

ManzilNOW



FYP Report

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Abstract

ManzilNow is a mobile-based ride-hailing application developed to address the pressing safety concerns of women and children in developing countries, with a primary focus on Pakistan. The app aims to provide a secure and reliable transportation option, filling the gap left by existing services that do not cater to the unique safety needs of these vulnerable passenger groups.

ManzilNow's objectives are streamlined to ensure user safety, preferences, and ease of access. It empowers passengers to choose their preferred driver gender, ensuring a comfortable and personalized experience. The app also simplifies the driver application process, implements rapid emergency response mechanisms, encourages user feedback, and offers transparent fare calculations, among other features.

Operating initially in Faisalabad, Pakistan, ManzilNow adheres to specific constraints, including a minimum Android version requirement and proximity-based pick-up locations for added security. Drivers undergo rigorous license verification, while users are verified through phone numbers, ensuring the integrity of the platform.

The project emphasizes performance, security, usability, reliability, and scalability to meet the diverse needs of its stakeholders—passengers, drivers, and investors. By filling the safety gap in the transportation landscape, ManzilNow strives to provide a secure and worry-free travel experience for those who need it most.

ManzilNow is a promising solution that not only addresses a critical problem but also presents a significant business opportunity in the transportation sector of developing countries.

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1. Introduction

The 'ManzilNow' vision document outlines the vision, objectives, and scope of our mobile-based ride-hailing application, primarily designed to provide safe and reliable transportation in Pakistan. This document will provide a clear understanding of our mission and the features we aim to offer.

2. Vision Document

2.1. Problem Statement

ManzilNow aims to address the safety concerns of passengers, particularly in developing countries, by providing a secure and convenient ride-hailing service in Pakistan. The problem we seek to solve is the lack of a dedicated and safe transportation option for passengers in these areas.

2.2. Business Opportunity

The demand for secure and reliable transportation solutions in developing countries presents a significant business opportunity. ManzilNow aims to tap into this market by offering a ride-hailing service that prioritizes safety and convenience.

2.3. Objectives

Following are ManzilNow objectives:

- **Enhance Passenger Safety:** Improve passenger safety by implementing innovative security features.
- **Enable Secure Ride Sharing:** Enable users to securely share ride status and location with their family and friends through unique and secure links, ensuring transparency and peace of mind during journeys.
- **Enable User Preferences:** Allow users to set their preferred driver gender (male or female) to enhance their comfort and choice during their rides.

- **Streamline Driver Registration:** Simplify the driver application process, including rigorous screening procedures, to establish a trusted and reliable driver pool.
- **Emergency Reports:** Establish mechanisms for easy reporting of emergency situations to ensure the safety and well-being of passengers and drivers.
- **Encourage User Feedback:** Promote a culture of feedback among users to enhance service quality.

2.4. Scope

ManzilNow's scope includes the development of a mobile-based application for Android users with a secure payment gateway. The service will initially launch exclusively in Faisalabad, Pakistan, offering a localized and focused approach to meet the specific transportation needs of the region.

2.5. Constraints

ManzilNow operates with the following constraints:

- **Minimum Android Version:** The app requires a minimum Android version of Oreo (Android 8.1) for compatibility.
- **Proximity-Based Pick-up:** Users cannot set pick-up locations outside a certain radius for security reasons.
- **Driver License Verification:** Drivers must undergo license verification before joining the platform.
- **Limiting rides per User:** A user can only request one ride at a time.

2.6. Stakeholder and User Descriptions

2.6.1. Market Demographics

Our primary target market comprises passengers in developing countries seeking a guaranteed level of security and peace of mind during their rides.

2.6.2. Stakeholder Summary

Given table will describe the stakeholder summary of the project.

Table 1 Stakeholder Summary

Name	Description	Responsibilities
Passenger	Passengers will use ManzilNow app to get transport services	<ul style="list-style-type: none"> • Users expect a seamless, safe, and efficient ride experience. • They provide feedback on the app's usability and features.
Driver	Drivers will use ManzilNow app to provide transport services to passengers	<ul style="list-style-type: none"> • Drivers provide ride service to passengers. • Driver will follow the constraints imposed by the app
Developers	The team responsible for building and maintaining the ManzilNow app.	<ul style="list-style-type: none"> • Developers design, code, test, and debug the application. • They ensure the app functions smoothly and implements new features as needed.

Supervisors	Help the team to develop the project	Help the developer and provide suggestion for the successful implementation of the project
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2.6.3. User Environment

Users will access ManzilNow via a mobile-based application for Android, ensuring ease of use and accessibility. Drivers will use the driver app for ride acceptance and navigation.

2.6.4. Stakeholder Profiles

Stakeholder Profile: Passenger

Table 2 Passenger Stakeholder Profile

Name	Description	Type	Responsibilities
Passenger	Passengers and individuals utilizing the ManzilNow app.	Primary	<ul style="list-style-type: none"> Request rides through the app. Provide accurate and clear pick-up and drop-off locations. Pay for rides and provide feedback.

Stakeholder Profile: Drivers

Table 3 Drivers Stakeholder Profile

Name	Description	Type	Responsibilities
Drivers	Individuals providing transportation services through ManzilNow.	Primary	<ul style="list-style-type: none"> • Accept ride requests from the app. • Pick up passengers and follow the specified route. • Ensure passenger safety and comfort.

Stakeholder Profile: Supervisors

Table 4 Supervisor Stakeholder Profile

Name	Description	Type	Responsibilities
Supervisors	Individuals or teams overseeing the development of the ManzilNow app.	Secondary	<ul style="list-style-type: none"> Define project goals and objectives. Allocate resources and budget. Monitor project progress and ensure adherence to timelines.

3. System Requirement Specification

3.1. System Features

ManzilNow will offer features such as user registration, driver registration, ride booking, driver preferences, ride management, navigation assistance, online ride safety features, notifications, feedback, payment transactions, transparent fare calculations, promotions, and complaint resolution management.

3.2. Functional Requirements

3.2.1. User and Driver Registration & Authentication:

- Users register using their email or mobile number, creating secure passwords.
- Drivers initiate the driver application process by submitting personal and vehicle details, this includes the driver's license as well.

- Admins oversee driver applications, applying predefined criteria for approval or rejection.
- Users and drivers can securely log in with their registered email and password.

3.2.2. User Profile and Preferences:

- Users and drivers can easily update their profile information, including name, and profile pictures.
- Secure password reset functionality is available.

3.2.3. Ride Booking and Scheduling:

- The system facilitates ride requests, allowing users to input their destination and origin.
- Customers can access information about the assigned driver and select their preferred vehicle type.
- Drivers have the option to cancel a ride.

3.2.4. Driver Ride Management:

- Approved drivers efficiently handle ride requests, track details, accept or decline rides, and cancel within specified time frames.
- Drivers can access their ride history, earnings, and communicate with customers regarding ride-related matters.

3.2.5. Navigation Assistance:

- Navigation tools provide efficient routes to pick-up and drop-off locations.
- These tools include real-time traffic updates, route suggestions, and estimated arrival times.
- Integration with mapping services offers detailed maps and turn-by-turn directions.

3.2.6. Online Ride Safety Feature:

- The system includes a panic button feature, allowing users to initiate emergency procedures.

- This feature contacts the appropriate authorities, ensuring passenger and driver safety.

3.2.7. Notification Delivery to Users:

- Users receive notifications, including low battery alerts, to ensure they stay informed and can take necessary actions.

3.2.8. Feedback and Assistance Center:

- This feature allows users to actively provide feedback and rate drivers after completing a ride.
- Users can report complaints to the admin, addressing both technical issues and concerns related to driver behavior.

3.2.9. Promotions and Discount Hub:

- Promotions and discounts are periodically offered to users, with associated terms and conditions and based on customer loyalty.

3.2.10. Complaint Resolution Management:

- This feature enables Admins to effectively oversee complaint resolution operations.
- It provides access to user profiles, ride history, communication history, complaint investigation, action-taking, and case resolution tracking.
- Integration with escalation mechanisms ensures prompt resolution of critical issues.

3.2.11. Complaint Resolution Support:

- This feature involves assisting users with queries, concerns, issues, and addressing complaints and escalated matters.
- Features include access to user profiles, ride history, communication history, complaint investigation, and action-taking for issue resolution.
- Collaborating with the Complaint Resolution Admin and team members ensures effective complaint handling.

3.2.12. User Support Management:

- Responsibilities include overseeing and managing the user support team's performance and operations.
- Features include access to user profiles, ride history, communication history, and request tracking for supervisory purposes.
- The admin can review and assess the status of pending user queries, ensuring timely resolution.
- Access to reports and statistics tracks the number of resolved queries and monitors pending ones.

3.2.13. Driver Authentication Management:

- This feature allows the admin to oversee the driver authentication process, ensuring the integrity of the driver pool.
- Features include privileged access for driver application review, document verification, and the ability to approve or reject driver applications.

3.2.14. Financial Management:

- This feature manages the financial aspects of the platform, including overseeing driver monthly payments.
- The admin can track and update security deposits made by drivers for financial security.
- Admin can also adjust fuel prices or revise pricing formulas as needed.

