Requirements Specification of Rebu

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1. Overview

1.1 Description

The Rebu app is a mobile application that allows users to request a ride from one location to another or share a ride with another users in the same direction. The app connects users with drivers who are available to provide transportation services. The app is designed to be user-friendly and convenient, providing a safe and reliable way for users to get to their destination.

1.2 Actors

- User: The person who requests a ride using the Rebu app.
- Driver: The person who provides transportation services using the Rebu app.
- Payment Partner: The company that processes payments for the Rebu app.
- Admin: The person who manages the Rebu app and its users.
- Hacker: The person who tries to hack the Rebu app and its users.

1.3 Security Goals

- System need to always update live location of the driver and user.
- System should not be down/ Limit system downtime
- User personal information should be secured (e.g. name, phone number, email address)

- Driver identity should be verified based on government ID
- Payment information should be secured (e.g. credit card information)

2. Use Cases

2.1 Use Cases

Use Case 1: Request a Ride

Actors:

- User: Primary actor who initiates ride requests
- Driver: Actor who receives and accepts ride requests
- Payment Partner: Third-party system responsible for processing payments
- Rebu system: The system that manages ride requests and driver assignments

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Use Case 2: Make a Payment

Actors:

- User
- Payment Partner
- Rebu system

Use Case 3: Accept a Ride

Actors:

- Driver
- Rebu system

2.2 Detailed Use Case

Use Case 1: Request a Ride

Precondition:

- User must have an account and be logged in.
- User does not have any active ride request.
- User's payment information must be verified.
- Driver does not have any active ride on a different route to the user's destination.

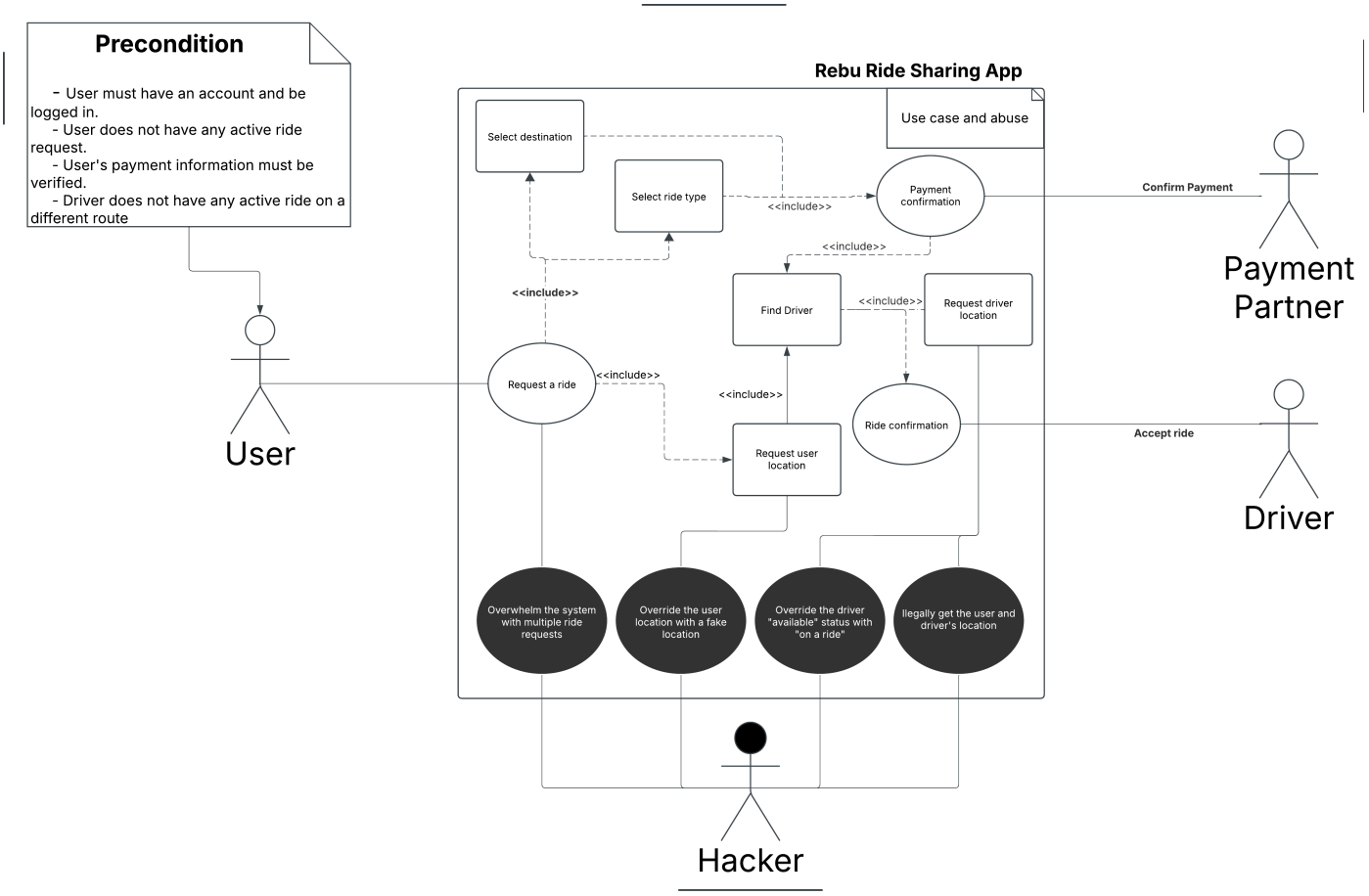
Main flow of events:

