LogiTech

S24-030-D-LogiTech

Project Team

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Chapter 1

Introduction

In today's dynamic logistics landscape, the need for efficient and transparent freight management systems is more pressing than ever. Our project aims to address this demand by developing a comprehensive Freight Management System. Leveraging advanced technologies such as automation and real-time tracking our system streamlines operations, enhances transparency, and fosters seamless communication between transporters and industrialists. By offering features like automated record maintenance, transparent payments, feedback and advanced analytics, our system not only minimizes errors and reduces costs but also paves the way for sustainable growth and competitiveness in the logistics industry.

1.1 Problem Statement

We are developing this comprehensive Freight Management System to address the challenges and inefficiencies faced by trucking companies and industrialists in managing their logistics operations effectively. The current manual processes and fragmented systems lead to inefficiencies, delays, and increased costs for transporters, while industrialists struggle with limited visibility, unreliable transportation options, and opaque payment processes. Our software aims to solve these problems by providing transporters with tools for efficient route planning and real-time tracking, while offering industrialists access to transparent payment methods and better visibility into shipment status. By streamlining operations and improving transparency, our system will ultimately reduce costs, enhance reliability, and improve overall efficiency for both transporters and industrialists in the logistics industry.

1.2 Scope

1. Streamline operations and enhance transparency in the logistics industry.
2. Replace manual record maintenance with automated processes.
3. Offer industrialists and transporters an online payment gateway.
4. Foster seamless communication and collaboration among stakeholders to promote efficiency and accountability.

5. Provide transporters and industrialists with real-time tracking to reduce delays and costs.

6. Enable industrialists to schedule deliveries weekly, with transporters bidding on these schedules to optimize resource allocation and enhance competitiveness.

7. Implement advanced analytics for both industrialists and transporters to monitor business growth effectively.

8. Utilize NLP to analyze industrialist feedback, extract insights, and generate ratings for transporters, enhancing service evaluation and facilitating actionable improvements.

9. A responsive and easy-to-use lively interface which connects industrialists and transporters on a single interactive platform.

1.3 Modules

1.3.1 Digital Record Maintenance

This module aims to replace manual record maintenance with digital processes to mitigate fraud risks.

1. Digital Record Keeping: Implement system for digital record maintenance to minimize human errors.

1.3.2 Weekly Delivery Scheduling and Bidding

This module enables industrialists to schedule deliveries weekly, with transporters bidding on these schedules to optimize resource allocation and enhance competitiveness.

1. Weekly Delivery Scheduler: Provide industrialists with tools to schedule deliveries on a weekly basis, allowing for better planning and coordination.

2. Bidding Platform: Create a bidding platform for transporters to bid on delivery schedules, optimizing resource allocation and ensuring competitive pricing.

1.3.3 Real-Time Tracking and Notification System

This module provides transporters and industrialists with real-time tracking capabilities

and provide a notification for different updates.

1. GPS Tracking Integration: Integrate GPS tracking technology to provide real-time location updates for shipments, allowing stakeholders to monitor progress and anticipate delays.

2. Notification System: Implement a notification system to alert stakeholders for events like Bid Accepted, Delivery Schedule Confirmed, Payment Received, Payment Reminder and Delivery Status Updates etc.

1.3.4 Communication and Collaboration Enhancement

This module fosters seamless communication and collaboration among stakeholders to promote efficiency and accountability.

1. Integrated Messaging System: Implement a messaging system to facilitate communication between industrialists and transporters within the platform once the bidding process is done.

2. Collaborative Workspace: Shared digital platforms where stakeholders collaborate on shipments, enabling real-time communication, document sharing, task coordination, and information exchange, fostering efficiency and accountability in logistics operations.

1.3.5 NLP-Driven Feedback Analysis and Ratings Generation

This module utilizes NLP to analyze industrialist feedback, extract insights, and generate ratings for transporters, enhancing service evaluation and facilitating actionable improvements.

1. Feedback Analysis Engine: Develop an NLP-powered engine to analyze feedback provided by industrialists, extracting sentiments and key insights.

2. Rating Generation Algorithm: Implement algorithm to generate ratings for transporters based on feedback analysis, providing actionable insights for improvement.

1.3.6 Advanced Analytics for Business Growth Monitoring

This module implements advanced analytics for both industrialists and transporters to

monitor business growth effectively.

1. Analytics Dashboard: Customized dashboards enable stakeholders to track KPIs like revenue and expenses in real-time, facilitating informed decision making and performance analysis.

2. Report Generation: Users can generate PDF reports biweekly or monthly, offering insights on growth metrics and trends, aiding strategic planning and communication with stakeholders.

1.3.7 Online Payment Gateway Integration

This module focuses on integrating an online payment gateway into the system to facilitate secure and convenient transactions between industrialists and transporters.

1. Payment Gateway Integration: Implement secure and seamless integration with popular payment gateways, such as EasyPaisa, to enable users to make payments online for services rendered.

1.4 User Classes and Characteristics

1. Transporter: Companies or individuals responsible for transporting goods from one location to another.

2. Industrialist: Businesses or organizations that produce goods and require transportation services to deliver their products to customers or distribution centers.

3. Driver: Individuals responsible for operating trucks and transporting goods between locations.

4. Customer: End-user or business who receive goods transported by the system.

Chapter 2

Project Requirement

2.1 Use-case/Event Response Table/Storyboarding

Use Case Diagram in Section 3.

2.2 Functional Requirements

2.2.1 Digital Record Maintenance

1. The system shall feature a user-friendly interface for digital record management.

2. Users should effortlessly navigate, input, and retrieve records without extensive training, reducing the risk of errors and enhancing usability.

3. The system shall automatically validate input data against predefined rules and formats to ensure record accuracy and integrity.

4. In case of errors or inconsistencies, appropriate error messages should guide users to rectify issues, reducing human errors and enhancing data quality

2.2.2 Weekly Delivery Scheduling and Bidding

1. Weekly Delivery Scheduling
   - The system shall provide industrialists with an intuitive tool for weekly delivery scheduling, facilitating efficient logistics planning and coordination.

2. Bidding Platform
   - The system shall implement a bidding platform for transporters to bid on industrialists' delivery schedules. The platform should foster competition among transporters to optimize resources and pricing, enhancing efficient utilization of transportation resources.

2.2.3 Real-Time Tracking and Notification System

1. Real-Time Tracking
   - The system shall implement GPS tracking technology to provide real-time location updates for shipments.
   - The system shall enhance visibility and transparency in logistics operations, facilitating proactive decision-making and efficient resource allocation.

2. Proactive Notification System

- The system shall promptly alert stakeholders about critical logistics events such as bid acceptance, delivery schedules, payments, and status updates.
- The system shall enhance communication and transparency, facilitating timely decision-making and stakeholder engagement.

2.2.4 Communication and Collaboration Enhancement

1. Seamless Messaging Platform
   - The system shall implement a messaging system to facilitate real-time communication between industrialists and transporters within the platform following the bidding process.
   - The messaging system shall enhance collaboration and foster efficient communication channels among stakeholders.

2. Collaborative Workspace
   - The system shall develop shared digital platforms where stakeholders can collaborate on shipments.
   - The collaborative workspace shall enable real-time communication, document.

2.2.5 NLP-Driven Feedback Analysis and Ratings Generation

1. Feedback Analysis
   - The NLP engine shall extract sentiments and key insights from the industrialist feedback.
   - The system shall develop an NLP-powered engine to analyze feedback provided by industrialists.

2. Ratings Algorithm
   - The system shall implement an algorithm to generate ratings for transporters based on feedback analysis.
   - The rating generation algorithm shall provide actionable insights for improvement based on the analyzed feedback.

2.2.6 Advanced Analytics for Business Growth Monitoring

1. The system shall provide customized dashboards for stakeholders to track key performance indicators (KPIs) such as revenue and expenses in real-time.

2. Stakeholders shall be able to access the data analytics dashboard to facilitate informed decision-making and performance analysis.

3. The system shall enable users to generate PDF reports biweekly or monthly, offering insights on growth metrics and trends.

4. Generated reports shall aid in strategic planning and communication with stakeholders by providing valuable insights into business performance.

2.2.7 Online Payment Gateway Integration

1. The system shall implement secure and seamless integration with popular payment gateways, such as EasyPaisa.

2. Payment gateway integration shall enable users to make payments online for services rendered.

3. The integration shall ensure secure and convenient transactions between industrialists and transporters.

2.3 Non-Functional Requirements

2.3.1 Reliability

- The system shall have a mean time between failures (MTBF) of at least 100 hours.
- Failures shall not occur more frequently than once per week.

2.3.2 Usability

- The system shall provide a user interface that is intuitive and easy to navigate.
- Users shall be able to perform common tasks without the need for extensive training.
- The system shall support accessibility features to ensure usability for users with disabilities.

2.3.3 Performance

- The system shall respond to user interactions within 10 seconds under normal operating conditions.
- The system shall support concurrent user access from at least 100 users without significant degradation in performance.
- Data retrieval operations shall be completed within 10 seconds, even under peak load conditions.

2.3.4 Security

- The system shall implement encryption for all sensitive data at rest and in transit.
- Access to sensitive functionality shall be restricted based on user roles and permissions.
- The system shall log all security-related events for auditing and monitoring purposes.
- Regular security assessments and vulnerability scans shall be conducted to identify and address potential threats.

2.3.5 Scalability

- The system architecture shall be designed to scale horizontally to accommodate increased user loads.
- The system shall support a growth rate of at least 20% per year in terms of user baseand data volume.

2.3.6 Availability

- The system shall be available for use 99.9% of the time during normal operating hours.
- Planned maintenance windows shall be communicated to users in advance, anddowntime shall be minimized.

2.4 Domain Model

- **Entities:**

1. User

- Attributes: username, password, email

2. Industrialist

- Inherits from User
- Methods:

- searchTransporter(criteria: string): Transporter[]
- viewTransporterDetails(transporter: Transporter): void
- bookTransporter(transporter: Transporter): Booking
- createDeliveryChallan(): DeliveryChallan
- sendDeliveryChallan(challan: DeliveryChallan): void
- scheduleWeeklyDeliveries(): void
- createCollaborativeWorkspace(): CollaborativeWorkspace
- makePayment(amount: number): boolean

3. Transporter

- Inherits from User
- Methods:
  - registerDriver(driver: Driver): void
  - requestBiltyForm(): BiltyForm
  - fillBiltyForm(details: string): void
  - sendBiltyForm(form: BiltyForm): void
  - manageTrucks(): void
  - manageDrivers(): void
  - bidOnDeliverySchedules(): void
  - integrateGPSTracking(): void
  - makePayment(amount: number): boolean

4. Driver

- Methods:

- confirmArrival(destination: string): void

5. Admin

- Inherits from User
- Methods:
  - blockUser(user: User): void
  - updateSystemPolicies(): void

6. Booking

- Attributes: transporter, status

7. BiltyForm

- Attributes: details

8. DeliveryChallan

- Attributes: details

9. Document

- Attributes: details

10. Task

- Attributes: details

11. Rating

- Attributes: score

Systems:

1. NotificationSystem

- Methods:
  - sendNotification(event: string, recipients: User[]): void

2. MessagingSystem

- Methods:
    - sendMessage(sender: User, receiver: User, message: string): void

3. CollaborativeWorkspace

- Methods:
    - shareDocuments(documents: Document[]): void
    - coordinateTasks(tasks: Task[]): void

4. FeedbackAnalysis

- Methods:
    - analyzeFeedback(feedback: string): Rating

5. AnalyticsTool

- Methods:
    - monitorBusinessGrowth(): void
    - trackPerformanceMetrics(): void

6. Payment Gateway

- Methods:
    - process Payment(amount: number, user: User): Boolean

Relations:

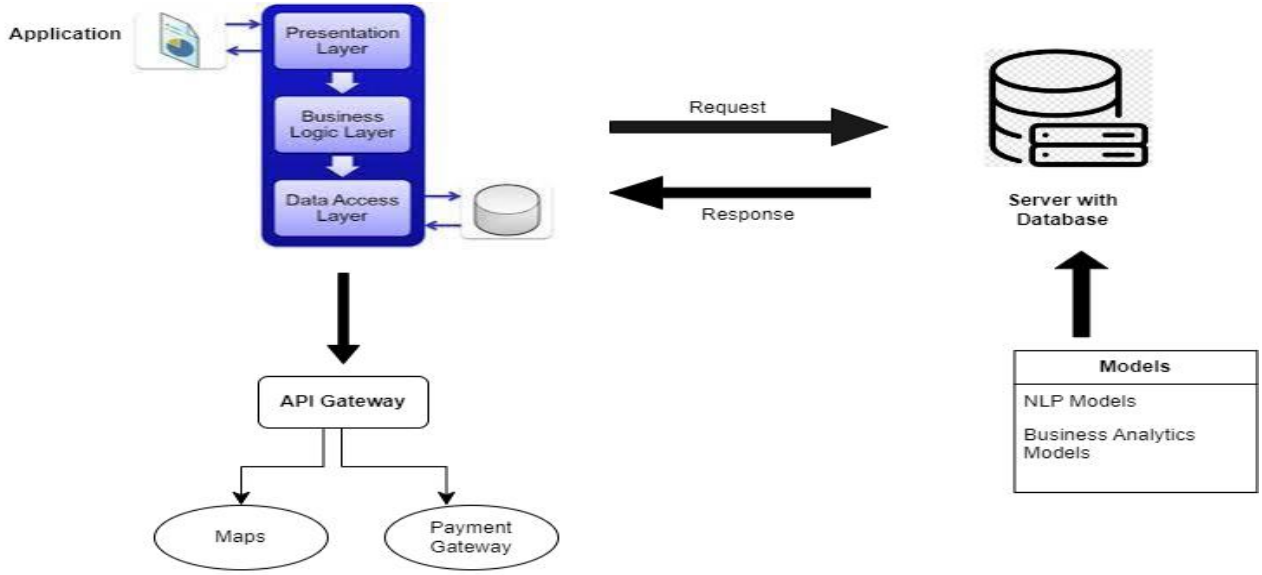
- Industrialist, Transporter, Driver, and Admin inherit from User.
- Industrialist has associations with Booking, Delivery Challan, and Collaborative Workspace.
- Transporter has associations with Driver, BiltyForm, Booking, Collaborative Workspace, Notification System, Messaging System, Feedback Analysis, and Analytics Tool.

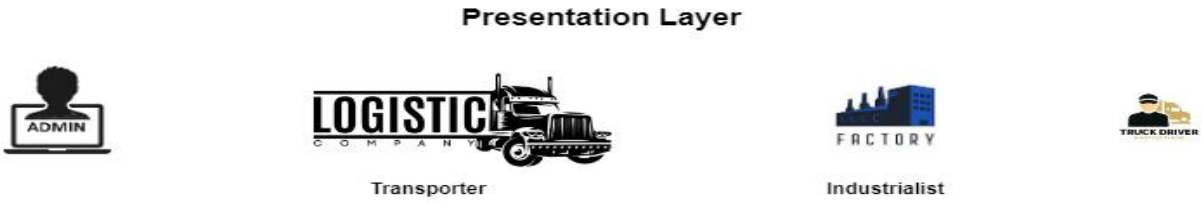
- Admin has associations with User and System Policies.
- Notification System has an association with User.
- Messaging System has associations with Transporter and Industrialist.
- Collaborative Workspace has associations with Document and Task.
- Feedback Analysis has an association with Rating.
- Payment Gateway has associations with Transporter and Industrialist.

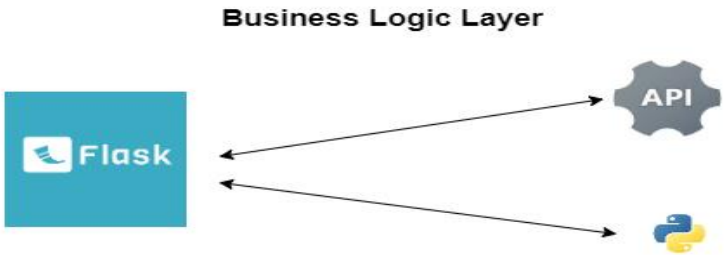
Chapter 3

System Overview

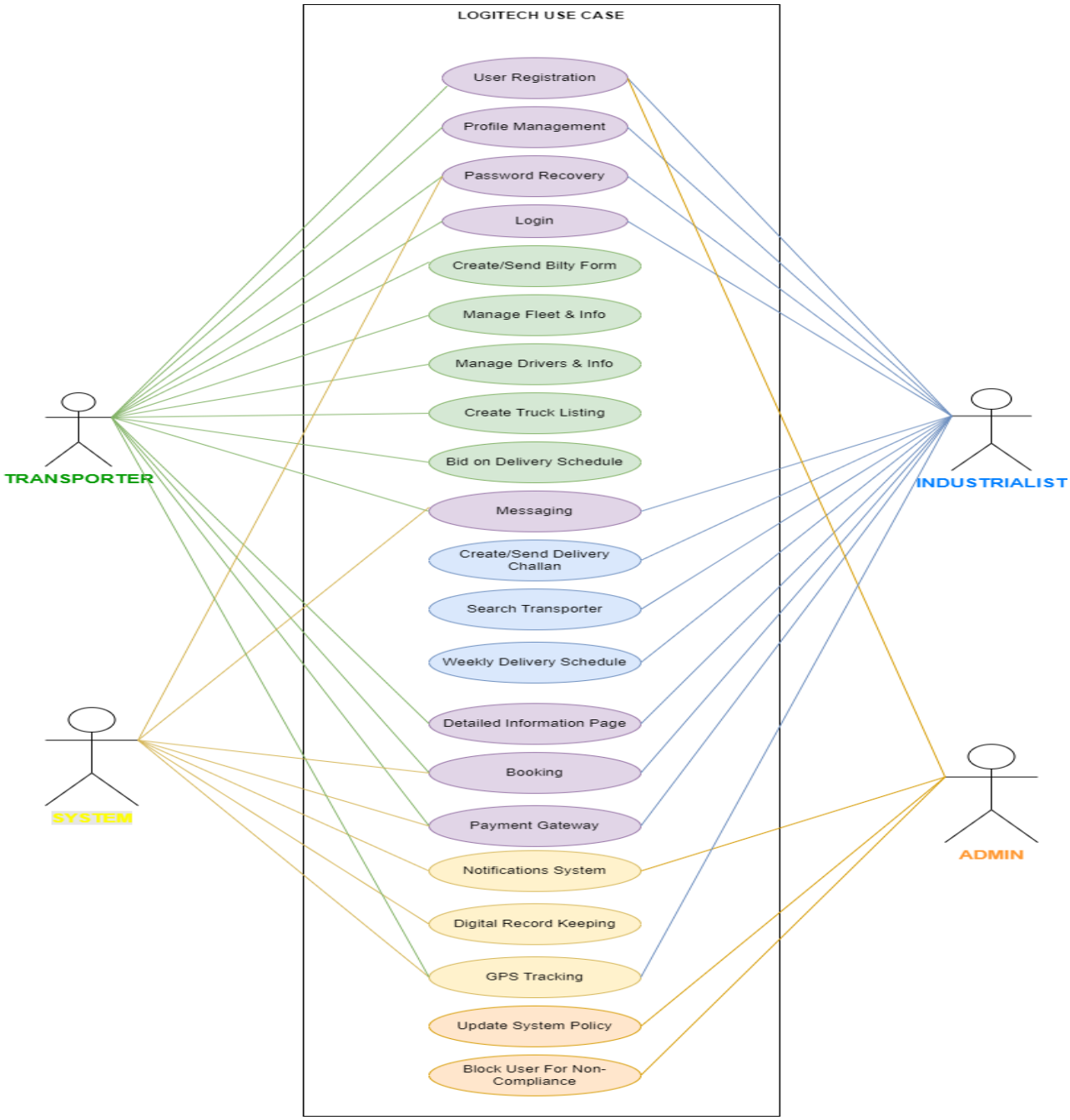
3.1 Architectural Design







3.1.1 Use Case Diagram



3.1.2 High Level Use Case Diagram

1. **Use Case:** User Registration
   Actor: Transporter & Industrialist
   Description: The user initiates the registration process to create an account and access the benefits provided by the system. By providing necessary information, the user completes the registration, and upon approval by the

admin, gains access to the system features.