3.3. Non-Functional Requirements**3.3.1 Single Ride Request:**

The application should allow users to make one ride request at a time, promoting simplicity and minimizing confusion during the booking process.

3.3.2 Android Version Compatibility:

ManzilNow must be compatible with Android versions, starting from Oreo 8.1 and later, ensuring accessibility to a wide range of Android users.

3.3.3 Route Compliance:

The app should adhere to the routes provided by the Google Maps API for accurate and efficient navigation, minimizing deviations and ensuring reliable journey planning.

4. Design Phase

4.1. Use Case

4.1.1. Use case diagrams

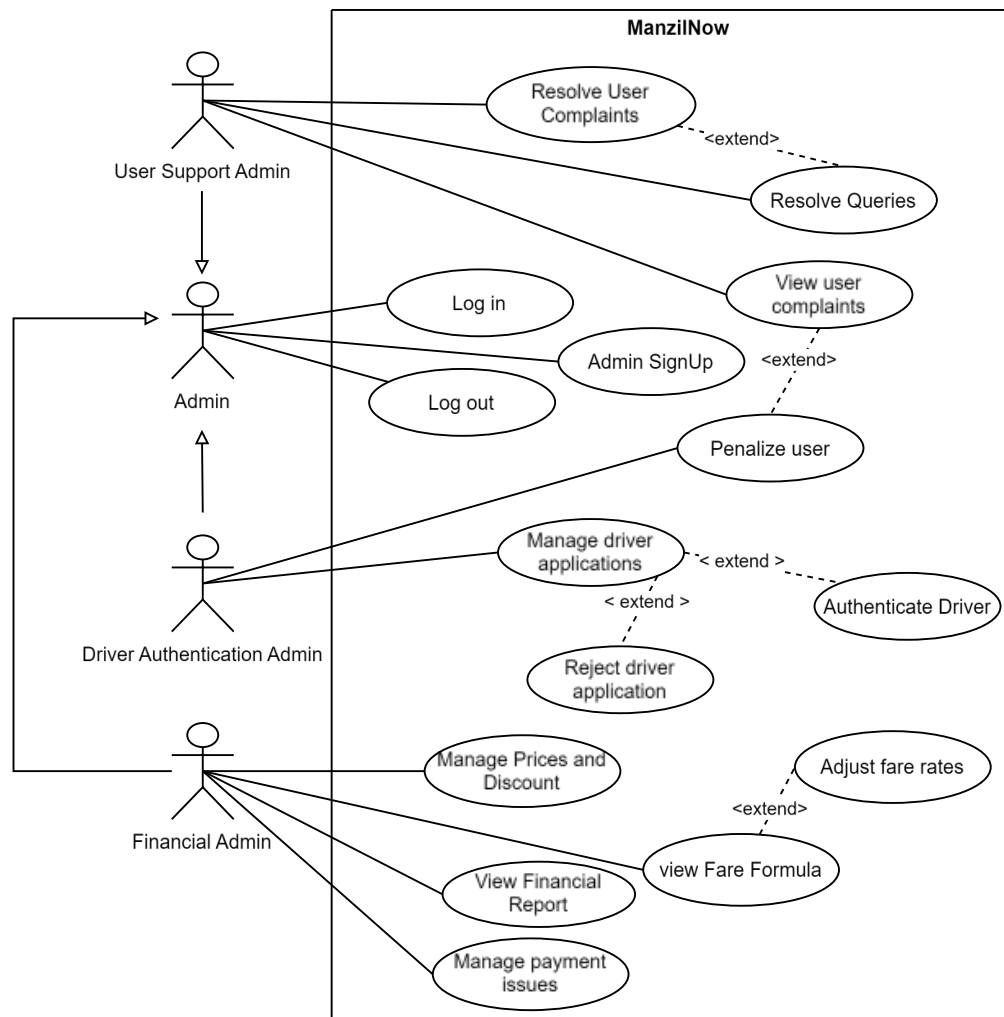


Figure 1 Admin Use case Diagram

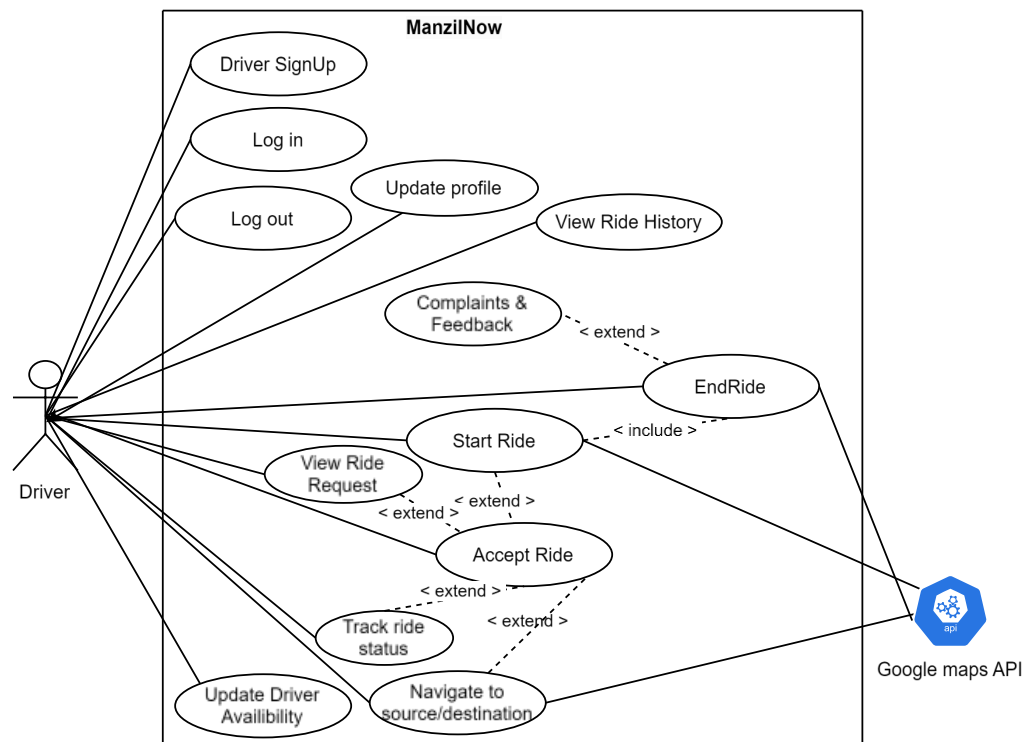


Figure 2 Driver Use case Diagram

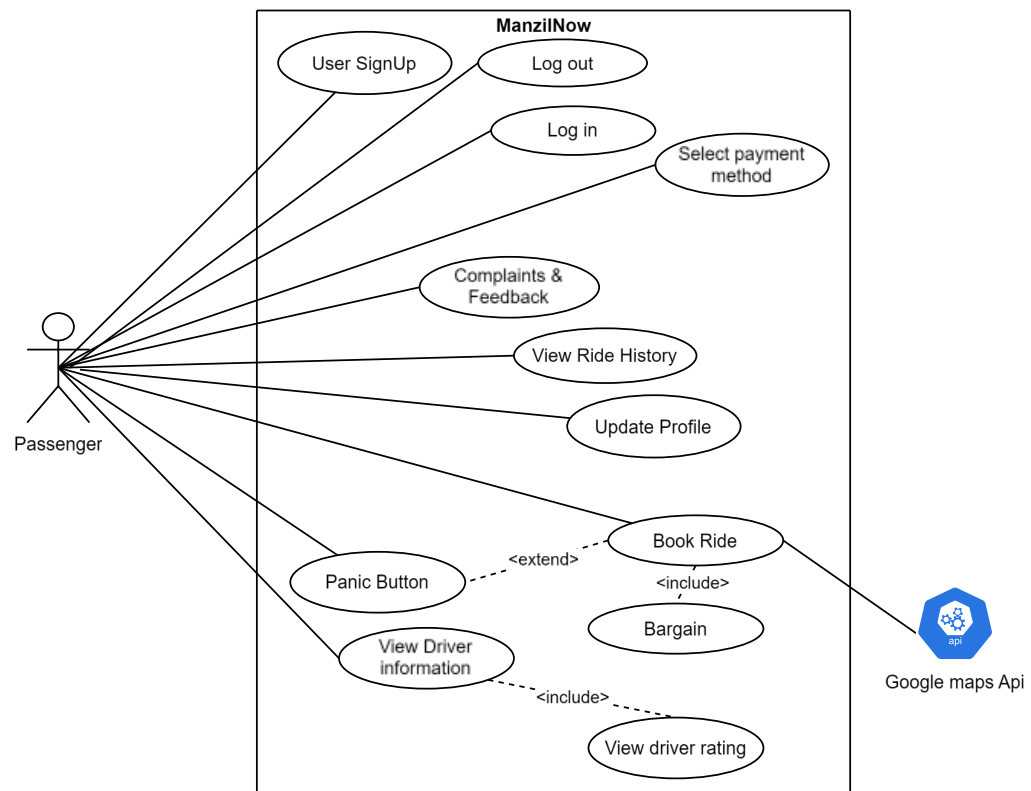


Figure 3 Passenger Use case Diagram

4.1.2. Brief Use cases

Update Driver Status

Table 5 Update Driver Status

Use Case ID	br-002
Use case name	Update Driver Status
Actor	Driver
Description	Drivers can update their online or offline status, indicating their availability for ride requests.

