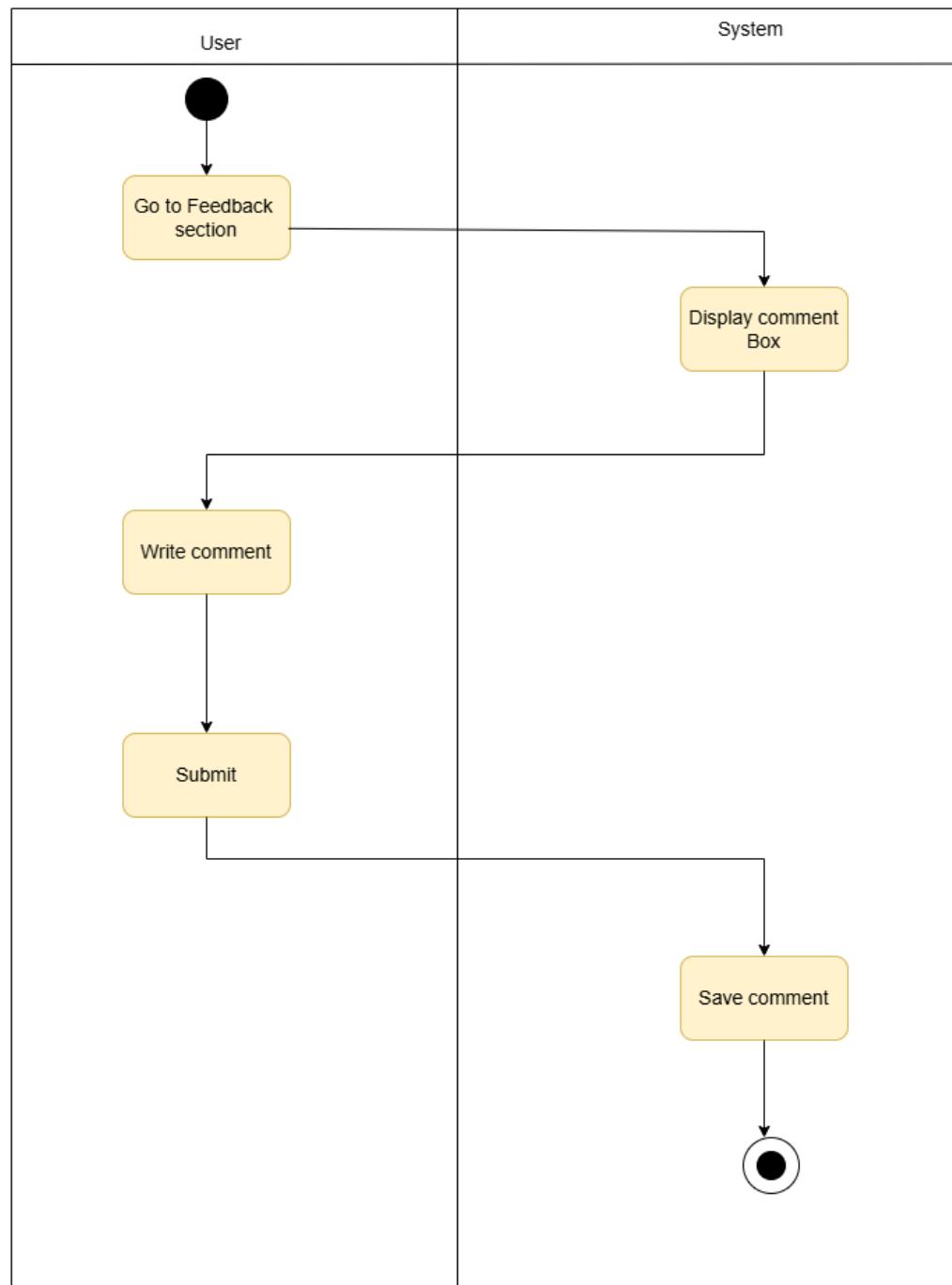
### Connect Regional Manager Via Email



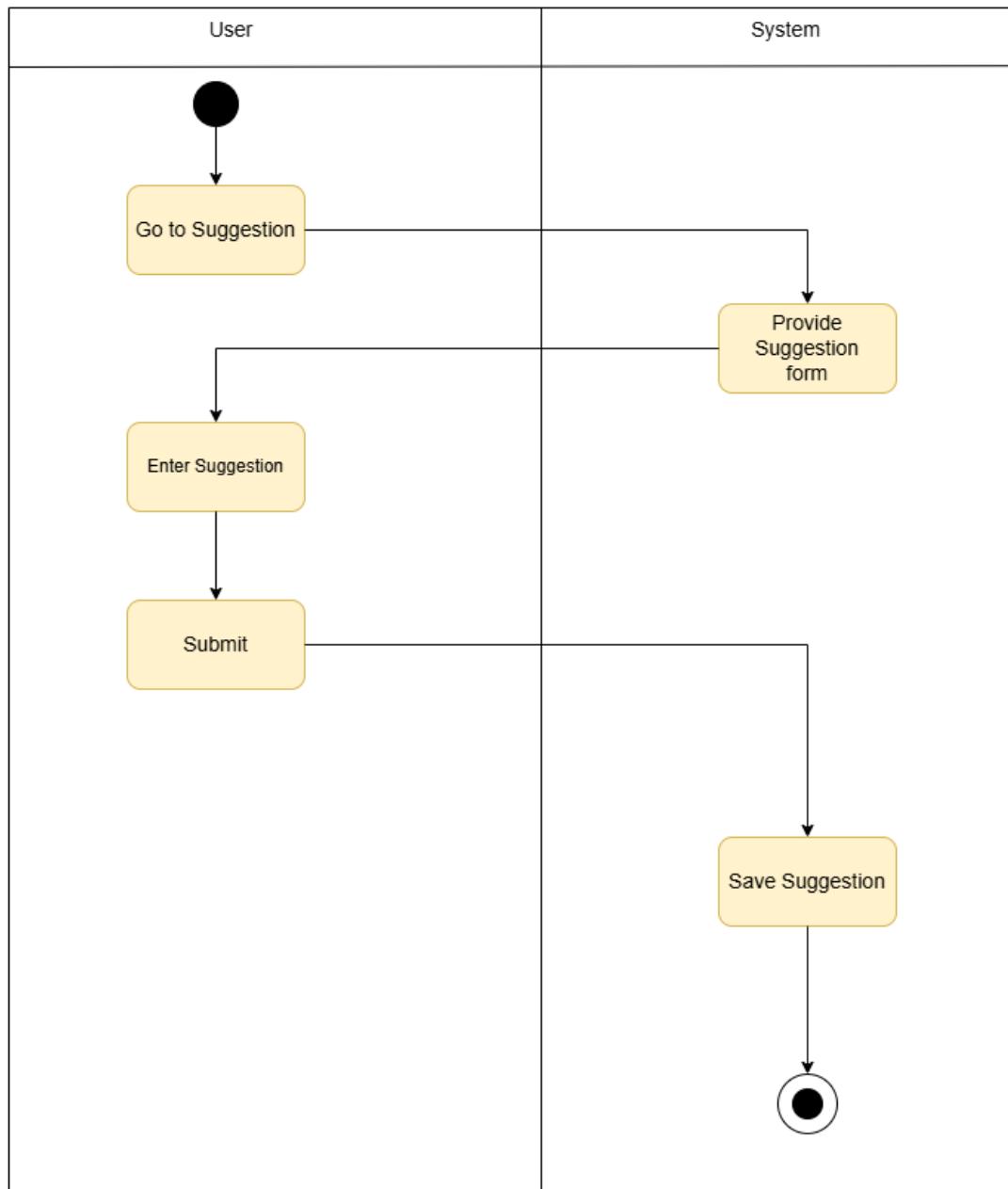
### Rate Trip Experience



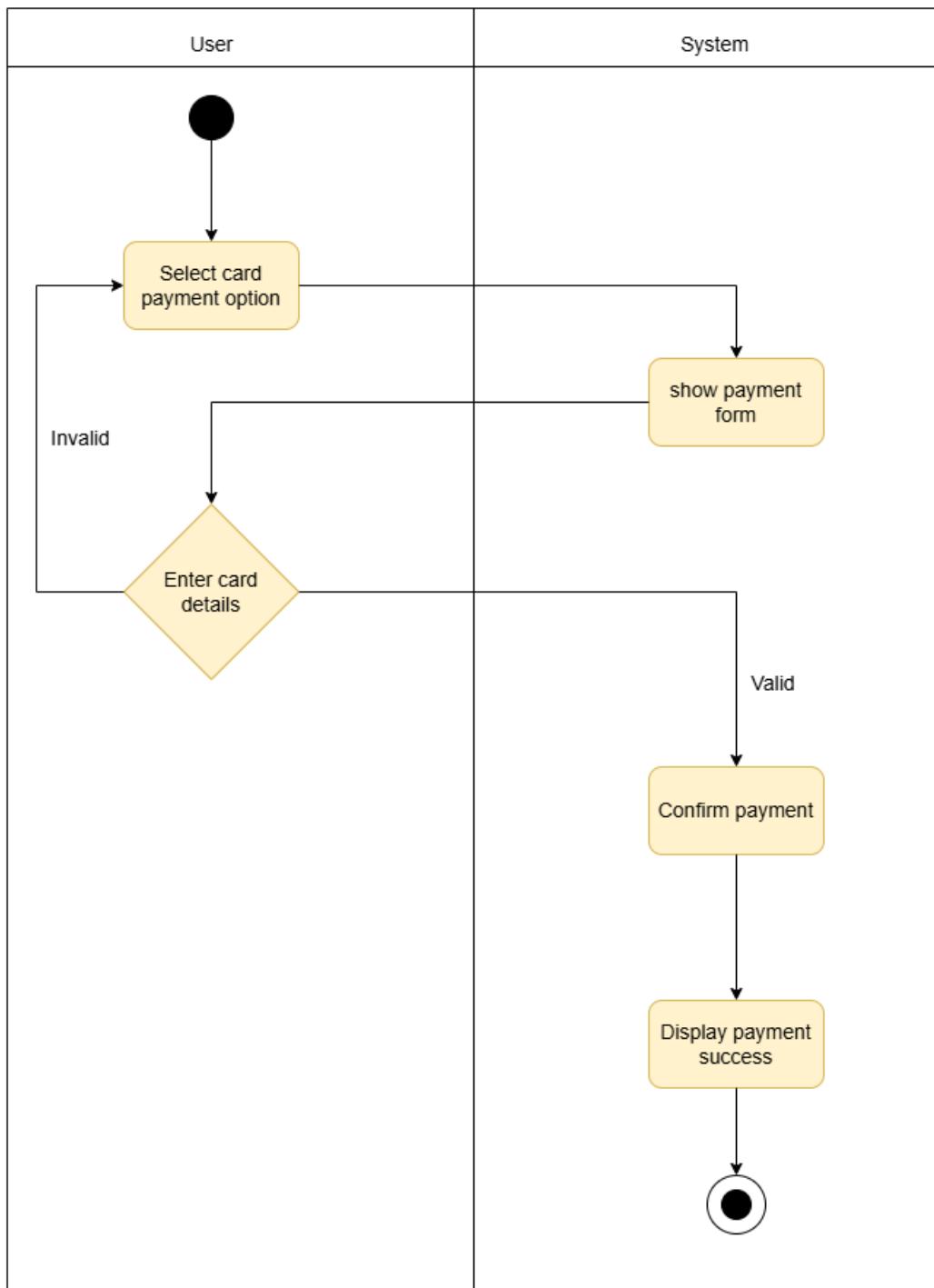
### Swine Diagram for Comment Steps



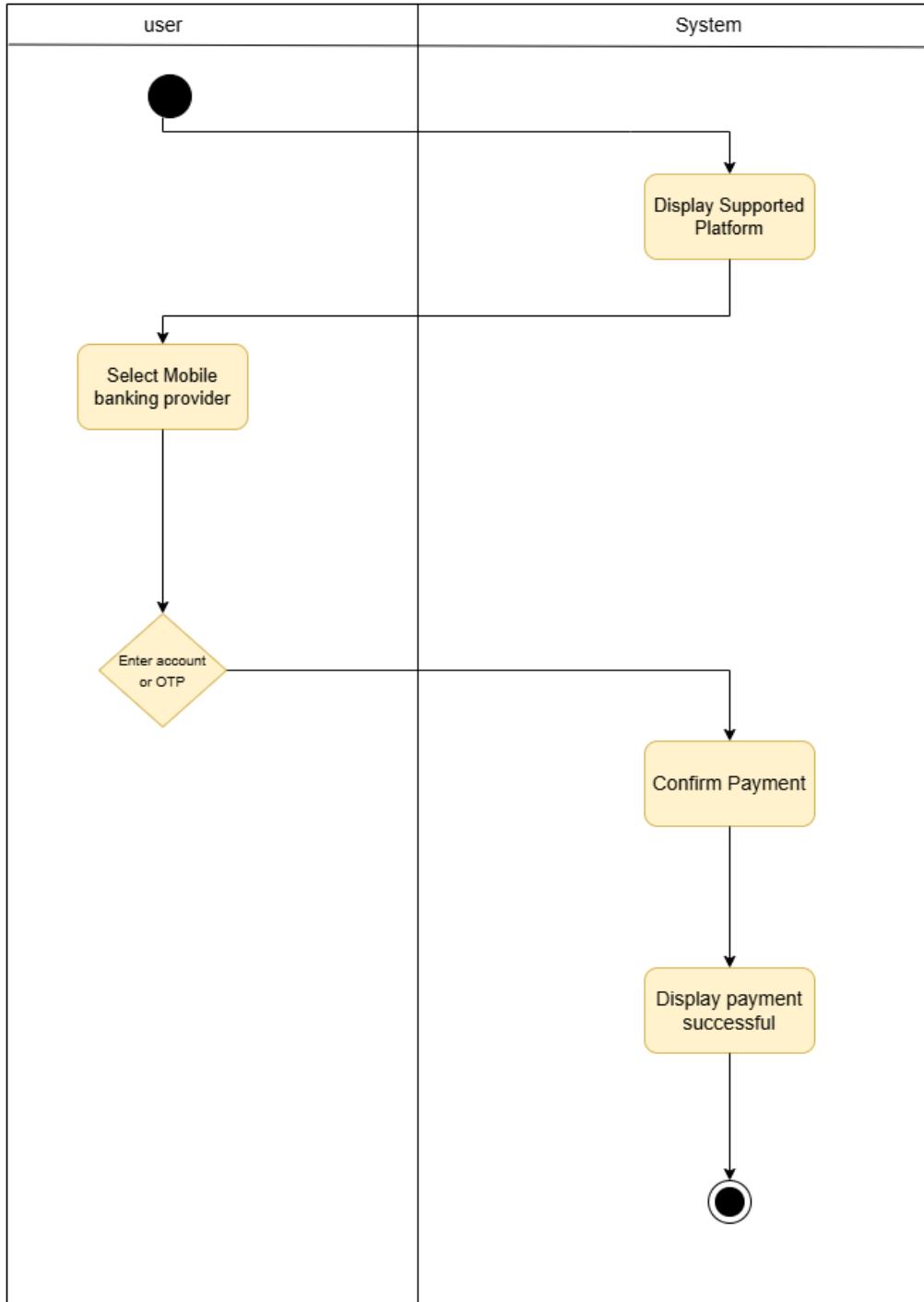
### Swine Diagram for Give Suggestion Steps



