1. Functional Requirements

Ride.Request: Requesting a ride.

.Register: The system shall confirm user registration for the car booking service.

.No: If the Passenger is not registered for booking a car, the system shall give the Passenger options to register now and book a ride, or to exit.

.Location : The system shall prompt the user to input their current location or enable GPS for automatic location detection.

.No : If there is no access to passenger location , the system shall ask user to share location manually, or he/she cannot book a ride.

.Destination: The system shall allow the user to specify their destination for the car ride.

Ride.Fare: Offer fare for ride.

.Offer: The system shall allow the passenger and driver to offer fares to each other.

.Accept : The system shall allow both the passengers and driver to agree on the same fare.

.No : If passenger or driver does not agree on the same fare then they must be shown different rides.

Ride.Cancel : Cancel a ride.

.Initiation: The system shall allow the user to initiate the cancelation process.

.Confirmation: The system shall prompt the user to confirm the cancellation to avoid accidental cancellations.

.Reason: The system shall allow the user to give valid reason to cancel the ride.

Ride.Confirm: Confirm the ride.

.Initiate: The system shall allow the passenger to initiate a ride confirmation after a successful booking.

.Confirmation Details: The system shall display relevant details for confirmation, including the driver's information, car details, and estimated time of arrival.

Ride.Pay : Pay for ride.

.Method: The system shall allow the passenger to select payment method for ride (for e.g easypaisa, jazzcash or cash).

.OK : If the payment is successful then the app must display a message of payment confirmation.

Ride.Feedback : Give ride feedback.

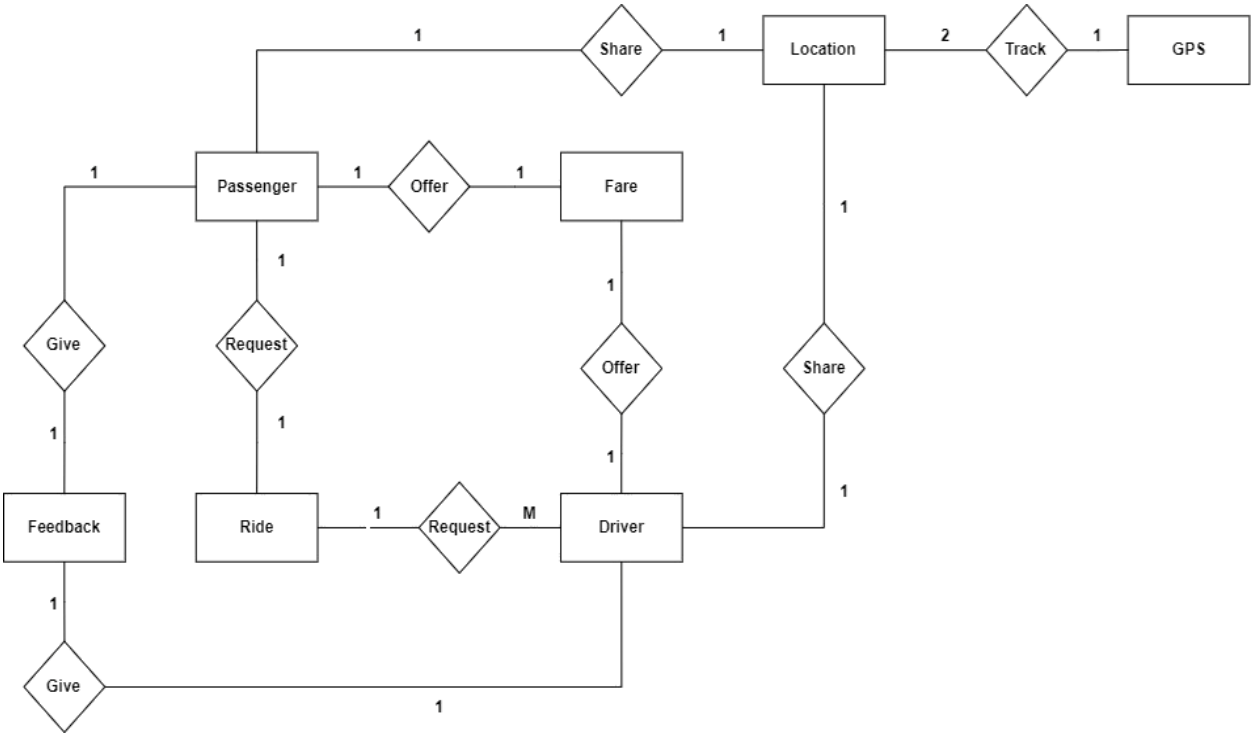
.Rating : The system shall implement a rating system (e.g., stars) for users to express their satisfaction level, with clear guidelines on the meaning of each rating.