View Ride Request

Table 6 View Ride Request

Use Case ID	br-003
Use case name	View Ride Request
Actor	Passenger, Driver
Description	User can access ride requests to view details about the passenger's destination and pickup location before accepting or rejecting the request.

5.

Update Profile

Table 7 Update Profile

Use Case ID	br-006
Use case name	Update Profile
Actor	Passenger, Driver, Admin
Description	Users have the capability to manage their profile information, including personal details, contact information, and preferences.

View Ride History

Table 8 View Ride History

Use Case ID	br-007
Use case name	View Ride History
Actor	Passenger, Driver

Description	Both drivers and customers can access their ride history, viewing details about their previous rides and earnings.
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Logout

Table 9 Logout

Use Case ID	br-008
Use case name	Logout
Actor	Passenger, Driver, admin
Description	Customers, admin, and drivers can log out from their accounts to end their current session and maintain account security.

Login

Table 10 Login

Use Case ID	br-009
Use case name	Login
Actor	Passenger, Driver, admin
Description	Customers, admin and drivers can log in to their respective accounts to access the app's features and services.

User SignUp

Table 11 User SignUp

Use Case ID	br-010
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Use case name	User SignUp
Actor	Passenger
Description	Customers can register for the app by providing their personal information and contact details, enabling them to use the service.

Manage Driver Application

Table 12 Manage Driver Application

Use Case ID	br-011
Use case name	Manage Driver Application
Actor	Admin
Description	Admin has the ability to view and access the files uploaded by drivers during their registration process. This may include documents such as CNIC, driving licenses, and car papers.

View Financial Report

Table 13 View Financial Report

Use Case ID	br-012
Use case name	View Financial Report
Actor	Admin
Description	Admin can access and view financial reports, which include driver earnings, financial summaries, and other related financial data.

View Driver Info

Table 14 View Driver Info

Use Case ID	br-012
Use case name	View Driver Info
Actor	Passenger
Description	Passengers can view information about the driver who accepted their ride request, allowing them to identify the driver who will pick them up.

Update Driver Availability

Table 15 Update Driver Availability

Use Case ID	br-012
Use case name	Update Driver Availability
Actor	Driver
Description	Drivers can update their availability status, indicating whether they are available to accept ride requests or not.

Navigate to Source and Destination

Table 16 Navigate to Source and Destination

Use Case ID	br-012
Use case name	Navigate to Source and Destination
Actor	Driver

Description	After accepting a ride request, drivers can access navigation instructions to reach the passenger's pickup location and follow directions to the destination.
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View Complaints and Feedback

Table 17 View Complains and Feedback

Use Case ID	br-012
Use case name	View Complaints and Feedback
Actor	Admin
Description	Admin users can view complaints and feedback submitted by passengers, allowing them to monitor and address issues related to service quality.

Resolve Queries

Table 18 Initiate Emergency Button

Use Case ID	br-012
Use case name	Resolve Queries
Actor	Admin
Description	Admin users can resolve queries made by passengers, providing assistance and solutions to address passenger concerns or inquiries.

Share Live Location

Initiate Emergency Button

Table 19 Initiate Emergency Button

Use Case ID	br-012
Use case name	Initiate Emergency Button
Actor	Passenger
Description	have the ability to initiate an emergency button in case of urgent situations or concerns during a ride. When activated, this button immediately notifies the admin and provides the passenger's current location and details, allowing for quick assistance and support.

4.1.3. Expanded Use Case

Driver SignUp

Table 20 Driver SignUp

Use Case ID	Ex-001
Use case name	Driver SignUp
Actor	Driver
Description	Drivers provide personal information, CNIC (front and back), driving license (front and back), and car papers for manual verification by the admin to confirm the driver's identity.

Pre-condition	The driver has a valid CNIC, driving license and car registration papers and the driver has installed the app and initiated the registration process.	
Post condition	The driver's registration is either approved, allowing them to use the service, or denied due to failed verification.	
Main Flow	User interaction	System response
	The driver enters personal information (name, contact details, address, CNIC).	
	The driver provides vehicle-related documents, such as car registration and insurance papers.	
		The admin reviews the uploaded documents for accuracy and legitimacy
		If the documents pass verification, then the driver's registration is approved.
	The driver is notified of verification completion and the reason.	
Alternative Flow	User interaction	System response
	Uploaded documents fail verification	The admin sends a notification to the driver explaining the reason for the failure (e.g., blurry image, expired document).

	The driver is prompted to re-upload the specific document for re-verification.	
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Accept Ride

Table 21 Accept Ride

Use Case ID	Ex-002	
Use case name	Accept Ride	
Actor	Driver	
Description	Drivers have the ability to accept or reject ride requests made by passengers.	
Pre-condition	The driver is logged into the app and has an incoming ride request.	
Post condition	The driver's decision to accept or reject the ride request is communicated to the passenger.	
Main Flow	User interaction	System response
	The driver receives an incoming ride request.	
	The Driver clicks on request which displays the details of the ride request, including the pickup location, passenger's name, and destination.	

	The driver has the option to either accept or reject the ride.	
	The driver accepts or rejects the ride.	The app confirms the booking if driver accepted the ride and then app notifies the passenger.
		The app proceeds to search for another available driver for the passenger if driver rejects the ride.
Alternative Flow	User interaction	System response
	No Alternative	No Alternative

Start Ride

Table 22 Start Ride

Use Case ID	Ex-003
Use case name	Start Ride
Actor	Driver
Description	Drivers initiate the ride after accepting a passenger's request and use navigation assistance.
Pre-condition	The driver has accepted a ride request made by the passenger, and the driver has picked the passenger from the given location and is onboard.
Post condition	The ride is marked as "in progress," and the navigation assistance is enabled.

Main Flow	User interaction	System response
	The driver starts the ride using the app.	
		The app activates the navigation assistance, providing route guidance to the driver.
		The app tracks the ride's progress, including distance and estimated arrival time.
	The driver follows the navigation instructions to reach the passenger's destination.	
Alternative Flow	User interaction	System response
	No alternative	No Alternative

End Ride

Table 23 End Ride

Use Case ID	Ex-004
Use case name	End Ride
Actor	Driver
Description	Drivers ends the ride after reaching the destination that was entered by the passenger.

Pre-condition	The driver should have previously accepted the ride request, picked up the passenger, and navigated to the designated endpoint. The ride is in progress, and the driver has arrived at the destination.	
Post condition	The ride is marked as "completed," and the fare is calculated.	
Main Flow	User interaction	System response
	The Driver arrives at the specified destination entered by the passenger.	
	The driver clicks the 'End Ride' button in app to end the ride.	
		The app calculates the fare based on factors such as distance and duration.
		The fare amount is displayed to the passenger and the driver.
Alternative Flow	User interaction	System response
	No Alternative	No Alternative

Book Ride

Table 24 Book Ride

Use Case ID	Ex-005
Use case name	Book Ride

Actor	User	
Description	This use case outlines the steps taken by a registered user to book a ride using the "ManzilNOW" app. It includes specifying the pick-up and drop-off locations, selecting fare, selecting a vehicle type, and confirming the booking.	
Pre-condition	The user is logged into the "ManzilNOW" app and has an active account.	
Post condition	The user successfully books a ride, and a driver is assigned to pick them up at the specified location.	
Main Flow	User interaction	System response
	The user opens the "ManzilNOW" app.	
	User selects the "Book Ride" option.	
	User enters the pick-up location and the desired drop-off location.	The app displays the estimated fare and the nearest available driver.
	User chooses the vehicle type from available options and gender of the driver, The user confirms the booking.	The app sends a notification to the assigned driver. The driver accepts the ride request, and the user receives driver details and real-time tracking information.
Alternative Flow	User interaction	System response

		If no drivers are available, the app informs the user and suggests trying again later.
	If the user cancels the ride request before a driver accepts it, the booking is canceled without any charges.	

Authenticate Driver

Table 25 Authenticate Driver

Use Case ID	UC-W003	
Use case name	Authenticate Driver	
Actor	Admin verifies and authenticates the identity of drivers applying to join the platform.	
Description	Admin	
Pre-condition	Driver submits application and identity documents for verification.	
Post condition	Driver identity is verified, and the application status is updated.	
Main Flow	User interaction	System response
	Admin accesses the pending driver applications.	The system displays a list of pending driver applications.
	Admin selects a specific driver's application and reviews the submitted identity documents.	The system presents the scanned copies of the driver's documents for verification.

	Admin cross-checks the documents for authenticity, ensuring they are valid and match the provided information.	The system validates the documents, verifying their authenticity and accuracy.
	The admin authenticates the driver's identity based on the validated documents.	The system confirms the successful authentication and prompts the admin to proceed.
	Admin updates the application status to approved in the system.	The system sends a notification to the driver, informing them of the approval status.
Alternative Flow	User interaction	System response
	Driver submits forged or invalid documents.	
	Admin rejects the application and informs the driver about the rejection reason.	