2. **Use Case:** Login
   Actor: Transporter & Industrialist
   Description: The user initiates the login process to access their account and utilize the features of the system. By providing valid credentials, the user enters the system.

3. **Use Case:** Profile Management
   Actor: Transporter & Industrialist
   Description: The user navigates to the "Profile Management" section, can view and edit their profile information. The system allows the user to make modifications, validate the updated information, update the user's profile in the database.

4. **Use Case:** Password Recovery
   Actor: Transporter & Industrialist
   Description: In the event of forgetting the password, the user initiates the password recovery process. The system prompts the user to enter their email, validates the email, and sends a secure password reset link. Upon clicking the link, the user can set a new password, and the system updates the database accordingly.

5. **Use Case:** Transporter Search
   Actor: Industrialist
   Description: The industrialist accesses the "search transport" functionality, providing criteria such as location, price range, reviews, and distance. The system processes the search criteria, retrieves a list of matching and available transporters.

6. **Use Case:** Detailed Information Page
   Actor: Industrialist
   Description: The industrialist, after searching for transporters and reviewing the list, clicks on a specific transporter to view detailed information. The system presents a page with comprehensive details about the selected transporter including their description, routes, number of trucks available, pricing, and reviews. The industrialist can make an informed decision based on this detailed information before proceeding with the booking.

7. **Use Case:** Booking
   Actor: Industrialist
   Description: The industrialist, after selecting a specific transporter from the bidding process, proceeds with the booking process. The system displays comprehensive details about the selected transporter. The industrialist enters

booking details, and, upon confirmation, the system generates a booking confirmation and updates the transporter's availability.

8. **Use Case:** Create Bilty Form
   Actor: Transporter
   Description: The transporter requests a bilty form from the system after a booking or communication is made between the industrialist and the transporter. The transporter inputs the details into the bilty form, saves, and prints it for his use.

9. **Use Case:** Send Bilty Form
   Actor: Transporter
   Description: The transporter creates the bilty form and then sends it to the Industrialist for confirmation and record maintenance.

10. **Use Case:** Manage Truck Fleet and Information
    Actor: Transporter
    Description: The transporter can add, remove, or edit trucks in the fleet and their information for record maintenance. Additionally, the transporter can add descriptions such as weight capacity, size, optimum route, availability, etc., to facilitate efficient management of the truck fleet.

11. **Use Case:** Manage Truck Drivers and Information
    Actor: Transporter
    Description: The transporter can add, remove, or edit truck drivers. The transporter can add and edit information for each driver, including contact number, name, availability, assigned truck number, license number, routes traveled, and frequently visited areas. This functionality aids in the transporter's record maintenance.

12. **Use Case:** Create Truck Listing
    Actor: Transporter
    Description: The transporter provides necessary details such as route, capacity, type, photos, etc., to create a complete listing of their truck on the platform.

13. **Use Case:** Create Delivery Challan
    Actor: Industrialist
    Description: The industrialist creates the delivery challan, including details such as the customer's name, description of goods, net and gross weight, remarks, and other relevant information. After filling in the details, the industrialist saves the challan and can print it for further use.

14. **Use Case:** Send Delivery Challan
    Actor: Industrialist
    Description: The industrialist creates the delivery challan and then can send it to the transporters for confirmation and record maintenance.

15. **Use Case:** Digital Record Keeping
    Actor: System
    Description: The system replaces manual record maintenance with digital processes to minimize human errors and mitigate fraud risks.

16. **Use Case:** Weekly Delivery Scheduling
    Actor: Industrialist
    Description: The industrialist accesses the platform to schedule weekly deliveries, providing details such as destination, quantity, and delivery preferences.

17. **Use Case:** Bid on Delivery Schedules
    Actor: Transporter
    Description: The transporters review available delivery schedules and submit bids, including pricing, availability, and special services if applicable.

18. **Use Case:** Integrate GPS Tracking
    Actor: System
    Description: The system integrates GPS tracking technology to provide real-time location updates for shipments, allowing stakeholders to monitor progress and anticipate delays.

19. **Use Case:** Implement Notification System
    Actor: System
    Description: The system sends notifications to stakeholders for events such as Bid Accepted, Delivery Schedule Confirmed, Payment Received, Payment Reminder, and Delivery Status Updates.

20. **Use Case:** Implement Messaging System
    Actor: System
    Description: The system includes an integrated messaging system for industrialists and transporters to communicate within the platform after the bidding process is complete.

21. **Use Case:** Create Collaborative Workspace
    Actor: System
    Description: The system provides a shared digital workspace where stakeholders collaborate on shipments, share documents, coordinate tasks, and exchange information in real-time, promoting efficiency and accountability.

22. **Use Case:** NLP-Driven Feedback Analysis and Ratings

Actor: System
Description: The system uses Natural Language Processing (NLP) to analyze feedback from industrialists, generate ratings for transporters, and improve service evaluation.

23. **Use Case:** Advanced Analytics for Business Growth
Actor: Industrialist, Transporter
Description: The system provides advanced analytics tools for monitoring business growth, tracking key performance indicators (KPIs), and aiding strategic decision- making.

24. **Use Case:** Block User for Non-Compliance
Actor: Admin
Description: The admin has the authority to block a transporter or industrialist account due to non-compliance with system guidelines or rules, with the option to issue warnings or take other appropriate actions.

25. **Use Case:** Update System Policies
Actor: Admin
Description: The admin can modify and update system policies, rules, and regula- tions through a straightforward process, with the ability to handle errors and cancel updates if needed.

26. **Use Case:** Integrate Payment Gateway
Actor: System
Description: The system securely integrates popular online payment gateways, such as EasyPaisa, to enable industrialists and transporters to make and receive payments online for services rendered, ensuring transparency and convenience.

3.1.3 Extended Use Case Diagram

ID	UC1
Name	User Registration
Author	Muhammad Abdullah
Description	User registers an account to avail the system benefits.
Primary Actors	Transporter & Industrialist
Secondary Actors	Admin
Preconditions	None
Main Flow	1. The use case starts when the guest clicks the "Sign Up" option. 2. The system presents a registration form with fields for name, email, and password. 3. The guest fills in the required information and submits the form. 4. The system validates the email format, checks for uniqueness, and ensures that the password meets security standards. If validation is successful, the system sends a notification to the admin for approval. 5. The admin reviews the registration details and decides whether to approve or reject. 6. If approved, the system registers the user and provides a confirmation message.
Post Conditions	The user's details are stored in the database.
Alternative Flows	- Invalid Field(s): If the guest enters invalid or incomplete information, the system provides feedback on the invalid fields and prompts the userto correct them.

Table 3.1: User Registration Use Case

ID	UC02
Name	Profile Management
Author	Muhammad Abdullah
Description	Transporters and Industrialists can navigate to the "Profile Management" section, where they can edit their profile information. The system allows users to make modifications and updates the user's profile in the database.
Primary Actors	Transporter and Industrialist
Secondary Actors	None
Preconditions	Users must be registered to the system
Main Flow	1. The Transporter or Industrialist accesses the profile management section of the system. 2. The system presents a form with fields for editing profile information. 3. The user makes modifications to their profile information. 4. The system validates the updated information and updates the user's profile in the database.
Post Conditions	The user's profile information is successfully updated in the system.
Alternative Flows	- Invalid Information: If the user enters invalid information or leaves required fields blank, the system prompts them with error messages and highlights the invalid fields for correction.

Table 3.3: Profile Management Use Case

ID	UC02
Name	User Login
Author	Muhammad Abdullah
Description	The Transporter and Industrialist initiate the login process to access their accounts and utilize the system's features. By providing valid credentials, they enter the system.
Primary Actors	Transporter and Industrialist
Secondary Actors	None
Preconditions	Users must be registered.
Main Flow	1. The use case begins when the Transporter or Industrialist accesses the system's login page. 2. The system presents a login form with fields for the user's username/email and password. 3. The user enters their valid credentials (username/email and password) into the respective fields. 4. The system validates the entered credentials by checking against the database to ensure they match an existing user account. 5. If the credentials are valid and match an existing account, the system grants access to the user's dashboard or main interface. 6. The user can now utilize the features and functionalities available to them based on their role (Transporter or Industrialist).
Post Conditions	The Transporter or Industrialist is successfully logged into their respective accounts. They can access and utilize the system's features based on their user role.
Alternative Flows	- Invalid Credentials: If the user enters incorrect credentials (username/email or password), the system detects the error and prompts the user with an error message, indicating that the login attempt was unsuccessful. The user is then prompted to re-enter their credentials or reset their password if needed. - Account Lockout: After multiple failed login attempts (configurable threshold), the system locks the user's account for security reasons. The user is notified about the account lockout and instructed to contact support for assistance in unlocking their account. - Forgot Password: If the user forgets their password, they can click on the "Forgot Password" link on the login page. The system redirects them to a password reset page where they can enter their registered email address. Upon submission, the system sends a password reset link to the user's email for them to create a new password and regain access to their account.

Table 3.2: User Login Use Case

ID	UC04
Name	Password Recovery
Author	Muhammad Abdullah
Description	Transporters and Industrialists can initiate the password recovery process in case they forget their passwords. The system prompts the user to enter their email, validates the email, and sends a secure password reset link. Upon clicking the link, the user can set a new password, and the system updates the database accordingly.
Primary Actors	Transporter & Industrialist
Secondary Actors	None
Preconditions	The user must have registered.
Main Flow	The use case starts when the guest clicks the "Sign Up" option. The system presents a registration form with fields for name, email, and password. The guest fills in the required information and submits the form. The system validates the email format, checks for uniqueness, and ensures that the password meets security standards. If validation is successful, the system sends a notification to the admin for approval. The admin reviews the registration details and decides whether to approve or reject. If approved, the system registers the user and provides a confirmation message.
Post Conditions	The user's details are stored in the database.
Alternative Flows	Invalid Field(s): If the guest enters invalid or incomplete information, the system provides feedback on the invalid fields and prompts the user to correct them.

Table 3.4: Password Recovery Use Case

ID	UC05
Name	Transporter Search
Author	Muhammad Abdullah
Description	The Industrialist accesses the "search transport" functionality, providing criteria such as location, price range, reviews, and distance.
Primary Actors	Industrialist
Secondary Actors	Admin
Preconditions	The user must be logged in.
Main Flow	The Industrialist accesses the system's search transport functionality. The system presents a search form with fields for location, price range, reviews, and distance criteria. The Industrialist enters their desired criteria into the search form. The system processes the search criteria and retrieves a list of transporters that match the specified criteria. The system displays the list of matching transporters, including relevant details such as company name, ratings, available trucks, and contact information.
Post Conditions	The Industrialist can view a list of matching transporters based on their search criteria.
Alternative Flows	No Matching Transporters: If there are no transporters that match the Industrialist's criteria, the system notifies them with a message indicating no results were found.

Table 3.5: Transporter Search Use Case

ID	UC06
Name	Detailed Information Page
Author	Muhammad Abdullah
Description	The system presents a page with comprehensive details about the selected transporter, including their description, routes, number of trucks available, pricing, and reviews. The Industrialist can make an informed decision based on this detailed information before proceeding with the book-ing.
Primary Actors	Industrialist
Secondary Actors	System
Preconditions	The user must have searched for the transporter.
Main Flow	After performing a transporter search, the Industrialist selects a specific transporter from the search results. The sys-tem retrieves detailed information about the selected trans- porter, including their description, available routes, num- ber of trucks, pricing details, and reviews. The system dis- plays this detailed information on a dedicated page or modal within the platform. The Industrialist reviews the detailed information to make an informed decision about booking the transporter's services. Based on the information pro- vided, the Industrialist can proceed with booking the trans- porter or explore other options.
Post Conditions	The Industrialist has access to comprehensive details about the selected transporter, aiding in their decision-making process.
Alternative Flows	No Detailed Information: If there is no detailed information available for the selected transporter, the system notifies the Industrialist with a message indicating that it is not available now.

Table 3.6: Detailed Information Page Use Case

ID	UC07
Name	Booking
Author	Muhammad Abdullah
Description	The Industrialist enters booking details, and upon confir- mation, the system generates a booking confirmation andupdates the transporter's availability.
Primary Actors	Industrialist
Secondary Actors	System
Preconditions	The user must select a transporter.
Main Flow	The Industrialist selects a transporter from the bidding pro- cess or detailed information page to proceed with book- ing. The system displays comprehensive details about the selected transporter, including company information, avail- able trucks, pricing details, and contact information. The Industrialist reviews the details and decides to proceed with booking the transporter's services. The Industrialist enters booking details such as pickup and delivery locations, ship- ment details, preferred dates, and any special instructions. The system validates the booking details to ensure they arecomplete and accurate. Upon confirmation from the Indus- trialist, the system generates a booking confirmation with a unique booking ID. The system updates the transporter's availability in real-time based on the confirmed booking.
Post Conditions	The Industrialist successfully completes the booking pro- cess, and the transporter's availability is updated accord-ingly.
Alternative Flows	Incomplete Booking Details: If the Industrialist enters in- complete or incorrect booking details, the system prompts them to provide the necessary information before proceed-ing with the booking confirmation. Booking Confirmation Delay: In case of any delay in generating the booking con- firmation, the system notifies the Industrialist about the de-lay and assures them that their booking is being processed.

Table 3.7: Booking Use Case

ID	UC08
Name	Create Bilty Form
Author	Muhammad Abdullah
Description	The Transporter requests a bilty form from the system after a booking or communication is made between the Industri- alist and the Transporter. The Transporter inputs the details in the bilty form, saves it, and prints it for their use.
Primary Actors	Transporter
Secondary Actors	None
Preconditions	A booking or communication has been established between the Industrialist and the Transporter.
Main Flow	The Transporter initiates the request for a bilty form through the system. The system presents a bilty form template with fields for relevant information such as shipment details, consignee details, origin, destination, etc. The Transporter fills in the required details accurately on the bilty form. The Transporter saves the completed bilty form within the sys- tem. Optionally, the Transporter may choose to print the bilty form for their records or for further processing.
Post Conditions	The Transporter has a completed and saved bilty form ready for use or printing.
Alternative Flows	Incomplete Form: If the Transporter leaves any manda- tory fields blank or provides invalid information, the system prompts them to correct the errors before saving or print- ing the bilty form. Printing Issues: In case of any printing issues, the Transporter can retry printing or save the bilty form in a different format for later use.

Table 3.8: Create Bilty Form Use Case

ID	UC09
Name	Send Bilty Form
Author	Muhammad Abdullah
Description	The Transporter, after creating the bilty form, can send it to the Industrialist for confirmation and record maintenance.
Primary Actors	Transporter
Secondary Actors	Industrialist
Preconditions	The Transporter has created a bilty form.
Main Flow	After creating a bilty form, the Transporter accesses the system's communication or messaging feature. The Trans- porter attaches the bilty form to a message or email intended for the Industrialist. The Transporter sends the message with the attached bilty form to the Industrialist for confir- mation and record maintenance.
Post Conditions	The Industrialist receives the bilty form sent by the Trans- porter.
Alternative Flows	Bilty Form Format: Depending on the system capabilities, the Transporter may send the bilty form in PDF, image, or any other supported format. Confirmation Receipt: The sys- tem may generate a confirmation receipt when the Industri- alist receives and views the sent bilty form.

Table 3.9: Send Bilty Form Use Case

ID	UC10
Name	Manage Truck Fleet and Information
Author	Muhammad Abdullah
Description	The Transporter can add and remove trucks, edit truck information, and add descriptions such as weight capacity, size, routes, and availability for record maintenance.
Primary Actors	Transporter
Secondary Actors	None
Preconditions	The user must be logged in.
Main Flow	The Transporter accesses the system's truck fleet management section. The system presents options to add a new truck, remove an existing truck, or edit truck information. The Transporter selects to add a new truck and fills in details such as truck number, weight capacity, size, routes, avail- ability, and other relevant information. The Transporter saves the new truck information in the system. Optionally, the Transporter can edit existing truck information by selecting the edit option, making necessary changes, and sav- ing the updates. The Transporter can also remove a truck from their fleet by selecting the remove option and confirm- ing the removal.
Post Conditions	The Transporter successfully manages their truck fleet and updates truck information as needed.
Alternative Flows	Invalid Information: If the Transporter enters invalid or incomplete information while adding or editing truck details, the system prompts them to correct the errors before sav- ing the changes. Confirmation Prompt: When removing a truck, the system may prompt the Transporter for confirma- tion before proceeding with the removal.