.Description : The system shall allow user to give feedback of ride in their own words.

---

4. Data Requirements

Logical Data Model



4.1 Data Dictionary

Data Element	Description	Composition or Data Type	Length	Values
User ID	Unique identifier for each user	Alphanumeric	6	
User Name	User's full name	Alphabetic		
Email Address	User's email address	Alphanumeric		
Phone Number	User's phone number	AAAA-BBBBBBB. A for network info and B for Number.	11	
Password	User's password for secure login	Alphanumeric	8	Special Signs permitted
Pick-up Location	User's current location or manually entered address	Alphanumeric		hyphens and commas permitted
Destination Location	User's desired destination address or landmark	Alphanumeric		hyphens and commas permitted
Car Type	Selected car type (e.g., sedan, SUV, luxury)	Alphabets		
Estimated Fare	Approximate fare for the selected ride	Integer		Initial values is 1
Payment Method	Selected payment method (e.g., credit card, saved wallet, cash)	payment amount + payment method + transaction number		
Driver ID	Unique identifier for the assigned driver	Alphanumeric	6	
Driver Name	Driver's full name	Alphabets		
Driver Rating	Driver's average rating from previous rides	Integers	5	Initial value is 0.
Car Model	Assigned car model and license plate	Integers		
Pick-up ETA	Estimated arrival time of the driver	time, HH:MM		
Drop-off ETA	Estimated drop-off time at the destination	time, HH:MM		
Actual Distance	Total distance traveled during the ride	Integers	10	

Actual Time	Total ride duration in minutes	time, HH:MM		
Final Fare	Calculated fare based on actual distance and time	Integer		
Ride Feedback	User's feedback on the driver and ride experience	Alphanumeric	200	Words and integers both are allowed
Ride Rating	User's rating for the driver and ride experience	Integer	5	
Ride Receipt	Detailed receipt for the ride, including fare breakdown and payment method	payment amount + payment method + transaction number		

4.3 Reports

User Profile Report

Report ID	**CAR-RPT-1**
Report Title	User Profile
Report Purpose	Comprehensive user details and ride history.
Priority	Medium
Report Users	Users of the car booking app
Data Sources	User account database, Ride history database
Frequency	On-demand, static data
Disposition	Displayed on the app screen, printable if permitted
Latency	Within 3 seconds
Visual Layout	Portrait mode
Header	Report title, user's name, date and time
Footer	Page number (if printed)
Body Fields	See detailed list below
Selection Criteria	User ID or user's full name
Sort Criteria	Reverse chronological order based on ride history
End-of-Report Indicator	None
Interactivity	Drill down for detailed ride information
Security Restrictions	Restricted to authenticated users, access to own profile only

4.4 Data integrity, Retention and Disposal

DI-1: Retain individual user ride history for 12 months following ride completion, ensuring availability for reference and analysis.

DI-2: Implement secure disposal mechanisms for ride history data beyond the 12-month retention period, minimizing unauthorized access.