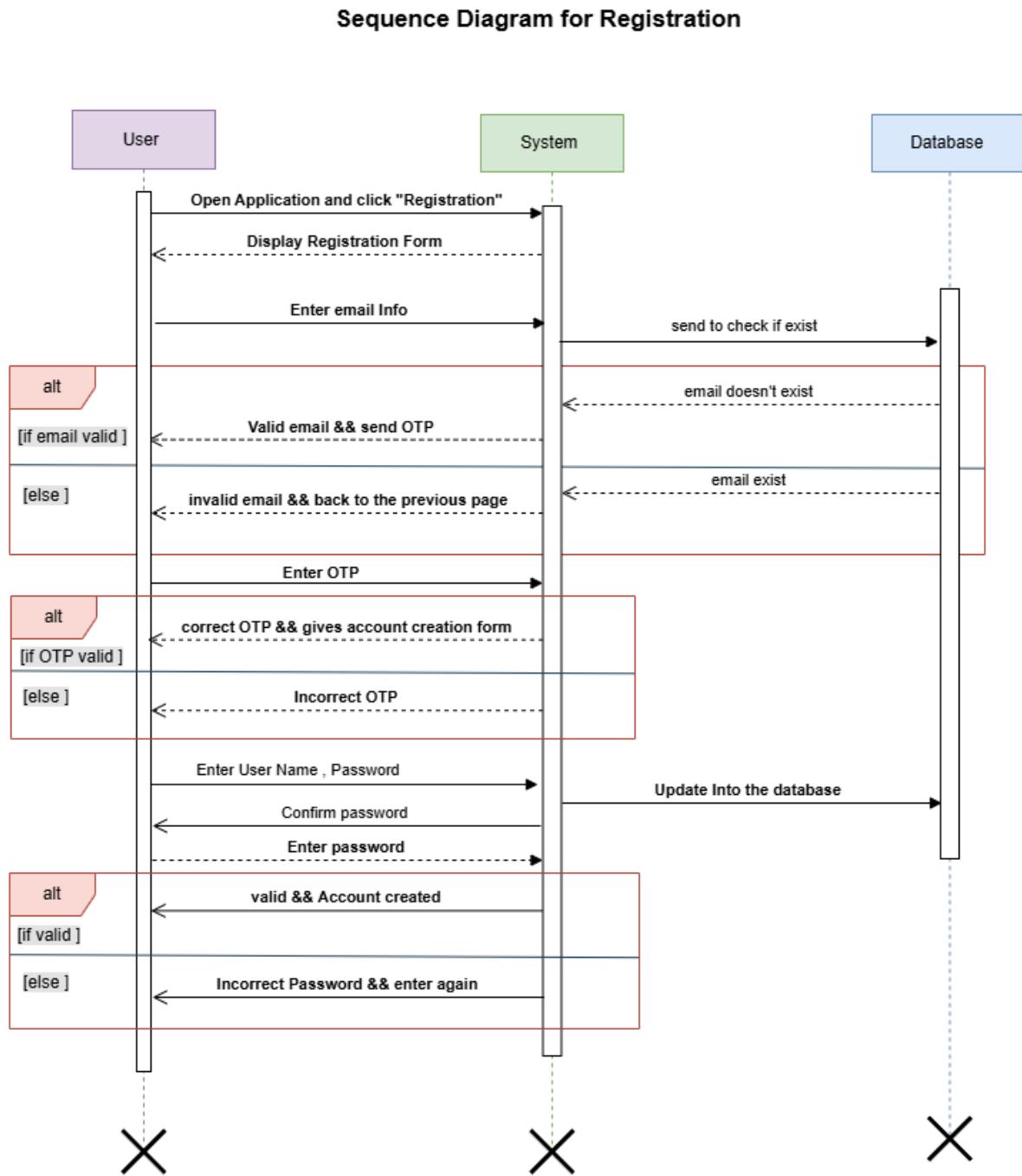
### Swine Lane Diagram for Payment (Card)



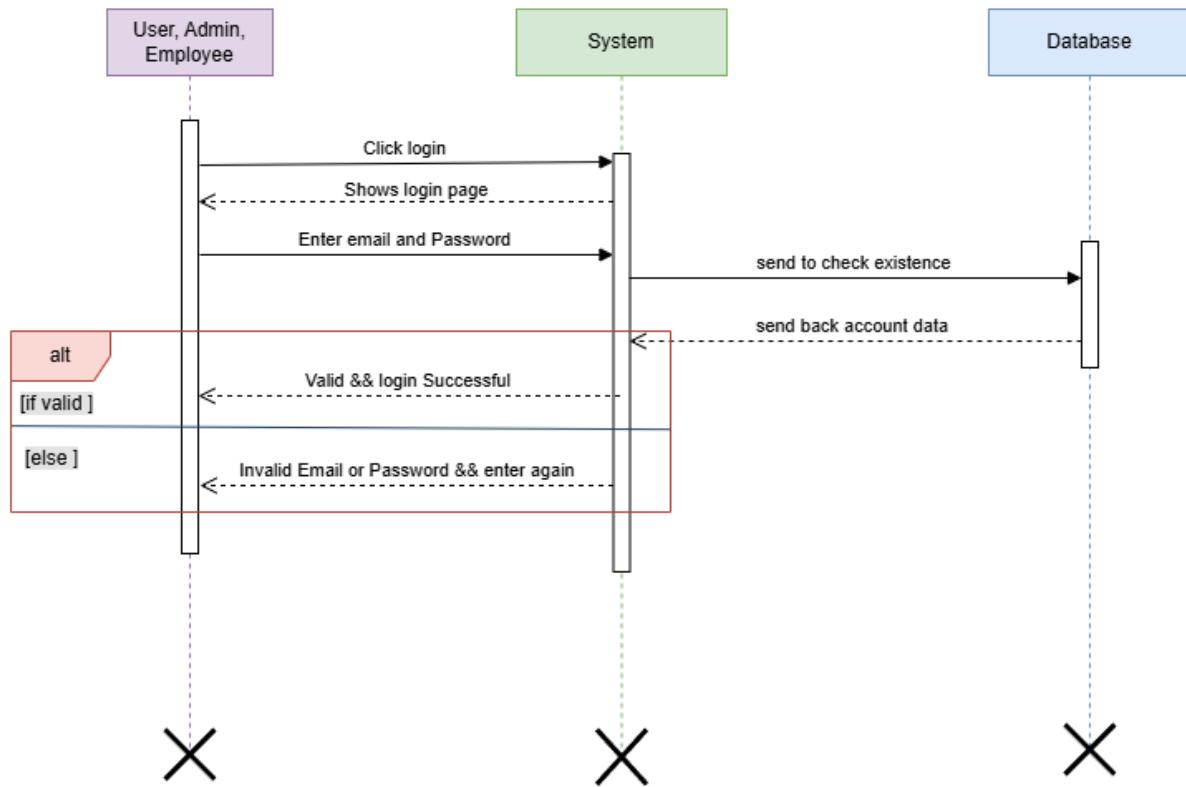
## **Swim Lane Diagram for Payment(Mobile Banking)**



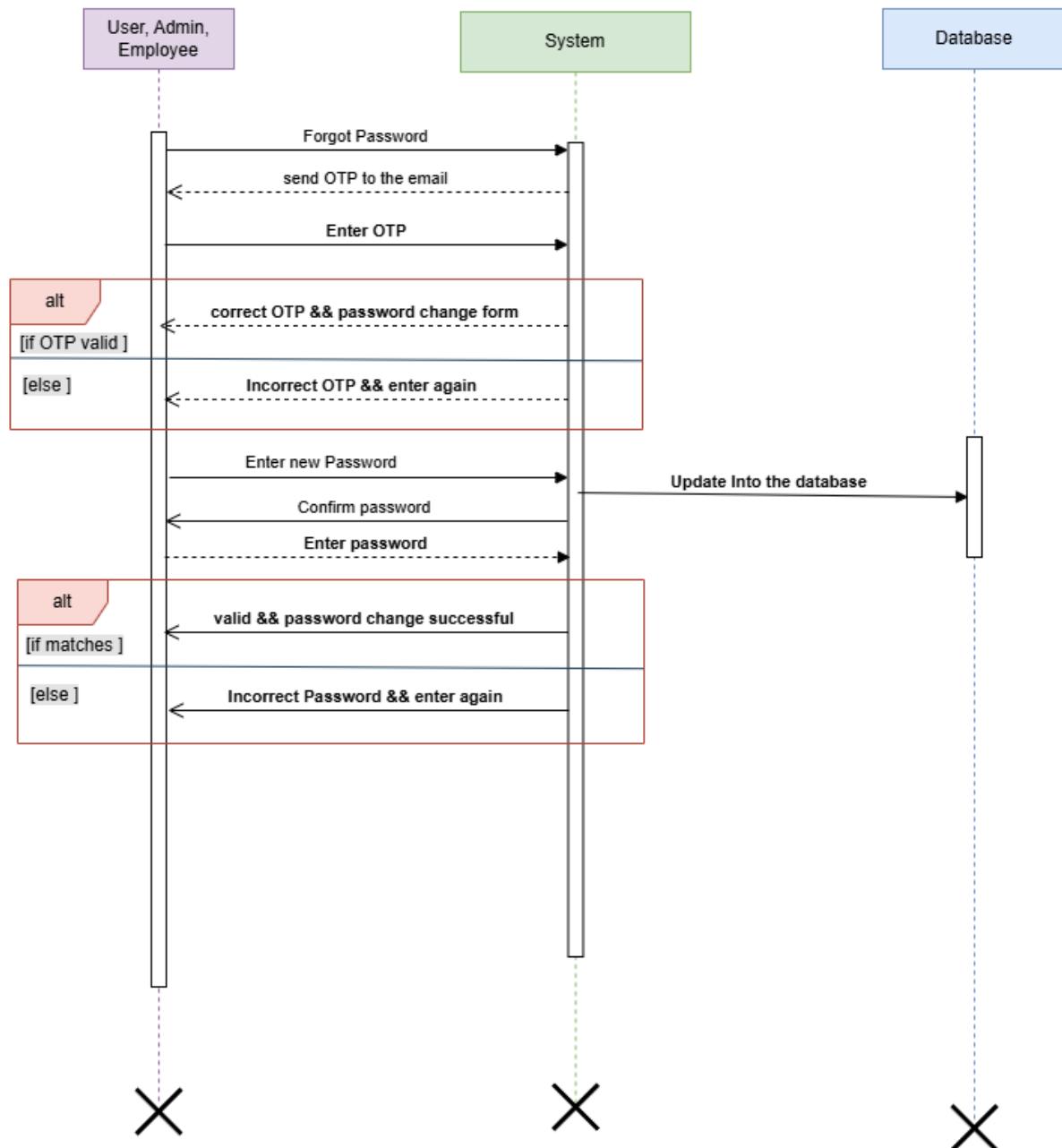
## Chapter 8: Sequence Diagram



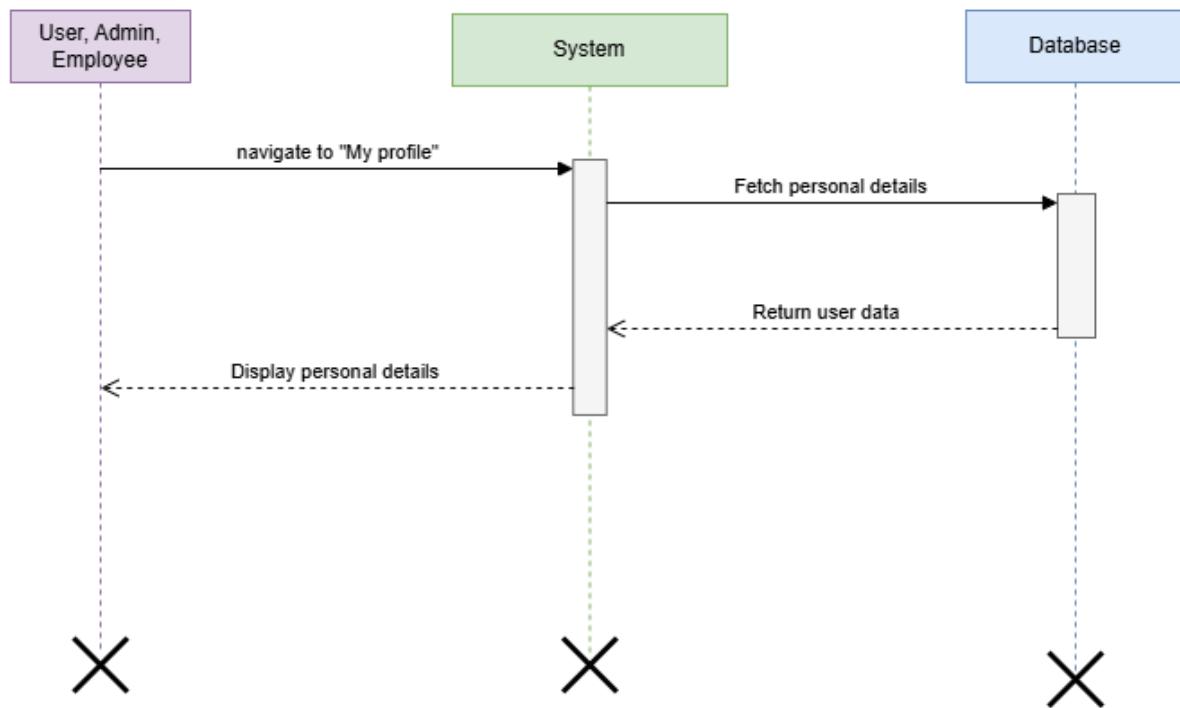
### Sequence diagram for Login



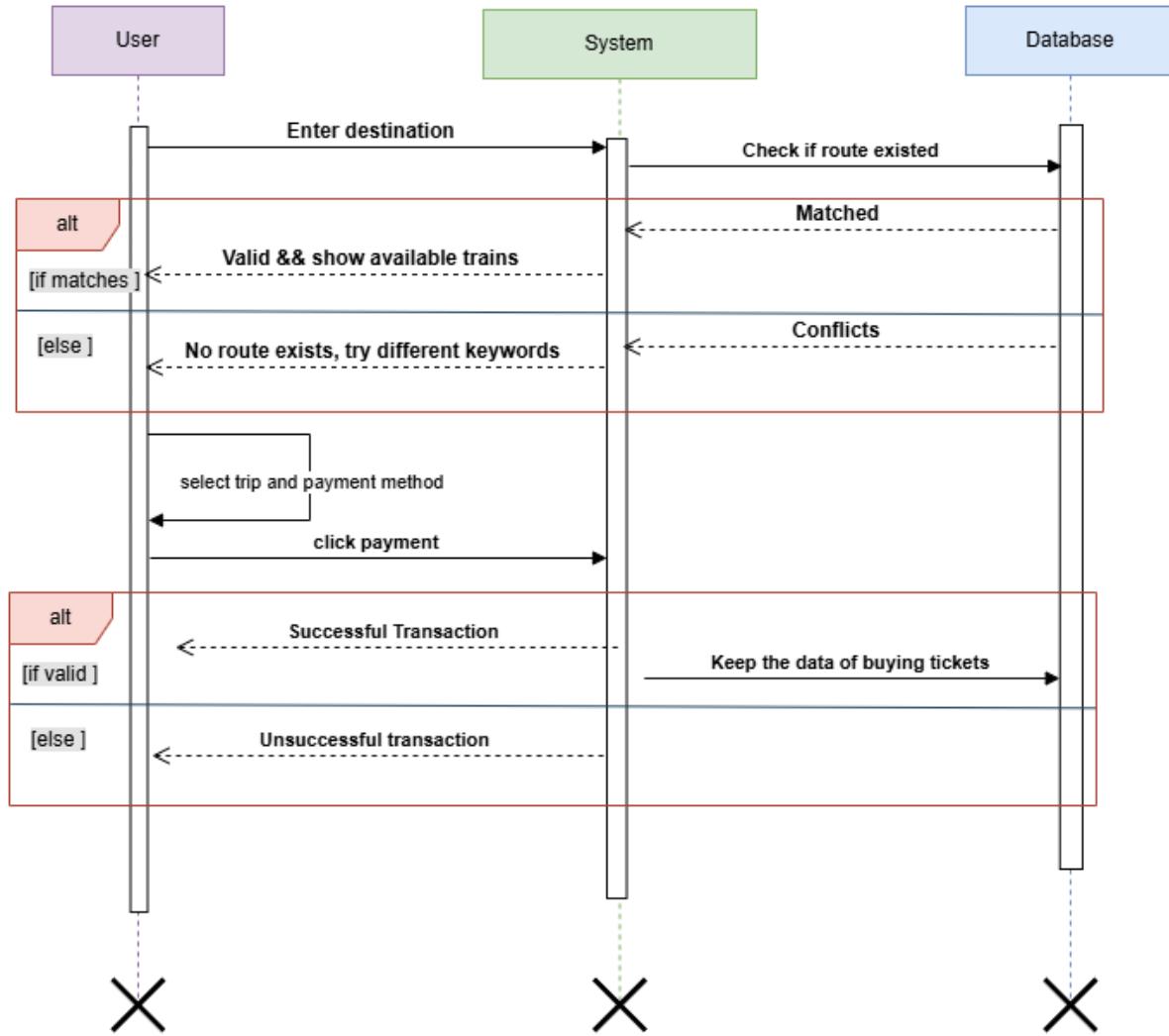
### Sequence diagram for Password Recovery