Penalize User

Table 26 Penalize User

Use Case ID	UC-W005
Use case name	Penalize User
Actor	Admin

Description	Admin penalizes users for inappropriate behavior or violations of the platform's policies. Penalties can include warnings, fines, temporary suspensions, or permanent bans based on the severity of the offense.	
Pre-condition	Admin identifies inappropriate behavior or policy violations by a user.	
Post condition	User is penalized according to the platform's rules and regulations.	
Main Flow	User interaction	System response
	Admin views the list of complaint.	The system displays the user management interface.
	Admin identifies the user involved in inappropriate behavior or violations.	The system provides a list of users with reported violations or inappropriate behavior.
	Admin selects the appropriate penalty based on the severity of the offense (warning, fine, suspension, or ban).	The system presents penalty options in a dropdown menu or a selection interface.
	Admin enters details of the penalty and the reason for the action.	The system provides input fields for the admin to enter penalty details and a text box for explaining the reason.
	Admin confirms the penalty action.	The system processes the penalty action, updates the user's profile with the penalty details, and sends a notification to the user about the action taken.
Alternative Flow	User interaction	System response
	The user is not able to send a complaint due to no internet connectivity.	

	Admin is unsure about the appropriate penalty for the offense.	Penalized user disputes the penalty.

4.2. System Sequence Diagram

Driver Signup

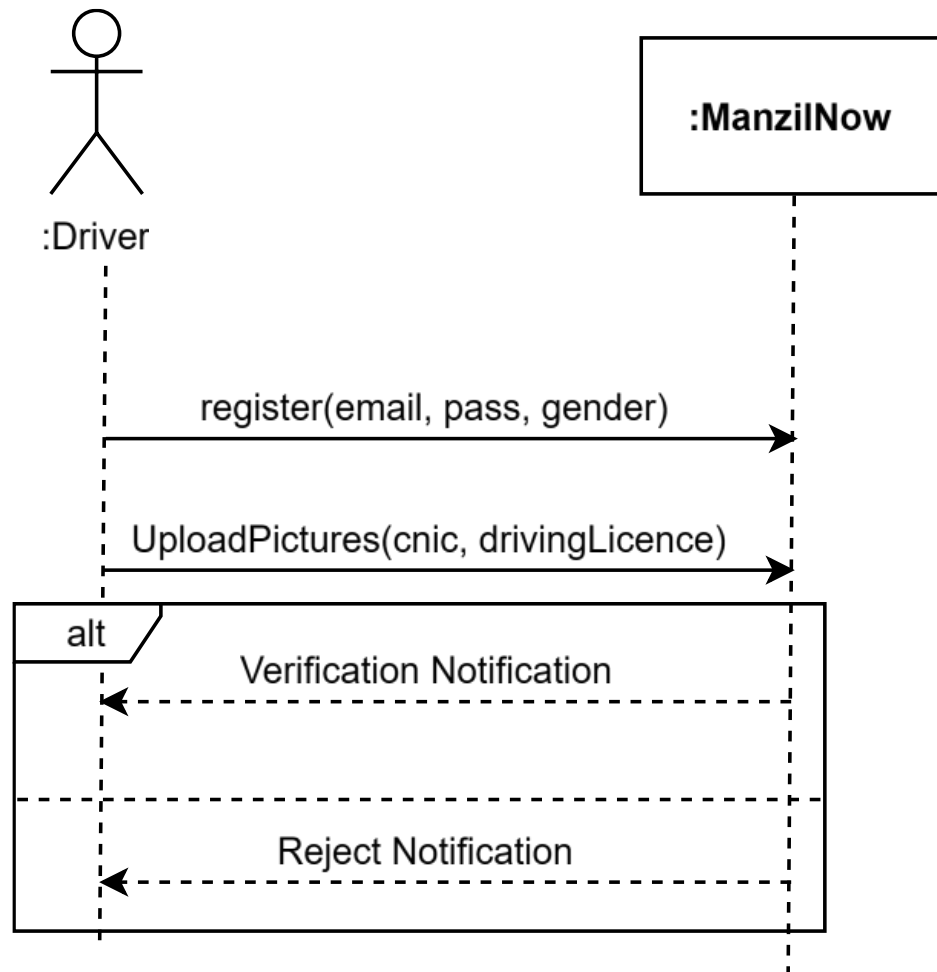


Figure 4 Driver SignUp SDD

Accept Ride

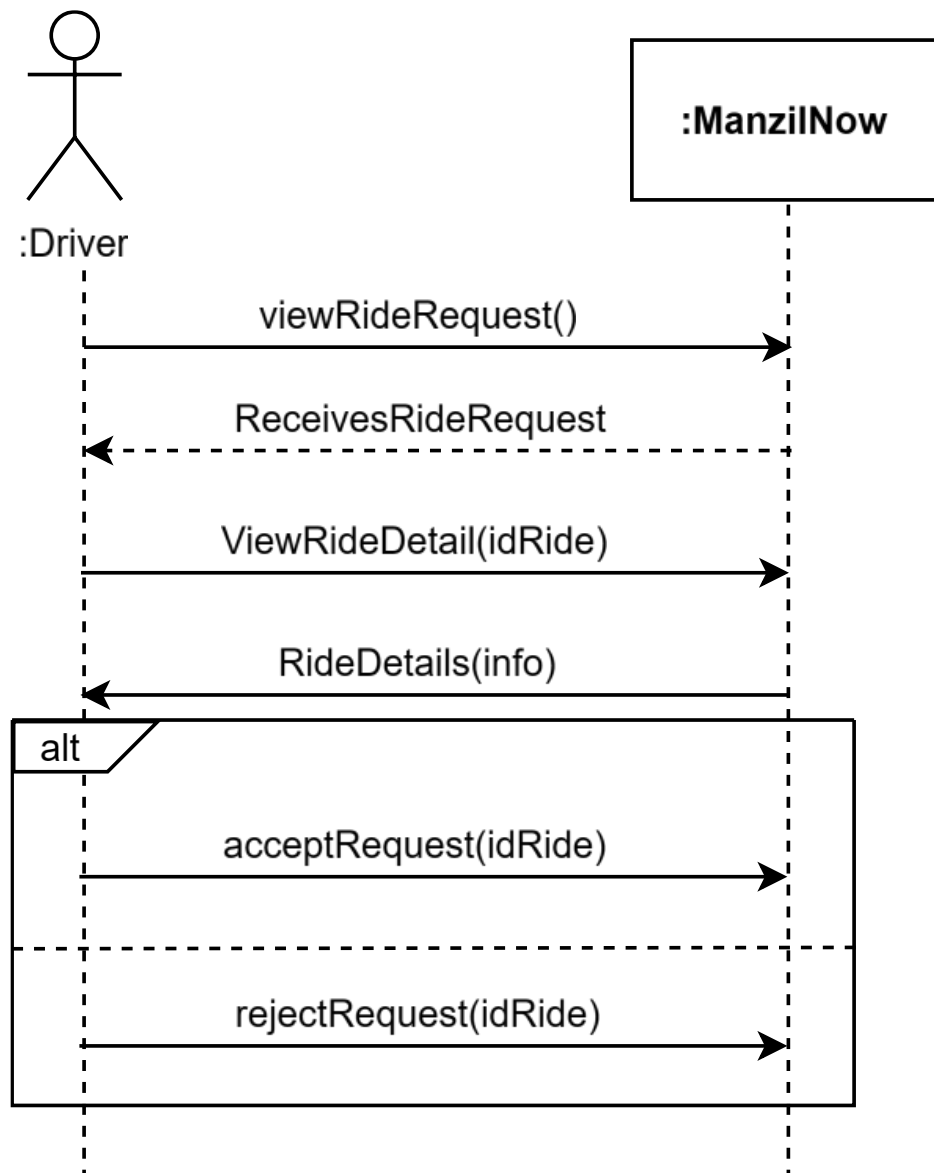
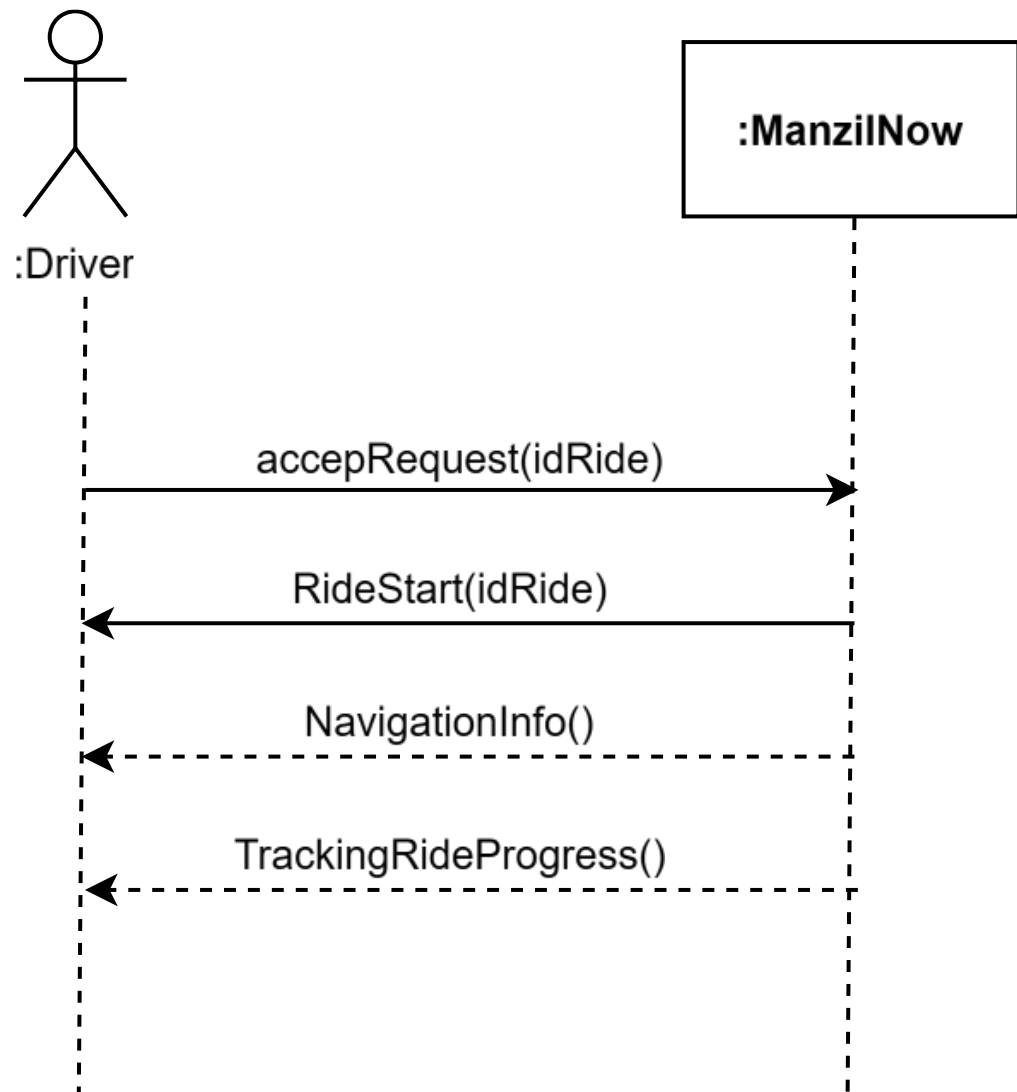
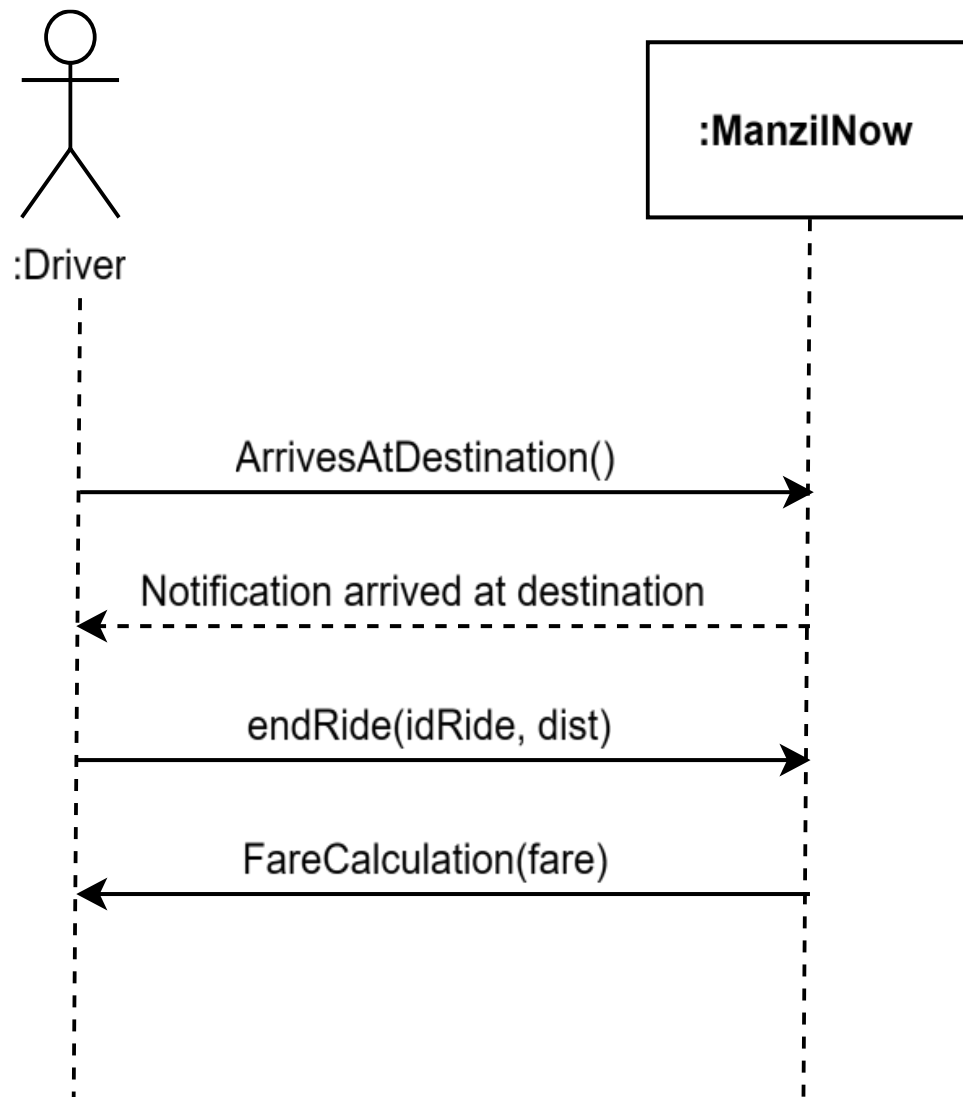


