Payment & Payout System Documentation

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1. Overview

The Payment & Payout System is a comprehensive financial management module for Driver's Klub that handles all monetary transactions between the platform, fleet operators, and drivers. The system supports two distinct business models and integrates with Easebuzz for payment processing.

Key Features

- **Dual Payment Models**: Rental-based and Revenue Share-based
- **Multi-Channel Collections**: Virtual QR codes, PG integration, cash tracking
- **Automated Reconciliation**: End-of-day settlement and verification
- **Financial Transparency**: Detailed transaction history for drivers
- **Incentive & Penalty Management**: Flexible reward and penalty system
- **Real-time Balance Tracking**: Live updates on deposits and rental validity

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2. Business Models

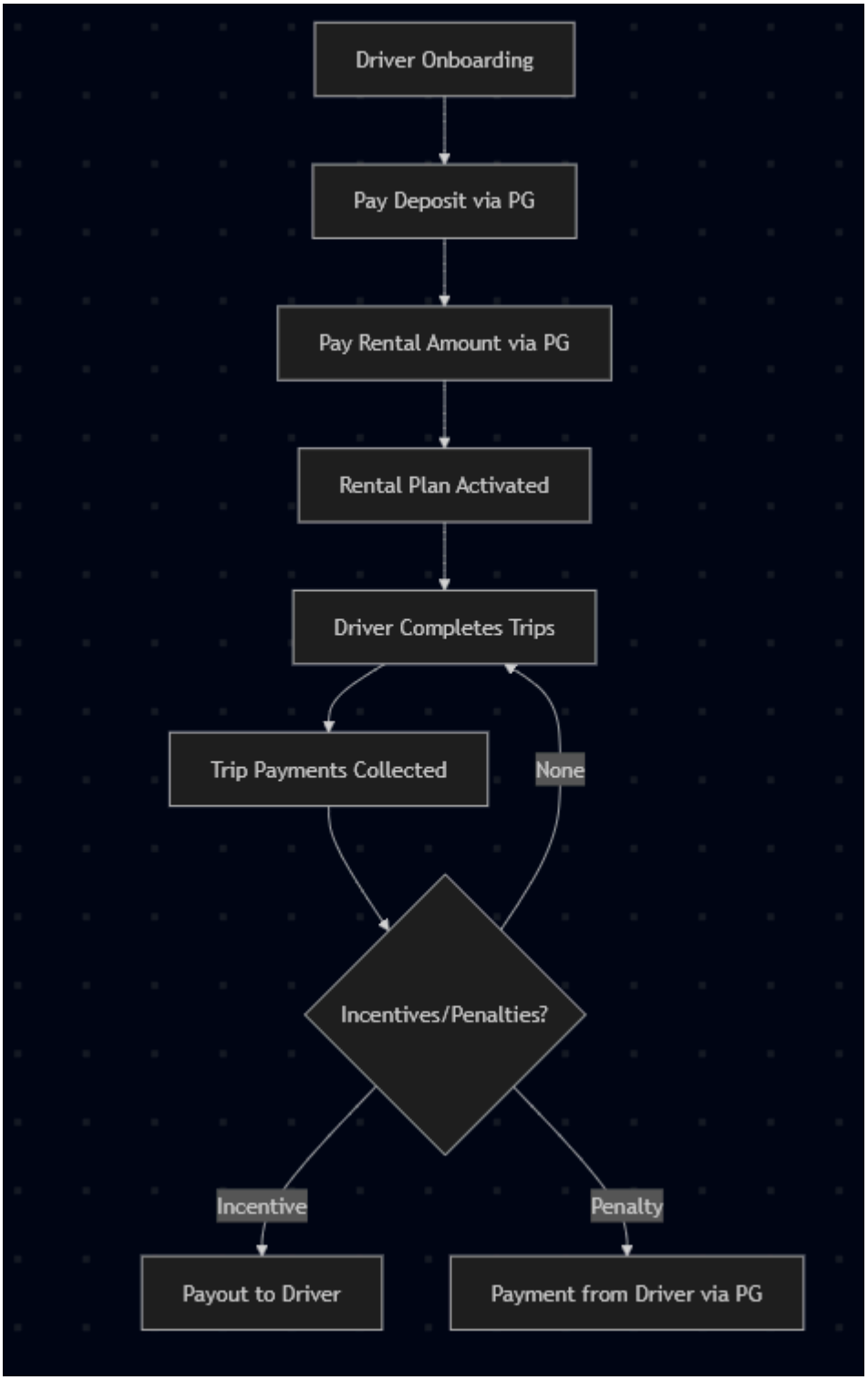
2.1 Rental Model (Fleet Drivers Only)

The Rental Model is designed for drivers who rent vehicles from fleet operators on a fixed-term basis.