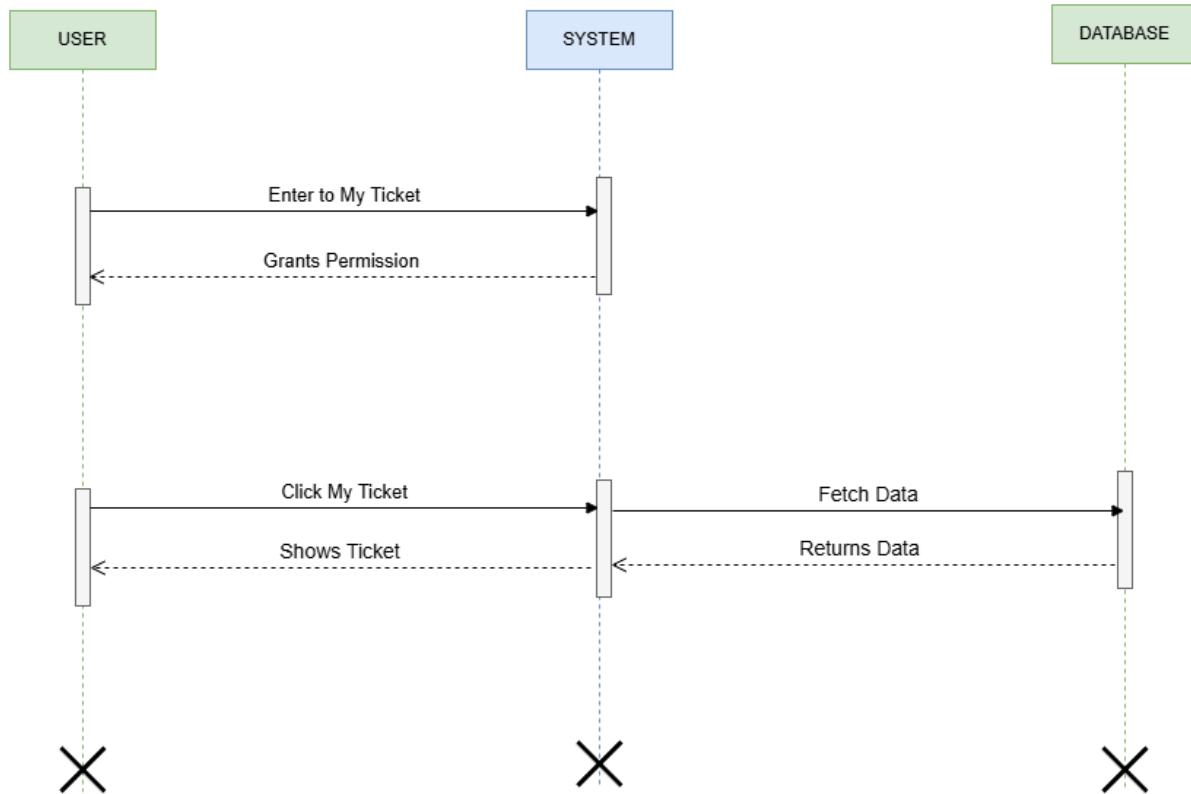
### Sequence diagram for View Profile



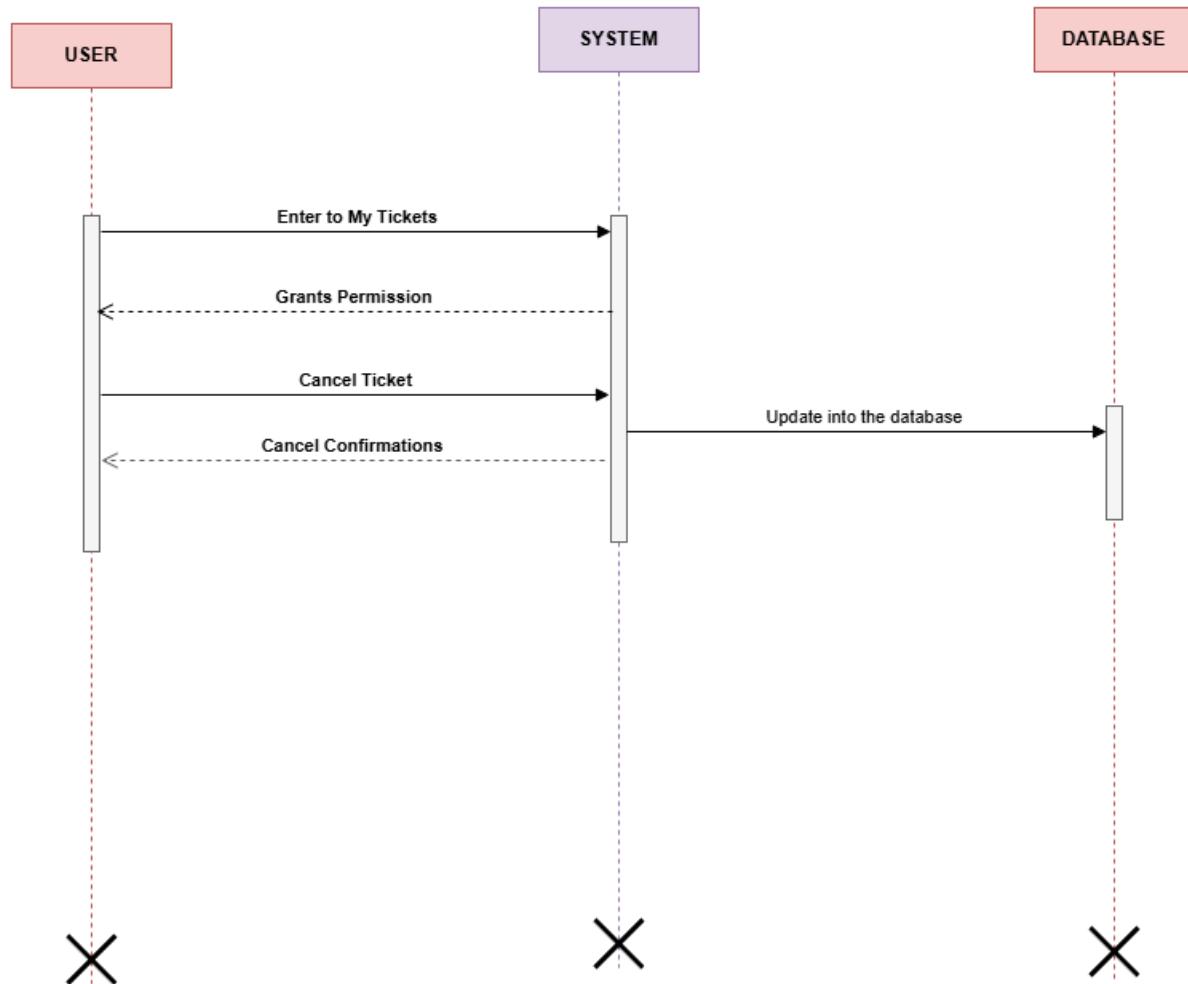
### Sequence diagram for Book and Purchase Tickets



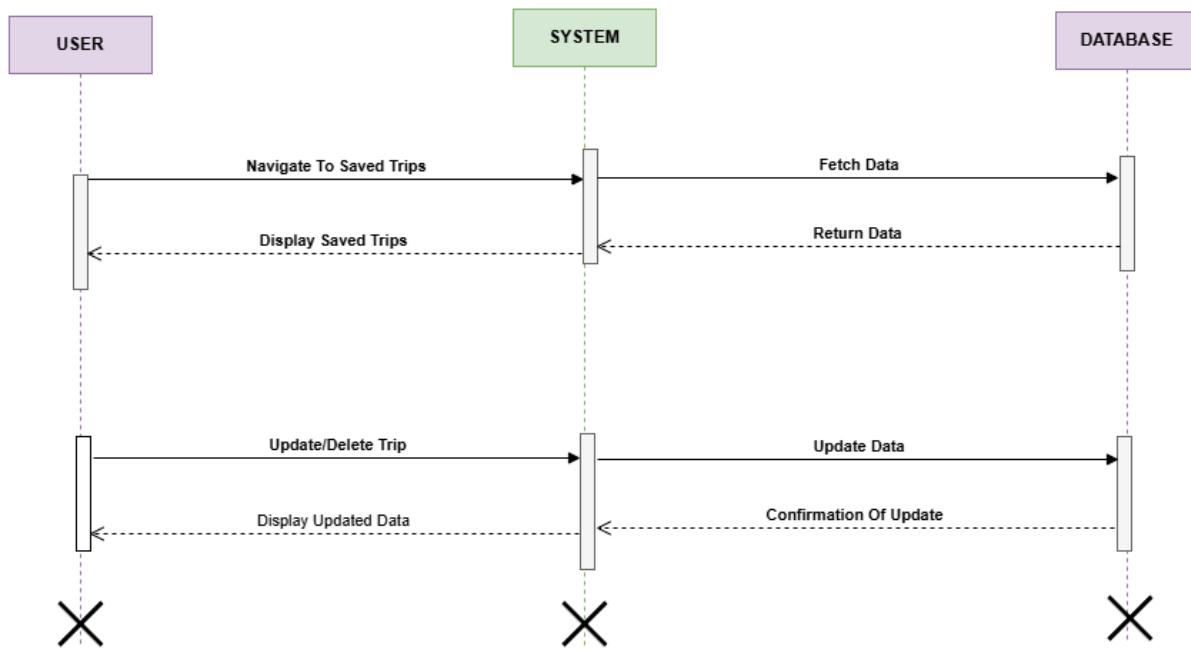
Sequence diagram for view tickets



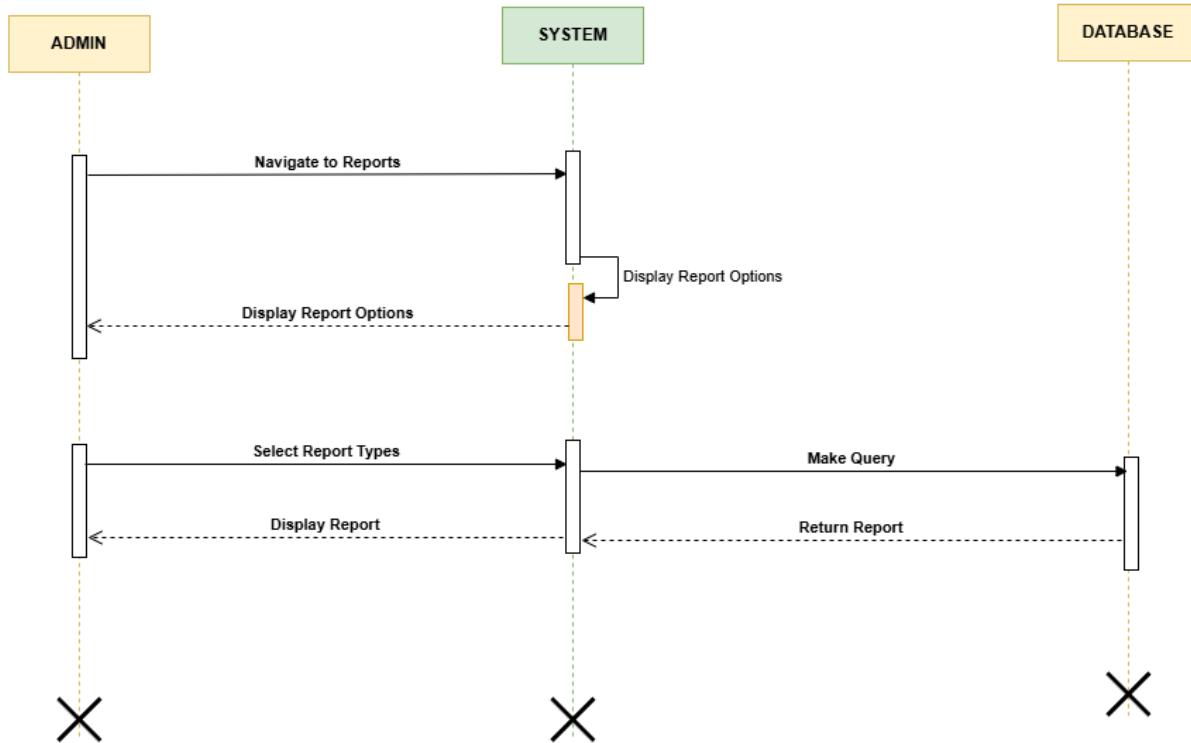
### Sequence diagram for cancel tickets



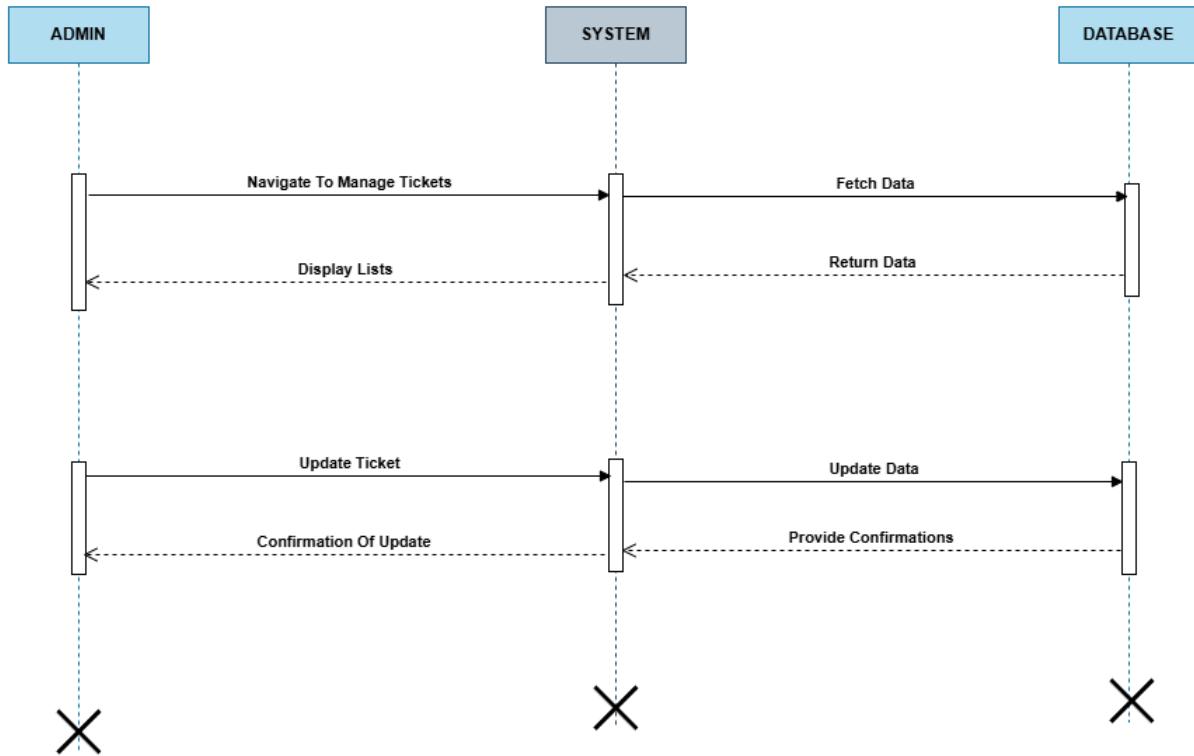
**Sequence diagram for Save trips**



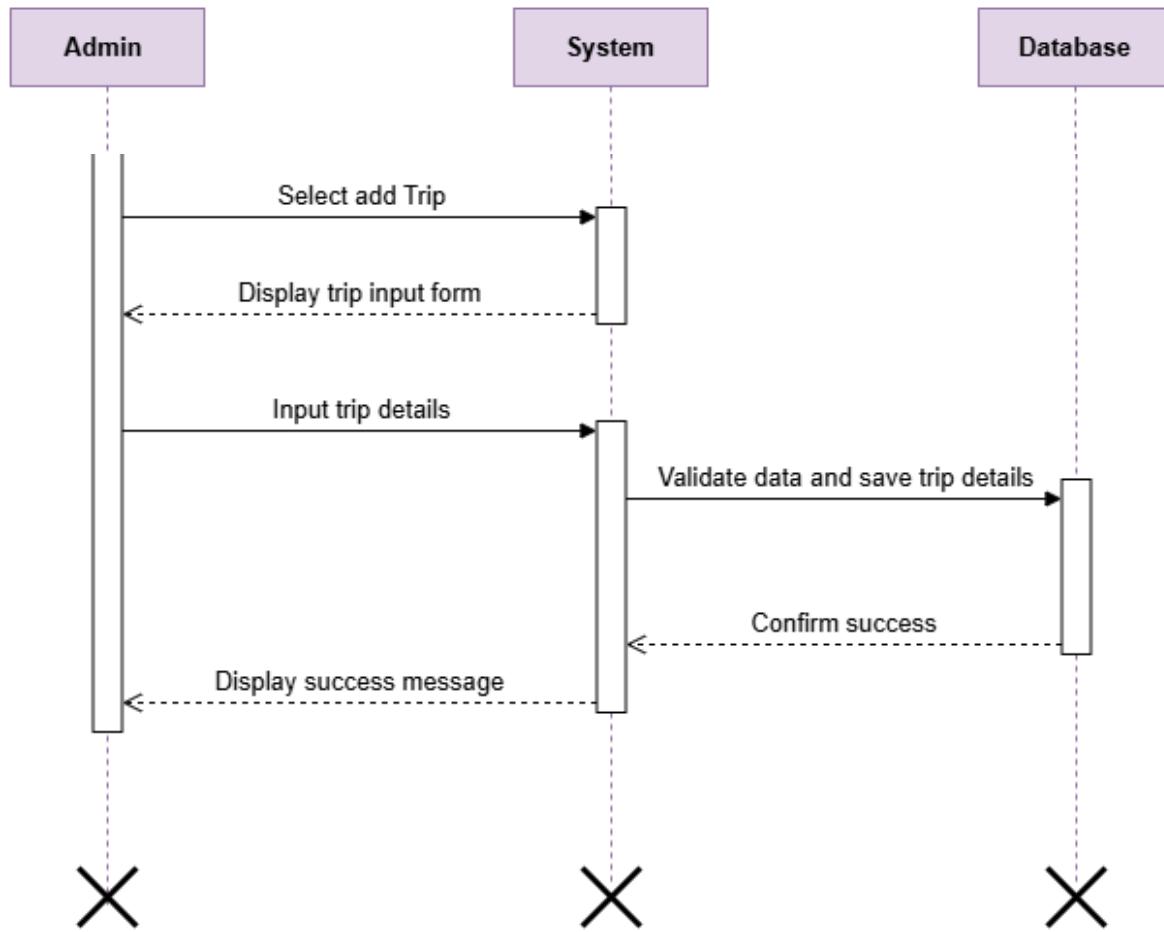
**Sequence diagram for view system reports**