Table 3.10: Manage Truck Fleet and Information Use Case

ID	UC11
Name	Manage Truck Drivers and Information
Author	Abdul Wahid
Description	The Transporter can add and remove truck drivers, as well as edit driver information such as contact number, availabil- ity, license details, routes, and frequently visited areas for record maintenance.
Primary Actors	Transporter
Secondary Actors	None
Preconditions	The user must be logged in.
Main Flow	The Transporter accesses the system's truck driver management section. The system presents options to add a new driver, remove an existing driver, or edit driver information. The Transporter selects to add a new driver and fills in de-tails such as driver's name, contact number, availability, li- cense number, routes driven, and frequently visited areas. The Transporter saves the new driver's information in the system. Optionally, the Transporter can edit existing driver information by selecting the edit option, making necessary changes, and saving the updates. The Transporter can also remove a driver from their list by selecting the remove op-tion and confirming the removal.
Post Conditions	The Transporter successfully manages their truck drivers and updates driver information as needed.
Alternative Flows	Invalid Information: If the Transporter enters invalid or incomplete information while adding or editing driver details, the system prompts them to correct the errors before sav- ing the changes. Confirmation Prompt: When removing a driver, the system may prompt the Transporter for confir- mation before proceeding with the removal.

Table 3.11: Manage Truck Drivers and Information Use Case

ID	UC12
Name	Create Truck Listing
Author	Abdul Wahid
Description	The Transporter provides necessary details about a truck, such as route, capacity, type, and photos, to create a com-plete listing on the platform.
Primary Actors	Transporter
Secondary Actors	None
Preconditions	The user must be logged in.
Main Flow	The Transporter accesses the system's truck listing creation section. The system presents a form with fields for truck de-tails, including route, capacity, type, photos, and other rele-vant information. The Transporter fills in the required truck details accurately. Optionally, the Transporter may upload photos of the truck to enhance the listing. The Transporter saves the truck listing on the platform.
Post Conditions	The Transporter successfully creates a complete truck list-ing with all necessary details.
Alternative Flows	Incomplete Listing: If the Transporter leaves any manda-tory fields blank or provides incomplete information, the system prompts them to fill in the required details before saving the listing. Photo Upload: The system may provide options for the Transporter to upload photos directly from their device or capture photos using a camera if available.

Table 3.12: Create Truck Listing Use Case

ID	UC13
Name	Create Delivery Challan
Author	Muhammad Abdullah
Description	The Industrialist creates a delivery challan including customer name, goods description, net and gross weight, remarks, and other necessary information. The Industrialist fills in the details, saves them, and can print for further use.
Primary Actors	Industrialist
Secondary Actors	None
Preconditions	The user must be logged in.
Main Flow	The Industrialist accesses the system's delivery challan creation section. The system presents a form with fields for delivery challan details, including customer name, goods description, net and gross weight, remarks, and other relevant information. The Industrialist fills in the required details accurately. The Industrialist saves the completed delivery challan within the system. Optionally, the Industrialist may choose to print the delivery challan for further use.
Post Conditions	The Industrialist successfully creates a delivery challan with all necessary details.
Alternative Flows	Incomplete Details: If the Industrialist leaves any mandatory fields blank or provides incomplete information, the system prompts them to fill in the required details before saving the delivery challan. Printing Options: The system may provide options for the Industrialist to print the delivery challan in different formats or directly from the system.

Table 3.13: Create Delivery Challan Use Case

ID	UC14
Name	Send Delivery Challan
Author	Muhammad Abdullah
Description	The Industrialist, after creating the delivery challan, can send it to the Transporters for confirmation and recordmaintenance.
Primary Actors	Industrialist
Secondary Actors	Transporter
Preconditions	The Industrialist has created a delivery challan.
Main Flow	After creating a delivery challan, the Industrialist accesses the system's communication or messaging feature. The Industrialist attaches the delivery challan to a message or email intended for the Transporter. The Industrialist sends the message with the attached delivery challan to the Trans- porter for confirmation and record maintenance.
Post Conditions	The Transporter receives the delivery challan sent by the Industrialist.
Alternative Flows	Challan Format: Depending on the system capabilities, the Industrialist may send the delivery challan in PDF, image, or any other supported format. Confirmation Receipt: The system may generate a confirmation receipt when the Trans- porter receives and views the delivery challan sent.

Table 3.14: Send Delivery Challan Use Case

ID	UC15
Name	Digital Record Keeping
Author	Muhammad Abdullah
Description	The system replaces manual record maintenance with digital processes to minimize human errors and mitigate fraud risks.
Primary Actors	System
Secondary Actors	None
Preconditions	None
Main Flow	The system automates record-keeping processes previously done manually. Data entry points are created within the system for stakeholders to input relevant information. The system validates and stores the entered data securely in digital format. Authorized users can access, update, and retrieve digital records as needed. The system implements security measures to protect digital records from unauthorized access or tampering.
Post Conditions	The system successfully maintains digital records, improving efficiency and reducing errors.
Alternative Flows	Data Validation: The system performs validation checks on entered data to ensure accuracy and consistency. Access Controls: The system implements role-based access controls to restrict access to sensitive digital records based on user roles and permissions.

Table 3.15: Digital Record Keeping Use Case

ID	UC16
Name	Transporter Search
Author	Muhammad Abdullah
Description	The Industrialist accesses the platform to schedule weekly deliveries, providing details such as destination, quantity, and delivery preferences.
Primary Actors	Industrialist
Secondary Actors	None
Preconditions	The user must be logged in.
Main Flow	The Industrialist accesses the system's weekly delivery scheduling feature. The system presents a scheduling in- terface with fields for destination, quantity, preferred de- livery dates, and other delivery preferences. The Industri- alist enters the required details for scheduling weekly de- liveries. The Industrialist confirms the scheduling request. The system processes the scheduling request and updates the weekly delivery schedule accordingly.
Post Conditions	The Industrialist successfully schedules weekly deliveries as per their preferences.
Alternative Flows	Conflicting Schedules: If there are conflicts in scheduling, such as overlapping delivery times or resource constraints, the system notifies the Industrialist and suggests alternative options.

Table 3.16: Transporter Search Use Case

ID	UC17
Name	Bid on Delivery Schedules
Author	Muhammad Abdullah
Description	Transporters review available delivery schedules and submit bids, including pricing, availability, and special services if applicable.
Primary Actors	Transporter
Secondary Actors	None
Preconditions	The user must be logged in.
Main Flow	The Transporter accesses the system's delivery schedule bidding section. The system presents available delivery schedules along with details such as pickup locations, deliv- ery destinations, quantities, and delivery dates. The Trans- porter reviews the available schedules and selects the ones they are interested in bidding on. The Transporter enters bid details, including pricing, availability, and any special services offered. The Transporter submits the bids for the selected delivery schedules. The system processes the bids and notifies the Transporter about the status of their bids (e.g., accepted, pending, rejected).
Post Conditions	The Transporter successfully submits bids for delivery schedules and awaits confirmation.
Alternative Flows	Competitive Bidding: If multiple Transporters bid on the same schedule, the system may initiate a competitive bid- ding process where Transporters can revise their bids.

Table 3.17: Bid on Delivery Schedules Use Case

ID	UC18
Name	Integrate GPS Tracking
Author	Muhammad Abdullah
Description	The system integrates GPS tracking technology to provide real-time location updates for shipments, allowing stake-holders to monitor progress and anticipate delays.
Primary Actors	System
Secondary Actors	None
Preconditions	The goods should be on the way.
Main Flow	The system integrates GPS tracking technology into its platform. Each shipment or delivery is assigned a unique track-ing ID. GPS devices are installed in vehicles or packages to track their real-time locations. The system retrieves location data from GPS devices at regular intervals. The system up-dates stakeholders, such as Transporters and Industrialists, with real-time location updates for their shipments. Stake- holders can access the platform or mobile app to track ship- ment locations, monitor progress, and receive notifications about delays or changes in delivery status.
Post Conditions	The system successfully integrates GPS tracking technology, providing stakeholders with real-time location updates for shipments.
Alternative Flows	GPS Signal Loss: If there is a temporary loss of GPS signal (e.g., due to tunnels or remote areas), the system may indi- cate the last known location and notify stakeholders about the signal loss.

Table 3.18: Integrate GPS Tracking Use Case

ID	UC19
Name	Implement Notification System
Author	Muhammad Abdullah
Description	The system sends notifications to stakeholders for events such as Bid Accepted, Delivery Schedule Confirmed, Pay- ment Received, Payment Reminder, and Delivery Status Updates.
Primary Actors	System
Secondary Actors	None
Preconditions	The user must be logged in.
Main Flow	The system identifies key events that require notifications, such as Bid Accepted, Delivery Schedule Confirmed, Pay- ment Received, Payment Reminder, and Delivery Status Updates. When these events occur, the system generates automated notifications. Notifications are sent to relevant stakeholders, such as Transporters and Industrialists, via email, SMS, or within the platform. Stakeholders receive notifications in real-time or based on their notification preferences. The system tracks notification delivery and logs sent notifications for record-keeping purposes.
Post Conditions	Stakeholders receive timely notifications for important events related to their transactions and activities on the plat- form.
Alternative Flows	Notification Preferences: Stakeholders may have the option to customize their notification preferences (e.g., fre- quency, preferred communication channels) within their ac-count settings.

Table 3.19: Implement Notification System Use Case

ID	UC20
Name	Implement Messaging System
Author	Muhammad Abdullah
Description	The system includes an integrated messaging system for Industrialists and Transporters to communicate within theplatform after the bidding process is complete.
Primary Actors	System
Secondary Actors	Transporter and Industrialist
Preconditions	None
Main Flow	The system integrates a messaging system into its platform. Industrialists and Transporters can access the messaging feature within the platform. Users can initiate new conver- sations, reply to messages, and manage their message his- tory. Messages are organized by conversations or threads, making it easy for users to track and follow up on discus- sions. Users receive notifications for new messages and canrespond in real-time.
Post Conditions	Industrialists and Transporters can communicate effectively within the platform using the integrated messaging system.
Alternative Flows	Message Filtering: Users may have options to filter mes- sages based on criteria such as unread messages, sender, ormessage content. Message Archive: Users can archive mes- sages to declutter their inbox while still retaining access to archived conversations if needed.

Table 3.20: Implement Messaging System Use Case

ID	UC21
Name	Create Collaborative Workspace
Author	Muhammad Abdullah
Description	The system provides a shared digital workspace where stakeholders collaborate on shipments, share documents, coordinate tasks, and exchange information in real-time, promoting efficiency and accountability.
Primary Actors	System
Secondary Actors	Transporter and Industrialist
Preconditions	The users must be logged in.
Main Flow	The system creates a collaborative workspace accessible to stakeholders. Stakeholders, including Industrialists and Transporters, can access the collaborative workspace within the platform. Users can create and join workspaces re- lated to specific shipments, projects, or tasks. Within the workspace, users can collaborate by sharing documents, discussing tasks, assigning responsibilities, and tracking progress. Real-time updates and notifications keep stake- holders informed about changes and updates within the col- laborative workspace. The system provides tools for file sharing, task management, and communication within the collaborative workspace.
Post Conditions	Stakeholders can collaborate efficiently, share information, and coordinate tasks effectively within the shared digital workspace.
Alternative Flows	Workspace Permissions: Users may have different levels of access and permissions within the workspace, allowing ad-ministrators to manage access rights and control visibility of information. Task Tracking: The system may include fea- tures for task tracking, progress monitoring, and milestone management within the collaborative workspace.

Table 3.21: Create Collaborative Workspace Use Case

ID	UC22
Name	NLP-Driven Feedback Analysis and Ratings
Author	Muhammad Abdullah
Description	The system uses Natural Language Processing (NLP) to analyze feedback from Industrialists, generate ratings for Transporters, and improve service evaluation.
Primary Actors	System
Secondary Actors	None
Preconditions	None
Main Flow	The system collects feedback from Industrialists regarding their experiences with Transporters. Feedback data is processed using Natural Language Processing (NLP) techniques to extract sentiments, keywords, and overall satisfaction levels. Based on the analysis, the system generates ratings or scores for Transporters, reflecting their performance and service quality. Ratings are updated dynamically based on new feedback received over time. Transporters can view their ratings and feedback to identify areas for improvement and enhance their services.
Post Conditions	The system provides accurate ratings for Transporters based on NLP-driven feedback analysis, promoting transparency and accountability.
Alternative Flows	Feedback Moderation: The system may incorporate moderation tools to filter out inappropriate or irrelevant feedback before analysis. Feedback Trends: The system can identify trends and patterns in feedback data, allowing stakeholders to gain insights into customer preferences and service trends.

Table 3.22: NLP-Driven Feedback Analysis and Ratings Use Case

ID	UC23
Name	Advanced Analytics for Business Growth
Author	Muhammad Abdullah
Description	The system provides advanced analytics tools for monitoring business growth, tracking key performance indicators (KPIs), and aiding strategic decision-making for Industrial- ists and Transporters.
Primary Actors	Industrialist and Transporter
Secondary Actors	None
Preconditions	None
Main Flow	The system gathers data related to business operations, transactions, and user interactions. Advanced analytics algorithms are applied to the data to generate insights, trends, and performance metrics. Industrialists can access analytics dashboards with key metrics such as sales revenue, delivery performance, customer satisfaction, and more. Transporters can analyze metrics related to fleet utilization, driver performance, customer feedback, and operational efficiency. The system visualizes analytics findings through charts, graphs, and reports for easy interpretation and decision-making. Stakeholders can use analytics insights to identify growth opportunities, optimize operations, and make data-driven decisions for business success.
Post Conditions	Stakeholders gain valuable insights and make informed decisions to drive business growth and performance improve- ments.
Alternative Flows	Customizable Dashboards: Users may have the option to customize their analytics dashboards to focus on specific KPIs or metrics relevant to their business goals. Predictive Analytics: The system can include predictive analytics capabilities to forecast trends, demand patterns, and potential risks for proactive planning and strategy development.

Table 3.23: Advanced Analytics for Business Growth Use Case

ID	UC24
Name	Block User for Non-Compliance
Author	Muhammad Abdullah
Description	The admin has the authority to block a Transporter or Industrialist account due to non-compliance with system guidelines or rules, with the option to issue warnings or take other appropriate actions.
Primary Actors	Admin
Secondary Actors	None
Preconditions	None
Main Flow	The admin monitors user activities and behavior on the platform. If a Transporter or Industrialist violates system guidelines or rules, the admin identifies the non-compliance. The admin assesses the severity of the violation and decides whether to issue a warning, temporarily suspend the account, or permanently block the user. In case of a warning, the admin communicates the violation and provides instructions for corrective action. For account suspension or blocking, the admin takes appropriate actions within the system to restrict user access.
Post Conditions	The admin maintains system integrity by enforcing compliance and taking necessary actions against non-compliant users.
Alternative Flows	Appeals Process: Users may have the option to appeal against a decision made by the admin regarding account suspension or blocking, triggering a review process byhigher authorities. Escalation Procedures: In cases of serious violations or repeated non-compliance, the admin may escalate the issue to higher authorities or legal departments for further action.

Table 3.24: Block User for Non-Compliance Use Case

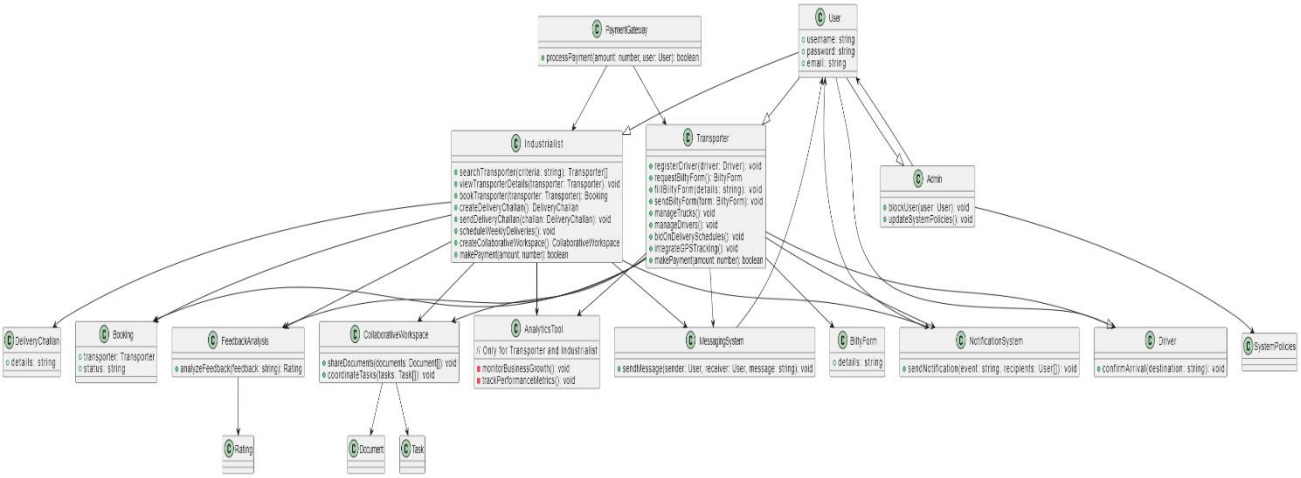
ID	UC25
Name	Update System Policies
Author	Muhammad Abdullah
Description	The admin can modify and update system policies, rules, and regulations through a straightforward process, with the ability to handle errors and cancel updates if needed.
Primary Actors	Admin
Secondary Actors	None
Preconditions	None
Main Flow	The admin accesses the system's policy management interface. The system presents existing policies, rules, and reg- ulations for review and modification. The admin selects a policy or rule to update and makes necessary changes. The admin reviews the updated policy or rule for accuracy and completeness. The admin confirms the changes and updates the system policies accordingly. In case of any errors or is- sues, the admin could revert changes or cancel updates before finalizing.
Post Conditions	The admin successfully updates system policies, ensuring alignment with current requirements and guidelines.
Alternative Flows	Policy Versioning: The system may maintain version history for policies, allowing the admin to track changes and revert to previous versions if needed. Policy Approval: De-pending on system protocols, updated policies may require approval from higher authorities or legal departments be- fore implementation.