Payment Flow

```
graph TD
    A[Driver Onboarding] --> B[Pay Deposit via PG]
    B --> C[Pay Rental Amount via PG]
    C --> D[Rental Plan Activated]
    D --> E[Driver Completes Trips]
    E --> F[Trip Payments Collected]
    F --> G{Incentives/Penalties?}
    G -->|Incentive| H[Payout to Driver]
```

```
    G -->|Penalty| I[Payment from Driver via PG]
    G -->|None| E
```



Components

Component	Description	Payment Direction	Integration
Deposit	Security deposit (refundable)	Driver → Platform	Easebuzz PG (CR)
Rental	Fixed rental amount for plan period	Driver → Platform	Easebuzz PG (CR)
Trip Payments	Per-trip earnings based on pricing	Customer → Platform	Easebuzz PG (CR)
Incentives	Performance bonuses	Platform → Driver	Easebuzz Payout (DR)
Penalties	Violations/damages	Driver → Platform	Easebuzz PG (CR)

Configuration

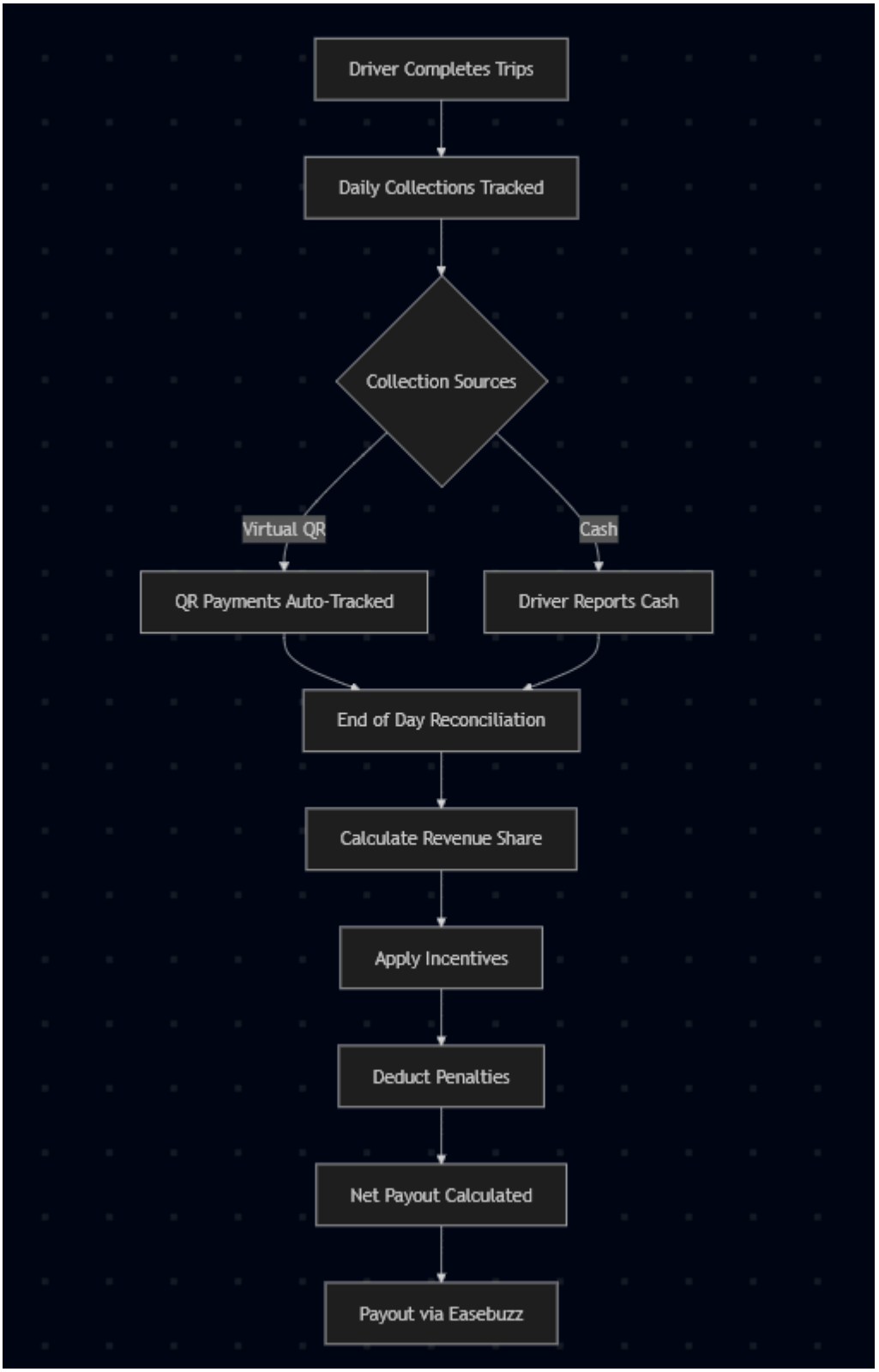
- **Deposit Amount**: Configurable at fleet/driver level
- **Rental Amount**: Configurable at fleet/driver level
- **Rental Validity**: SIM-plan style (e.g., 7 days, 30 days, 90 days)
- **Trip Pricing**: Based on trip type (AIRPORT, RENTAL, INTER_CITY)

2.2 Payout Model (Revenue Share - Fleet Drivers Only)

The Payout Model is designed for drivers who share daily revenue with the platform.