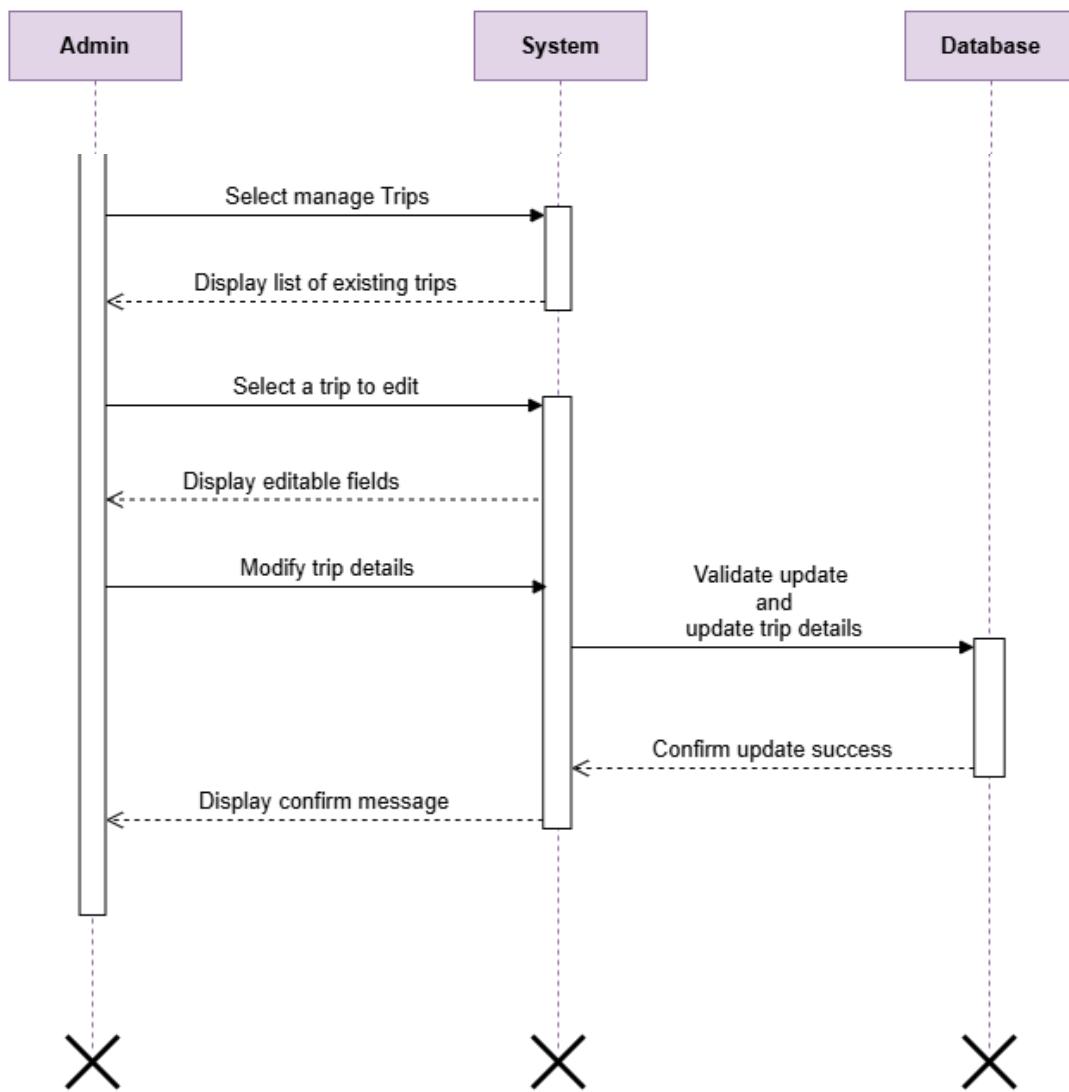
Sequence diagram for manage tickets



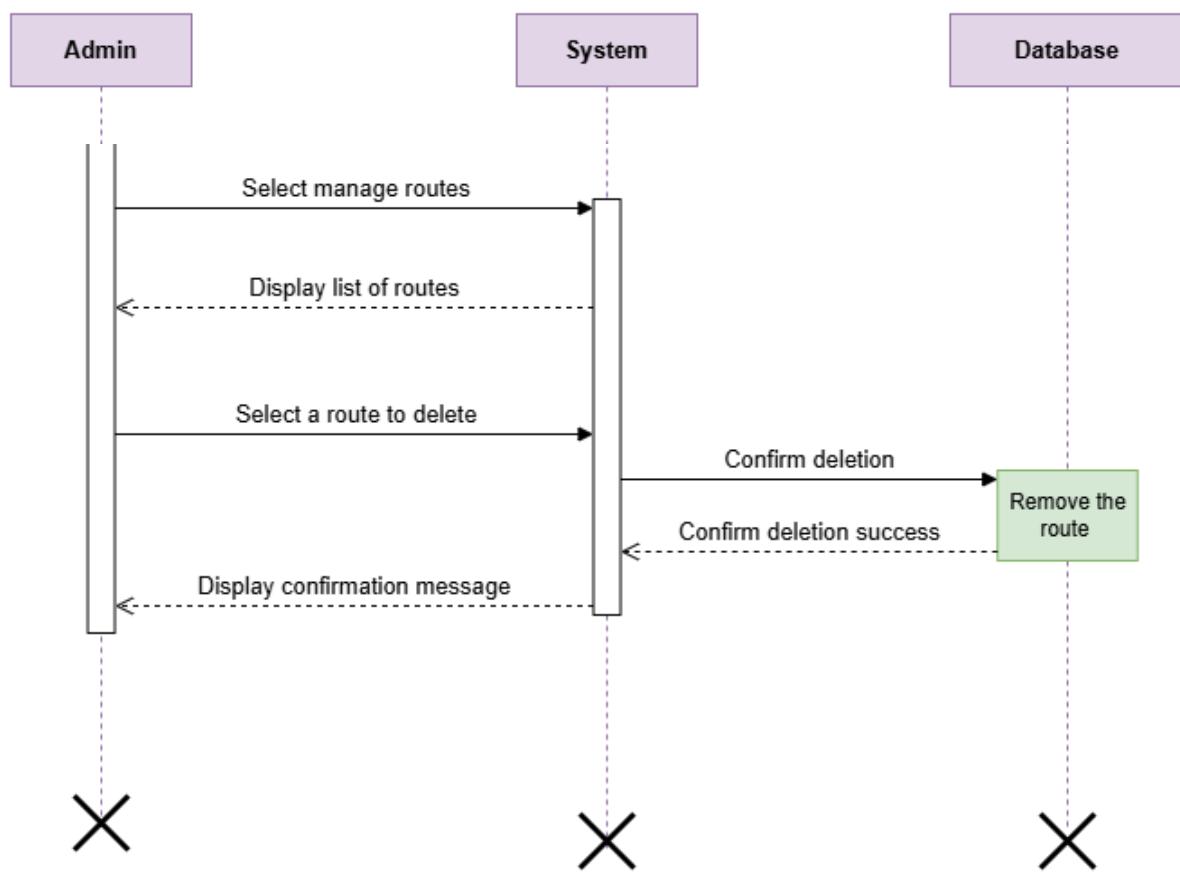
### Upload New Trip



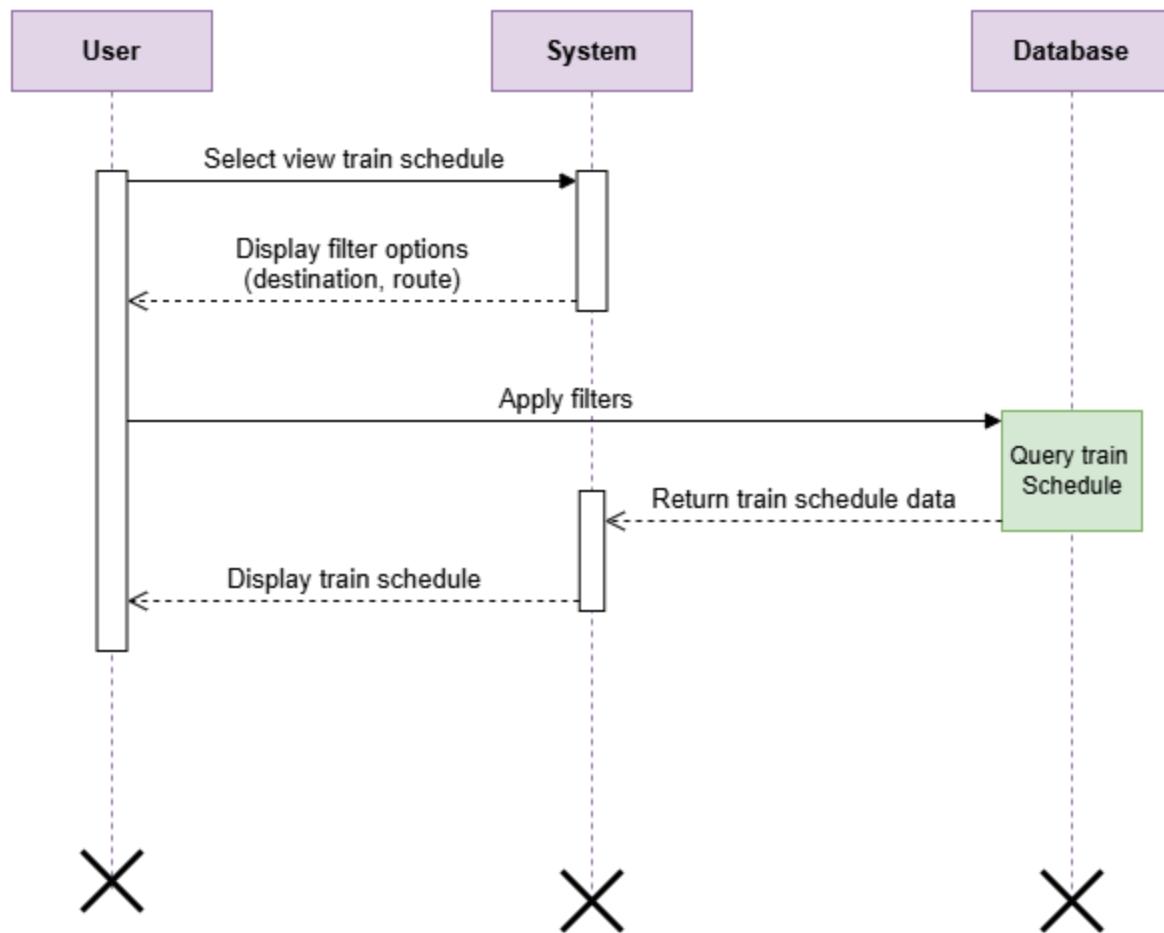
### Update Trip



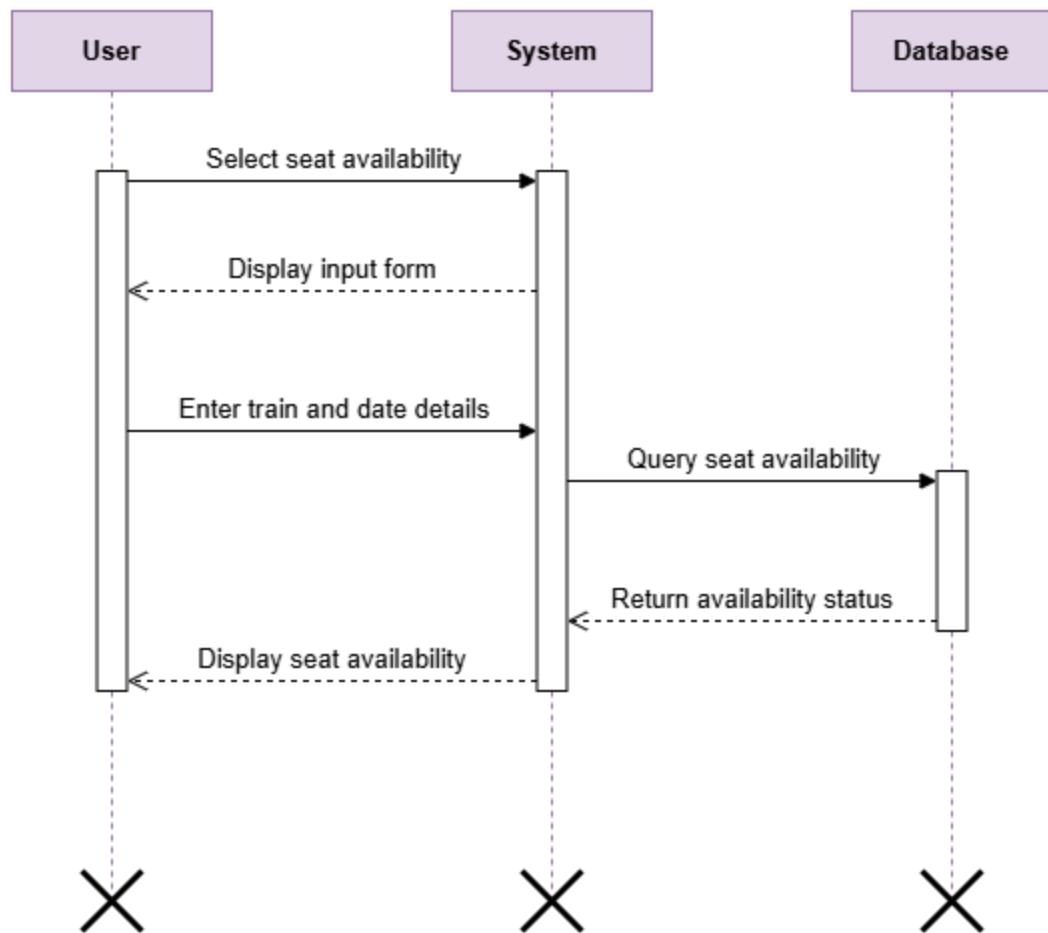
### Delete Route



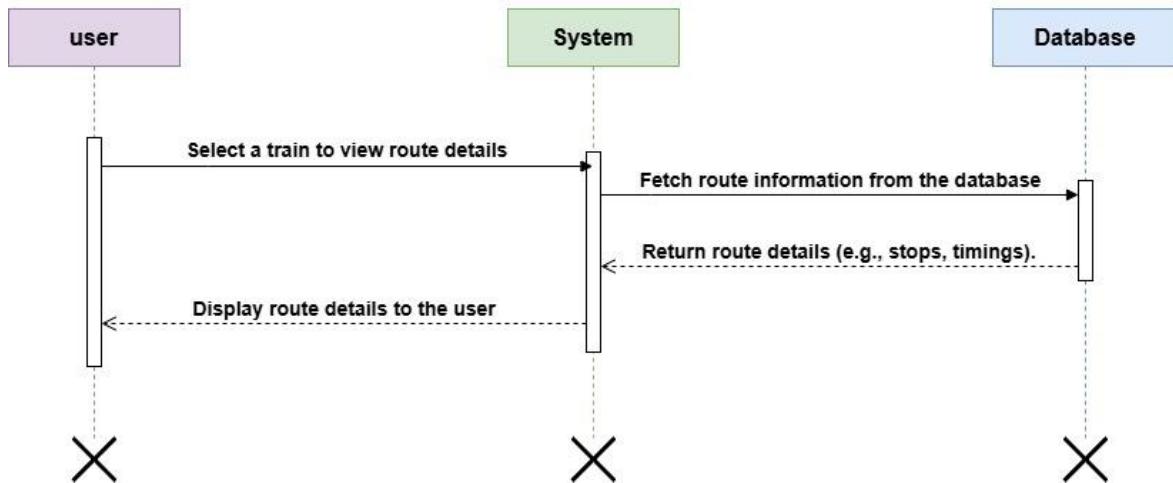
### View Train Schedule



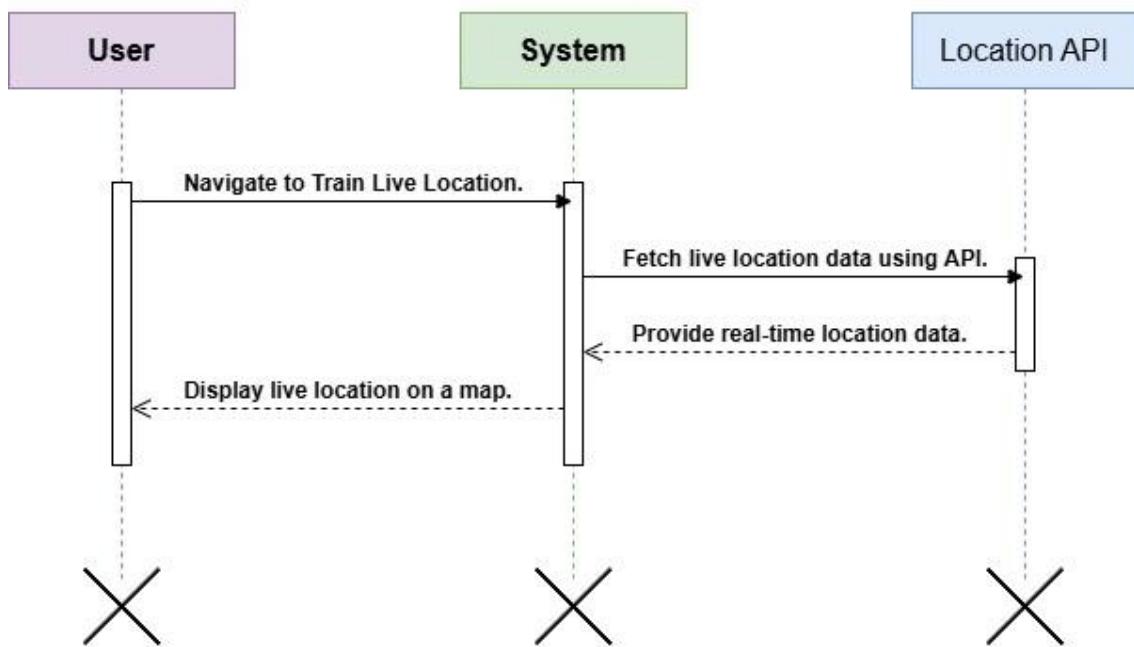
### Check Seat Availability



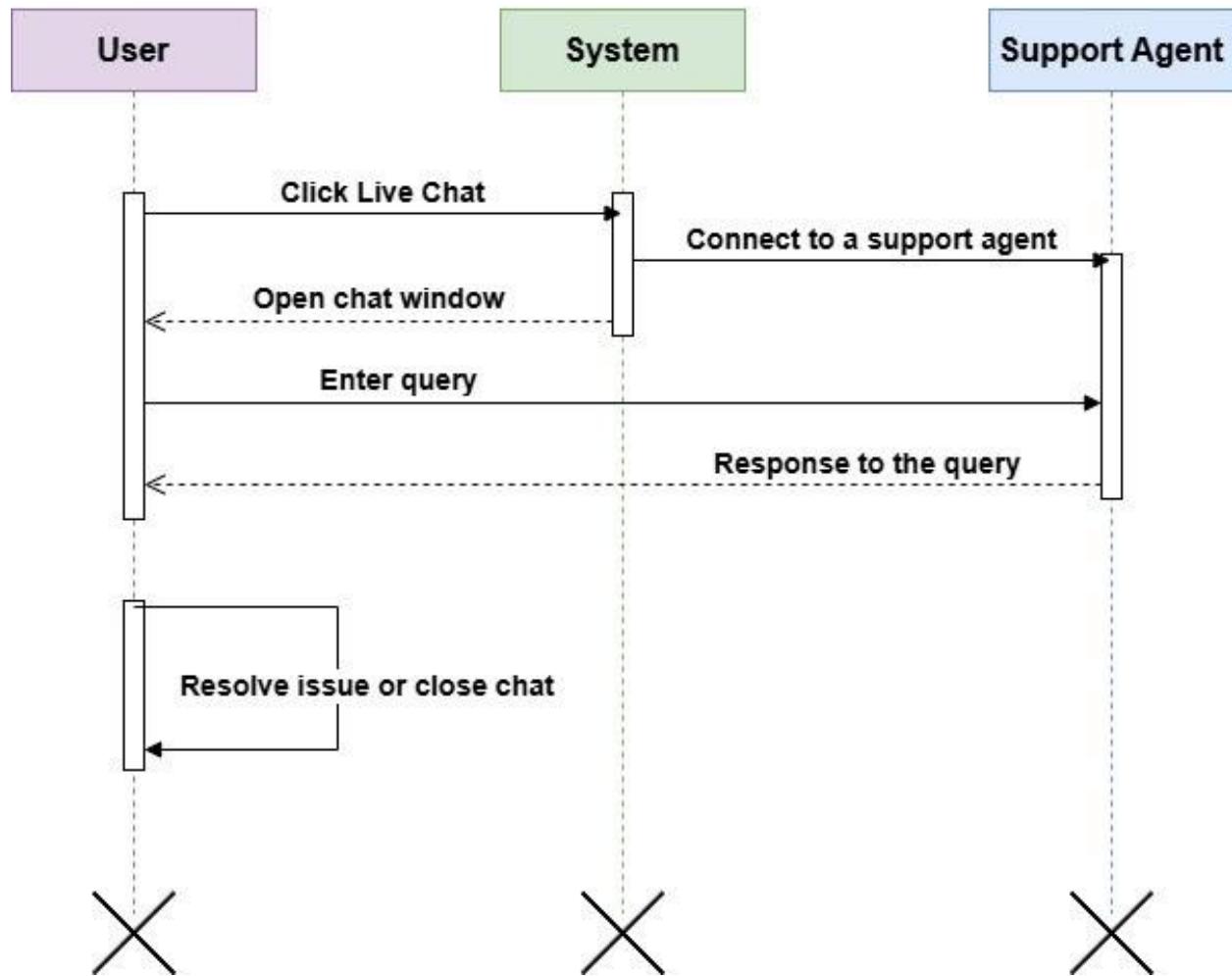
### Sequence diagram for View Route Details