- Passenger logins to the Rebu app.
- Passenger select destination and pick-up location.
- Passenger select ride type (solo or ride-share; SUV or sedan)
- Passenger confirm the ride request.
- Passenger wait for driver to accept the ride request.
- Driver accept the ride request.
- Passenger make a payment
- Payment partner process the payment.
- Payment partner notify Rebu system that the payment is successful.
- Rebu system notify driver and passenger that the the ride request is accepted.

Information being exchanged:

- Passenger's location and destination
- Passenger's payment information
- Driver's location and availability

Detailed UML usecase diagram:



2.3 Missused / Abuse case

Use Case 2: Make a Payment

Main flow of events:

- Before the ride, withhold the fare money from passengers account
- After the ride, the system calculates the fare.
- Passenger enter payment information
- The system initiates a payment transaction via an integrated payment gateway.
- Payment partner process the payment
- The payment is processed, and a receipt is generated.
- Both the driver and passenger receive a confirmation of the transaction.

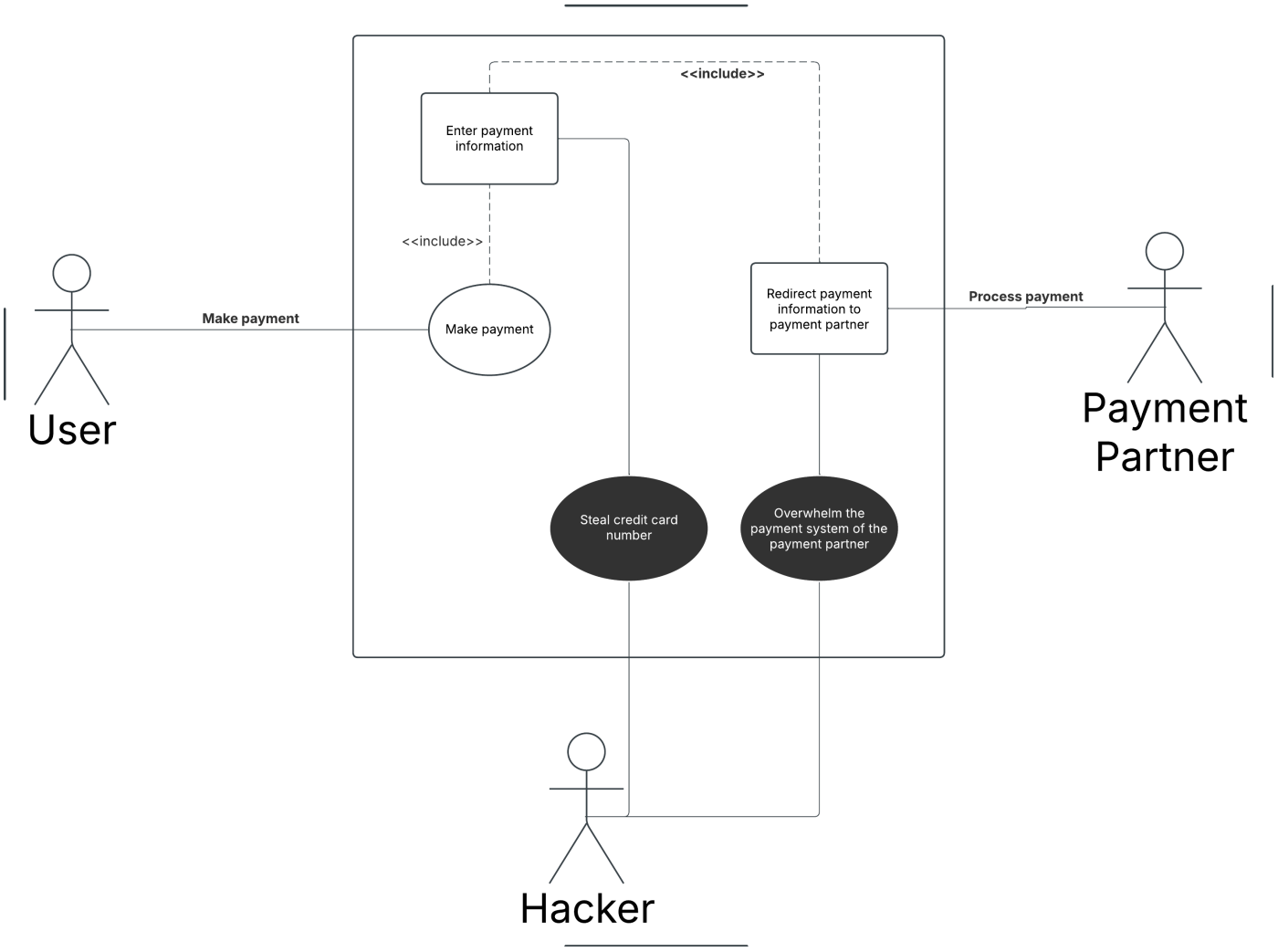
Missused / Abuse case

- Passenger enter payment information
    - Hacker illegally retrieve the passenger's payment information
- Payment partner process the payment
    - Hacker overwhelms the payment partner with too many requests

Harms done:

- Passenger's payment information is leaked
- The payment could not be made and the ride request is not accepted

UML usecase diagram:



Use Case 3: Accept a Ride

Main flow of events:

- The driver accepts the ride.
- The system notifies the passenger of the acceptance.
- The driver navigates to the pick-up location.