Payment Flow

```
graph TD
    A[Driver Completes Trips] --> B[Daily Collections Tracked]
    B --> C{Collection Sources}
    C -->|Virtual QR| D[QR Payments Auto-Tracked]
    C -->|Cash| E[Driver Reports Cash]
    D --> F[End of Day Reconciliation]
    E --> F
    F --> G[Calculate Revenue Share]
    G --> H[Apply Incentives]
    H --> I[Deduct Penalties]
    I --> J[Net Payout Calculated]
    J --> K[Payout via Easebuzz]
```



Components

Component	Description	Payment Direction	Integration

Daily Collection	Total revenue collected (QR + Cash)	Customer → Platform	Easebuzz Virtual QR (CR)
Revenue Share	Driver's percentage of daily collection	Platform → Driver	Easebuzz Payout (DR)
Incentives	Performance bonuses	Platform → Driver	Easebuzz Payout (DR)
Penalties	Violations/damages	Deducted from payout	Calculation only

Configuration

- **Revenue Share %**: Default 70% to driver, 30% to platform (configurable)
- **Payout Frequency**: Daily/Weekly/On-demand
- **Minimum Payout**: Threshold amount for automated payout

Calculation Formula

```
Net Payout = (Daily Collection × Revenue Share %) + Incentives - Penalties
```

Example:

- Daily Collection: ₹5,000
- Revenue Share: 70%
- Incentives: ₹500 (5-star rating bonus)
- Penalties: ₹200 (late arrival)

```
Net Payout = (₹5,000 × 0.70) + ₹500 - ₹200
           = ₹3,500 + ₹500 - ₹200
           = ₹3,800
```

---

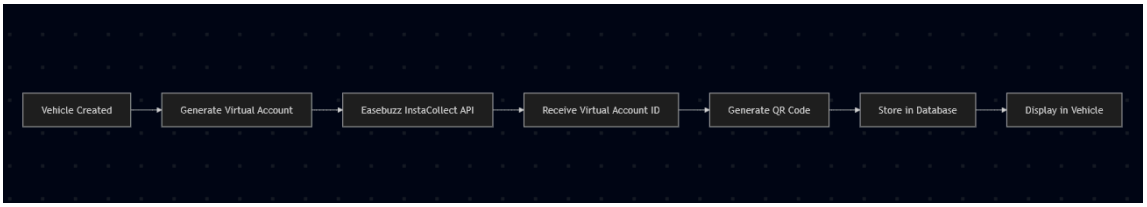
3. Collections System

3.1 Virtual QR Code Architecture

Each vehicle is assigned a unique virtual QR code for contactless payment collection.

QR Code Generation

```
graph LR
    A[Vehicle Created] --> B[Generate Virtual Account]
    B --> C[Easebuzz InstaCollect API]
    C --> D[Receive Virtual Account ID]
    D --> E[Generate QR Code]
    E --> F[Store in Database]
    F --> G[Display in Vehicle]
```