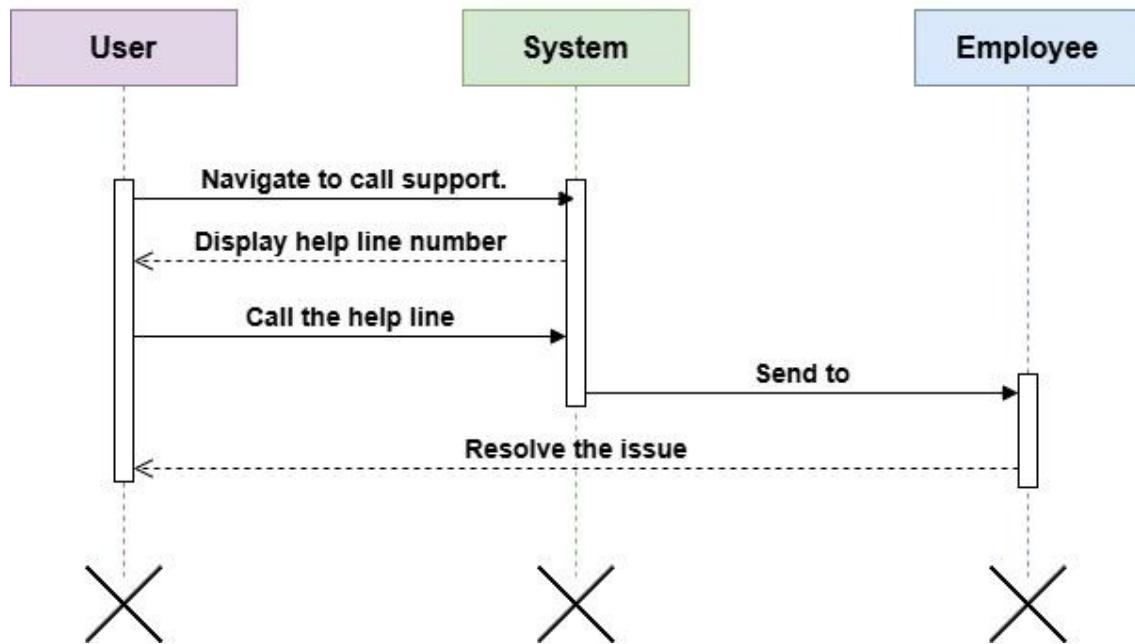
### Train Live Location



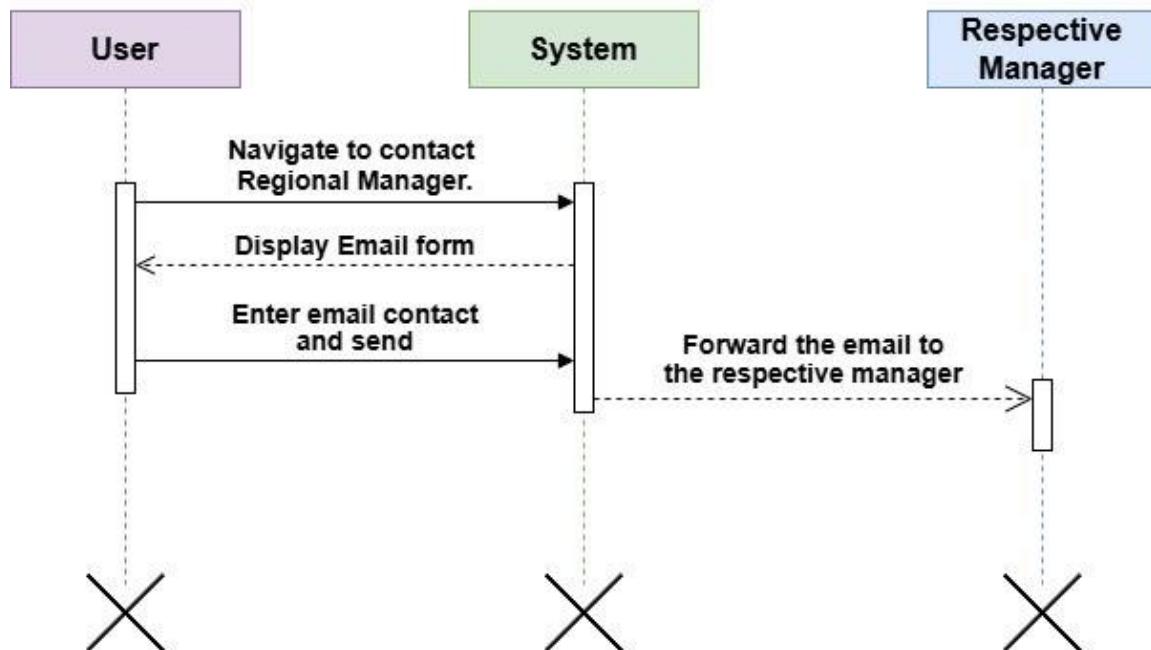
## Live Chat Support



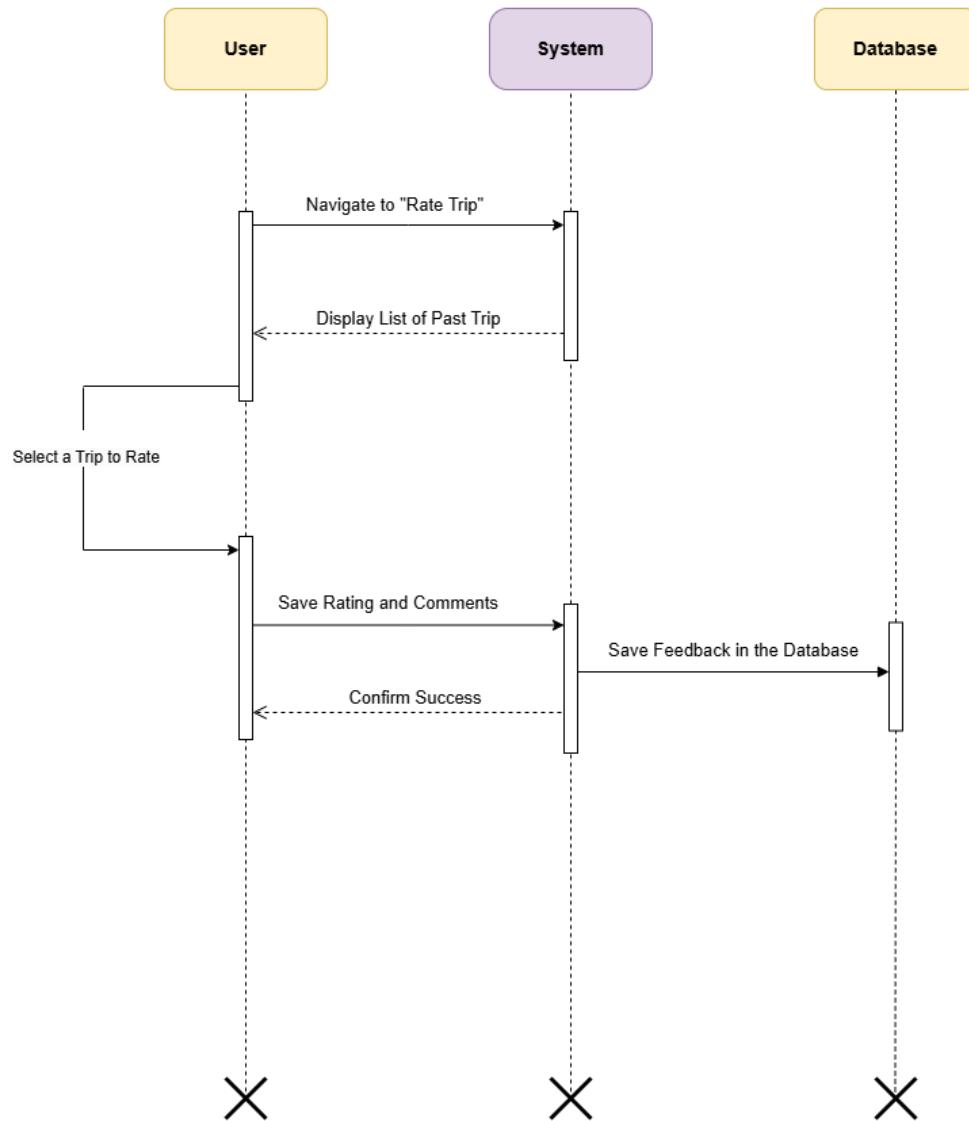
### Call Support



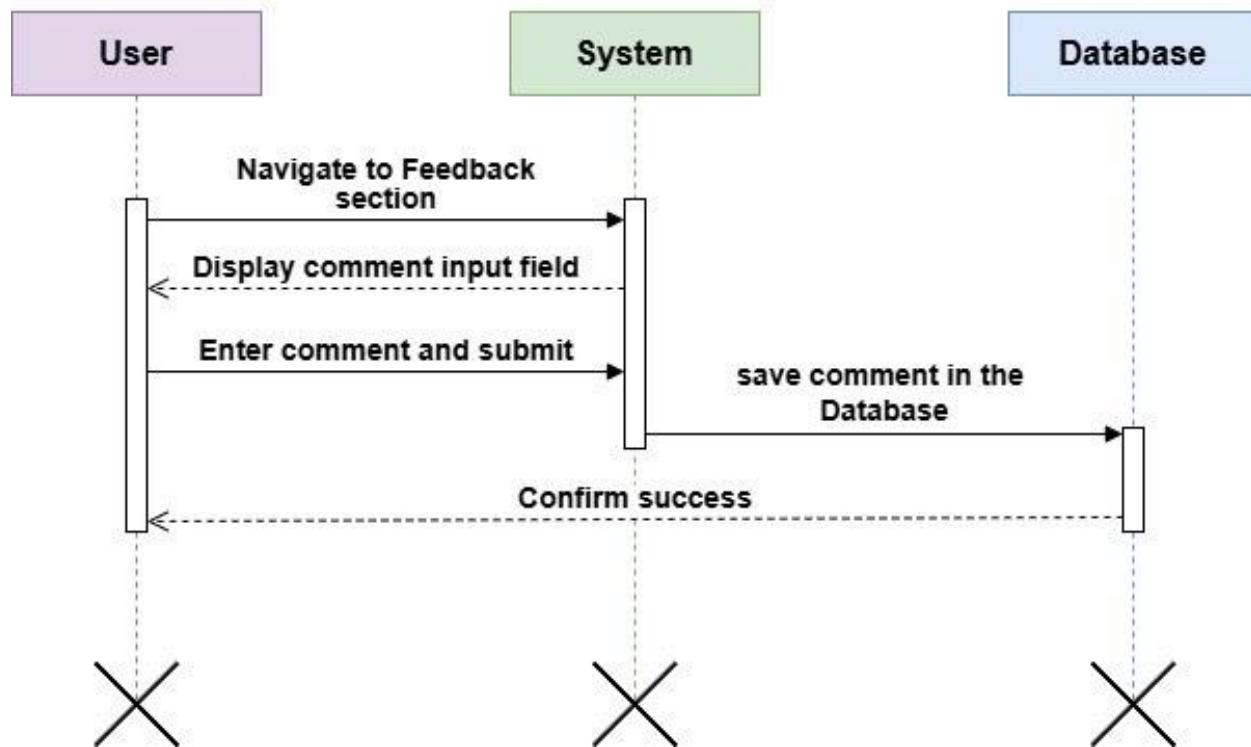
### Contact to Regional Ticket Manager



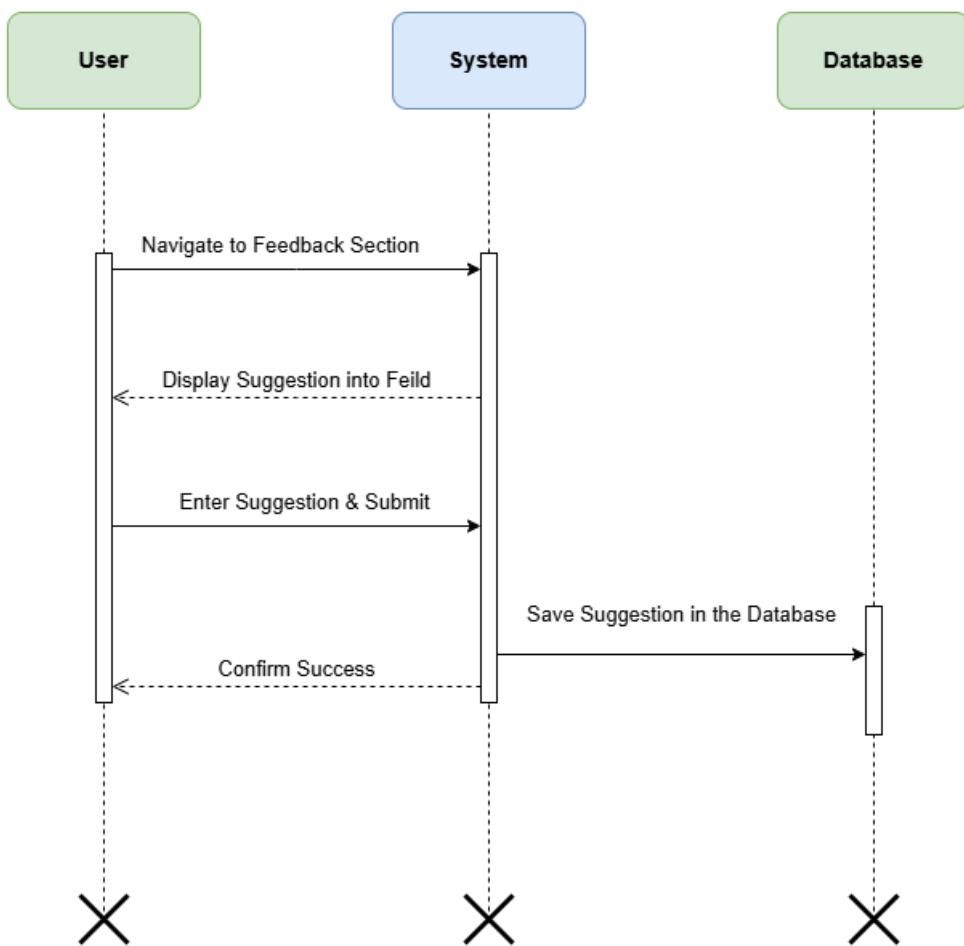
### Sequence Diagram For Rate Trip Experience



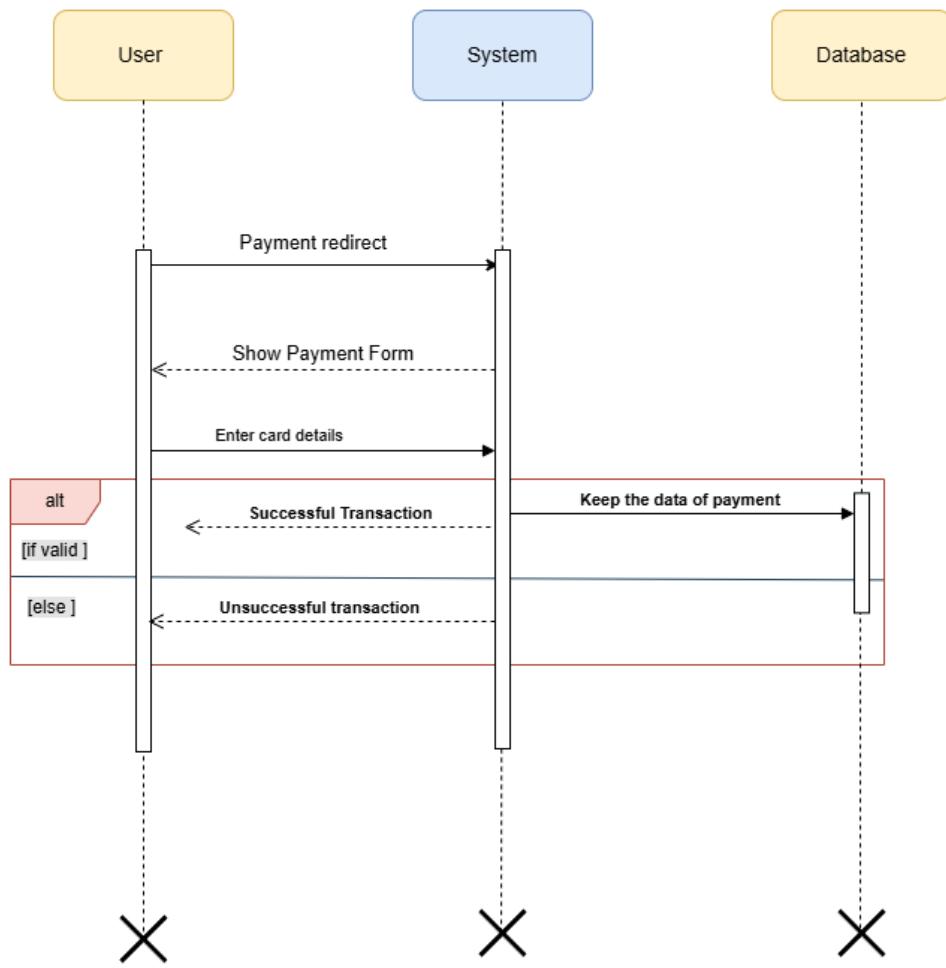
## Comment on Service



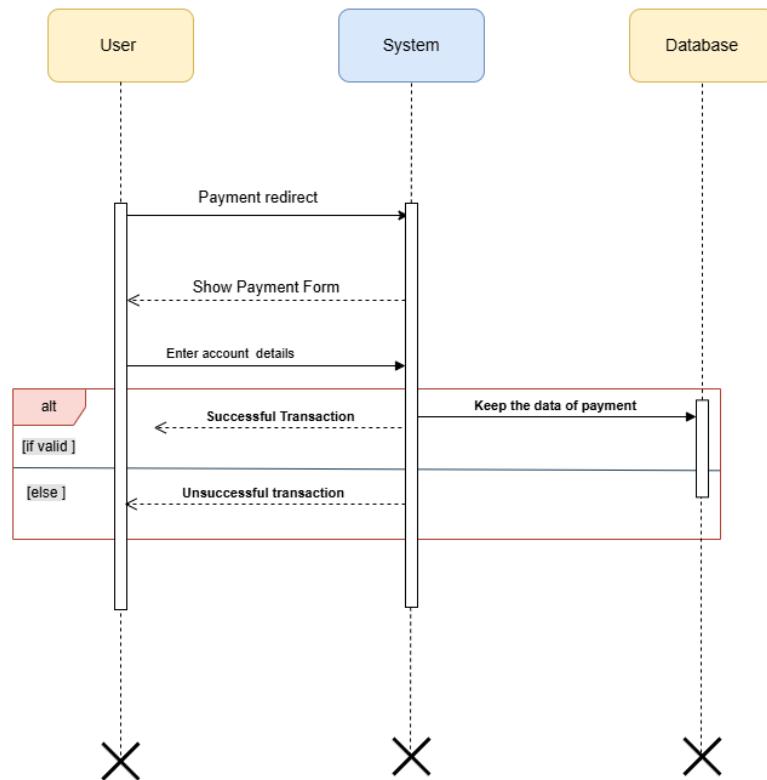
## Sequence Diagram For Give Suggestions