Table 3.25: Update System Policies Use Case

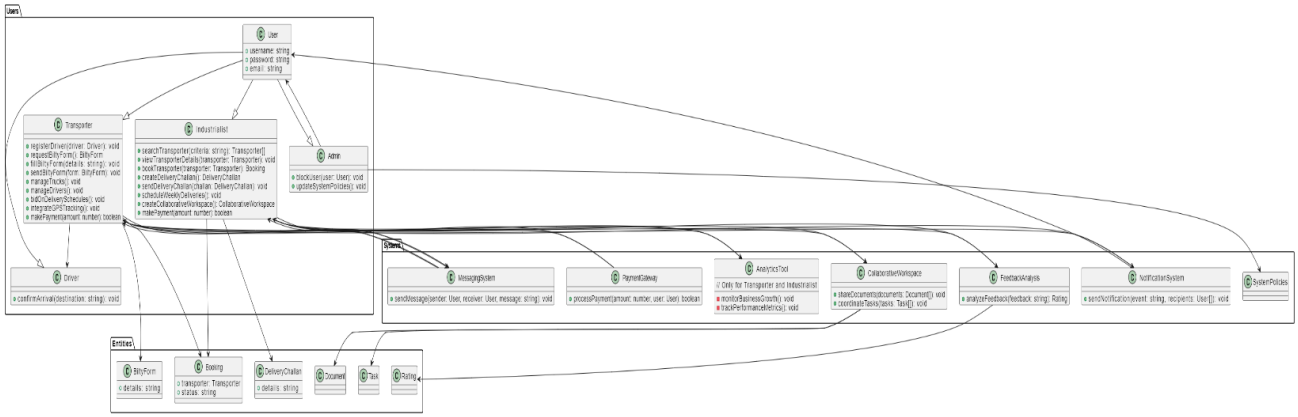
ID	UC26
Name	Integrate Payment Gateway
Author	Muhammad Abdullah
Description	The system securely integrates popular online payment gateways, such as EasyPaisa, to enable Industrialists and Transporters to make and receive payments online for ser- vices rendered, ensuring transparency and convenience.
Primary Actors	System
Secondary Actors	None
Preconditions	None
Main Flow	The system collaborates with popular online payment gateways, such as EasyPaisa, to establish secure integration. Industrialists and Transporters access the system's pay- ment gateway interface. Users initiate payment transac- tions for services rendered, such as booking fees, trans- portation charges, or other payments. The payment gate- way processes the transactions securely, encrypting sensi- tive data and following industry standards for online pay- ments. Upon successful payment processing, users receive confirmation of payment and relevant receipts or invoices. The system updates payment records and transaction histo- ries for auditing and record-keeping purposes.
Post Conditions	Industrialists and Transporters can securely make and receive payments online using the integrated payment gate- way, ensuring transparency and convenience in financial transactions.
Alternative Flows	Payment Disputes: In case of payment disputes or issues, the system may provide mechanisms for resolving disputes, refunding payments, or initiating chargebacks as per estab- lished policies and procedures. Payment Notifications: The system may send notifications to users for successful pay- ments, pending payments, or payment reminders to ensure timely and accurate financial transactions.