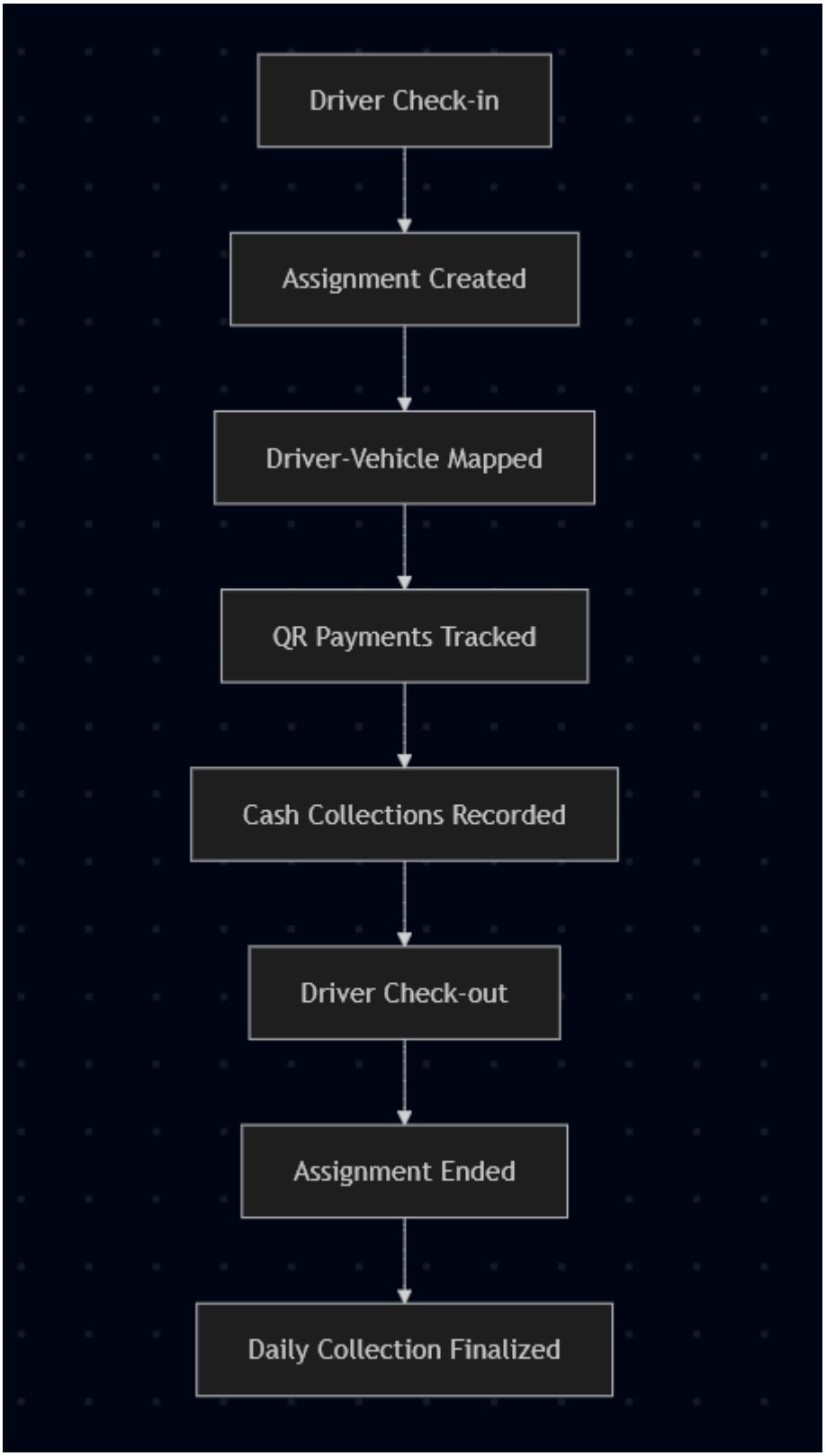
QR Code Properties

- **Unique per Vehicle**: One QR per vehicle
- **Dynamic Amount**: Customers can pay any amount
- **Auto-Reconciliation**: Payments auto-linked to vehicle
- **Real-time Tracking**: Instant webhook notifications

3.2 Driver-Vehicle Mapping

Collections are tracked based on active driver-vehicle assignments.

```
graph TD
    A[Driver Check-in] --> B[Assignment Created]
    B --> C[Driver-Vehicle Mapped]
    C --> D[QR Payments Tracked]
    D --> E[Cash Collections Recorded]
    E --> F[Driver Check-out]
    F --> G[Assignment Ended]
    G --> H[Daily Collection Finalized]
```



Rules:

- QR payments during assignment period → Attributed to driver

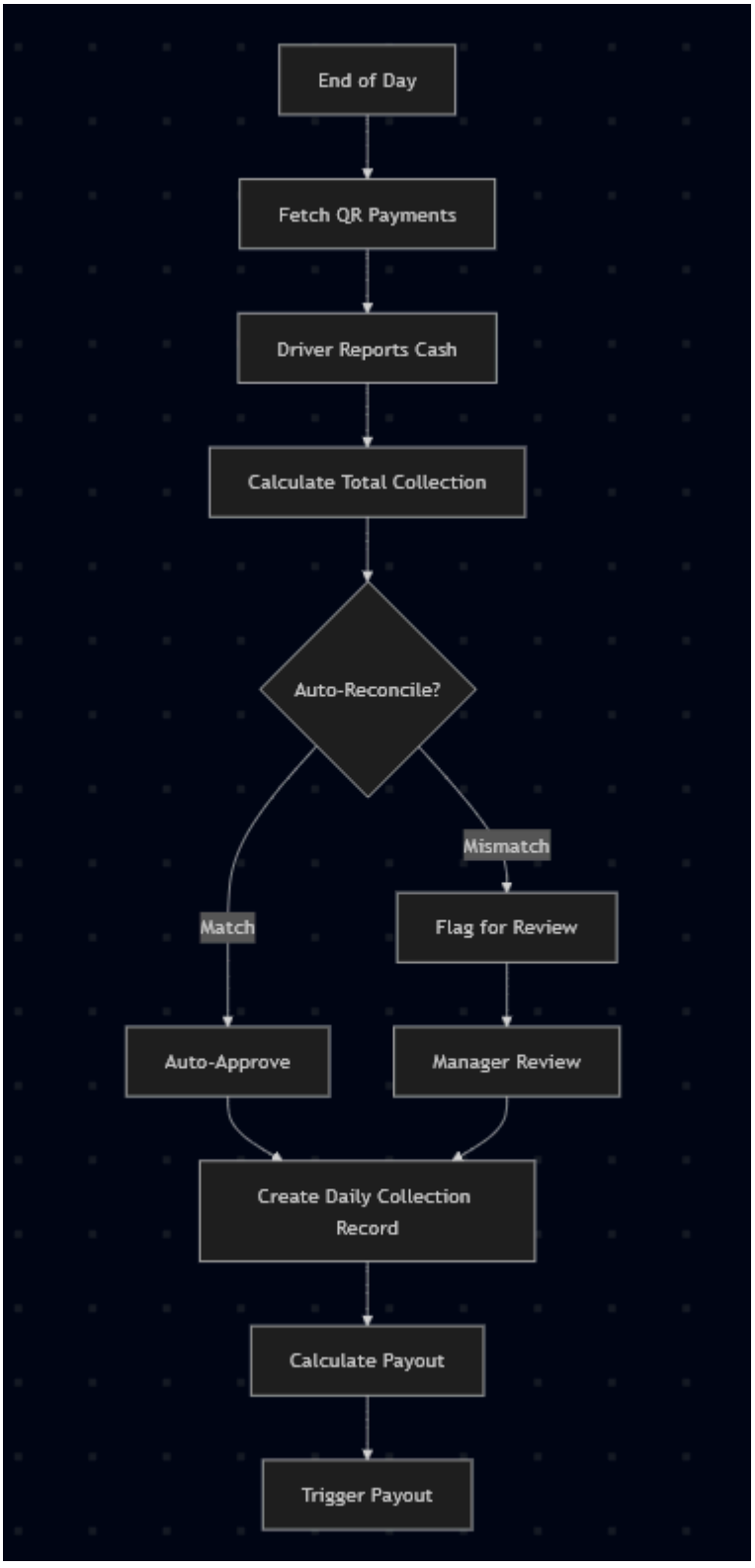
- Multiple drivers per day → Collections split by time periods
- No active assignment → Payments held for reconciliation

3.3 End-of-Day Reconciliation

Daily settlement process to verify and approve collections.