5. External Interface Requirements

5.1 User Interfaces

- **UI-1:** The In-Drive Car Booking App shall feature an intuitive and user-friendly interface, adhering to the industry-standard mobile application design guidelines.
- **UI-2:** Each screen within the app shall include a help icon or link that provides context-sensitive guidance to users on how to navigate and use specific features.
- **UI-3:** The app's user interface shall support seamless interaction through touch gestures, and it should be designed to ensure easy navigation and booking using touch controls alone. It should also be compatible with keyboard input for users with specific accessibility needs.

5.2 Software Interfaces

- **SI-1:** *Location Services*
    - **SI-1.1:** The app shall utilize the device's GPS capabilities to determine the user's current location for accurate booking and navigation.
    - **SI-1.2:** The app shall interact with mapping services (e.g., Google Maps) to provide real-time information on vehicle availability and estimated arrival times.
- **SI-2:** *Payment Gateway*
    - **SI-2.1:** The app shall integrate with a secure and reliable payment gateway to facilitate transactions for booking services.
    - **SI-2.2:** The payment gateway interface shall support various payment methods, including credit/debit cards and digital wallets.

5.3 Hardware Interfaces

No specific hardware interfaces have been identified for the In-Drive Car Booking App at this time.

5.4 Communications Interfaces

- **CI-1:** The app shall send push notifications to the user's device to confirm the successful booking of a car, including details such as car type, estimated arrival time, and driver information.
- **CI-2:** In the event of any issues with the booking process, the app shall notify the user through push notifications, providing clear information on the problem and potential solutions.
- **CI-3:** The app shall have an integrated messaging system allowing communication between the user and the assigned driver, fostering a seamless experience during the journey.

6. Quality Attributes

6.1 Usability

USE1- The indrive app shall allow passengers to request a ride with a single interaction

USE2- 90% of new passengers shall be able to successfully order a ride without errors on their first try

6.2 Performance Requirements

PRE1- The user shall be able to login within 1 minute.
PRE2- The system shall display confirmation message between 5 to 8 seconds once the fare is accepted by the passenger and driver.
PRE3- The system shall show correct location of driver and passenger up to 5 meter.

6.3 Security Requirements

SEC1- Passenger shall login to system every time before requesting a ride
SEC2- Driver shall be able to view the live location of passenger only if the passenger allows.