Table 3.26: Integrate Payment Gateway Use Case

3.2 Class Diagram

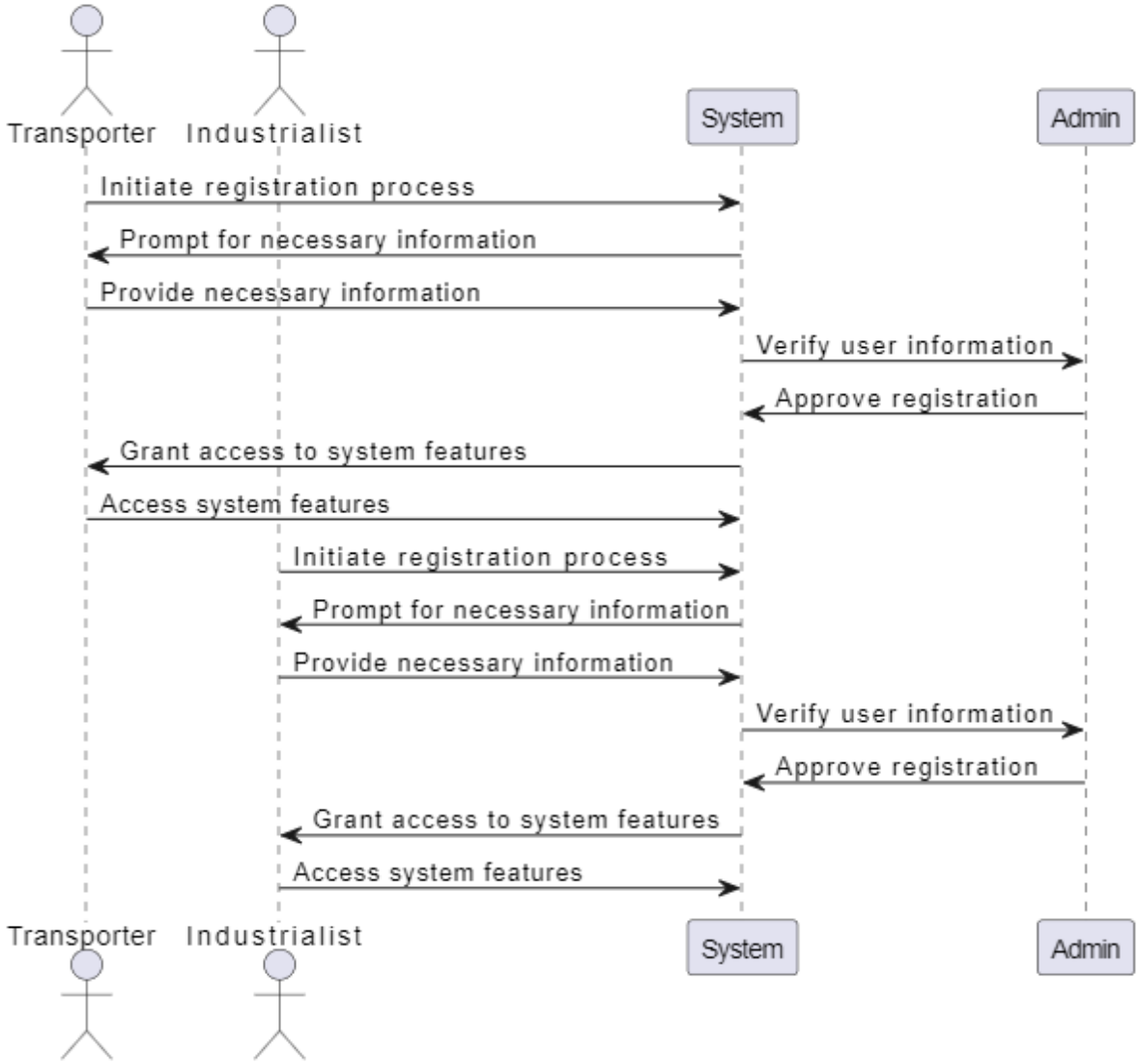


3.3 Domain Model Diagram

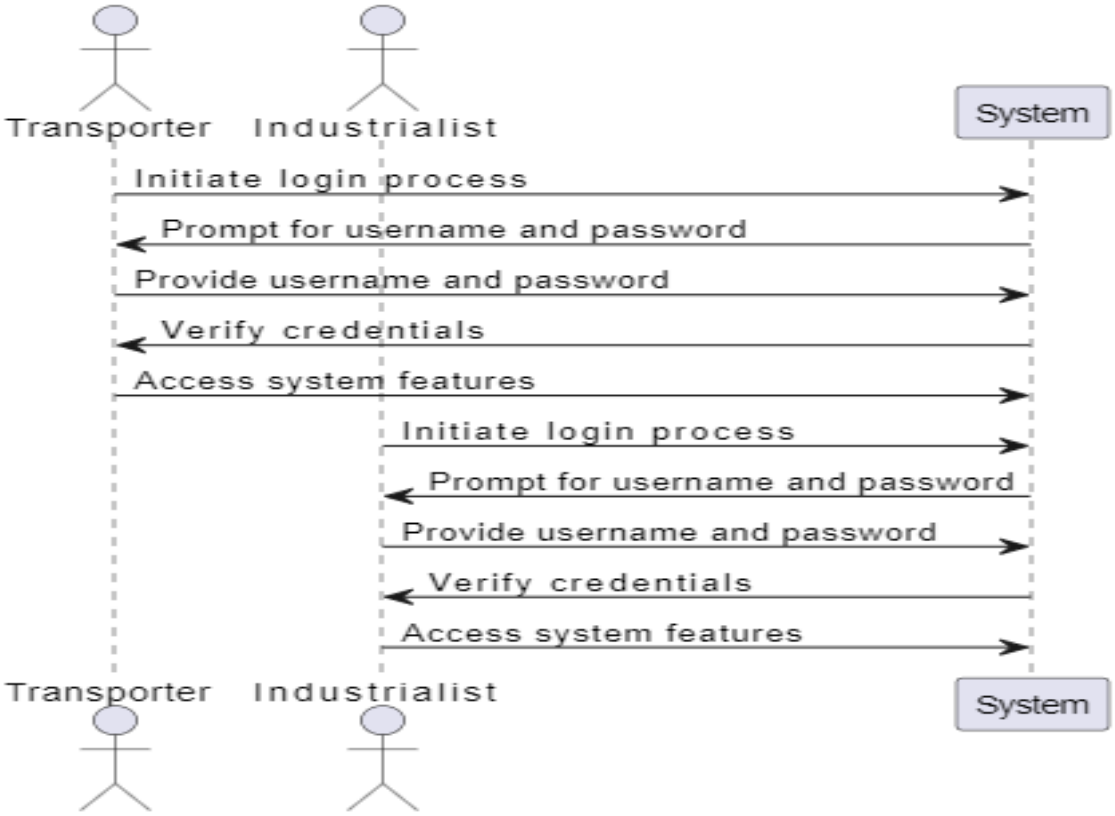


3.4 Sequence Diagram

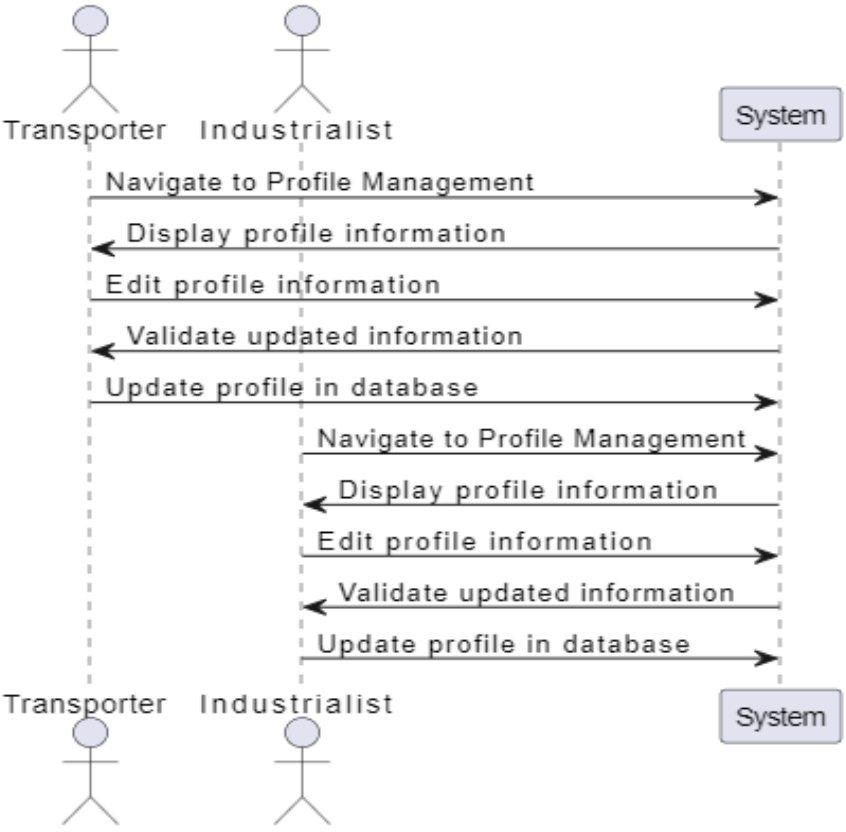
3.4.1 User Registration



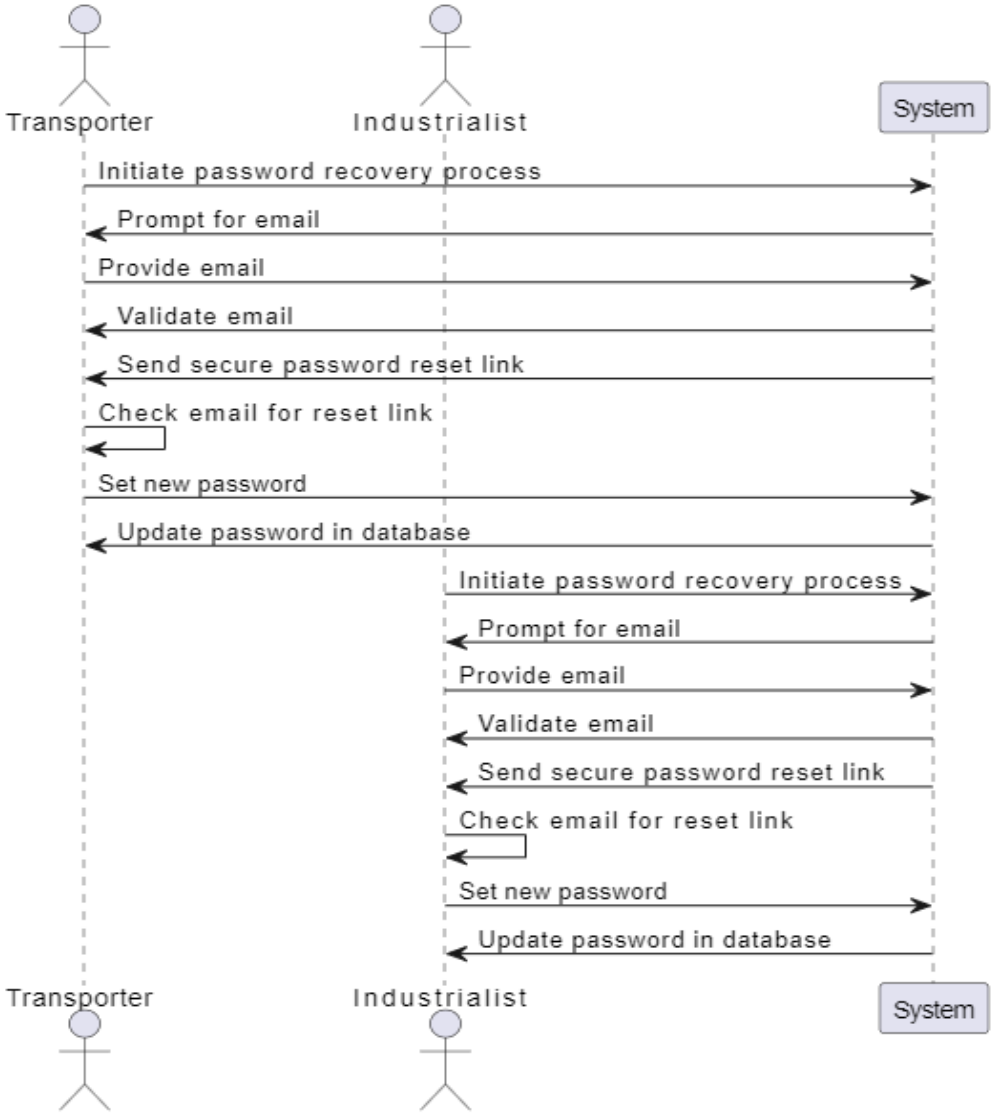
3.4.2 Login



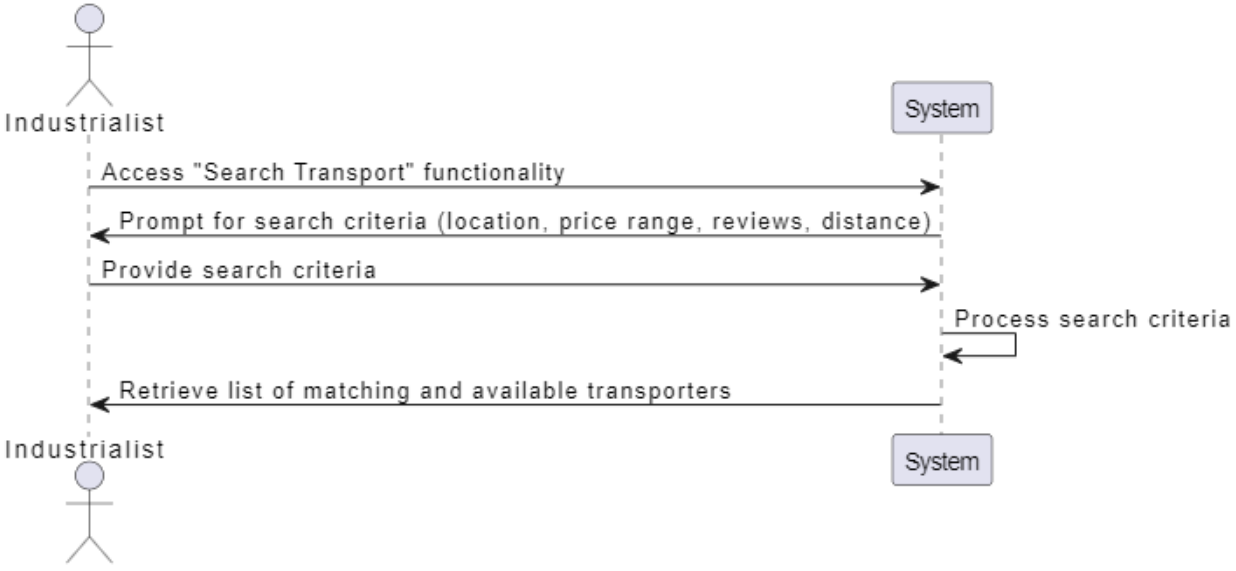
3.4.3 Profile Management



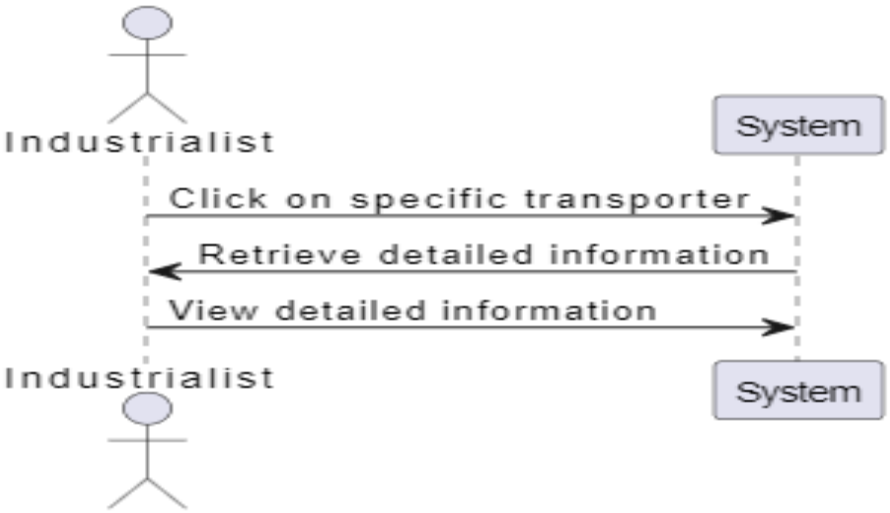
3.4.4 Password Recovery



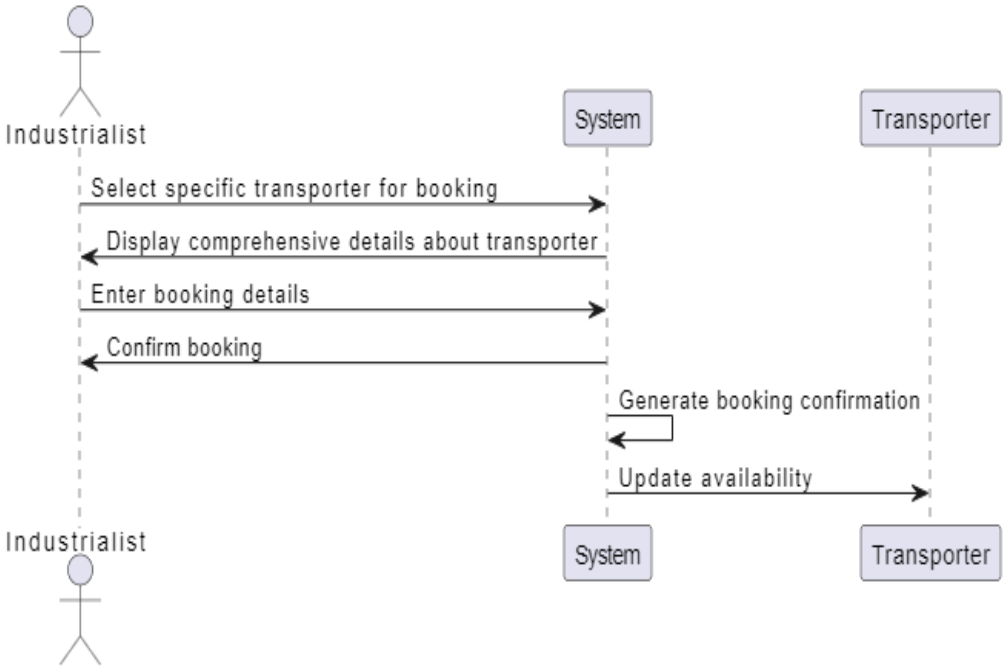
3.4.5 Transporter Search



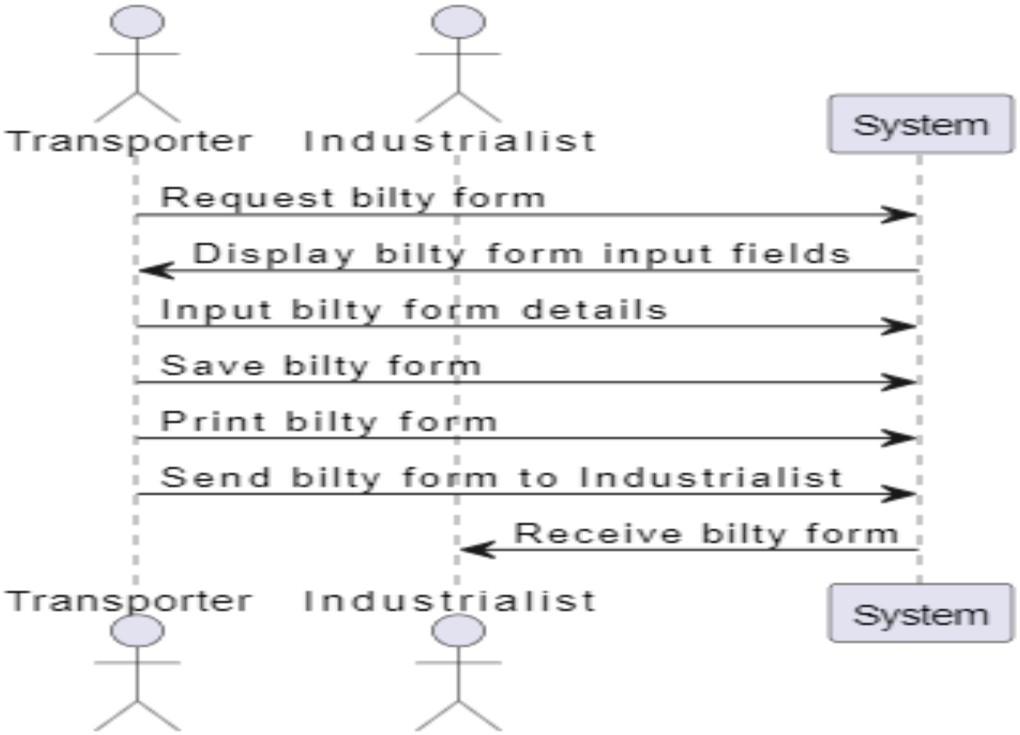
3.4.6 Detailed Information Page



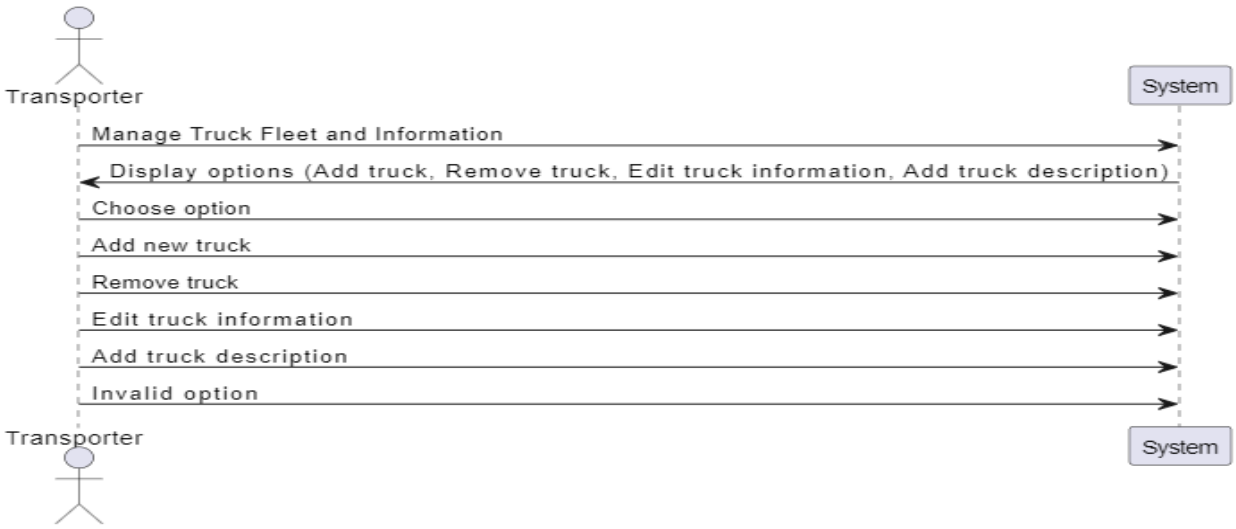
3.4.7 Booking



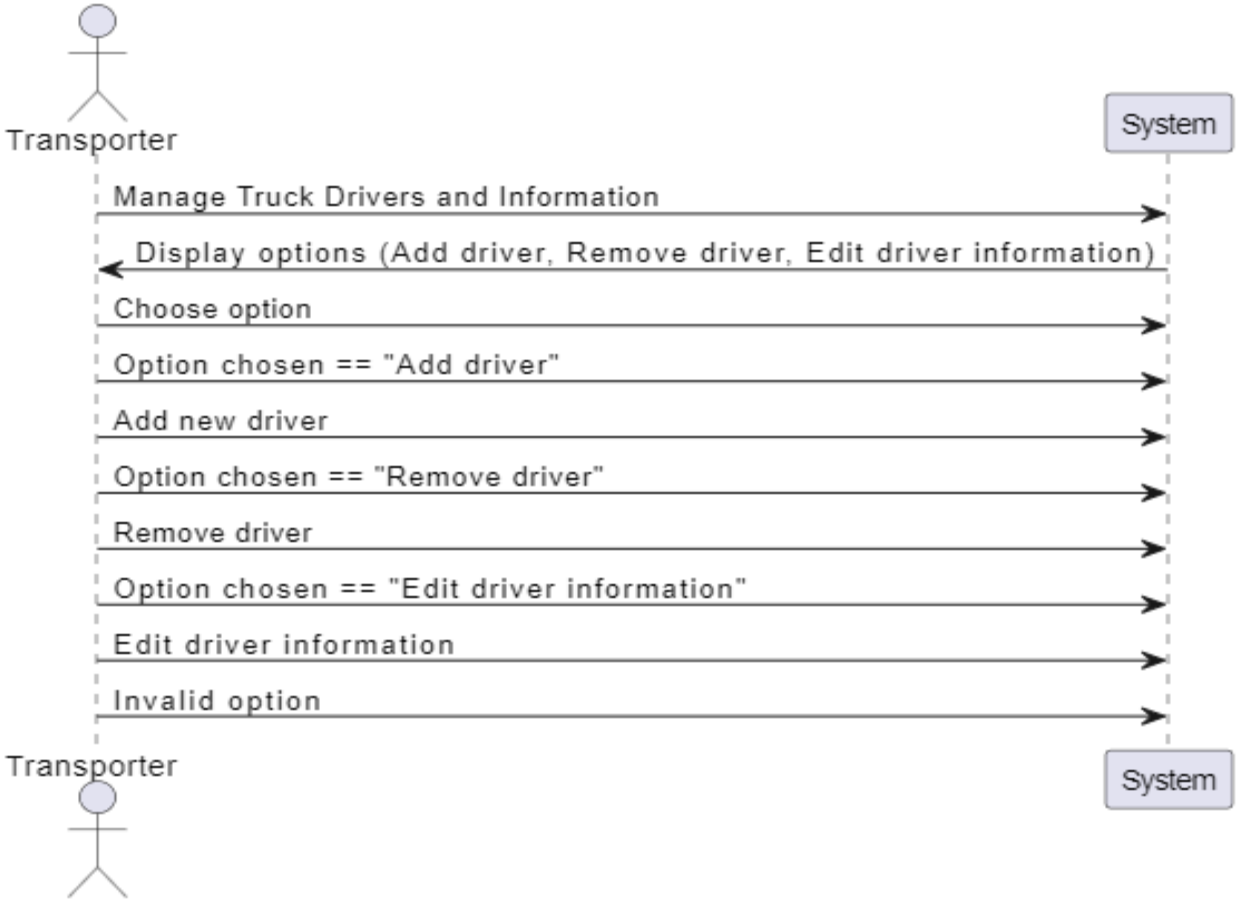
3.4.8 Create/Send Bilty Form



3.4.9 Manage Truck Fleet Information