Reconciliation Workflow

```
graph TD
    A[End of Day] --> B[Fetch QR Payments]
    B --> C[Driver Reports Cash]
    C --> D[Calculate Total Collection]
    D --> E{Auto-Reconcile?}
    E -->|Match| F[Auto-Approve]
    E -->|Mismatch| G[Flag for Review]
    F --> H[Create Daily Collection Record]
    G --> I[Manager Review]
    I --> H
    H --> J[Calculate Payout]
    J --> K[Trigger Payout]
```



Reconciliation Data

Field	Source	Description

QR Collection	Easebuzz Webhook	Auto-tracked payments via virtual QR
Cash Collection	Driver Input	Cash collected by driver
Total Collection	Calculated	QR + Cash
Expected Revenue	System	Based on completed trips
Variance	Calculated	Total - Expected

---

4. Database Schema

4.1 Enums

```
enum PaymentModel {
  RENTAL    // Fixed rental + deposit model
  PAYOUT    // Revenue share model
}

enum TransactionType {
  DEPOSIT           // Security deposit payment
  RENTAL            // Rental plan payment
  TRIP_PAYMENT      // Trip earnings
  INCENTIVE         // Performance bonus
  PENALTY           // Violation charge
  DAILY_COLLECTION  // Daily revenue collection
  PAYOUT            // Driver payout
}

enum TransactionStatus {
  PENDING    // Transaction initiated
  SUCCESS    // Payment successful
  FAILED     // Payment failed
  REFUNDED   // Payment refunded
}

enum PenaltyType {
  MONETARY      // Financial penalty - deducted from deposit or paid via PG
  WARNING       // Verbal/written warning - no financial impact
  SUSPENSION    // Temporary suspension from platform
  BLACKLIST     // Permanent ban from platform
}

enum PaymentMethod {
  PG_CARD         // Credit/Debit card via PG
  PG_UPI          // UPI via PG
  PG_NETBANKING   // Net banking via PG
  VIRTUAL_QR      // Virtual QR payment
  CASH            // Cash payment
}
```

4.2 Core Models

RentalPlan

Defines rental plan templates for fleet operators.

```
model RentalPlan {
  id                String          @id @default(uuid()) @db.Uuid
  fleetId           String          @db.Uuid
  fleet             Fleet           @relation(fields: [fleetId], references: [id])

  name              String          // e.g., "Weekly Plan", "Monthly Plan"
  rentalAmount      Float           // Rental fee
  depositAmount     Float           // Security deposit
  validityDays      Int             // Plan duration in days

  isActive          Boolean         @default(true)
  createdAt         DateTime        @default(now())
  updatedAt         DateTime        @updatedAt

  driverRentals     DriverRental[]

  @@index([fleetId])
  @@index([isActive])
}
```

DriverRental

Tracks active rental subscriptions for drivers.

```
model DriverRental {
  id                String          @id @default(uuid()) @db.Uuid
  driverId          String          @db.Uuid
  driver            Driver          @relation(fields: [driverId], references: [id])
  rentalPlanId      String          @db.Uuid
  rentalPlan        RentalPlan      @relation(fields: [rentalPlanId], references:
[id])

  startDate         DateTime        // Plan start date
  expiryDate        DateTime        // Plan expiry date
  isActive          Boolean         @default(true)

  createdAt         DateTime        @default(now())
  updatedAt         DateTime        @updatedAt

  @@index([driverId])
  @@index([expiryDate])
  @@index([isActive])
}
```

Transaction

Universal transaction ledger for all financial activities.

```
model Transaction {
  id                  String            @id @default(uuid()) @db.Uuid
  driverId            String            @db.Uuid
  driver              Driver            @relation(fields: [driverId], references:
[id])

  type                TransactionType
  amount              Float
  status              TransactionStatus @default(PENDING)
  paymentMethod       PaymentMethod

  // Easebuzz integration fields
  easebuzzTxnId       String?           @unique
  easebuzzStatus      String?
  easebuzzPaymentId   String?

  // Reference IDs
  tripId              String?           @db.Uuid
  incentiveId         String?           @db.Uuid
  penaltyId           String?           @db.Uuid
  collectionId        String?           @db.Uuid

  description         String?
  metadata            Json?             // Additional data (PG response, etc.)

  createdAt           DateTime          @default(now())
  updatedAt           DateTime          @updatedAt

  @@index([driverId])
  @@index([type])
  @@index([status])
  @@index([createdAt])
  @@index([easebuzzTxnId])
}
```

Incentive

Driver performance incentives.

```
model Incentive {
  id                  String         @id @default(uuid()) @db.Uuid
  driverId            String         @db.Uuid
  driver              Driver         @relation(fields: [driverId], references: [id])

  amount              Float
  reason              String         // e.g., "5-star rating bonus", "100 trips
milestone"
  category            String?        // e.g., "PERFORMANCE", "MILESTONE", "REFERRAL"
```

```
  isPaid             Boolean        @default(false)
  paidAt             DateTime?
  transactionId      String?        @db.Uuid

  createdBy          String?        // Admin user ID
  createdAt          DateTime       @default(now())
  updatedAt          DateTime       @updatedAt

  @@index([driverId])
  @@index([isPaid])
  @@index([createdAt])
}
```