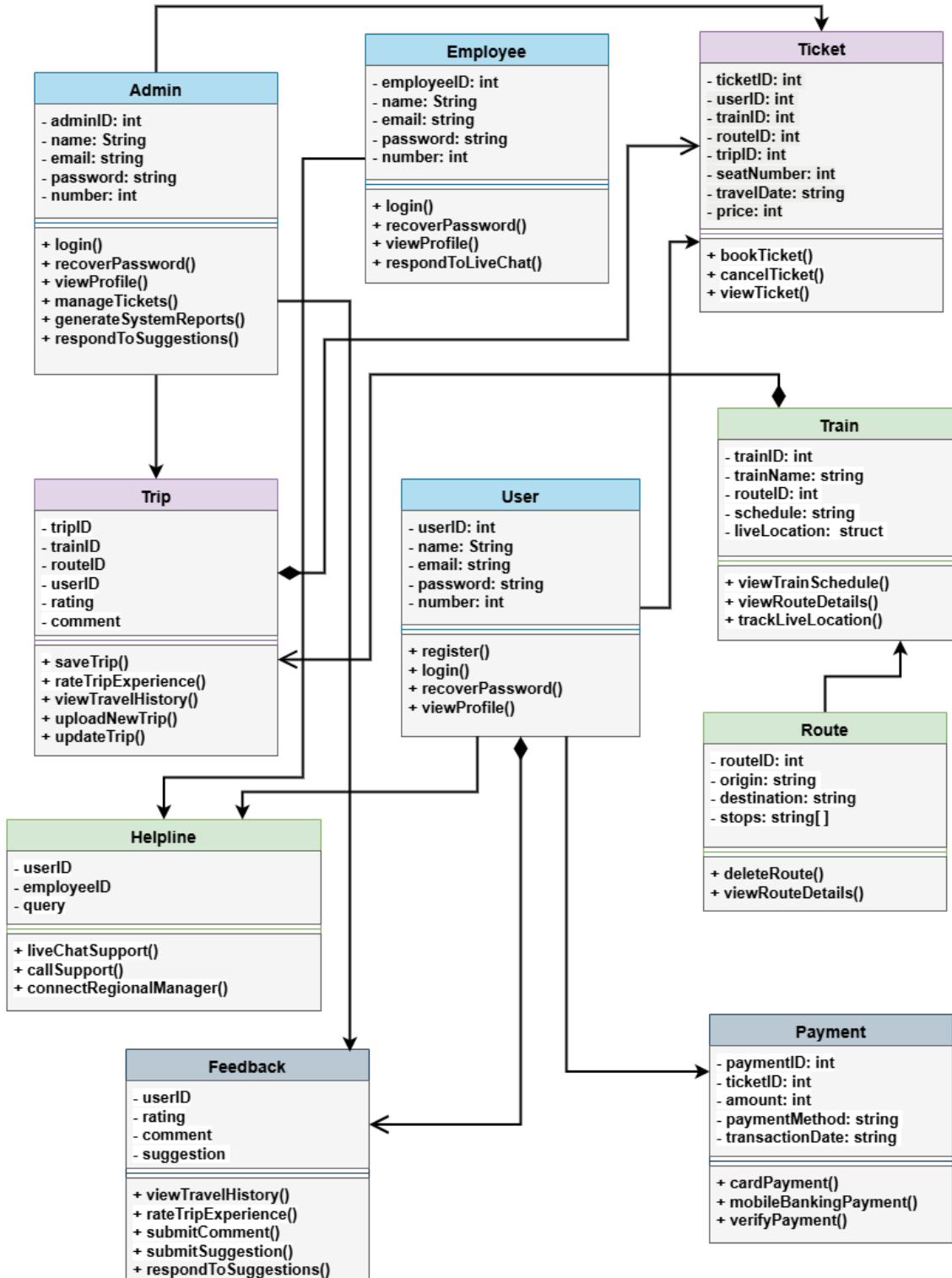
## Sequence Diagram for Card Payment



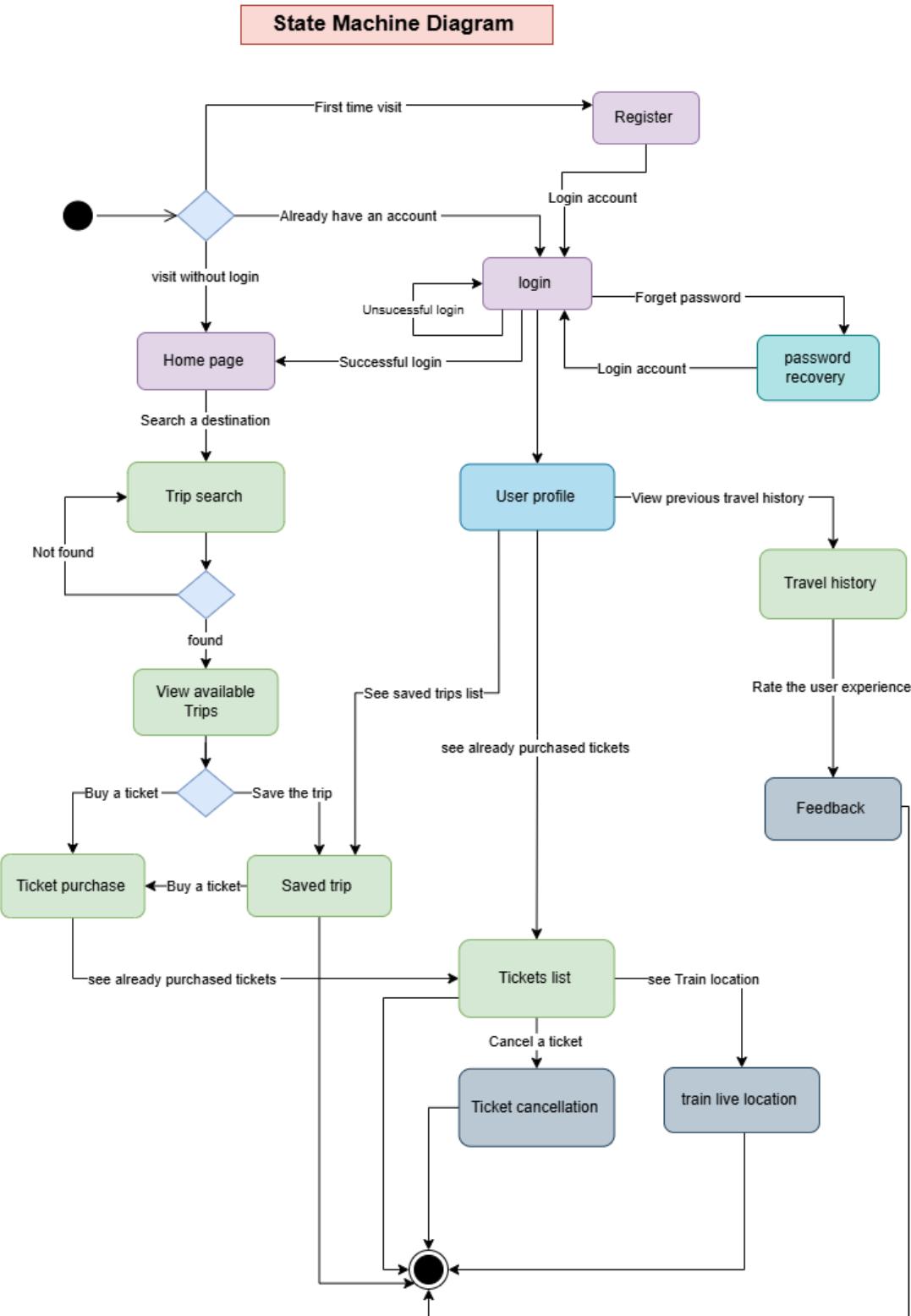
### Sequence Diagram for mobile banking



## Chapter 9: Class diagram



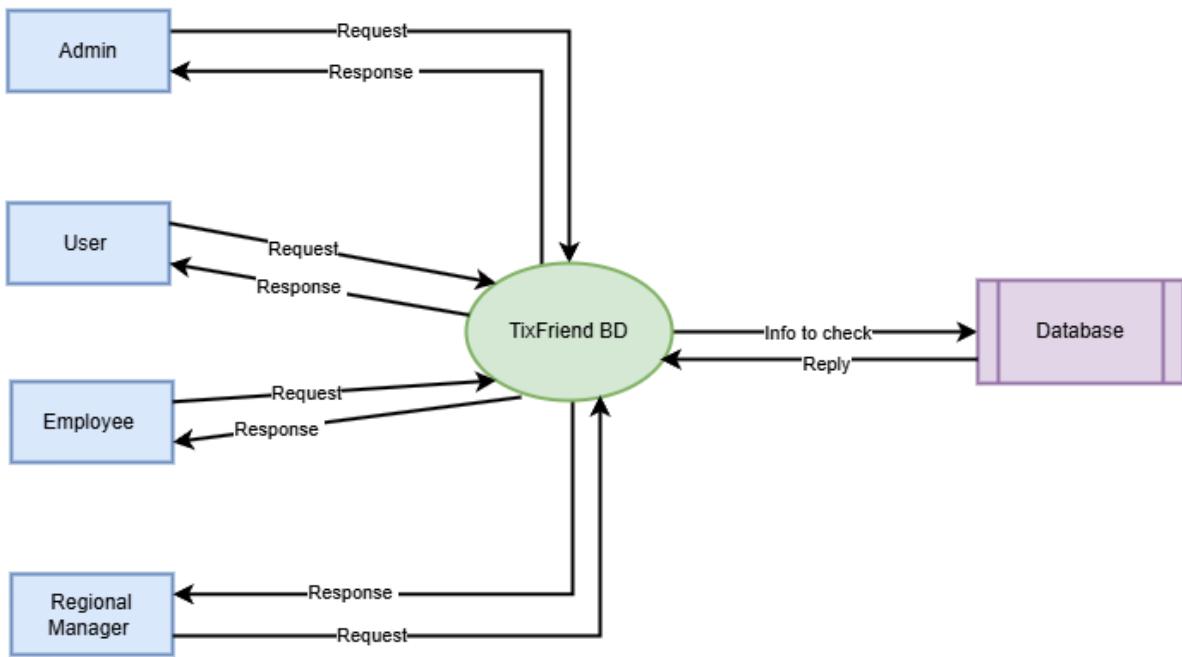
## Chatper 10: State machine diagram



## Chatper 11:Data Flow Diagram

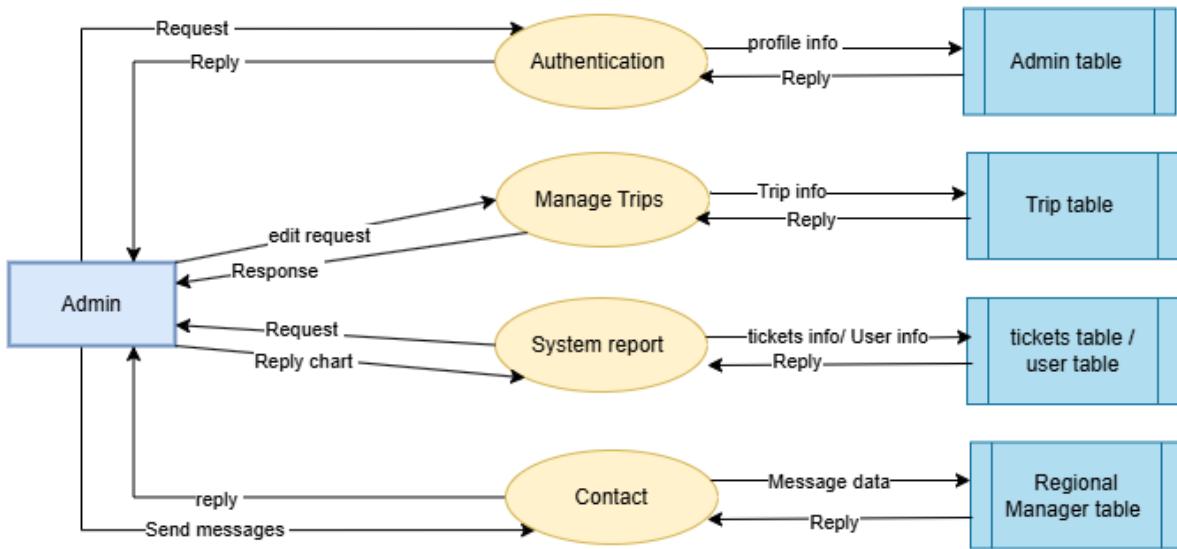
11.1 Level – 0

**Data flow diagram LEVEL - 0**

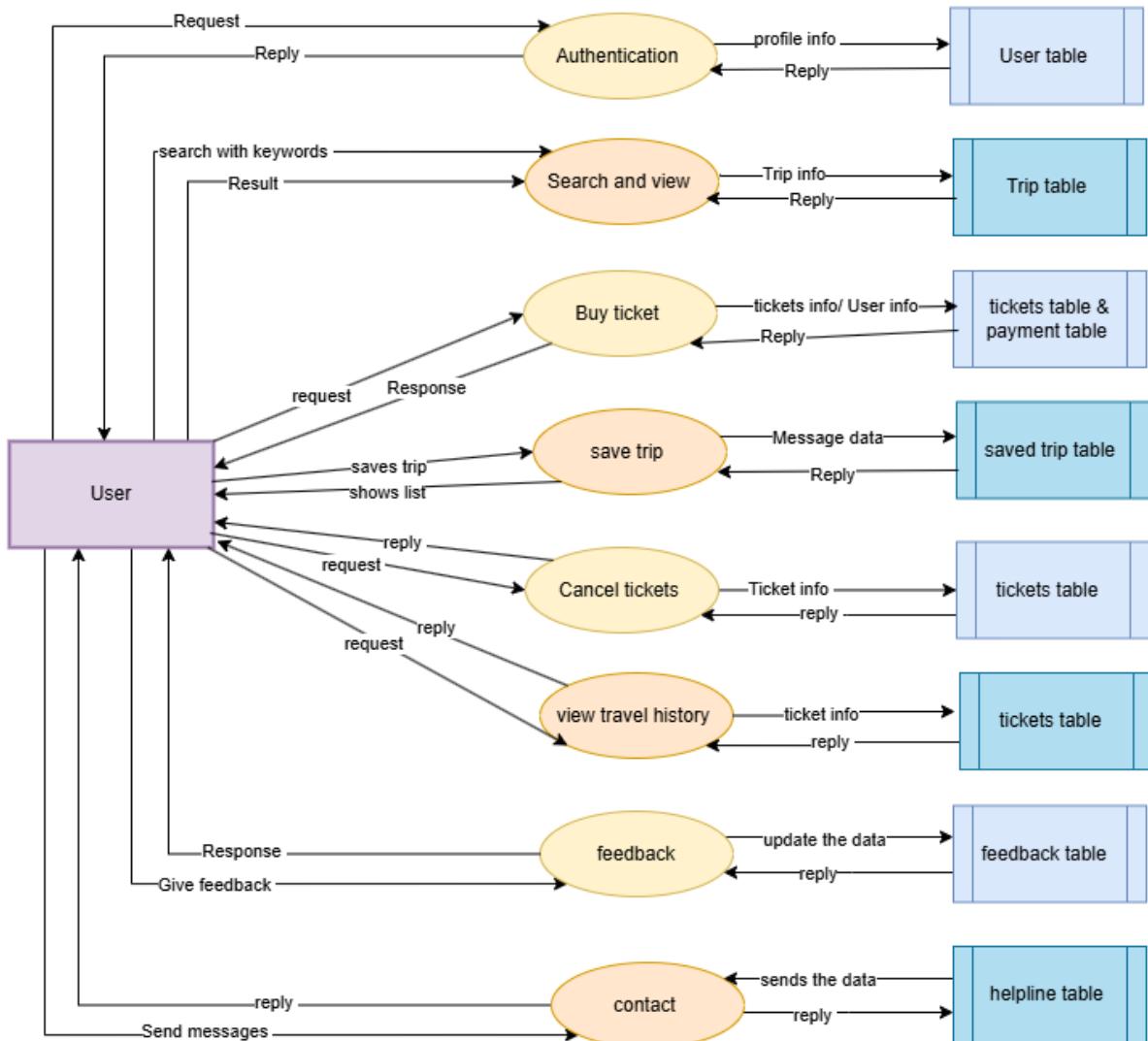


11.2 Level – 01

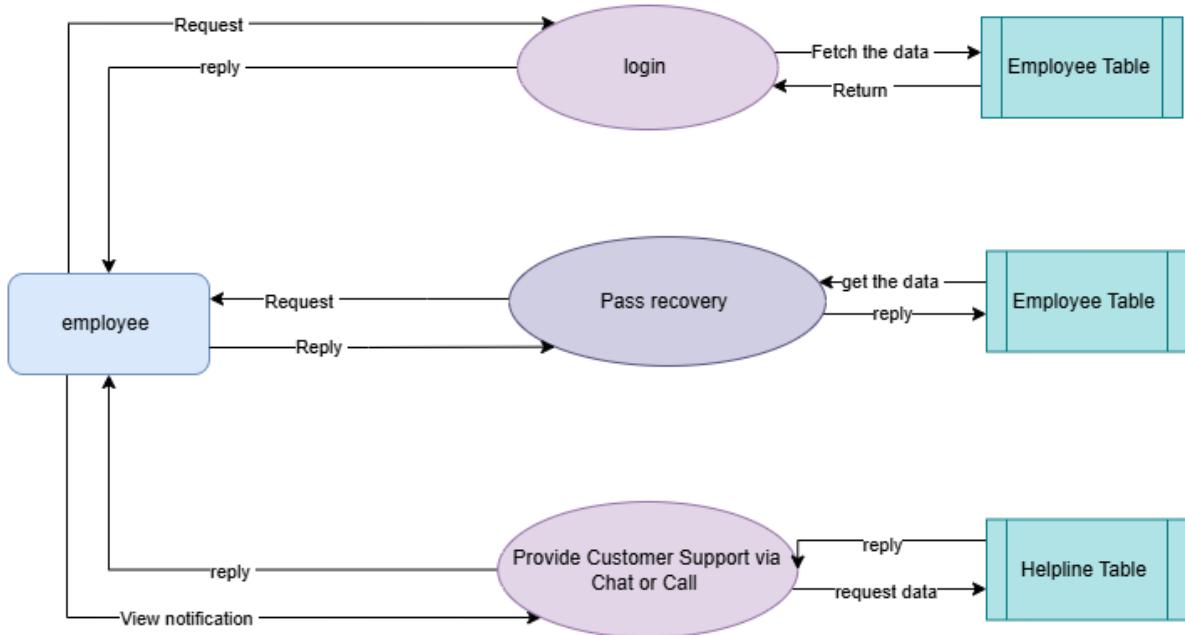
**DFD - level -1 : Admin**



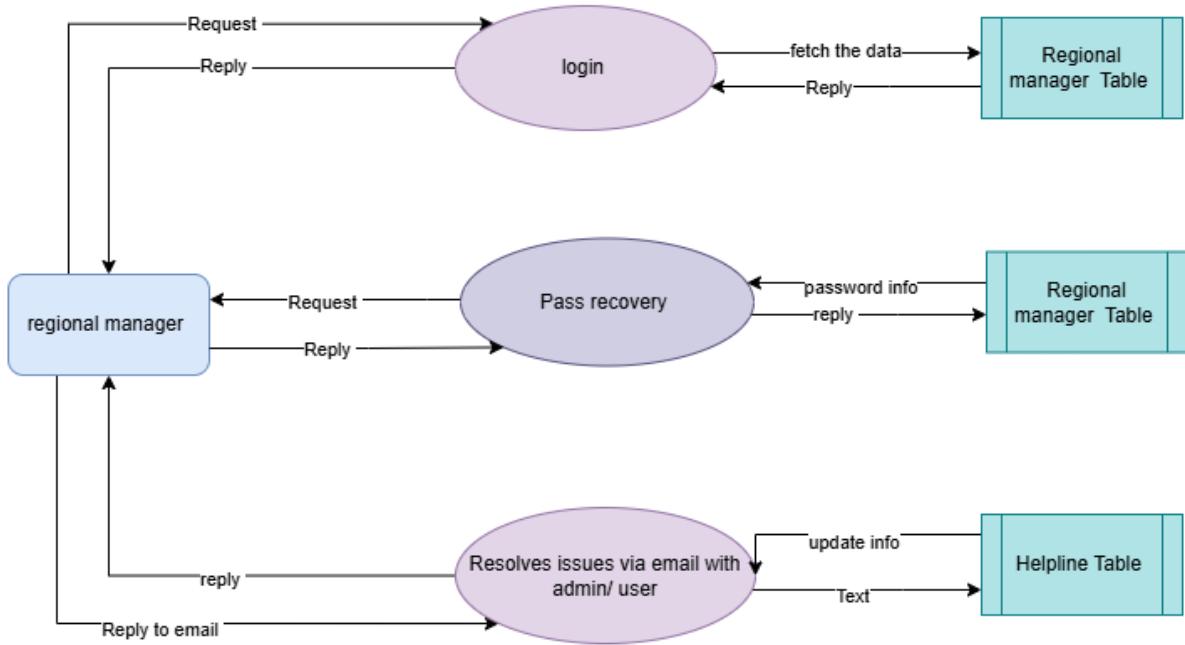
DFD - level -1 : User



### Level -1 : Data Flow Diagram : Employee



**Level -1 : Data Flow Diagram : Regional Manager**

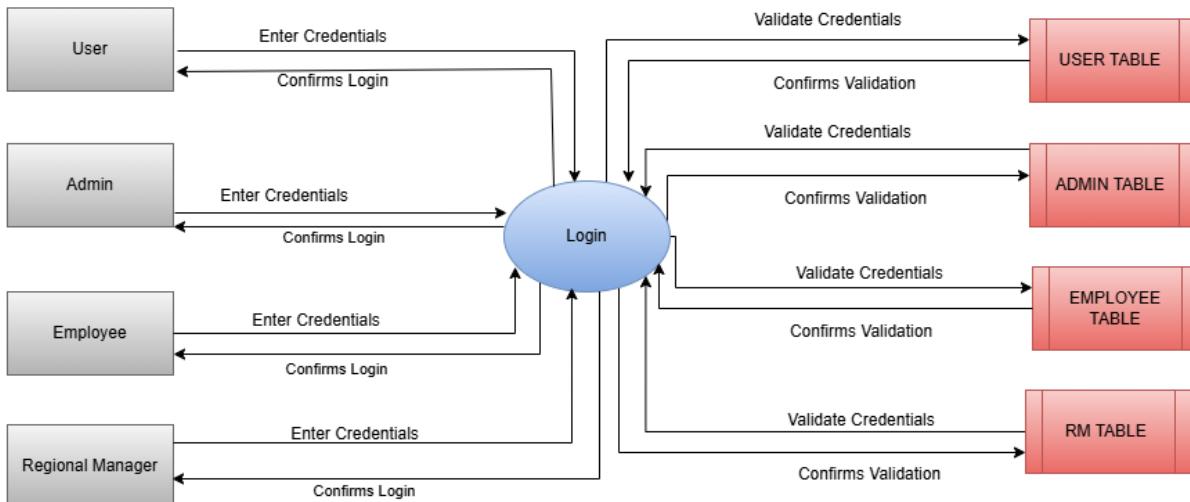


### 11.3 Level – 02

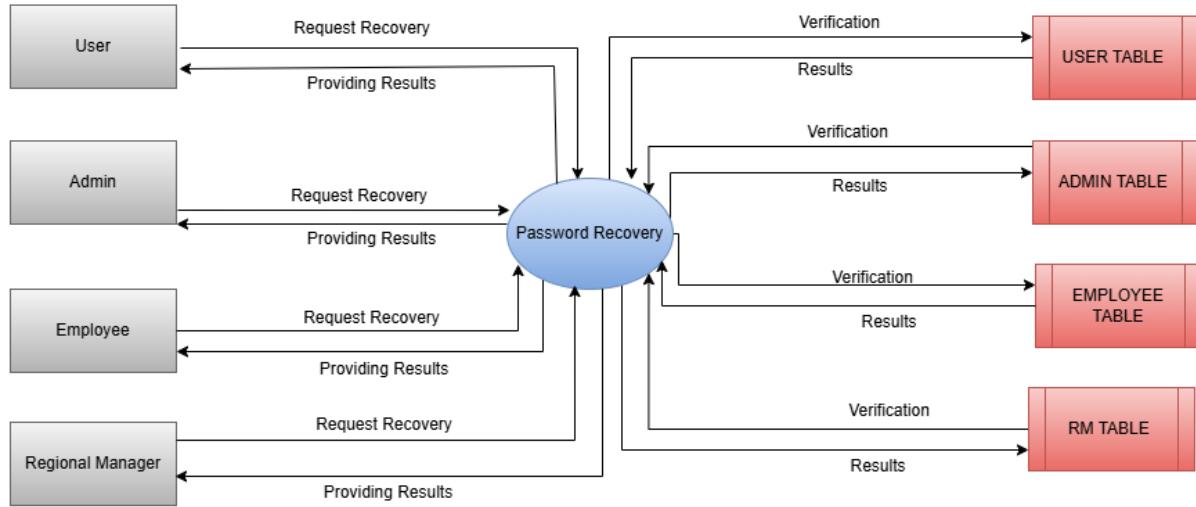
**Register Dataflow**



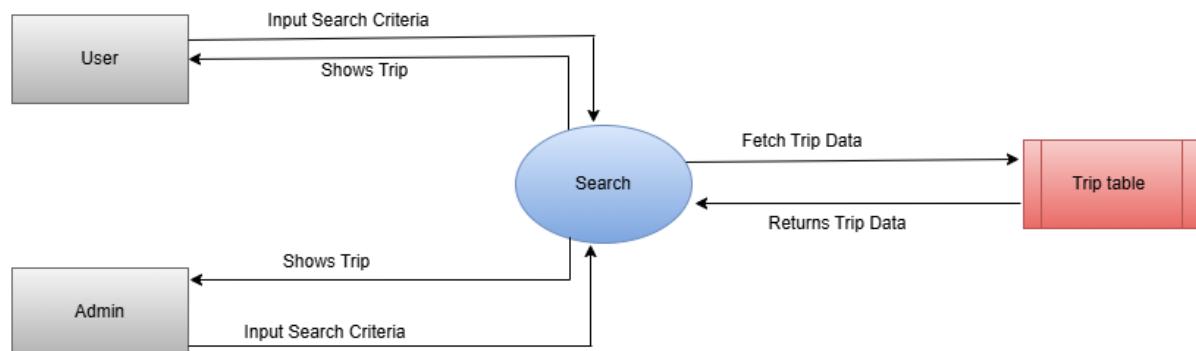
**Login Dataflow**



### Password Recovery



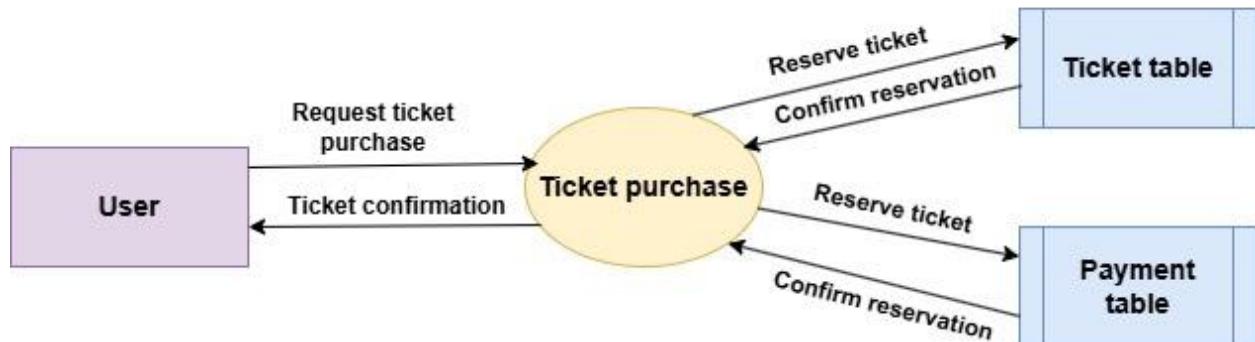
### Search And View Trips Dataflow



### Saved Trips (User)



### Purchase Tickets (User)



### Cancel Tickets (User)



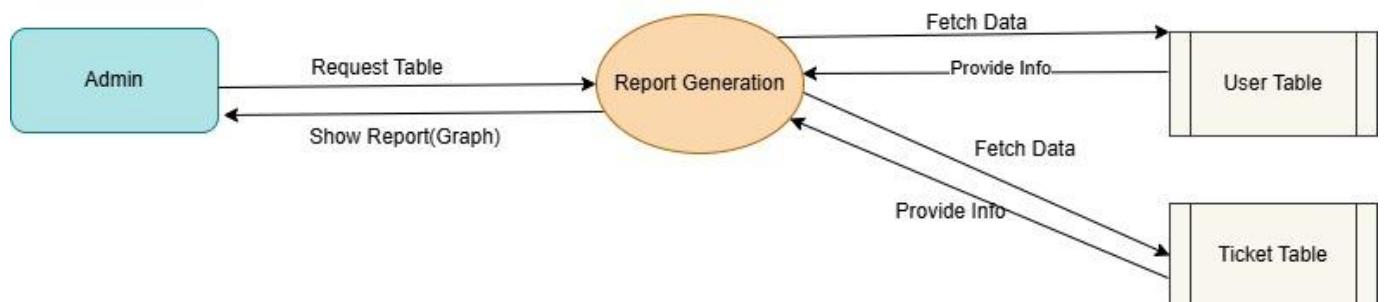
### MANAGE TRIPS



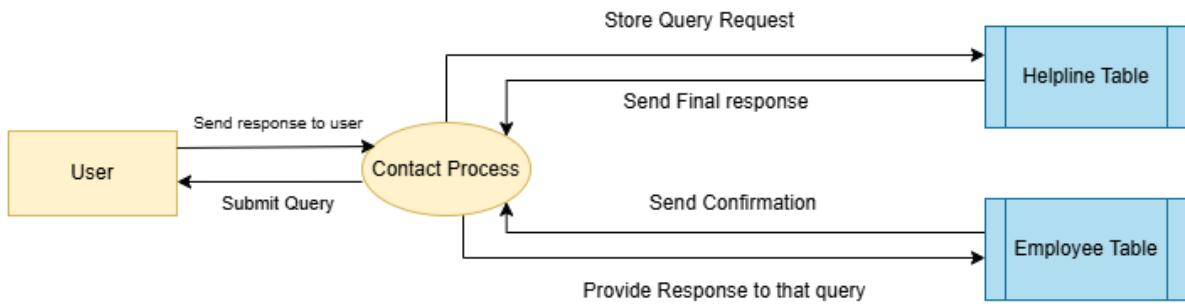
### MANAGE Tickets



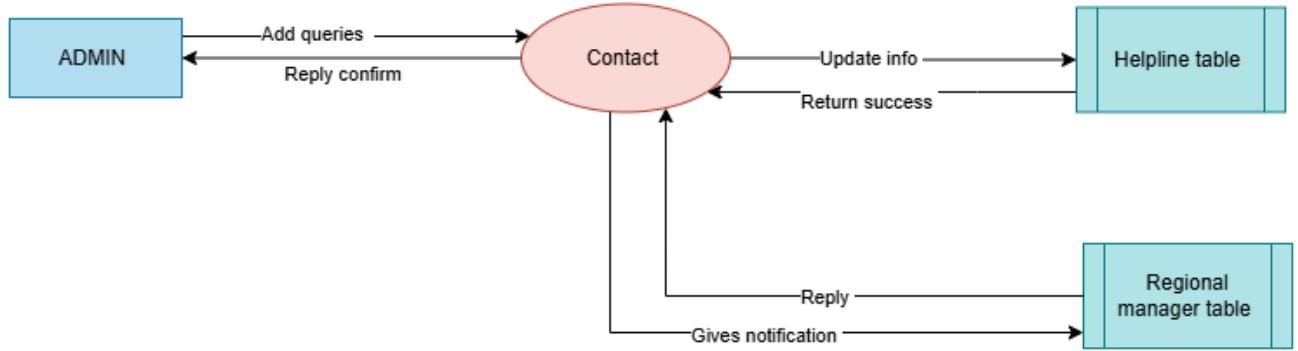
### System report



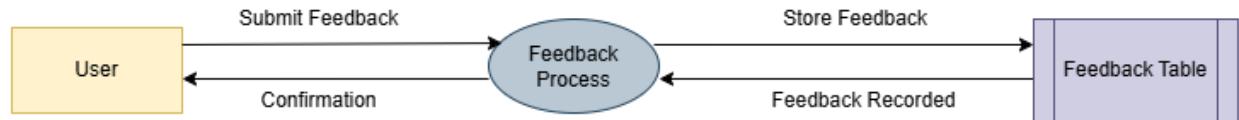
## DFD for Contact(User)



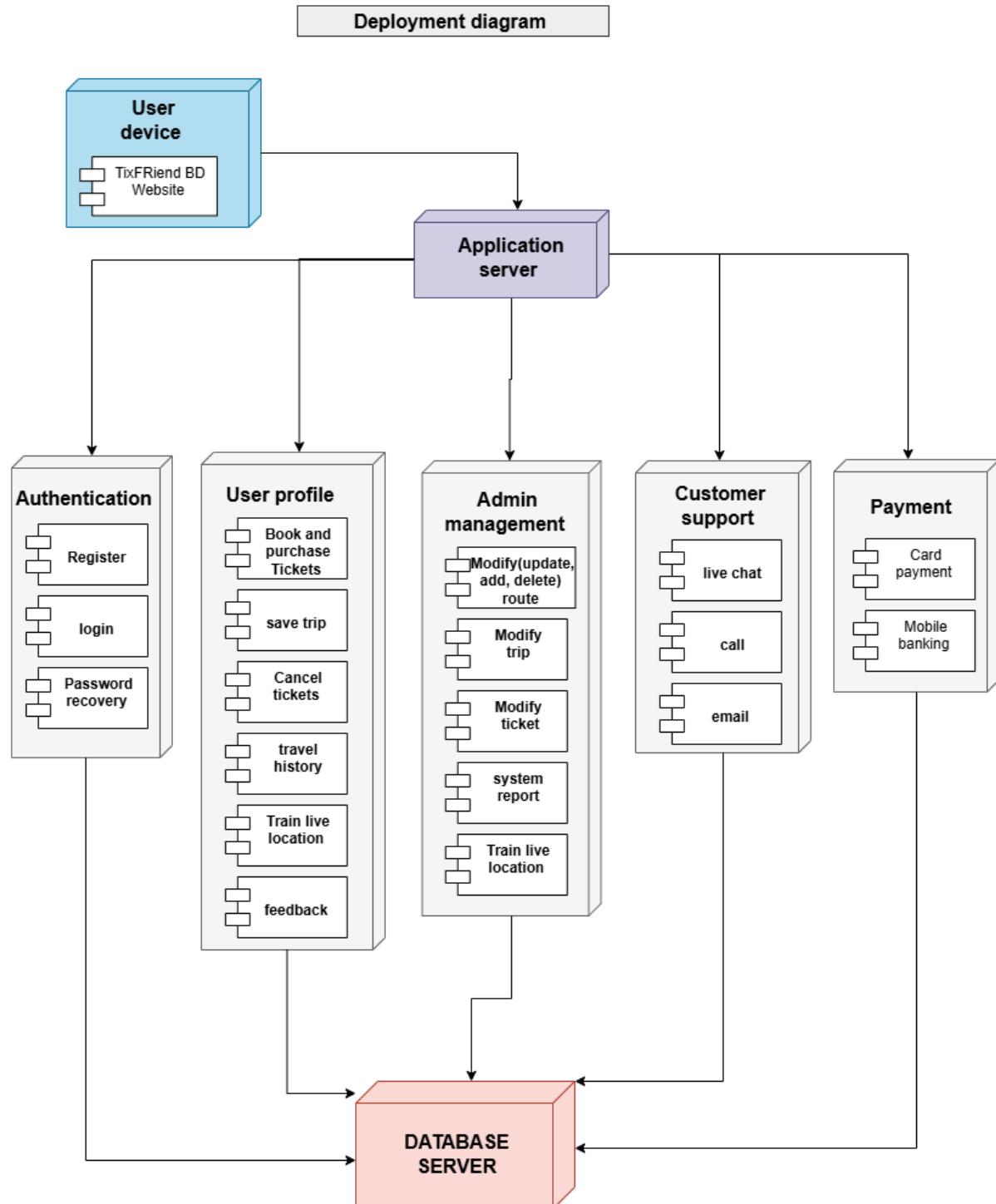
## Contact Regional manager(admin )



## DFD for Feedback



## Chatper 12: Deployment diagram



## Chapter 13: Conclusion

This SRS report for **TixFriend BD**, a train ticket management system, provides a comprehensive

and structured overview of the project. It offers clarity on the system's functionalities, requirements, and objectives, ensuring a clear understanding among stakeholders and facilitating seamless communication throughout the development lifecycle.

The document serves as a vital reference for maintaining consistency and direction during the software development process. By following the guidelines and requirements outlined here, developers can execute the project efficiently and effectively.

We have made every effort to minimize ambiguities and ensure a robust, well-designed SRS document. It is our hope that this report will not only guide the successful implementation of **TixFriend BD** but also serve as a resource for junior BSSE students embarking on similar projects. Through collaboration and rigorous effort, we aim to present a complete and practical blueprint for system development.

