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Design and Create Software2

Ride-Booking Mobile Application

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1. Architectural Design Document

1.1. System Overview

- ### Purpose of the Application:

The ride-booking mobile application is designed to provide a convenient and efficient way for users to request private transportation, such as taxis or ride-sharing services. The app enables users to easily request a ride from their current location to a specified destination, view driver details, estimated arrival time, and complete the payment electronically.

- ### Core Features of the Application:

  - **Ride Request**:

    This interface allows users to input their pickup and destination locations. The app displays a suggested route for the ride, along with an estimated time of arrival. Users can also select the appropriate vehicle type based on their needs, with a list of available options showing estimated prices for each. This interface gives users a clear and comprehensive overview of the ride details before confirming.

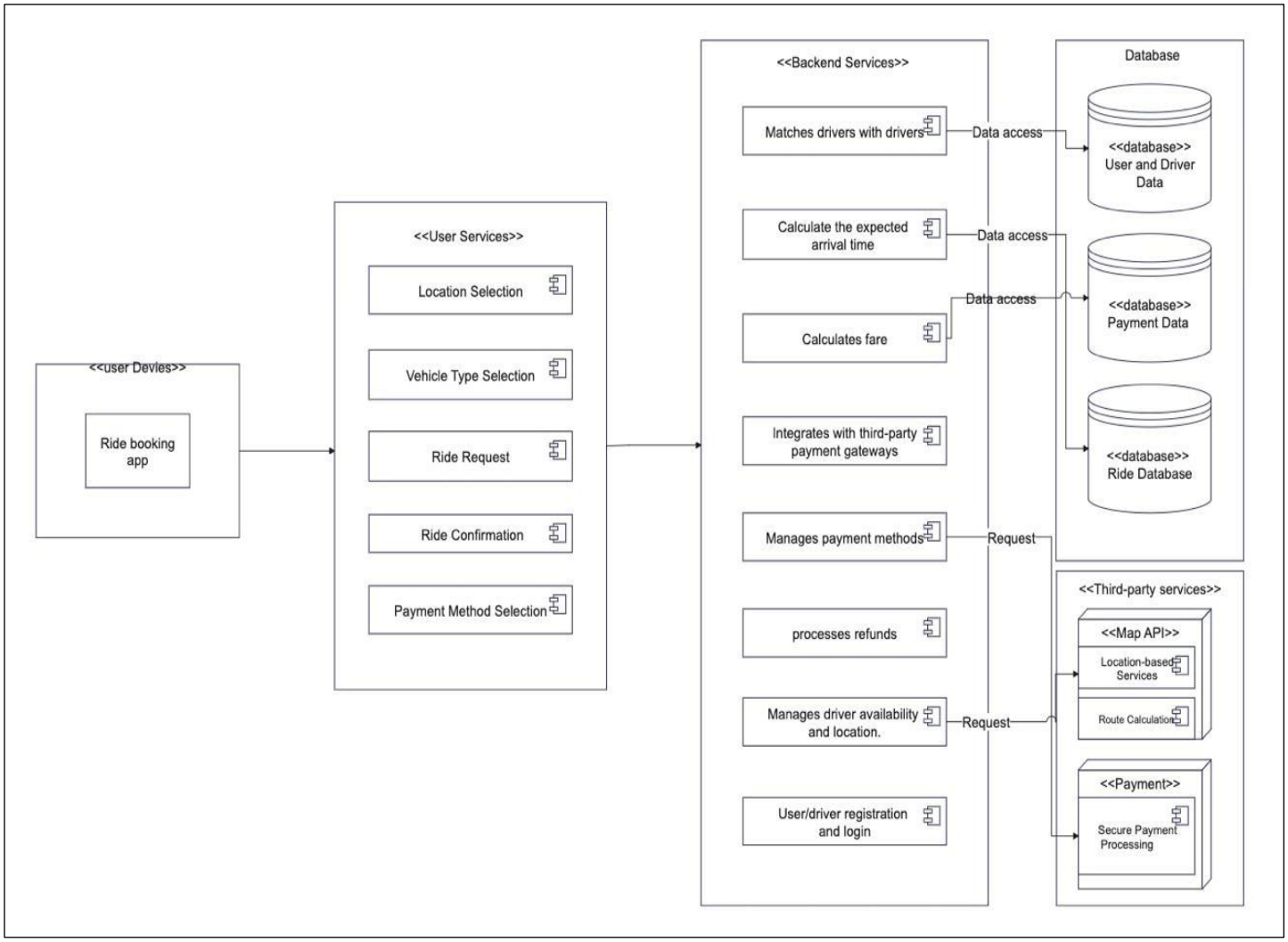
  - **Ride Confirmation**:

    After selecting the ride details, the ride confirmation interface displays the driver's information, such as their name and picture, along with the selected vehicle and its number. The expected arrival time of the driver at the pickup location is also shown. This screen helps users feel secure and confident before starting the ride, with options for direct communication with the driver via call or messaging.

  - **Payment Process**:

    This interface provides multiple payment options, including payment cards like Mada and Visa, as well as digital options like Apple Pay, and the possibility to pay with cash. The interface allows users to choose their preferred payment method and complete the transaction in a simple and user-friendly manner. The payment process is divided into clear steps: selection, confirmation, and payment, making it easy for users to track their progress.

1.2. Architecture Diagram



Figures 1.2. System Architecture

1.3. Explanation of Key Components

- ### User Interface (UI):
  - **Description:** This interface allows users to input their pickup and destination locations. The app displays a suggested route for the ride, along with an estimated time of arrival. Users can also select the appropriate vehicle type based on their needs, with a list of available options showing estimated prices for each. This interface gives users a clear and comprehensive overview of the ride details before confirming.

- **Interaction:** The user interface connects directly with the backend services, such as ride matching and payment processing, to execute the commands entered by the user.

- Backend Services:
  - **Description:** These services handle business logic and data processing within the application. They include services such as matching users with drivers, fare calculation, payment processing, and managing user and driver information.

  - **Interaction:** The backend services communicate with the database to retrieve necessary information related to users, rides, and payment methods. They also interact with the user interface to provide required information such as driver confirmation and ride details.

- Payment Gateway:
  - **Description:** A system that facilitates the completion of financial transactions through the available payment options (e.g., Mada, Visa, Apple Pay). It allows users to pay for rides securely and reliably.

  - **Interaction:** The payment gateway integrates with the payment processing service in the backend and interacts with stored payment information in the database, confirming the transactions via the user interface.

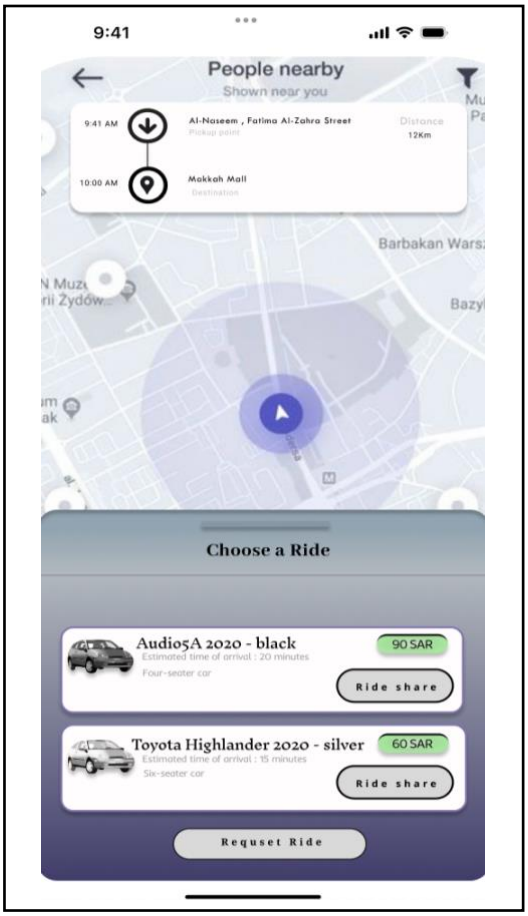
- Database
  - **Description:** The system that stores all data related to users, drivers, rides, and payments. It is the essential component for storing and retrieving the necessary information to ensure the smooth operation of the application.