Penalty

Driver violations and penalties with multiple types and waiver support.

```
model Penalty {
  id                    String       @id @default(uuid()) @db.Uuid
  driverId              String       @db.Uuid
  driver                Driver       @relation(fields: [driverId], references: [id])

  // Penalty details
  type                  PenaltyType  // MONETARY, WARNING, SUSPENSION, BLACKLIST
  amount                Float        @default(0)  // 0 for non-monetary penalties
  reason                String       // e.g., "Late arrival", "Customer complaint"
  category              String?      // e.g., "BEHAVIOR", "VEHICLE_DAMAGE",
"POLICY_VIOLATION"

  // Payment tracking (for MONETARY penalties)
  isPaid                Boolean      @default(false)
  paidAt                DateTime?
  transactionId         String?      @db.Uuid

  // Deposit deduction (for RENTAL model drivers)
  deductedFromDeposit   Boolean      @default(false)
  depositDeductionAt    DateTime?
  depositDeductionAmount Float?

  // Suspension/Blacklist tracking (for non-monetary penalties)
  suspensionStartDate   DateTime?
  suspensionEndDate     DateTime?
  isActive              Boolean      @default(true)  // For blacklist/suspension
status

  // Admin review and waiver tracking
  isWaived              Boolean      @default(false)
  waivedBy              String?      // Admin user ID who waived
  waivedAt              DateTime?
  waiverReason          String?      // Reason for waiving penalty
  reviewedBy            String?      // Admin user ID who reviewed
  reviewedAt            DateTime?
```

```
  reviewNotes           String?      @db.Text

  createdBy             String?      // Admin user ID
  createdAt             DateTime     @default(now())
  updatedAt             DateTime     @updatedAt

  @@index([driverId])
  @@index([type])
  @@index([isPaid])
  @@index([isActive])
  @@index([isWaived])
  @@index([createdAt])
}
```

Penalty Types:

Type	Description	Financial Impact
`MONETARY`	Financial penalty	Amount charged to driver
`WARNING`	Verbal/written warning	No financial impact
`SUSPENSION`	Temporary platform ban	No direct financial impact
`BLACKLIST`	Permanent platform ban	No direct financial impact

Deposit Deduction (Rental Model):

- Monetary penalties automatically deducted from deposit balance
- If insufficient deposit, partial deduction + payment gateway request
- Full audit trail of deductions maintained

Waiver System:

- Admins can review and waive any penalty
- Required waiver reason for audit trail
- Automatic refunds for waived monetary penalties
- Suspension cancellation for waived suspensions

See PENALTY_SYSTEM.md and PENALTY_WAIVER_SYSTEM.md for complete details.

VirtualQR

Vehicle-specific virtual QR codes for collections.

```
model VirtualQR {
  id                  String         @id @default(uuid()) @db.Uuid
  vehicleId           String         @unique @db.Uuid
  vehicle             Vehicle        @relation(fields: [vehicleId], references: [id])

  // Easebuzz Virtual Account details
  virtualAccountId    String         @unique
  virtualAccountNumber String?       // Virtual account number
  ifscCode            String?        // IFSC code
```

```
  qrCodeUrl           String?        // QR code image URL
  qrCodeBase64        String?        @db.Text // QR code base64 data
  upiId               String?        @unique

  isActive            Boolean        @default(true)
  createdAt           DateTime       @default(now())
  updatedAt           DateTime       @updatedAt

  collections         DailyCollection[]

  @@index([vehicleId])
  @@index([virtualAccountId])
}
```

DailyCollection

Daily collection tracking and reconciliation.

```
model DailyCollection {
  id                  String         @id @default(uuid()) @db.Uuid
  driverId            String         @db.Uuid
  driver              Driver         @relation(fields: [driverId], references: [id])
  vehicleId           String         @db.Uuid
  vehicle             Vehicle        @relation(fields: [vehicleId], references: [id])
  virtualQRId         String?        @db.Uuid
  virtualQR           VirtualQR?     @relation(fields: [virtualQRId], references:
[id])

  date                DateTime       @db.Date

  // Collection breakdown
  qrCollectionAmount Float          @default(0)  // Paid via virtual QR
  cashCollectionAmount Float        @default(0)  // Cash collected by driver
  totalCollection     Float          // qrCollection + cashCollection

  // Expected vs Actual
  expectedRevenue     Float?         // Based on completed trips
  variance            Float?         // totalCollection - expectedRevenue

  // Payout calculation (for PAYOUT model)
  revSharePercentage Float?         // e.g., 70
  revShareAmount      Float?         // totalCollection × revSharePercentage
  incentiveAmount     Float          @default(0)
  penaltyAmount       Float          @default(0)
  netPayout           Float?         // revShare + incentive - penalty

  // Reconciliation
  isReconciled        Boolean        @default(false)
  reconciledBy        String?        // Admin/Manager user ID
  reconciledAt        DateTime?
  reconciliationNotes String?        @db.Text
```

```
  // Payout
  isPaid              Boolean        @default(false)
  paidAt              DateTime?
  payoutTransactionId String?        @db.Uuid

  createdAt           DateTime       @default(now())
  updatedAt           DateTime       @updatedAt

  @@unique([driverId, date])
  @@index([driverId])
  @@index([vehicleId])
  @@index([date])
  @@index([isReconciled])
  @@index([isPaid])
}
```

4.3 Driver Model Extensions

```
model Driver {
  // ... existing fields

  // Payment model configuration
  paymentModel       PaymentModel?  // RENTAL or PAYOUT
  depositBalance     Float          @default(0)

  // Revenue share configuration (for PAYOUT model)
  revSharePercentage Float?         @default(70)

  // Bank account for payouts
  bankAccountNumber  String?
  bankIfscCode       String?
  bankAccountName    String?

  // Relations
  driverRentals      DriverRental[]
  transactions       Transaction[]
  incentives         Incentive[]
  penalties          Penalty[]
  dailyCollections   DailyCollection[]
}
```