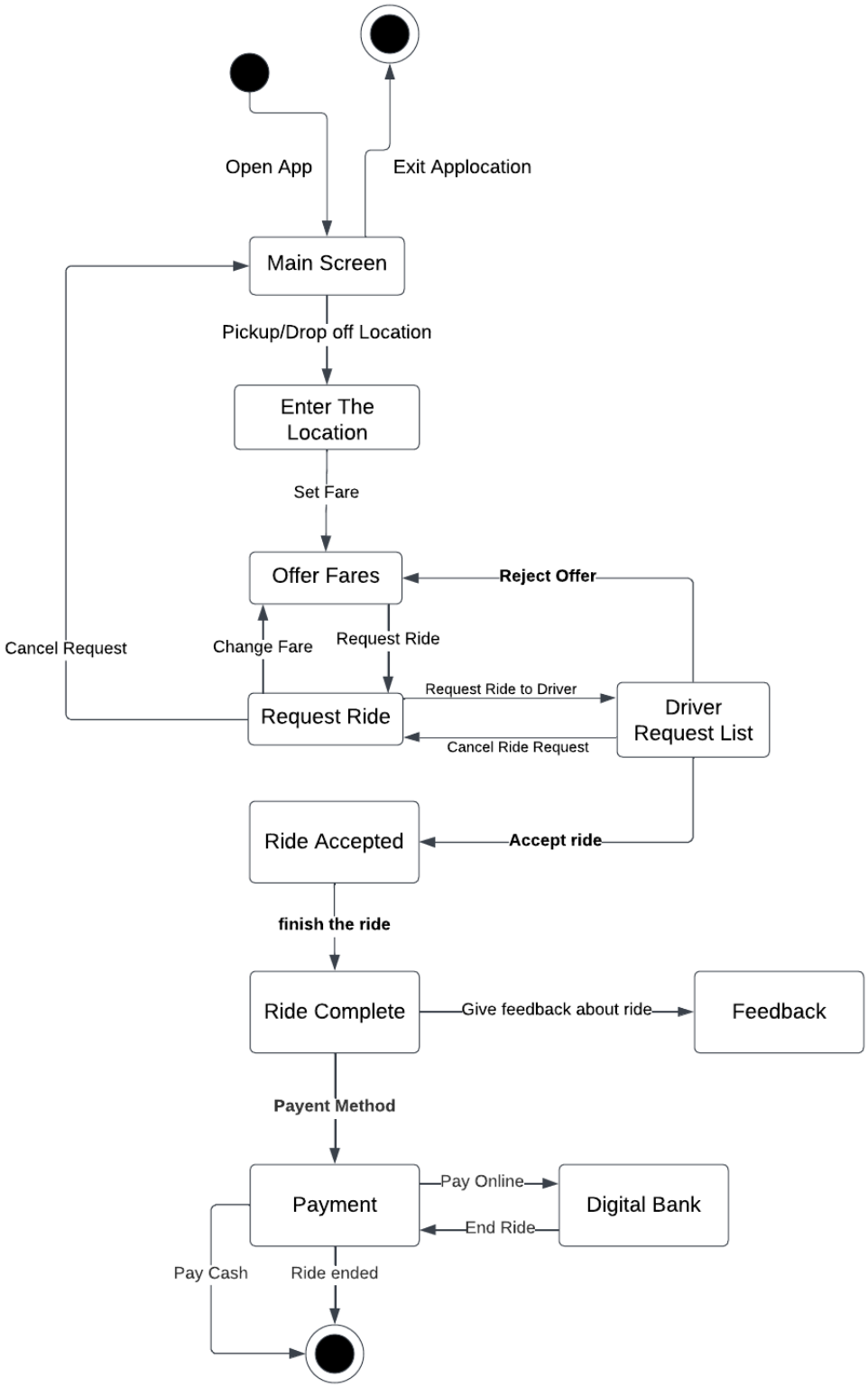
6.4 Safety Requirement

SAF1- The location of passenger will automatically be hidden as soon as the ride is completed
SAF2- The system shall ensure 100% that drivers without driving license do not register them self.
SAF3- The system shall ensure 95% that passengers without CNIC do not register them self.