- **Interaction:** The database is accessed by the backend services to execute various operations, such as ride matching or verifying financial information. It serves as the main source of all data within the system.

- Third-Party Services:
  - **Description:** These include services like map APIs and route calculation, as well as secure payment processing systems.
  - **Interaction:** The backend services use these third-party services to interact with external environments, providing additional functionality such as location tracking or processing payments through various external systems.

2. High-Fidelity Prototype

2.1. Feature 1: Ride Request

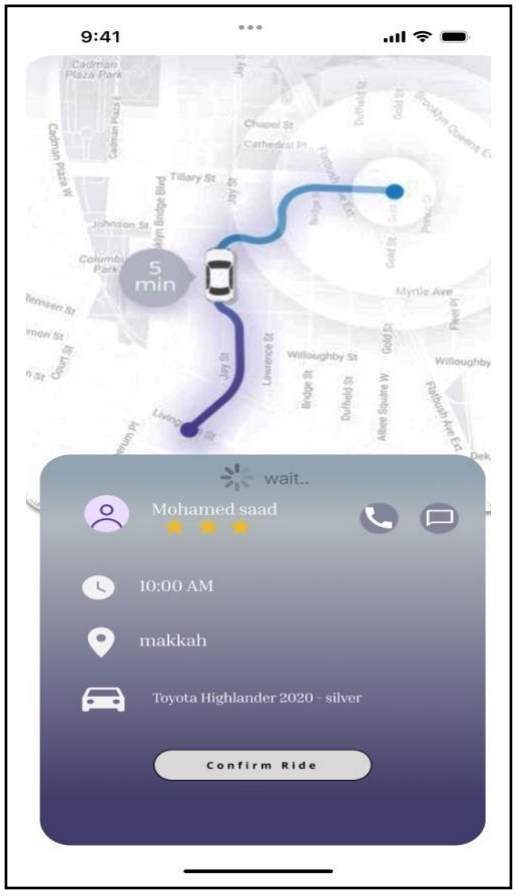


Figures 2.1. Feature 1: Ride Request

Brief description:

- The interface displays a map showing the user's current location, which is determined using GPS. The current location is represented by a purple indicator in the center of the screen, and the map shows nearby areas and locations, highlighting the estimated distance between the current location and the destination the user wants to reach.
- At the bottom of the screen, there is a "Choose Vehicle " section that presents two available vehicle options, with details such as the type of car, estimated arrival time, and cost.
- The main interactive component is "Ride Share," which allows the user to share a ride with other users to reach a common destination.
- After selecting a car, the user can press the "Request Ride" button to book the displayed vehicle. This button allows the request to be sent after selecting the appropriate option.

2.2. Feature 2: Ride Confirmation



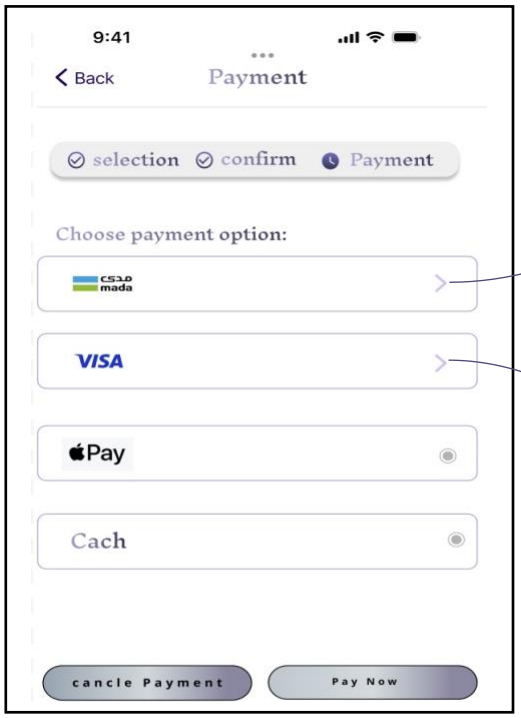
Figures 2.2. Feature 2: Ride Confirmation