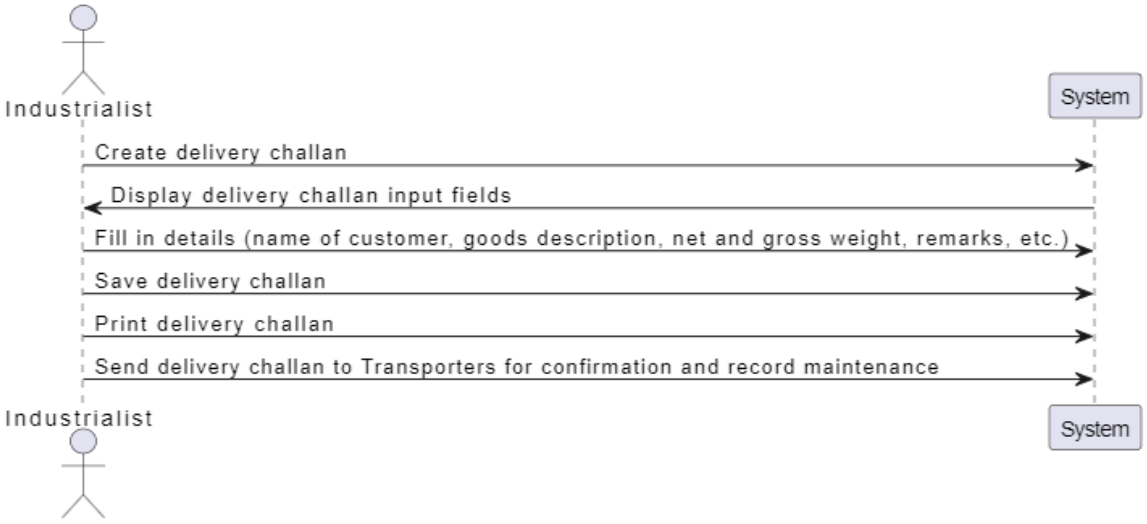


3.4.10 Manage Truck Drivers Information



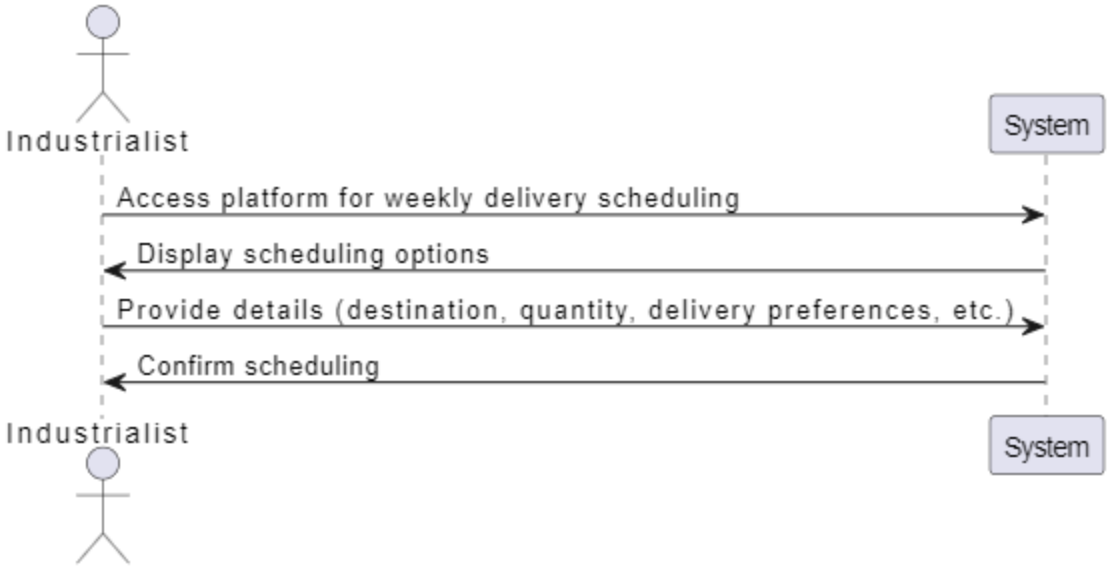
3.4.11 Create Truck Listing

3.4.12 Create/Send Delivery Challan

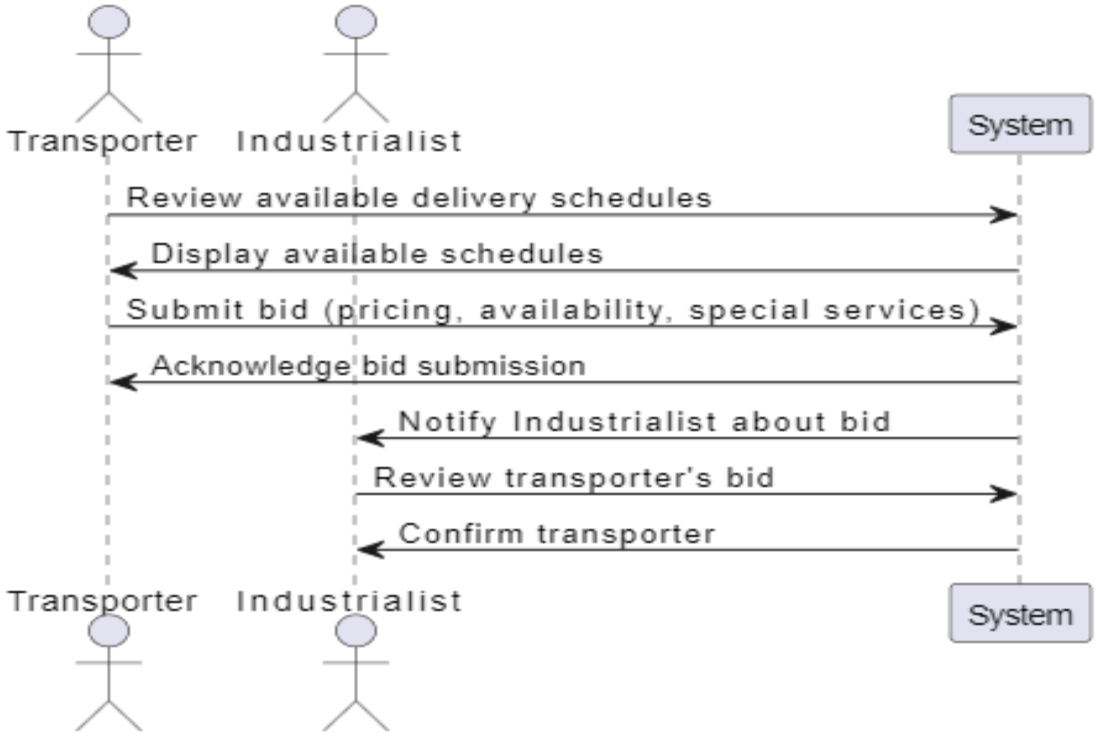


3.4.13 Digital Record Keeping

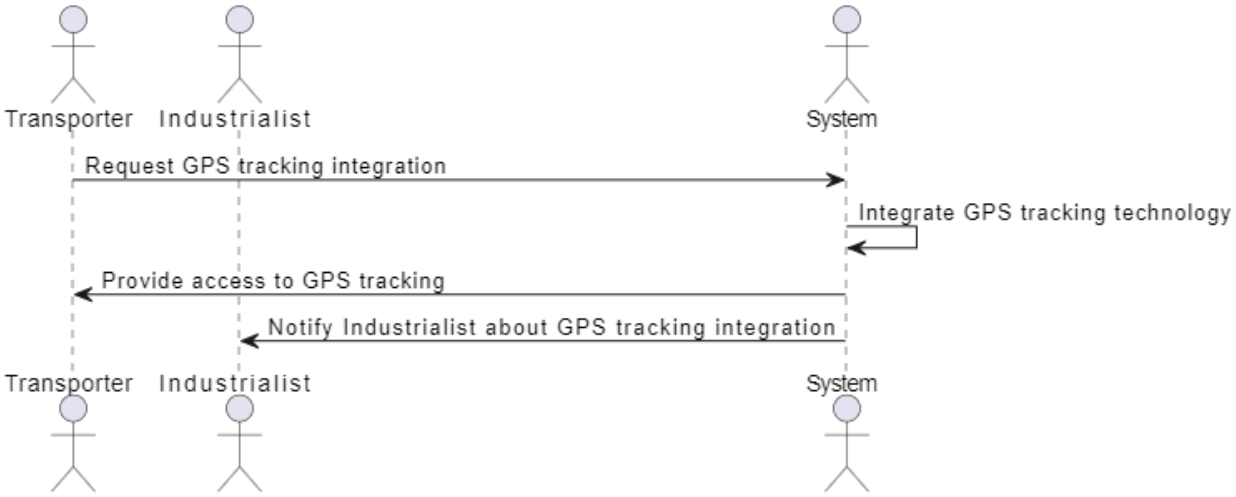
3.4.14 Weekly Delivery Scheduling



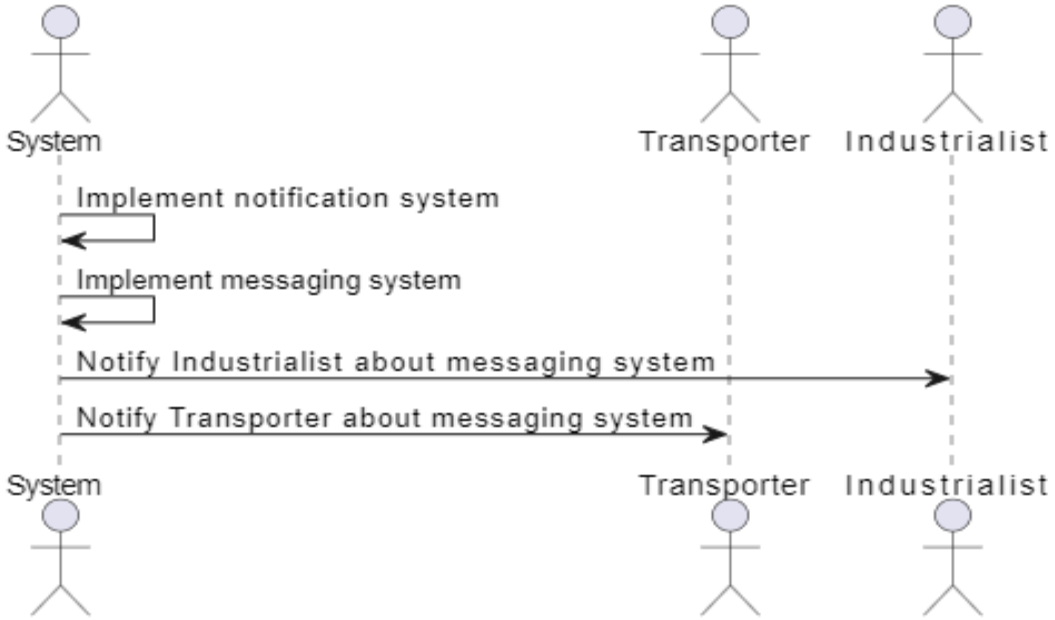
3.4.15 Bid on Delivery Schedules



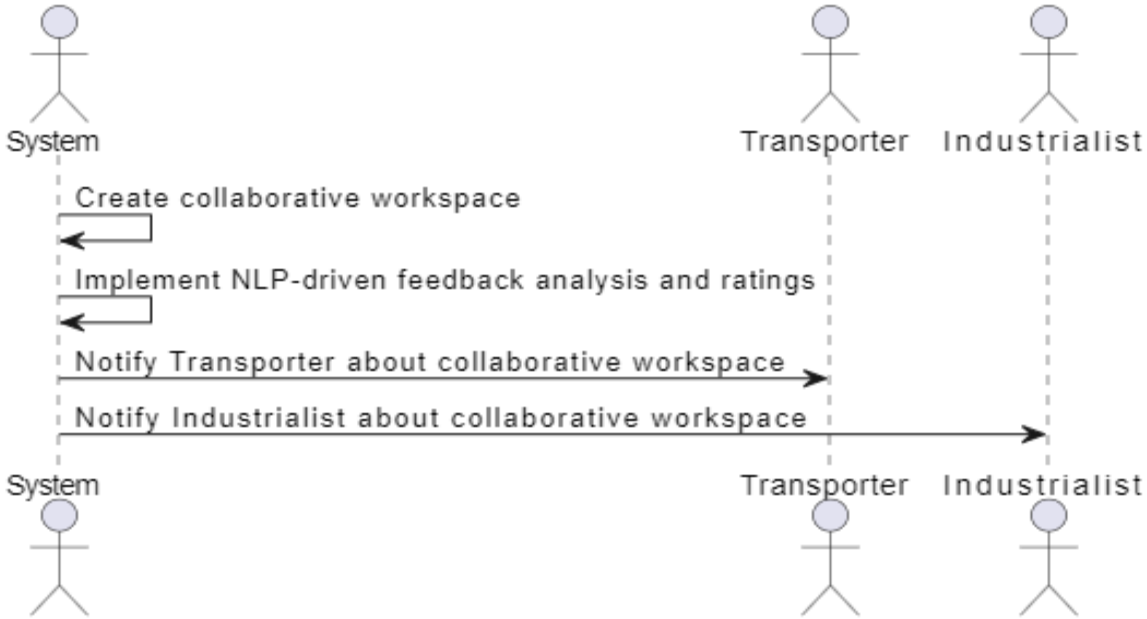
3.4.16 Integrate GPS Tracking



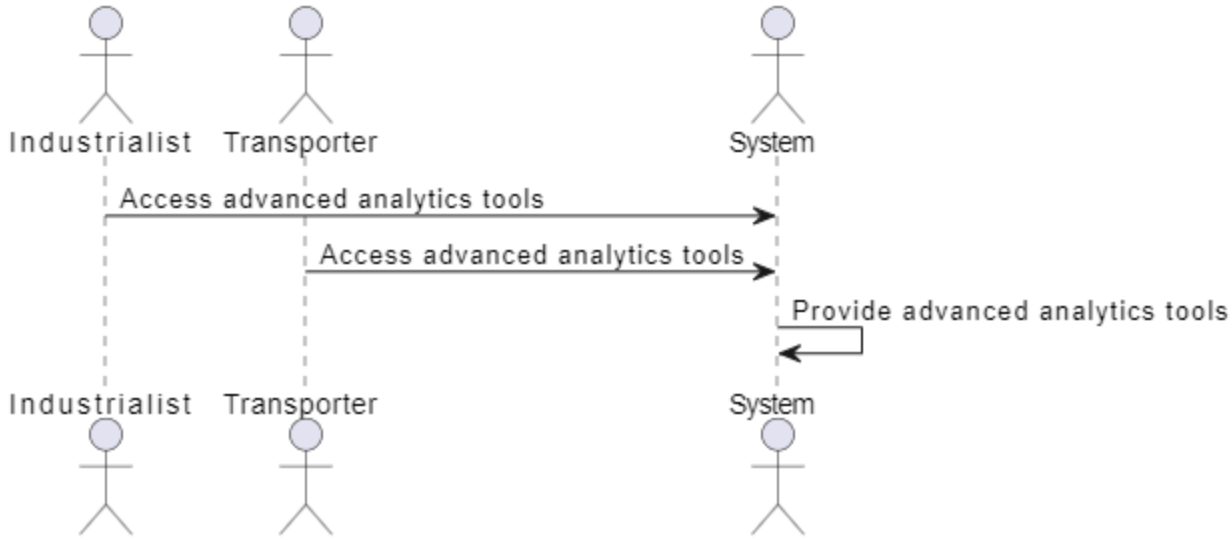
3.4.17 Implement Notification/Messaging System



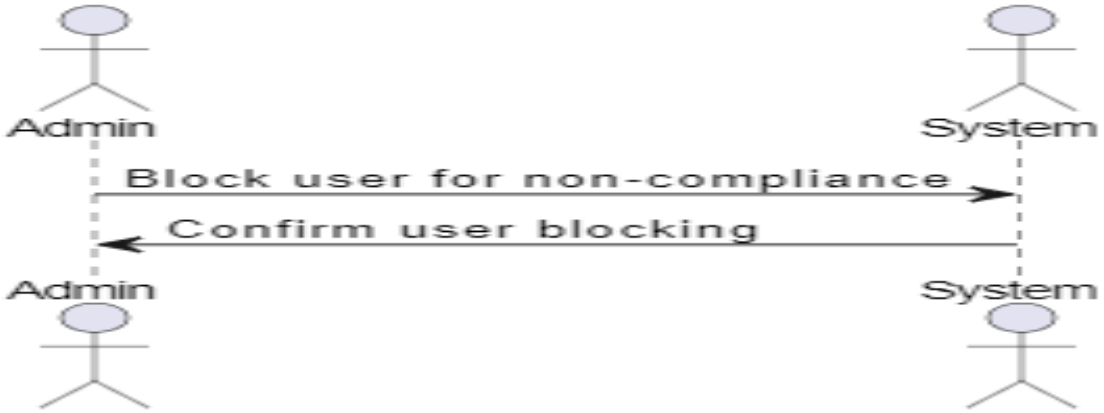
3.4.18 Collaborative Workspace and Feedback Analysis



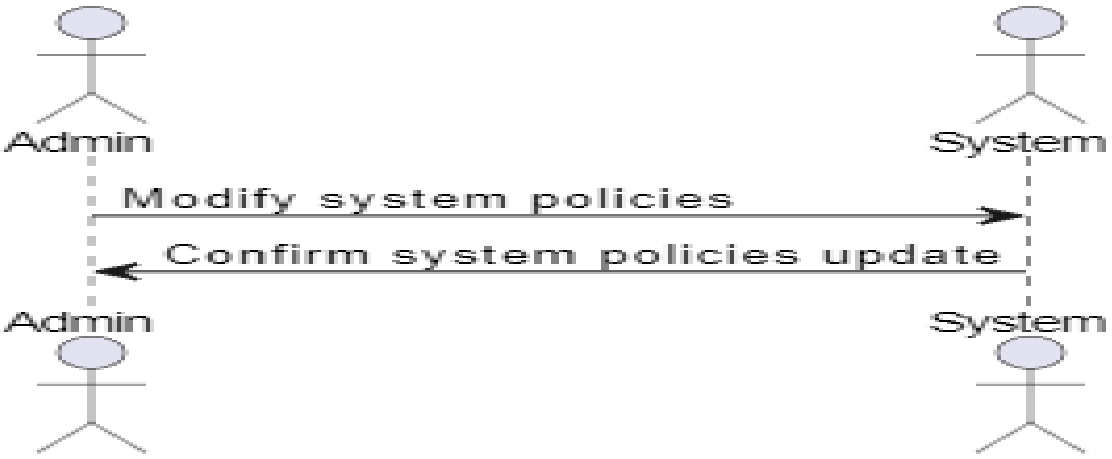
3.4.19 Advanced Analytics for Business Growth