## Individual work:

Name	Id No	Use Case	Activity Diagrams	Swimlane Diagrams
Nusrat Jahan	2022-1-60-314	We all discussed about it together and drew these Diagrams.	<ul style="list-style-type: none"> <li>• Update Trip (Admin)</li> <li>• Delete Route (Admin)</li> <li>• View Train Schedule</li> <li>• Check Seat Availability</li> <li>• View Route</li> </ul>	<ul style="list-style-type: none"> <li>• Update Trip (Admin)</li> <li>• Delete Route (Admin)</li> <li>• View Train Schedule</li> <li>• Check Seat Availability</li> <li>• View Route</li> </ul>
Sadia Sultana Tuly	2022-1-60-211		<ul style="list-style-type: none"> <li>• Train Live Location</li> <li>• Live Chat</li> <li>• Call Support</li> <li>• Connect Regional Manager via Email</li> <li>• Rate Trip Experience</li> </ul>	<ul style="list-style-type: none"> <li>• Train Live Location</li> <li>• Live Chat</li> <li>• Call Support</li> <li>• Connect Regional Manager via Email</li> <li>• Rate Trip Experience</li> </ul>
Nusrat jahan jabin	2022-2-60-017		<ul style="list-style-type: none"> <li>• Comment</li> <li>• Give Suggestion</li> <li>• Payment (Card)</li> <li>• Payment (Mobile Banking)</li> <li>• System Reports (Admin)</li> </ul>	<ul style="list-style-type: none"> <li>• Comment</li> <li>• Give Suggestion</li> <li>• Payment (Card)</li> <li>• Payment (Mobile Banking)</li> <li>• System Reports (Admin)</li> </ul>
Farhan Ibtesham Joy	2022-3-60-150		<ul style="list-style-type: none"> <li>• View Tickets</li> <li>• Cancel Tickets</li> <li>• View Travel History</li> <li>• Saved Trips</li> <li>• Upload New Trip (Admin)</li> </ul>	<ul style="list-style-type: none"> <li>• View Tickets</li> <li>• Cancel Tickets</li> <li>• View Travel History</li> <li>• Saved Trips</li> <li>• Upload New Trip (Admin)</li> </ul>
Mohua Akter	2022-3-60-112		<ul style="list-style-type: none"> <li>• Register:</li> <li>• Login:</li> <li>• Password Recovery</li> <li>• View Profile</li> <li>• Book Tickets</li> <li>• Manage Tickets</li> </ul>	<ul style="list-style-type: none"> <li>• Register:</li> <li>• Login:</li> <li>• Password Recovery</li> <li>• View Profile</li> <li>• Book Tickets</li> <li>• Manage Tickets</li> </ul>

Name	Id No	Class diagram	sequence Diagrams