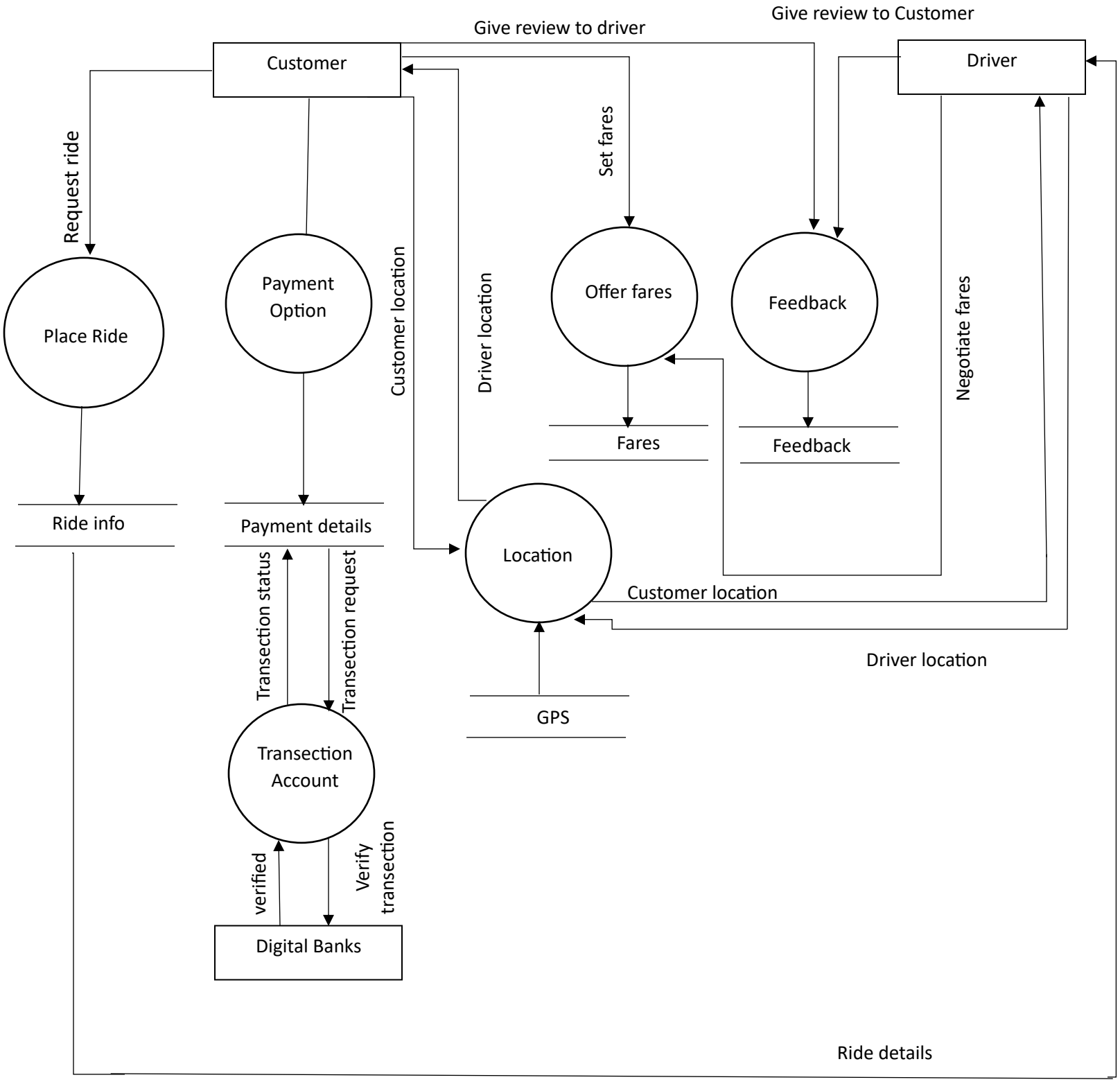
6.5 Availability Requirement

AVL1- The system shall be available 99% of the time.