Figure 5 Accept Ride

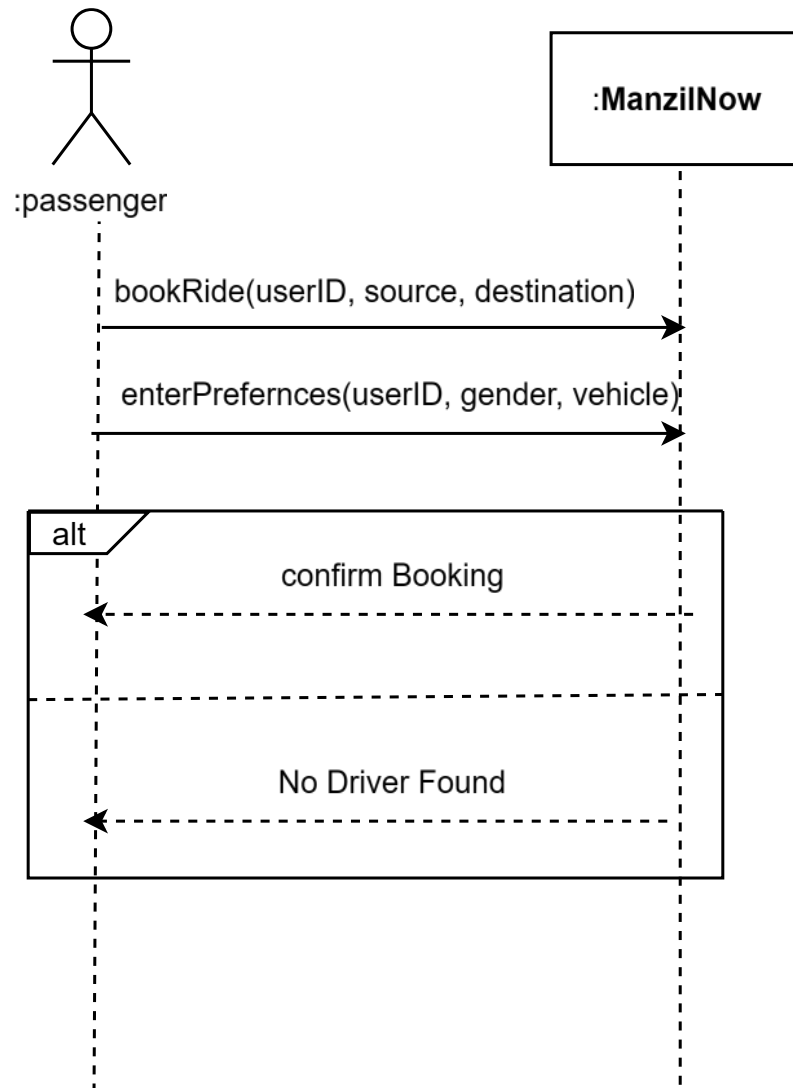
Start Ride

*Figure 6 Start Ride SDD*

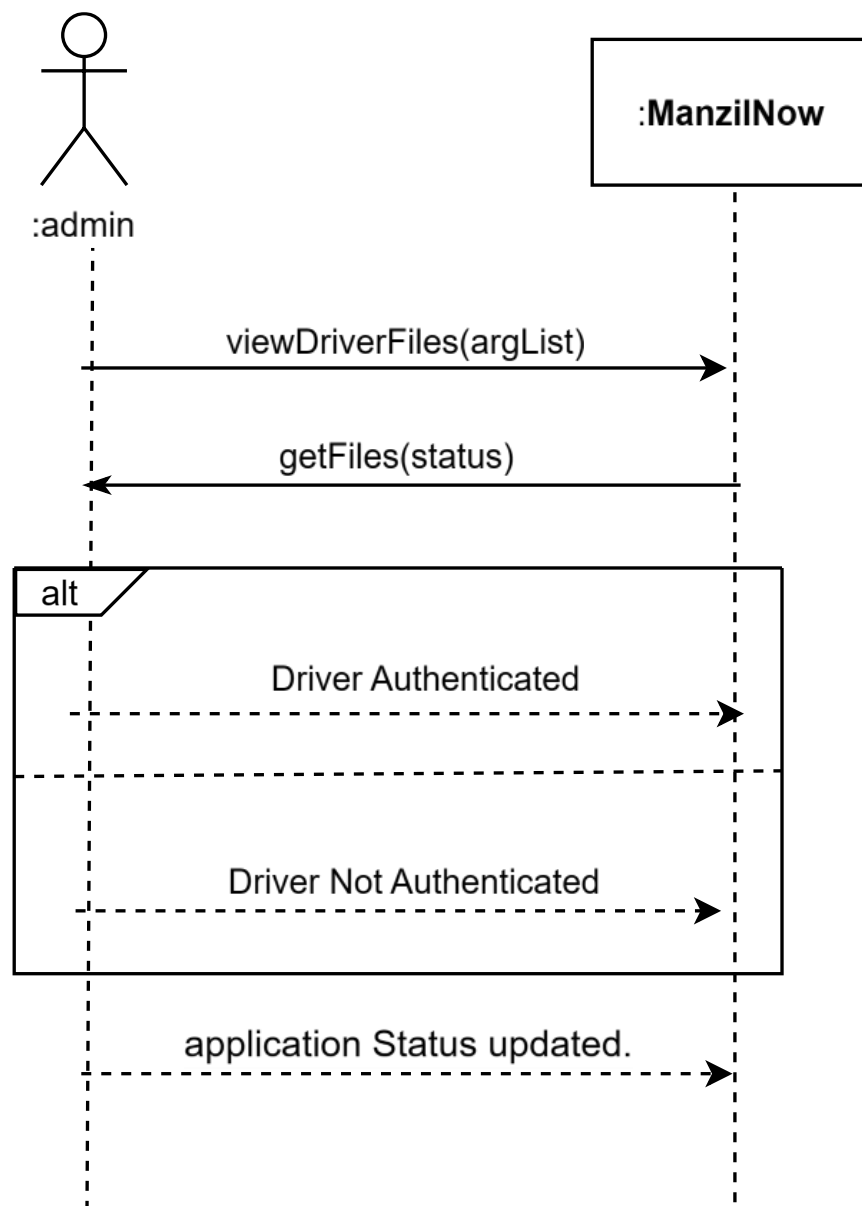
End Ride

*Figure 7 End Ride SDD*

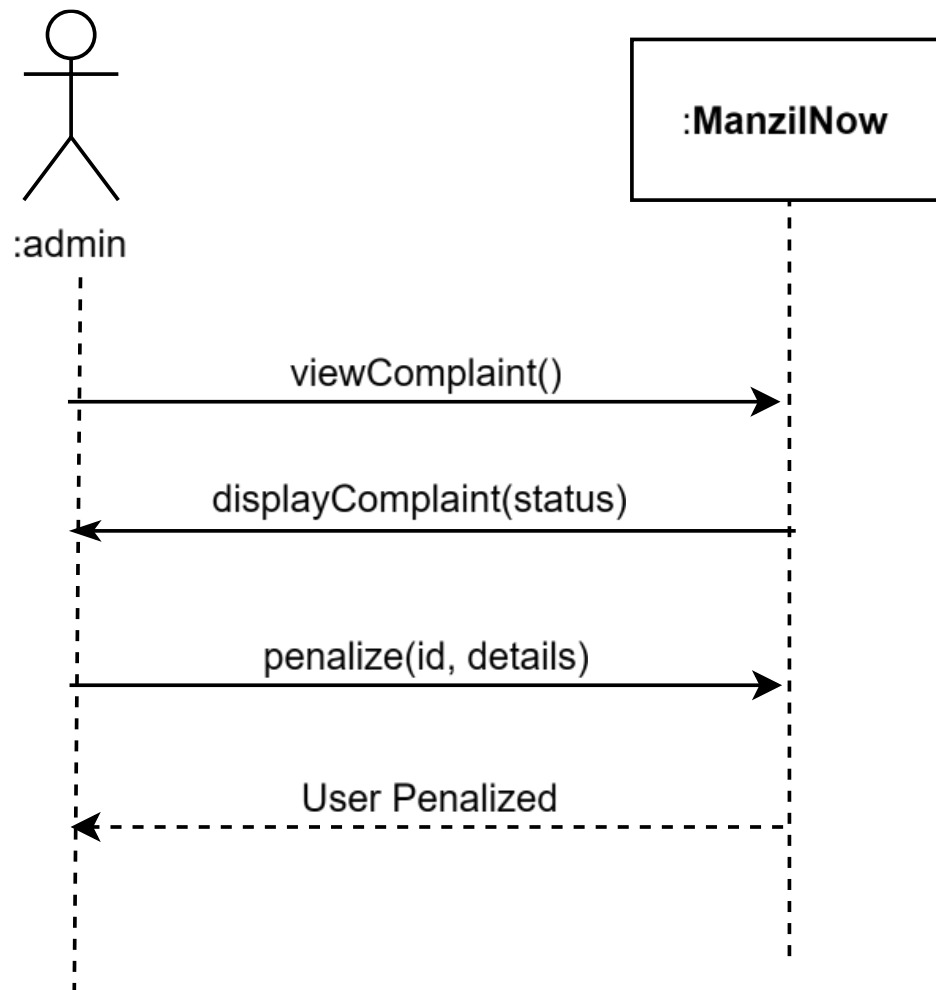
Book Ride

*Figure 8 Book Ride SDD*

Authenticate Driver

*Figure 9 Authenticate Driver SDD*

Penalize User

*Figure 10 Penalize User SDD*

4.3. Sequence Diagram