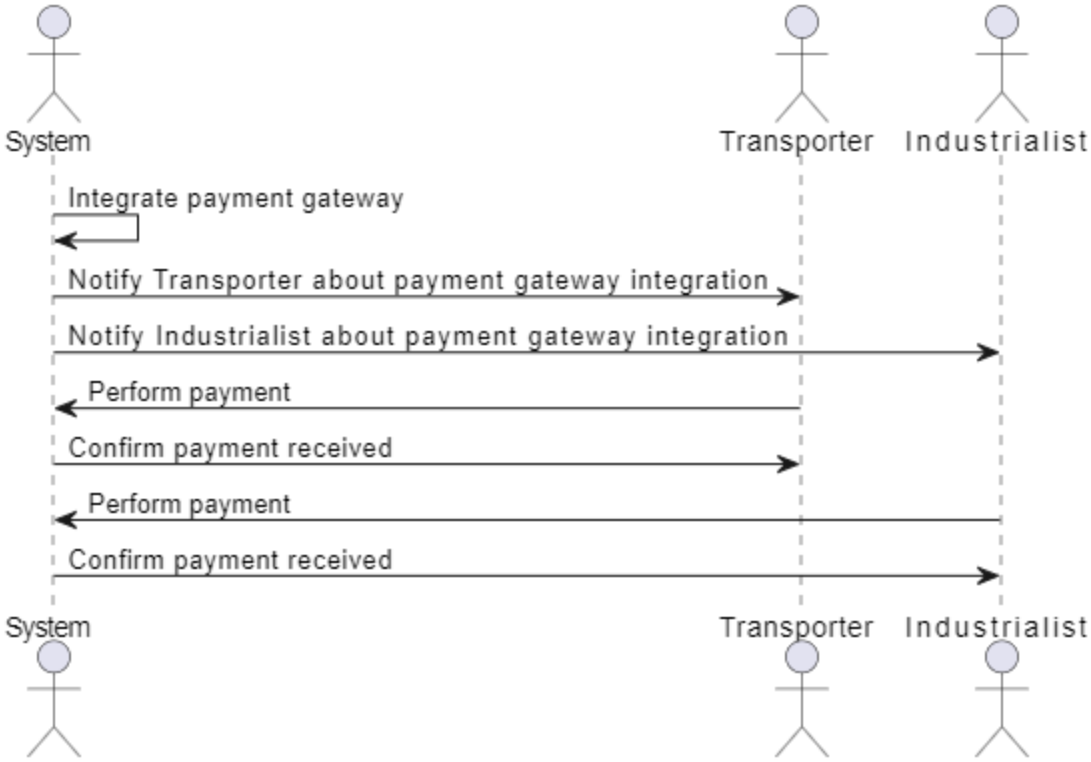
3.4.20 Block User for Non-Compliance



3.4.21 Update System Policies

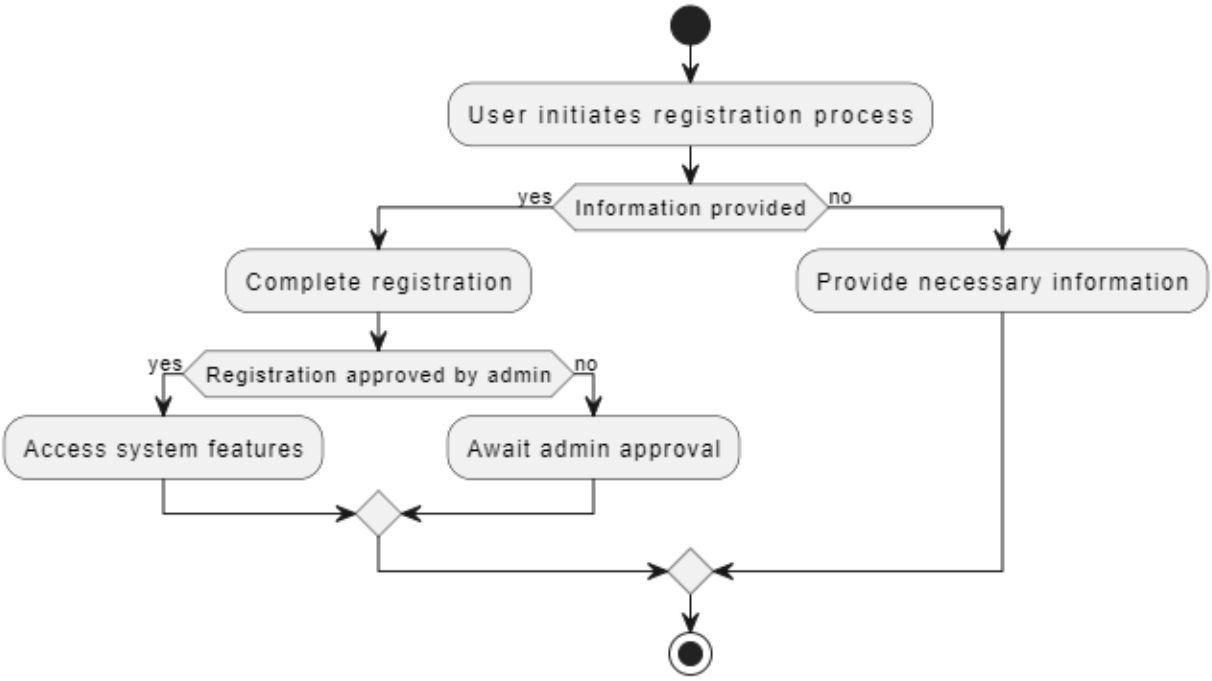


3.4.22 Integrate Payment Gateway

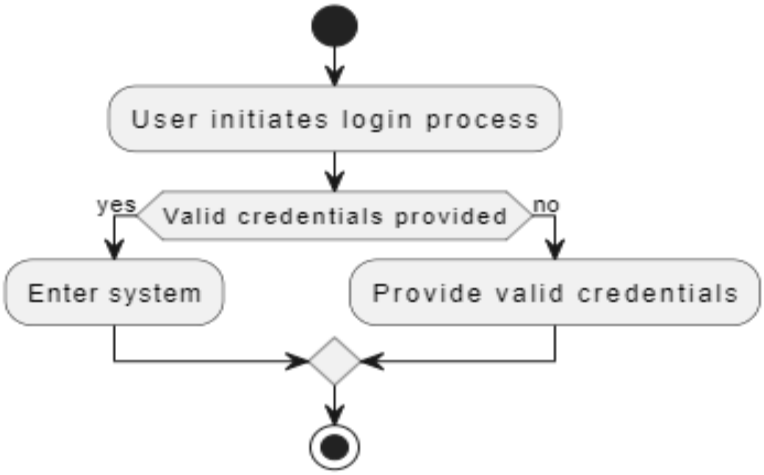


3.5 Activity Diagrams

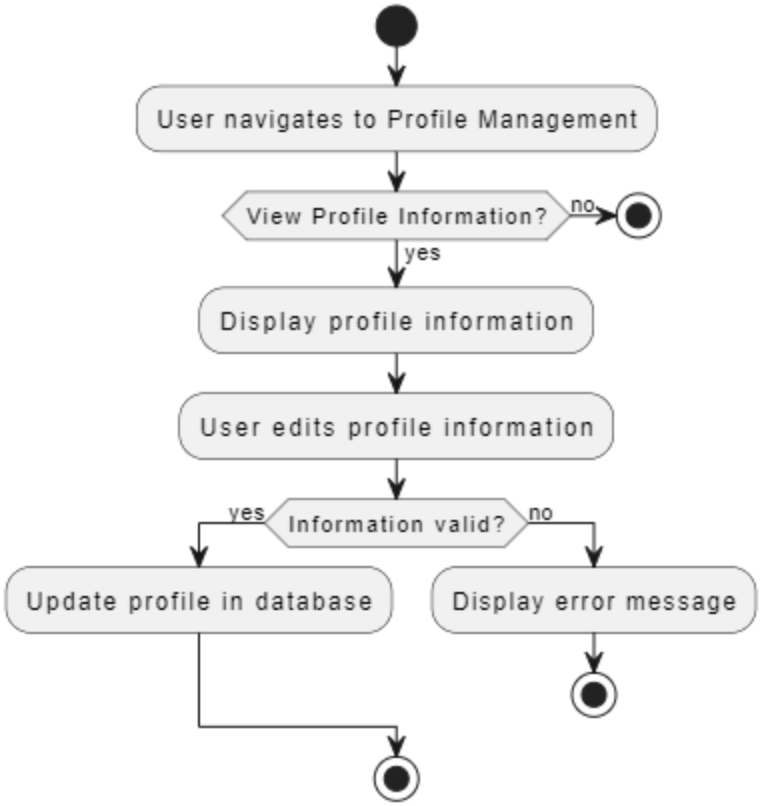
3.5.1 User Registration



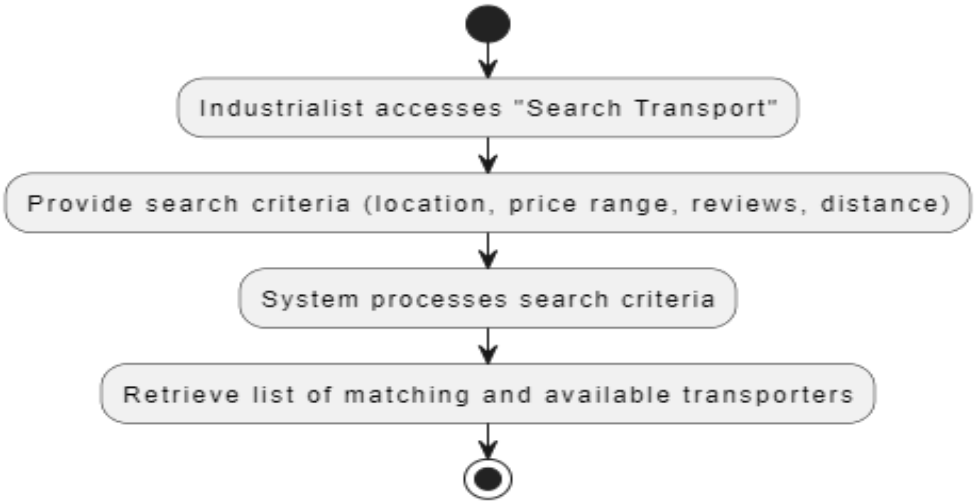
3.5.2 Login



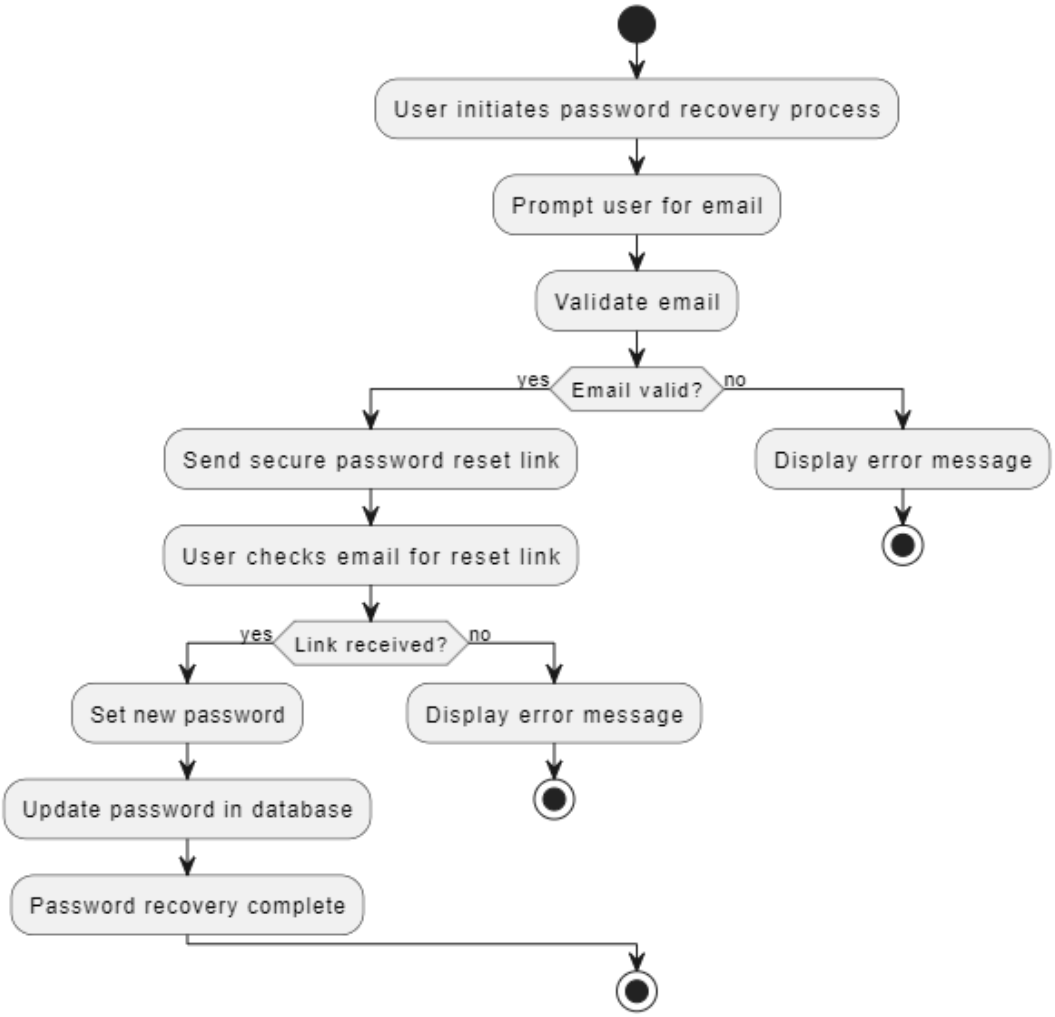
3.5.3 Profile Management



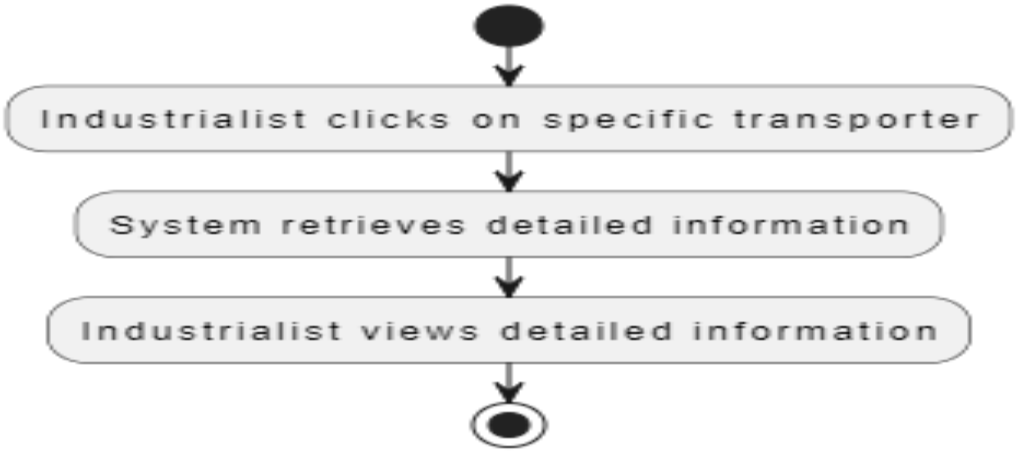
3.5.4 Transporter Search



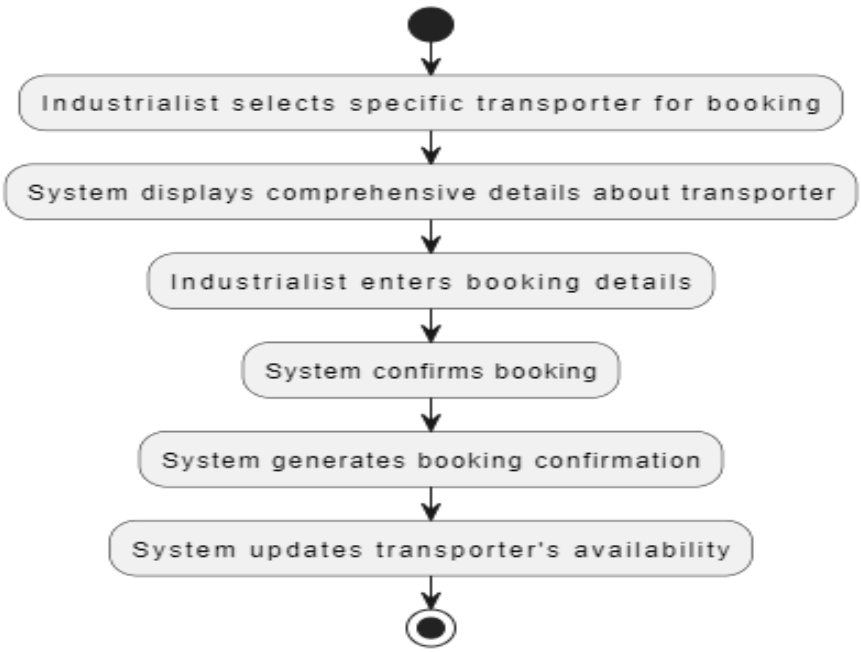
3.5.5 Password Recovery



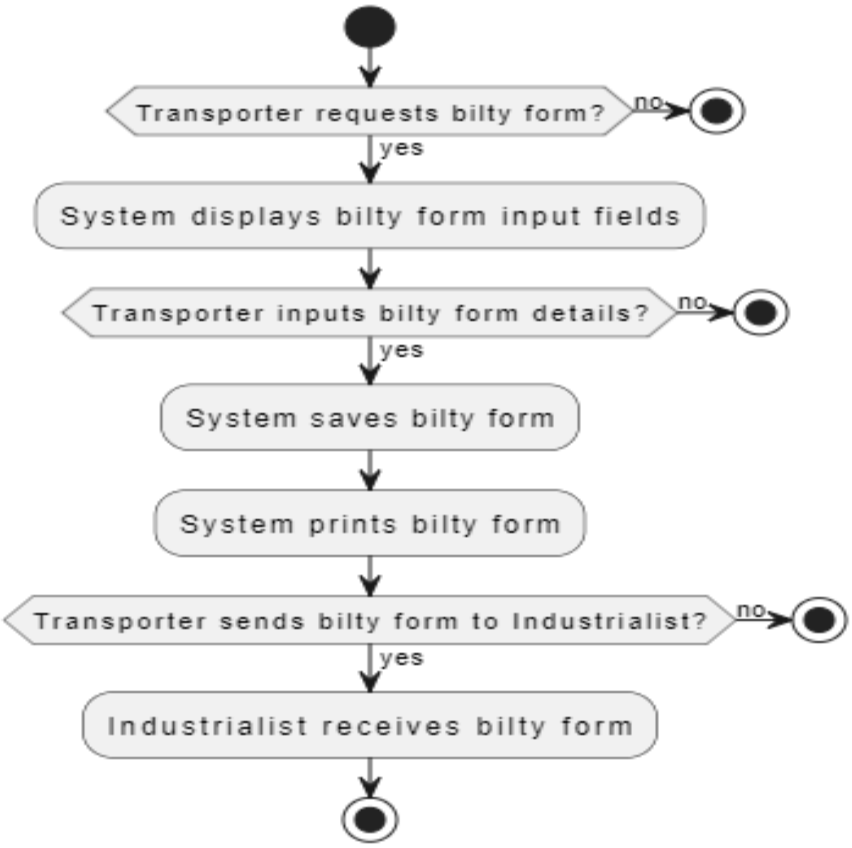
3.5.6 Detailed Information Page



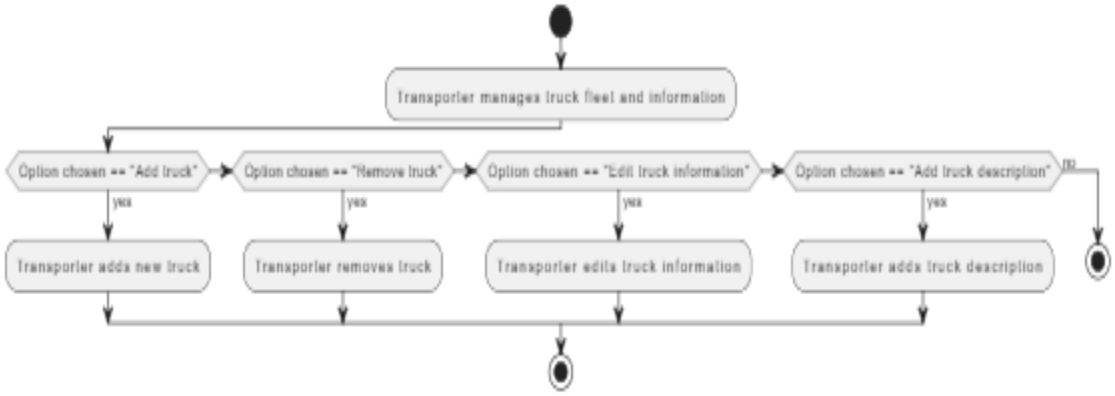
3.5.7 Booking



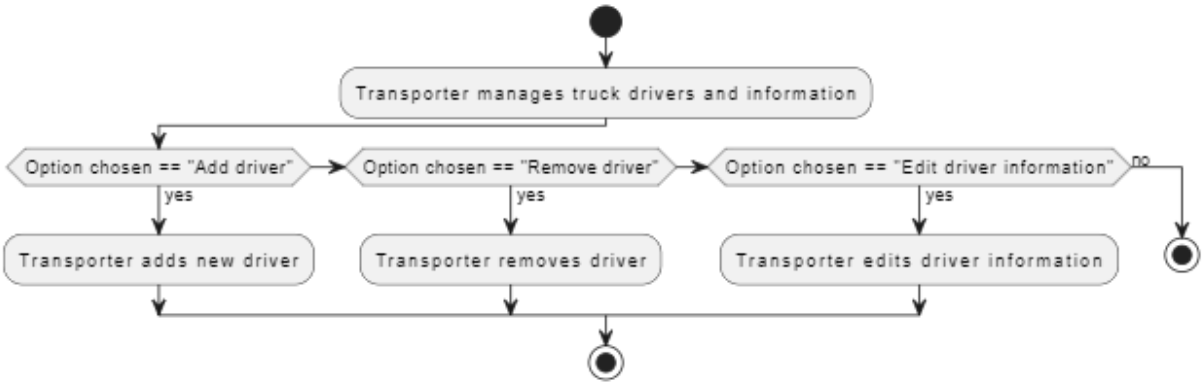
3.5.8 Create/Send Bilty Form



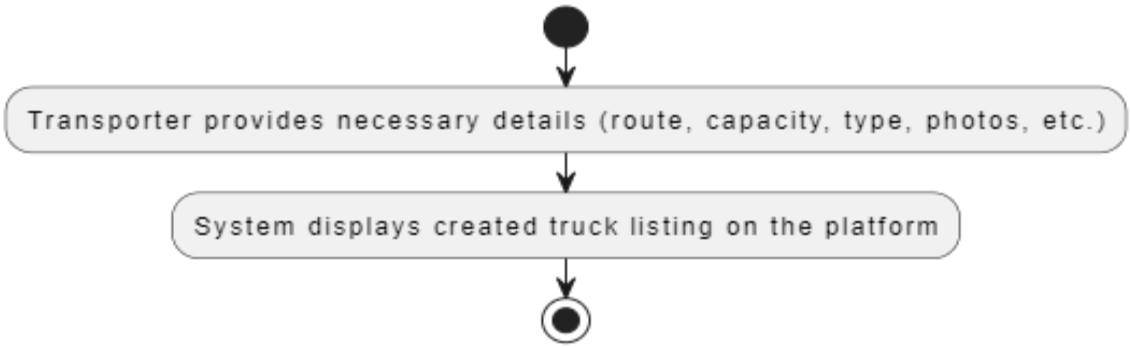
3.5.9 Manage Truck Fleet Information



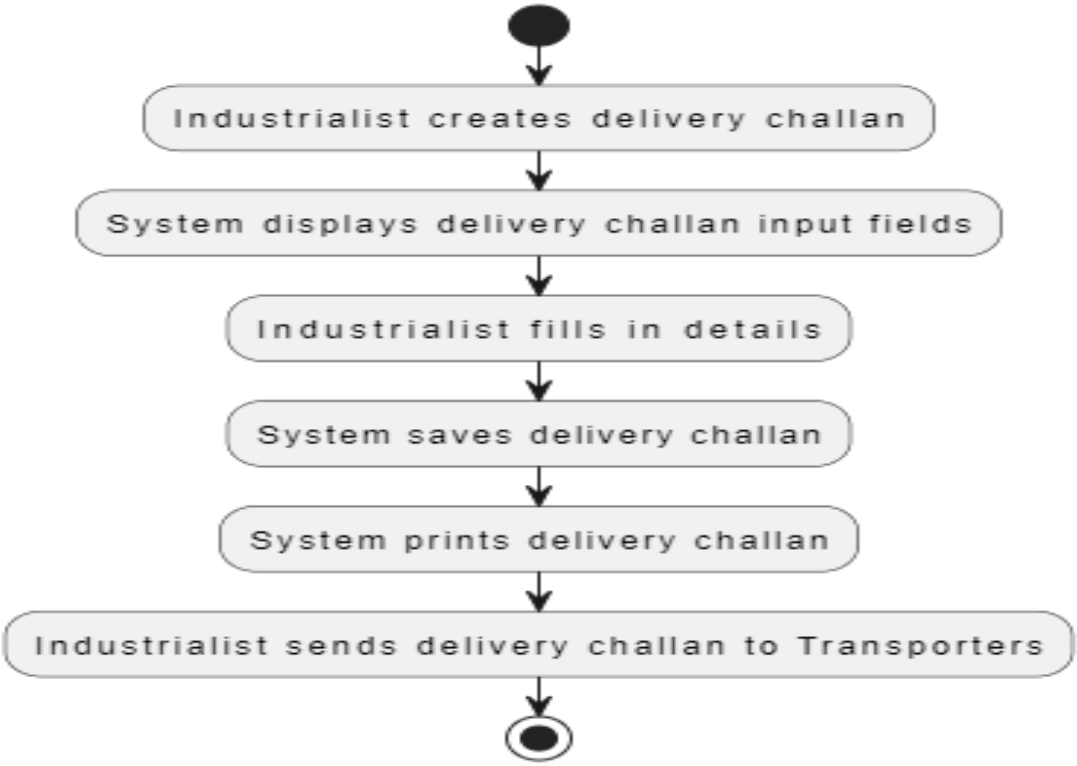