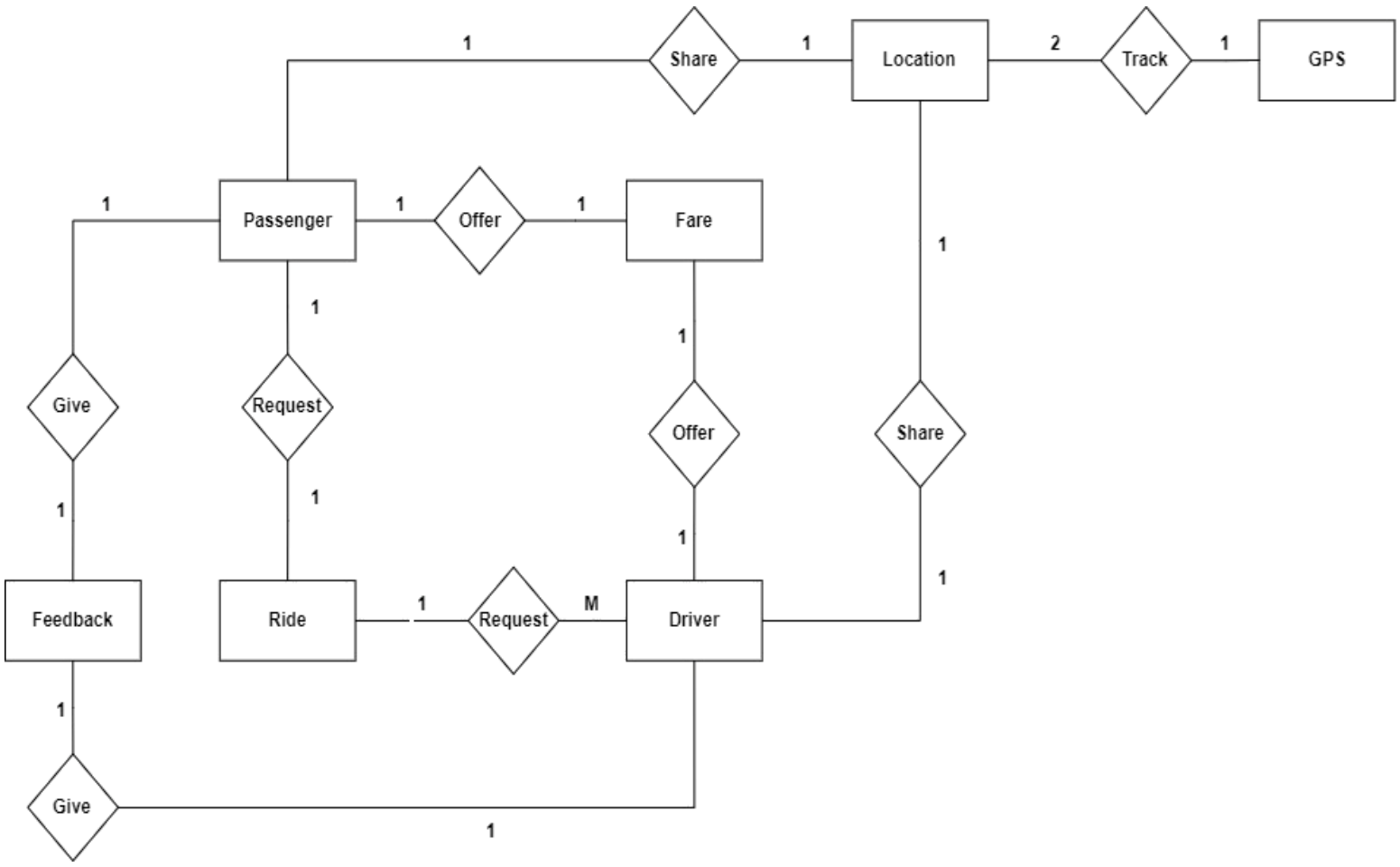
DIALOG MAP


Open App
Exit Applocation
Main Screen
Pickup/Drop off Location
Enter The Location
Set Fare
Offer Fares
Reject Offer
Cancel Request
Change Fare
Request Ride
Request Ride to Driver
Request Ride
Driver Request List
Cancel Ride Request
Ride Accepted
Accept ride
finish the ride
Ride Complete
Give feedback about ride
Feedback
Payent Method
Payment
Pay Online
Digital Bank
End Ride
Pay Cash
Ride ended

Data Flow Diagram



Data Model


Share
Location
Track
GPS
Passenger
Offer
Fare
Give
Request
Offer
Share
Feedback
Ride
Request
Driver
Give
1
2
M

Test Cases

Test Case#1

Given that user is not registered in indrive app,
When the user requests a ride,
Then the user shall be given the options to register now or exit.

Test Case#2

Given that the user and driver offer fare,
When user and driver accept fare
Then the ride will be accepted.

Test Case#3

Given that the user initiates the cancelation process,
When the user confirms the cancelation of ride
Then ride will be canceled.

Test Case#4

Given that the ride is completed,
When the system asks the user to select a payment method,
Then the user shall be able to select a payment method of his choice.

Test Case#5

Given that the ride is completed,
When the system asks the user to give ratings
Then the user shall be able to give ratings.

Test Case#6

Given that the ride is completed,
When the system asks the user to give ratings,
Then the user shall have the option to skip the rating process