Nusrat Jahan	2022-1-60-314		<ul style="list-style-type: none"> <li>• Upload New Trip (Admin)</li> <li>• Update Trip (Admin)</li> <li>• Delete Route (Admin)</li> <li>• View Train Schedule</li> <li>• Check Seat Availability</li> </ul>
Sadia Sultana Tuly	2022-1-60-211		<ul style="list-style-type: none"> <li>• View route details</li> <li>• Train Live Location</li> <li>• Live Chat</li> <li>• Call Support</li> <li>• Connect Regional Manager via Email</li> </ul>
Nusrat jahan jabin	2022-2-60-017	We all discussed about it together and drew these Diagrams.	<ul style="list-style-type: none"> <li>• Rate Trip Experience</li> <li>• Comment</li> <li>• Give Suggestion</li> <li>• Payment (Card)</li> <li>• Payment (Mobile Banking)</li> </ul>
Farhan Ibtesham Joy	2022-3-60-150		<ul style="list-style-type: none"> <li>• View Tickets</li> <li>• Cancel Tickets</li> <li>• View Travel History</li> <li>• Saved Trips</li> <li>• System Reports (Admin)</li> <li>• Manage Tickets(admin)</li> </ul>
Mohua Akter	2022-3-60-112		<ul style="list-style-type: none"> <li>• Register</li> <li>• Login</li> <li>• Password Recovery</li> <li>• View Profile</li> <li>• Book Tickets</li> </ul>

Name	Id No	State machine	Data flow diagrams	Deployment diagram
Nusrat Jahan	2022-1-60-314	We all discussed about it together and drew the Diagrams.	<ul style="list-style-type: none"> <li>• DFD – level 2 <ul style="list-style-type: none"> <li>▪ Manage Trips</li> <li>▪ System Report</li> <li>▪ Connect Regional Manager</li> </ul> </li> </ul>	We all discussed about it together and drew these Diagrams.
Sadia Sultana Tuly	2022-1-60-211		<ul style="list-style-type: none"> <li>• DFD – level 2 <ul style="list-style-type: none"> <li>▪ View Travel History</li> <li>▪ Contact</li> <li>▪ Manage Tickets</li> </ul> </li> </ul>	
Nusrat jahan jabin	2022-2-60-017		<ul style="list-style-type: none"> <li>• DFD – level 2 <ul style="list-style-type: none"> <li>▪ Saved Trips</li> <li>▪ Purchase Tickets</li> <li>▪ Cancel Tickets</li> </ul> </li> </ul>	
Farhan Ibtesham Joy	2022-3-60-150		<ul style="list-style-type: none"> <li>• DFD – level 2 <ul style="list-style-type: none"> <li>▪ Register</li> <li>▪ Login</li> <li>▪ Password Recovery</li> <li>▪ Search and View Trips</li> </ul> </li> </ul>	
Mohua Akter	2022-3-60-112		<ul style="list-style-type: none"> <li>• DFD – level 0</li> <li>• DFD – level 1 <ul style="list-style-type: none"> <li>▪ Admin</li> <li>▪ User</li> <li>▪ Employee</li> <li>▪ Regional manager</li> </ul> </li> </ul>	