Start Ride

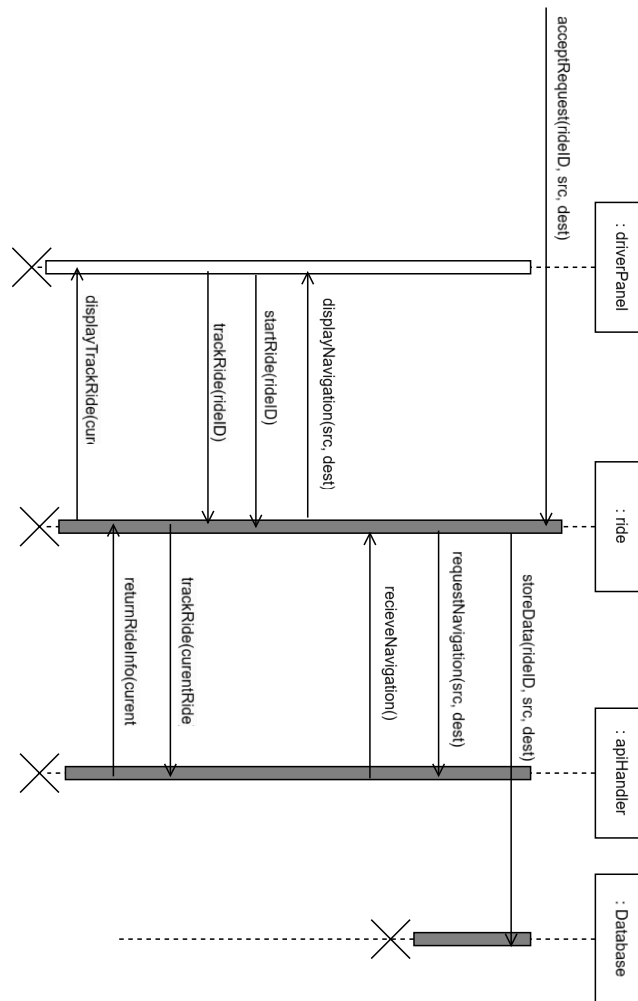


Figure 11 Start Ride SD

Accept Ride

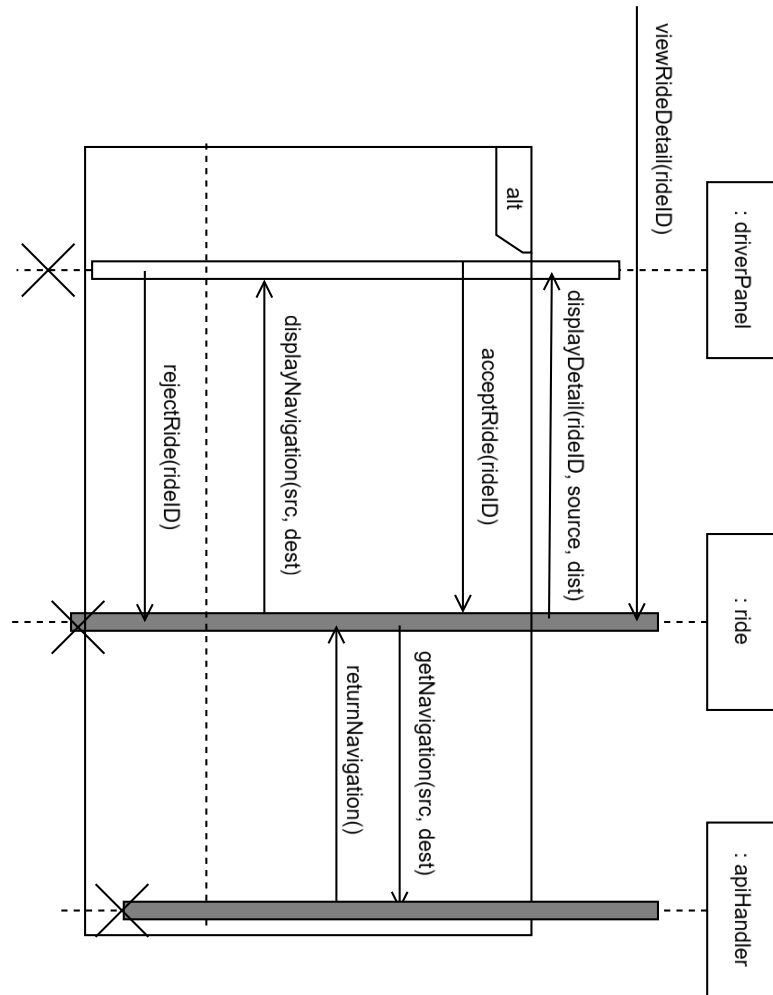


Figure 12 Accept Ride SD

Start Ride

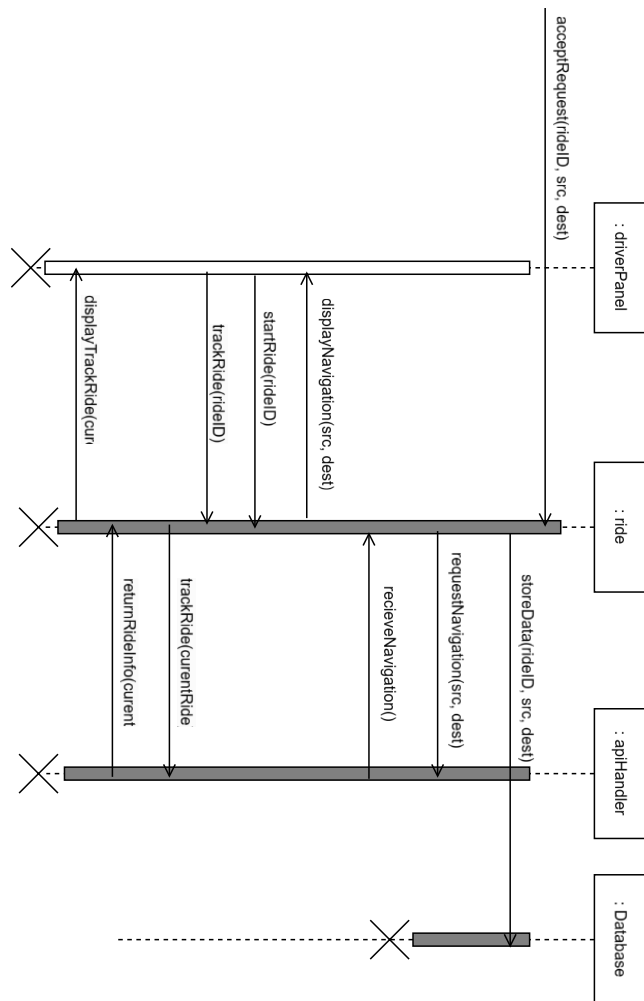


Figure 13 Start Ride SD

End Ride

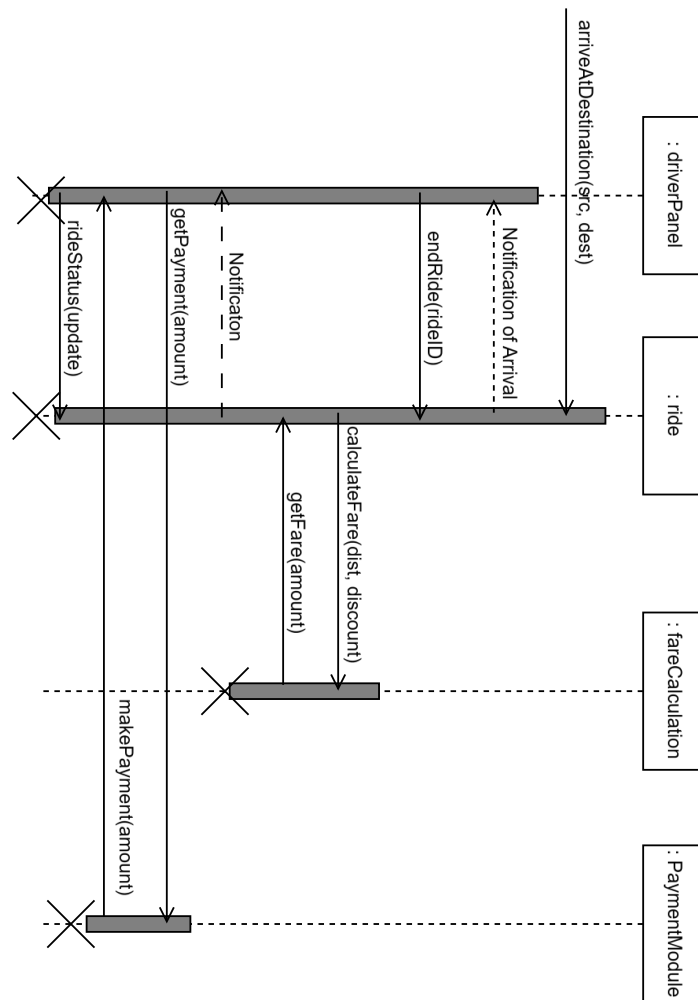


Figure 14 End Ride SD

Book Ride

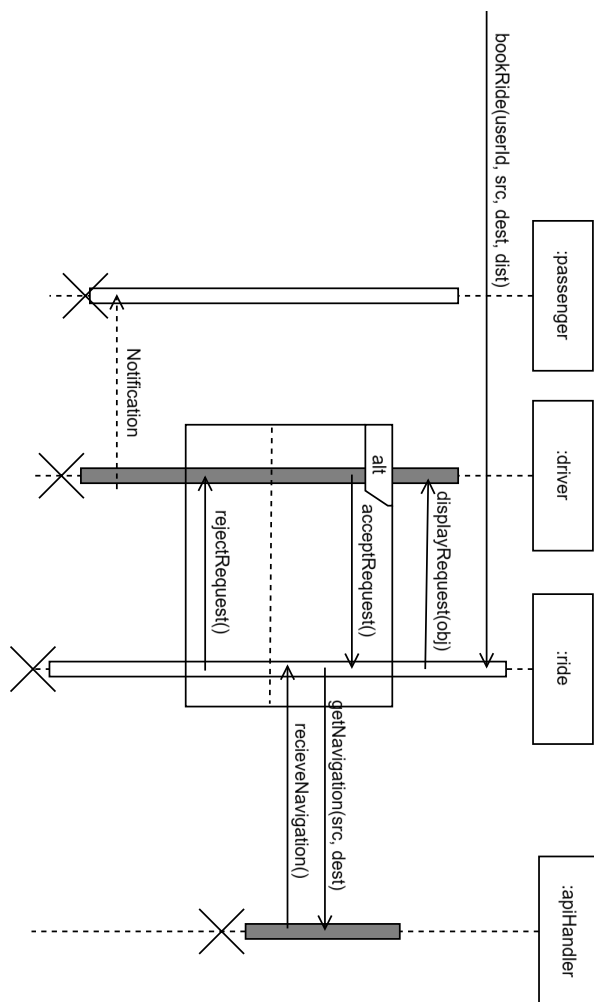