Missused / Abuse case

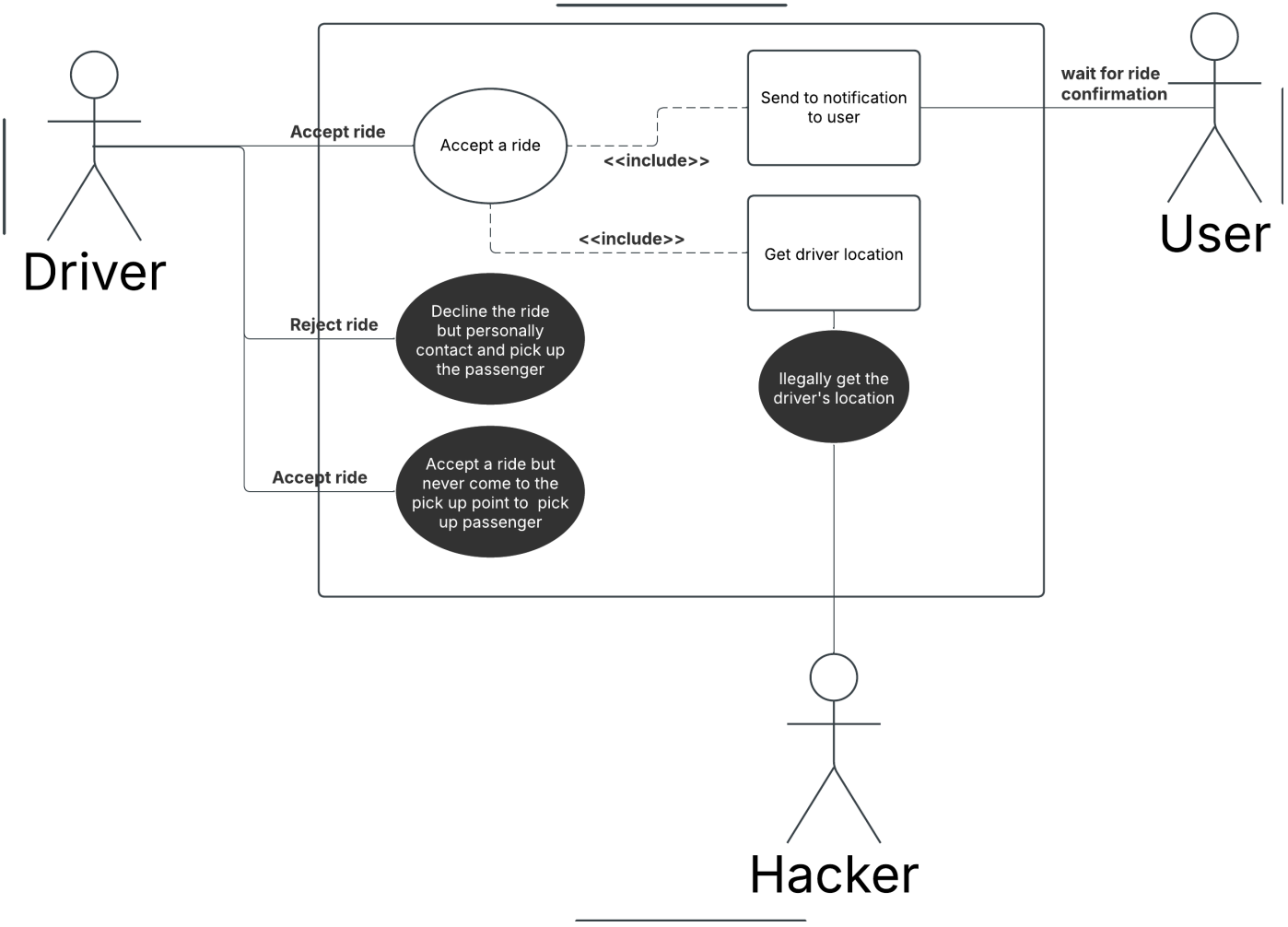
- Driver sends location to Rebu app
    - Hacker illegally retrieve the driver's location
- Driver accepts the ride

    - But the driver never shows up at the pick-up location
- Driver decline the ride
    - But the driver privately contacted and pick-up the passenger

Harms done:

- Driver's location is leaked
- Rebu app lose trust from the passenger when the driver acept the ride but never shows up
- Rebu app lose revenue when the driver decline the ride but privately contacted and pick-up the passenger

UML usecase diagram:



3. Security Requirements

- **Sec1:** Input Rate Limiting must be implemented
- **Sec2:** Secured authentication and human verification must be implemented
- **Sec3:** Payment processing must be secured

- **Sec4:** Message/Package encryption must be implemented
- **Sec5:** Automatic fraud detection must be implemented