4.4 Vehicle Model Extensions

```
model Vehicle {
  // ... existing fields

  // Virtual QR for collections
  virtualQRId        String?        @unique @db.Uuid
  virtualQR          VirtualQR?
```

```
  // Relations
  dailyCollections   DailyCollection[]
}
```

---

5. Easebuzz Integration

5.1 Payment Gateway (Payment In)

Use Cases:

- Deposit payments
- Rental payments
- Penalty payments

API Endpoint

```
POST https://pay.easebuzz.in/payment/initiateLink
```

Request Format

```
interface InitiatePaymentRequest {
  key: string;              // Merchant key
  txnid: string;            // Unique transaction ID
  amount: string;           // Amount in INR
  productinfo: string;      // Product description
  firstname: string;        // Customer name
  phone: string;            // Customer phone
  email: string;            // Customer email
  surl: string;             // Success URL
  furl: string;             // Failure URL
  hash: string;             // SHA-512 hash
  udf1?: string;            // Custom field 1 (driverId)
  udf2?: string;            // Custom field 2 (transactionType)
}
```

Hash Calculation

```
const hashString =
`${key}|${txnid}|${amount}|${productinfo}|${firstname}|${email}|${udf1}|${udf2}||||||||
const hash = crypto.createHash('sha512').update(hashString).digest('hex');
```

Response Format

```
interface PaymentResponse {
  status: number;           // 1 = success, 0 = failure
  data: string;             // Payment URL
}
```

5.2 Payouts (Payment Out)

Use Cases:

- Incentive payouts
- Daily revenue share payouts

API Endpoint

```
POST https://api.easebuzz.in/payout/v1/create
```

Request Format

```
interface CreatePayoutRequest {
  merchant_key: string;
  merchant_txn_id: string;  // Unique transaction ID
  beneficiary_name: string;
  beneficiary_account: string;
  beneficiary_ifsc: string;
  amount: string;           // Amount in INR
  purpose: string;          // Payout purpose
  transfer_mode: 'NEFT' | 'RTGS' | 'IMPS';
  hash: string;             // SHA-256 hash
}
```

Hash Calculation

```
const hashString = `${merchant_key}|${merchant_txn_id}|${amount}|${salt}`;
const hash = crypto.createHash('sha256').update(hashString).digest('hex');
```

Response Format

```
interface PayoutResponse {
  status: number;           // 1 = success, 0 = failure
  msg: string;
  data: {
    txn_id: string;         // Easebuzz transaction ID
    status: string;         // PENDING, SUCCESS, FAILED
    utr: string;            // UTR number (if successful)
  };
}
```

5.3 Virtual Accounts (InstaCollect)

Use Cases:

- Generate vehicle-specific QR codes
- Track QR payments via webhooks

Create Virtual Account

```
POST https://api.easebuzz.in/instacollect/v1/create
```

Request Format

```typescript
interface CreateVirtualAccountRequest {
  merchant_key: string;
  virtual_account_name: string;  // Vehicle number
  customer_name: string;         // Fleet name
  customer_mobile: string;
  customer_email: string;
  udf1?: string;                 // vehicleId
  hash: string;
}
```

Response Format

```typescript
interface VirtualAccountResponse {
  status: number;
  msg: string;
  data: {
    virtual_account_id: string;
    virtual_account_number: string;
    ifsc_code: string;
    qr_code: string;              // Base64 QR code
    upi_id: string;
  };
}
```

Webhook Notification

When a payment is received on the virtual account:

```typescript
interface VirtualAccountWebhook {
  merchant_key: string;
  virtual_account_id: string;
  txn_id: string;
  amount: string;
  payment_mode: string;
  utr: string;
  txn_date: string;
  udf1: string;                   // vehicleId
  hash: string;
}
```

---

6. API Endpoints

6.1 Driver APIs

Get Balance & Rental Status

```
GET /api/payment/balance
Authorization: Bearer <driver_jwt>
```

Response:

```
{
  "depositBalance": 15000,
  "rentalPlan": {
    "name": "Monthly Plan",
    "expiryDate": "2025-01-28T00:00:00Z",
    "daysRemaining": 23,
    "isActive": true
  },
  "paymentModel": "RENTAL"
}
```

Get Transactions

```
GET /api/payment/transactions?page=1&limit=20&type=INCENTIVE
Authorization: Bearer <driver_jwt>
```

Query Parameters:

- `page` : Page number (default: 1)
- `limit` : Items per page (default: 20)
- `type` : Filter by transaction type (optional)
- `status` : Filter by status (optional)
- `startDate` : Filter from date (optional)
- `endDate` : Filter to date (optional)

Response:

```
{
  "transactions": [
    {
      "id": "uuid",
      "type": "TRIP_PAYMENT",
      "amount": 450,
      "status": "SUCCESS",
      "paymentMethod": "VIRTUAL_QR",
      "description": "Trip #1234 payment",
      "createdAt": "2025-12-29T14:30:00Z"
    }
  ],
  "pagination": {
    "page": 1,
    "limit": 20,
    "total": 150,
    "totalPages": 8
```

```
  }
}
```

Get Transaction Details

```
GET /api/payment/transactions/:id
Authorization: Bearer <driver_jwt>
```