Figure 15 Book Ride SD

Authenticate Driver

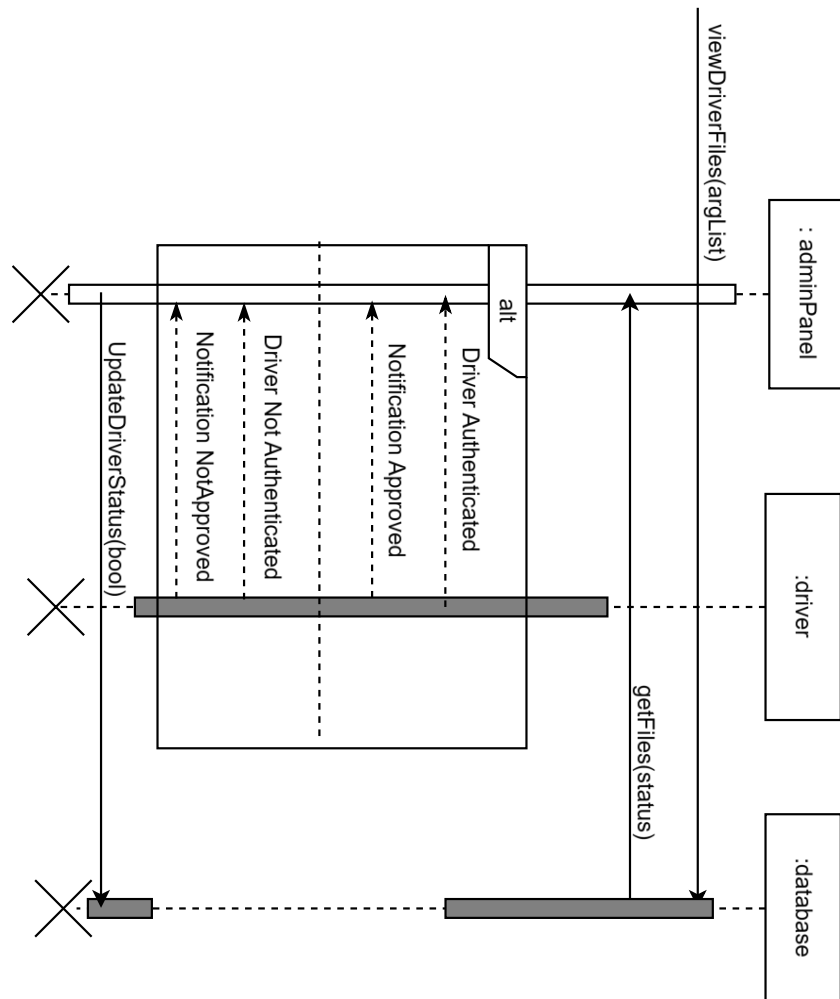


Figure 16 Authenticate Driver SD

Penalize User

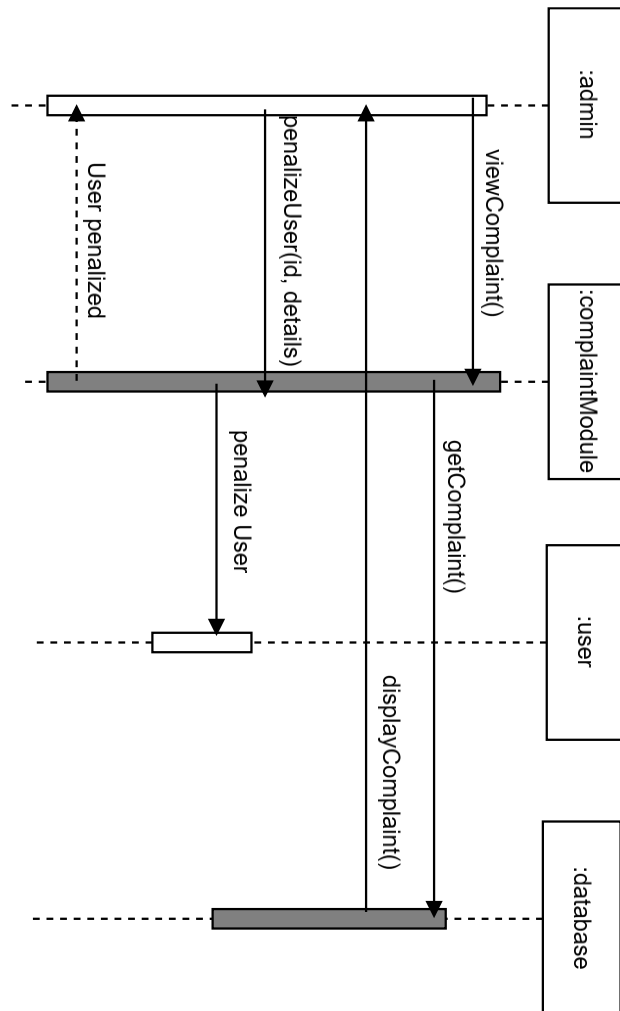


Figure 17 Penalize User SD

4.4. Domain Model

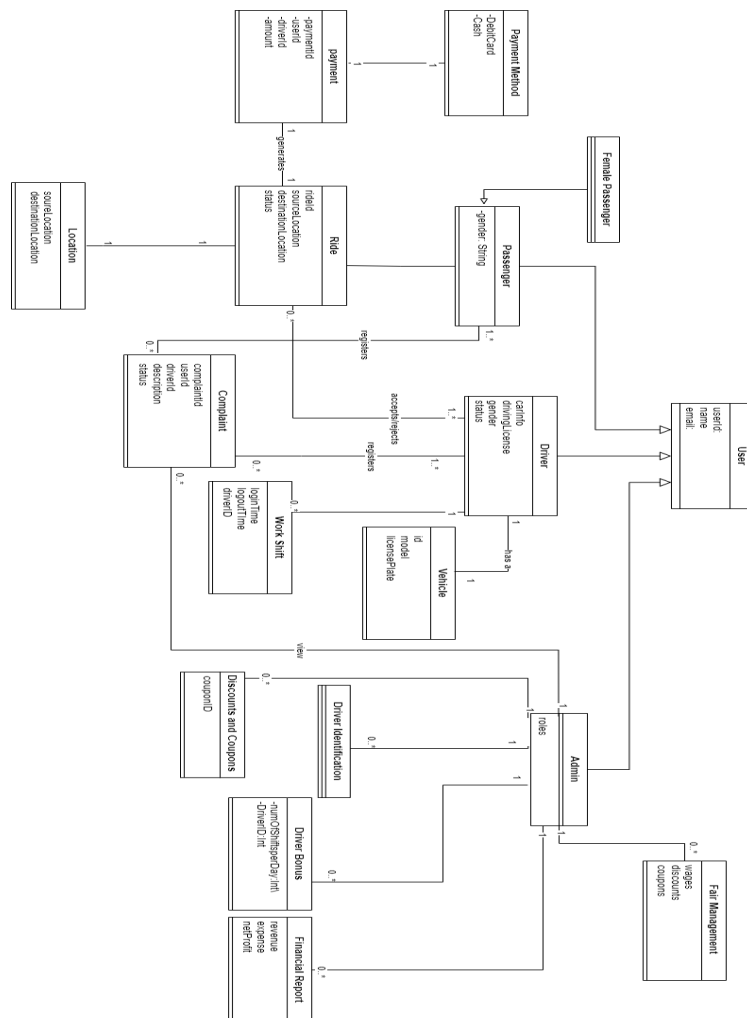


Figure 18 Domain Model

4.6. Logical Schema

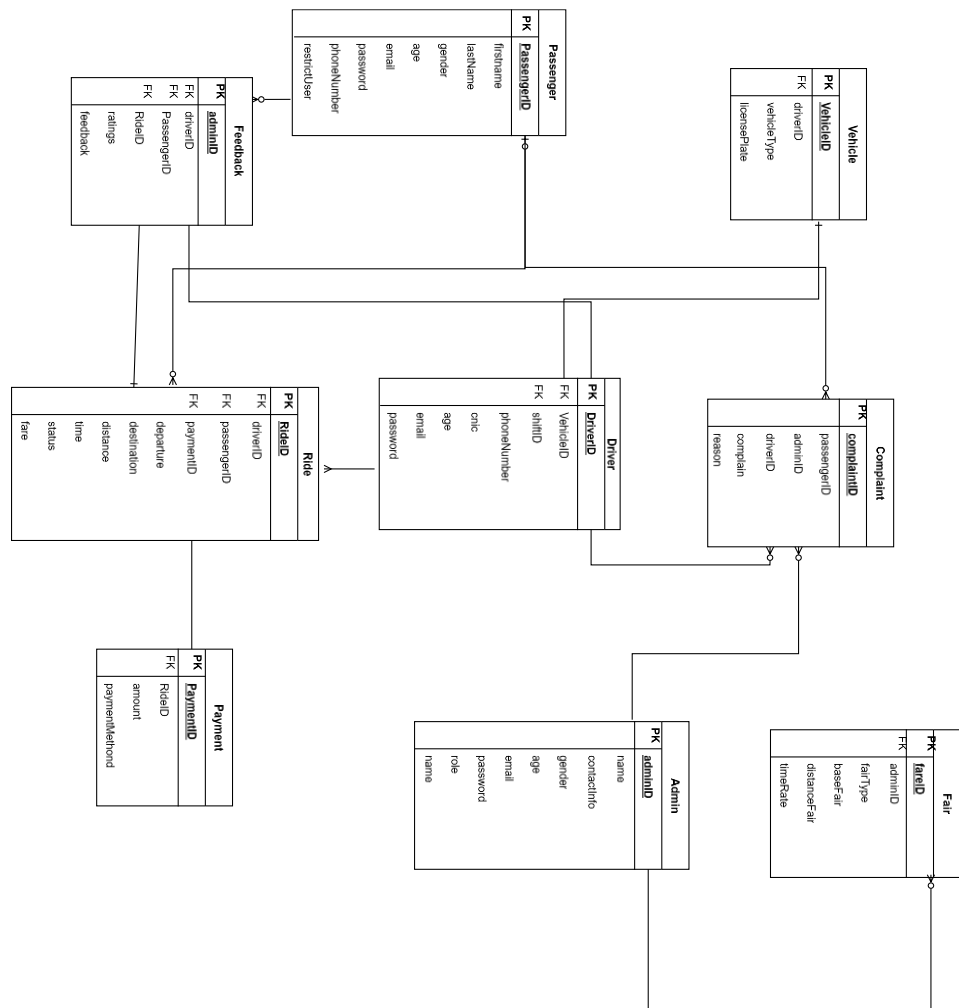


Figure 20 Logical Schema