Brief description:

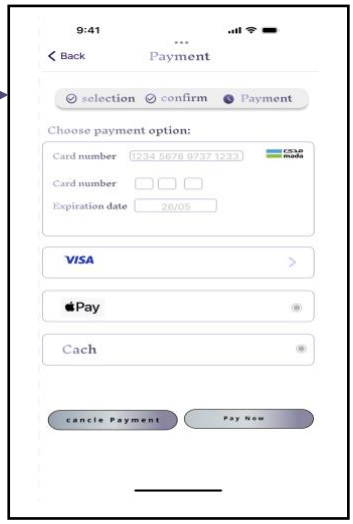
- This page displays the details of the trip confirmation in the car booking application, where the user can see the car's route on the map with the expected arrival time. It also includes driver information such as his name and rating, with options to communicate via call or message.
- The trip details include the expected arrival time of the car, destination, and car type.
- At the bottom of the page, there is an interactive button, which is used to confirm the booking after reviewing the details. When clicked, the confirmation request is sent to make the booking official, with the possibility of moving to the next screen to complete the payment process.

Figures 2.3.1. Feature 3: Payment Process Made

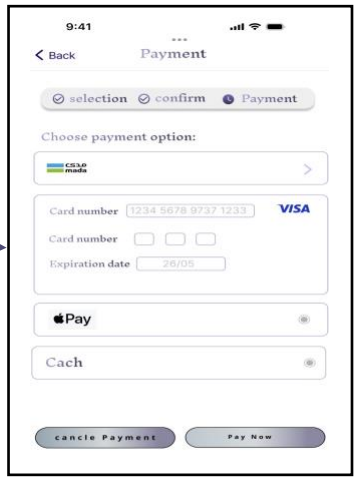
2.3. Feature 3: Payment Process



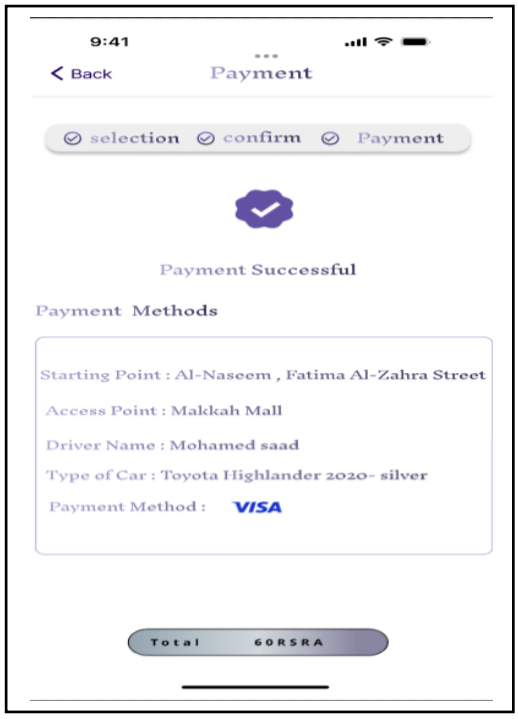
Figures 2.3. Feature 3: Payment Process



Figures 2.3.1. Feature 3: Payment Process Mada



Figures 2.3.2. Feature 3: Payment Process Visa



Figures 2.3.3. Feature 3: Payment confirmation

Brief description:

- Page One: Displays available payment options: debit/credit card Visa, Apple Pay, and Cash, with buttons for selection and confirmation.
- Page Two (MADA): Focuses on entering MADA card details, including fields for the card number and expiration date, along with options for payment and the ability to cancel or proceed.
- Page Three (Visa): Similar to Page Two but specifically for entering Visa card details, maintaining the same layout.
- Payment Confirmation Interface: The payment confirmation interface displays the driver's name, trip details, car type, payment method and confirms successful payment.

3. Website link

Click Here

Figures 3.1. Website link barcode