3.5.10 Manage Truck Drivers Information



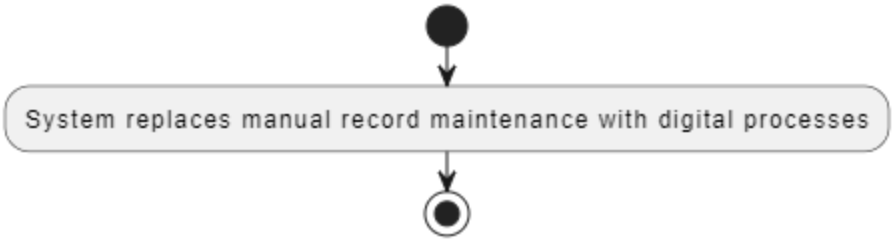
3.5.11 Create Truck Listing



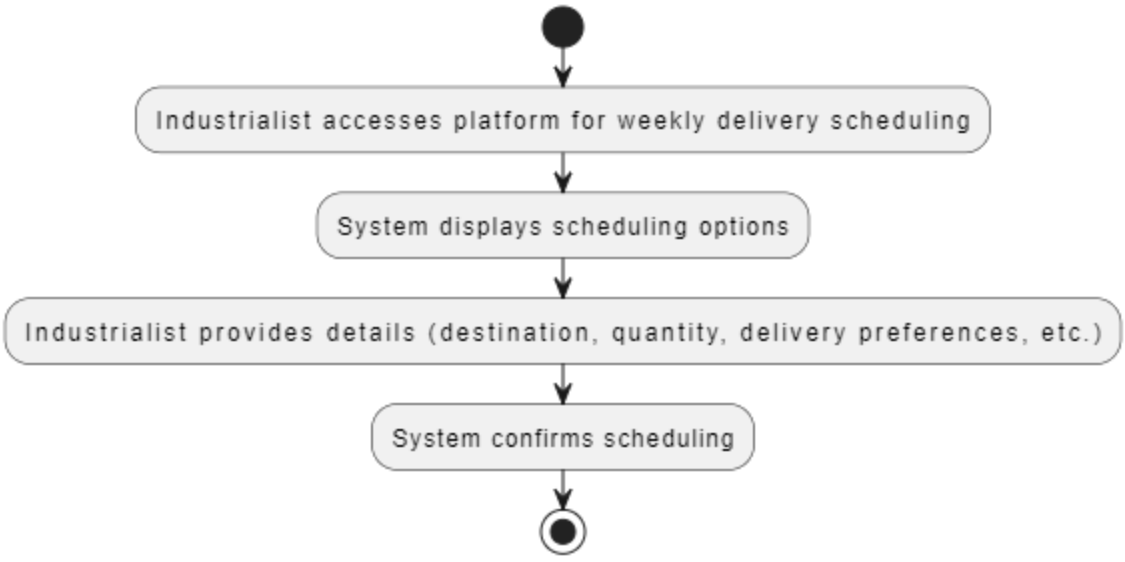
3.5.12 Create/Send Delivery Challan



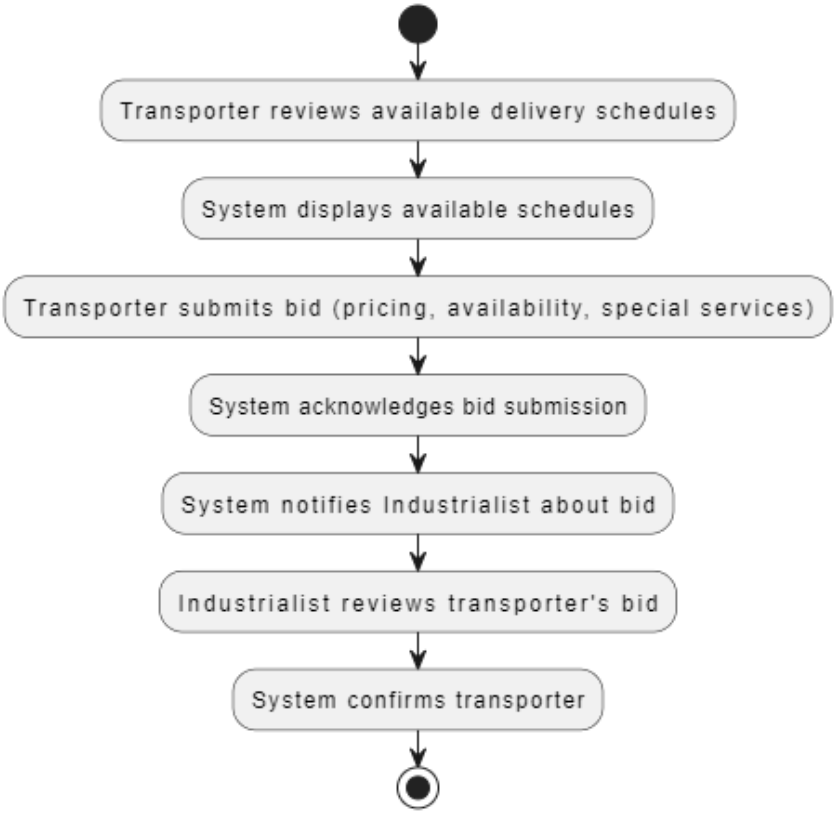
3.5.13 Digital Record Keeping



3.5.14 Weekly Delivery Scheduling

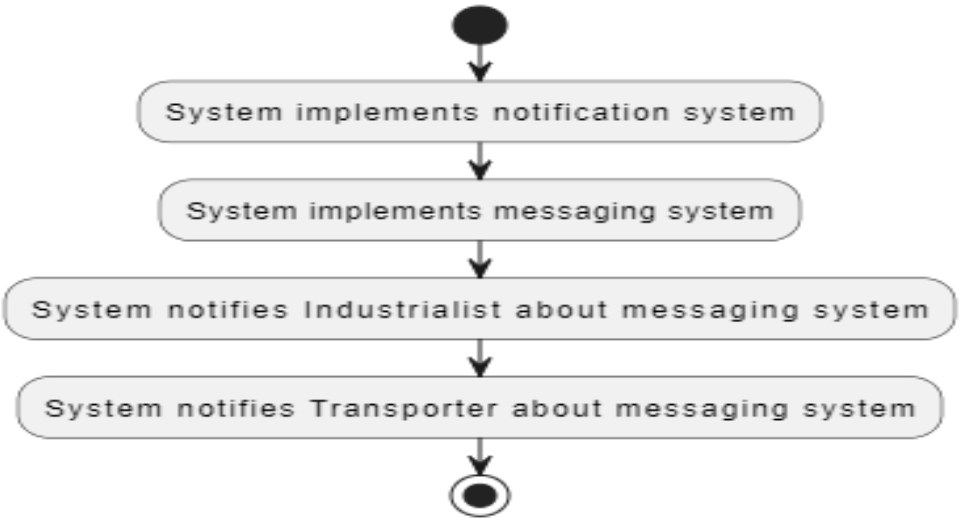


3.5.15 Bid on Delivery Schedules

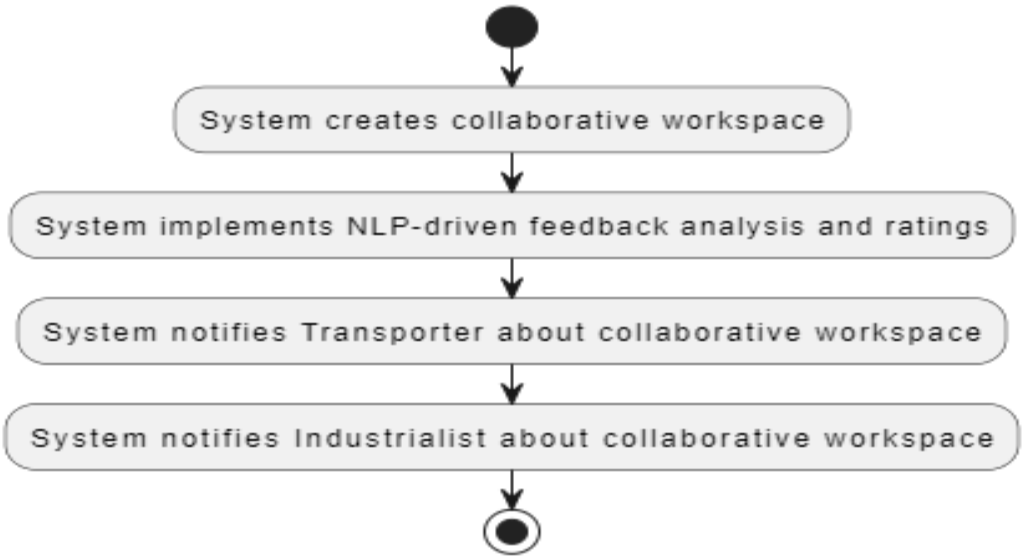


3.5.16 Integrate GPS Tracking

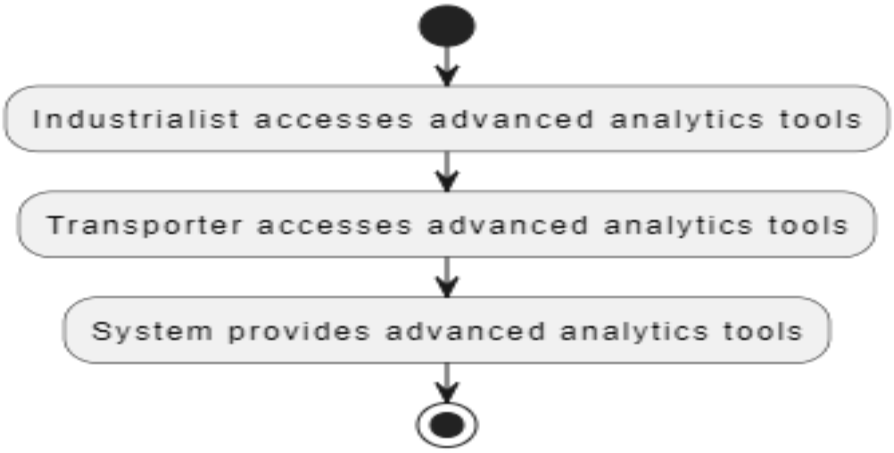
3.5.17 Implement Notification/Messaging System



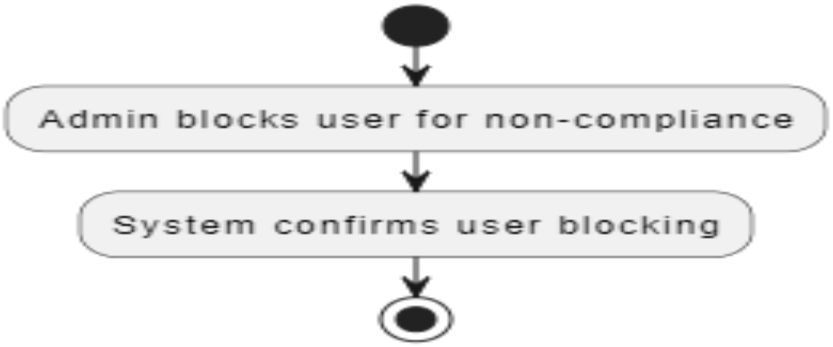
3.5.18 Collaborative Workspace and Feedback Analysis



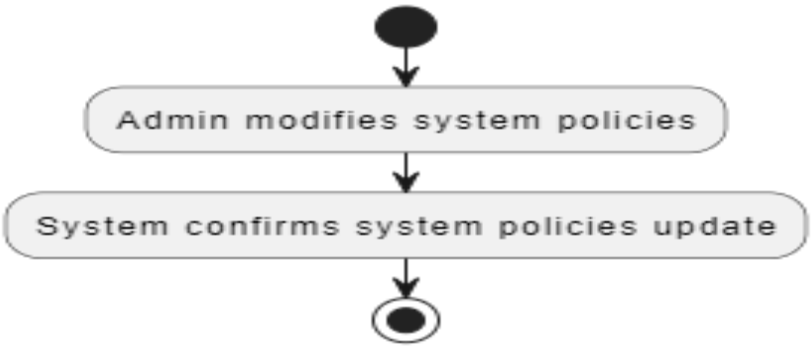
3.5.19 Advanced Analytics for Business Growth



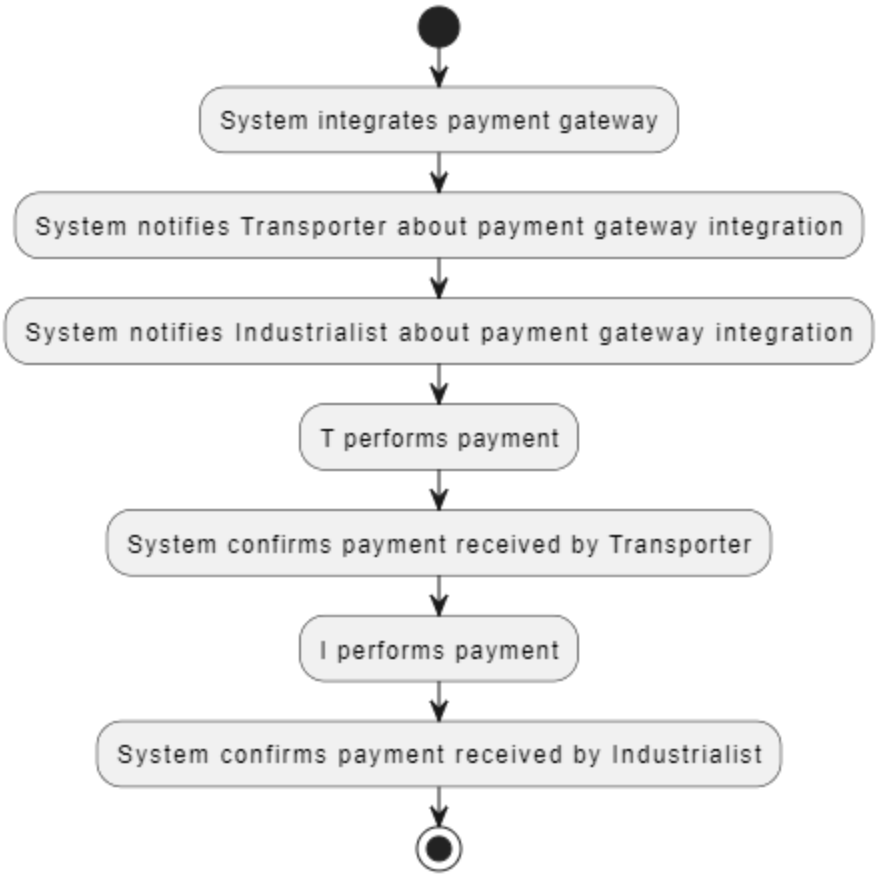
3.5.20 Block User for Non-Compliance



3.5.21 Update System Policies



3.5.22 Integrate Payment Gateway



Bibliography