Response:

```
{
  "id": "uuid",
  "type": "INCENTIVE",
  "amount": 500,
  "status": "SUCCESS",
  "paymentMethod": "PG_UPI",
  "description": "5-star rating bonus",
  "easebuzzTxnId": "EBZ123456",
  "metadata": {
    "category": "PERFORMANCE",
    "tripCount": 50,
    "rating": 5.0
  },
  "createdAt": "2025-12-29T14:30:00Z",
  "updatedAt": "2025-12-29T14:31:00Z"
}
```

Get Incentives

```
GET /api/payment/incentives?isPaid=false
Authorization: Bearer <driver_jwt>
```

Response:

```
{
  "incentives": [
    {
      "id": "uuid",
      "amount": 500,
      "reason": "5-star rating bonus",
      "category": "PERFORMANCE",
      "isPaid": false,
      "createdAt": "2025-12-29T10:00:00Z"
    }
  ],
  "totalUnpaid": 1500,
  "totalPaid": 3000
}
```

Get Penalties

```
GET /api/payment/penalties?isPaid=false
Authorization: Bearer <driver_jwt>
```

Response:

```
{
  "penalties": [
    {
      "id": "uuid",
      "amount": 200,
      "reason": "Late arrival - Trip #1234",
      "category": "BEHAVIOR",
      "isPaid": false,
      "createdAt": "2025-12-28T16:00:00Z"
    }
  ],
  "totalUnpaid": 400,
  "totalPaid": 800
}
```

Initiate Deposit Payment

```
POST /api/payment/deposit
Authorization: Bearer <driver_jwt>
Content-Type: application/json

{
  "amount": 15000
}
```

Response:

```
{
  "paymentUrl": "https://pay.easebuzz.in/pay/...",
  "transactionId": "uuid",
  "expiresAt": "2025-12-29T15:00:00Z"
}
```

Initiate Rental Payment

```
POST /api/payment/rental
Authorization: Bearer <driver_jwt>
Content-Type: application/json

{
```

```
  "rentalPlanId": "uuid"
}
```

Response:

```
{
  "paymentUrl": "https://pay.easebuzz.in/pay/...",
  "transactionId": "uuid",
  "rentalPlan": {
    "name": "Monthly Plan",
    "amount": 8000,
    "validityDays": 30
  }
}
```

6.2 Admin APIs

Configure Driver Payment Model

```
POST /api/admin/payment/configure
Authorization: Bearer <admin_jwt>
Content-Type: application/json

{
  "driverId": "uuid",
  "paymentModel": "RENTAL",
  "revSharePercentage": 70
}
```

Create Rental Plan

```
POST /api/admin/payment/rental-plan
Authorization: Bearer <admin_jwt>
Content-Type: application/json

{
  "fleetId": "uuid",
  "name": "Weekly Plan",
  "rentalAmount": 2000,
  "depositAmount": 10000,
  "validityDays": 7
}
```

Add Incentive

```
POST /api/admin/payment/incentive
Authorization: Bearer <admin_jwt>
Content-Type: application/json
```

```
{
  "driverId": "uuid",
  "amount": 500,
  "reason": "100 trips milestone",
  "category": "MILESTONE"
}
```

Add Penalty

```
POST /api/admin/payment/penalty
Authorization: Bearer <admin_jwt>
Content-Type: application/json

{
  "driverId": "uuid",
  "amount": 200,
  "reason": "Customer complaint - Trip #1234",
  "category": "BEHAVIOR"
}
```

Get Daily Collections

```
GET /api/admin/payment/collections?date=2025-12-29&isReconciled=false
Authorization: Bearer <admin_jwt>
```

Response:

```
{
  "collections": [
    {
      "id": "uuid",
      "driver": {
        "id": "uuid",
        "name": "John Doe"
      },
      "vehicle": {
        "id": "uuid",
        "vehicleNumber": "DL01AB1234"
      },
      "date": "2025-12-29",
      "qrCollectionAmount": 3500,
      "cashCollectionAmount": 1500,
      "totalCollection": 5000,
      "expectedRevenue": 4800,
      "variance": 200,
      "netPayout": 3800,
      "isReconciled": false
    }
```

```
  ]
}
```

Reconcile Daily Collection

```
POST /api/admin/payment/reconcile/:collectionId
Authorization: Bearer <admin_jwt>
Content-Type: application/json

{
  "isApproved": true,
  "notes": "Variance explained - extra tip from customer"
}
```

Trigger Manual Payout

```
POST /api/admin/payment/payout
Authorization: Bearer <admin_jwt>
Content-Type: application/json

{
  "driverId": "uuid",
  "amount": 3800,
  "purpose": "Daily payout - 2025-12-29"
}
```

6.3 Webhook Endpoints

Easebuzz Payment Webhook

```
POST /api/webhooks/easebuzz/payment
Content-Type: application/json

{
  "txnid": "TXN123456",
  "status": "success",
  "amount": "15000.00",
  "firstname": "John Doe",
  "email": "john@example.com",
  "phone": "9876543210",
  "productinfo": "Deposit Payment",
  "hash": "...",
  "udf1": "driverId",
  "udf2": "DEPOSIT"
}
```

Easebuzz Virtual Account Webhook

```
POST /api/webhooks/easebuzz/virtual-account
Content-Type: application/json

{
  "virtual_account_id": "VA123456",
  "txn_id": "TXN789012",
  "amount": "450.00",
  "payment_mode": "UPI",
  "utr": "UTR123456",
  "txn_date": "2025-12-29 14:30:00",
  "udf1": "vehicleId",
  "hash": "..."
}
```

---

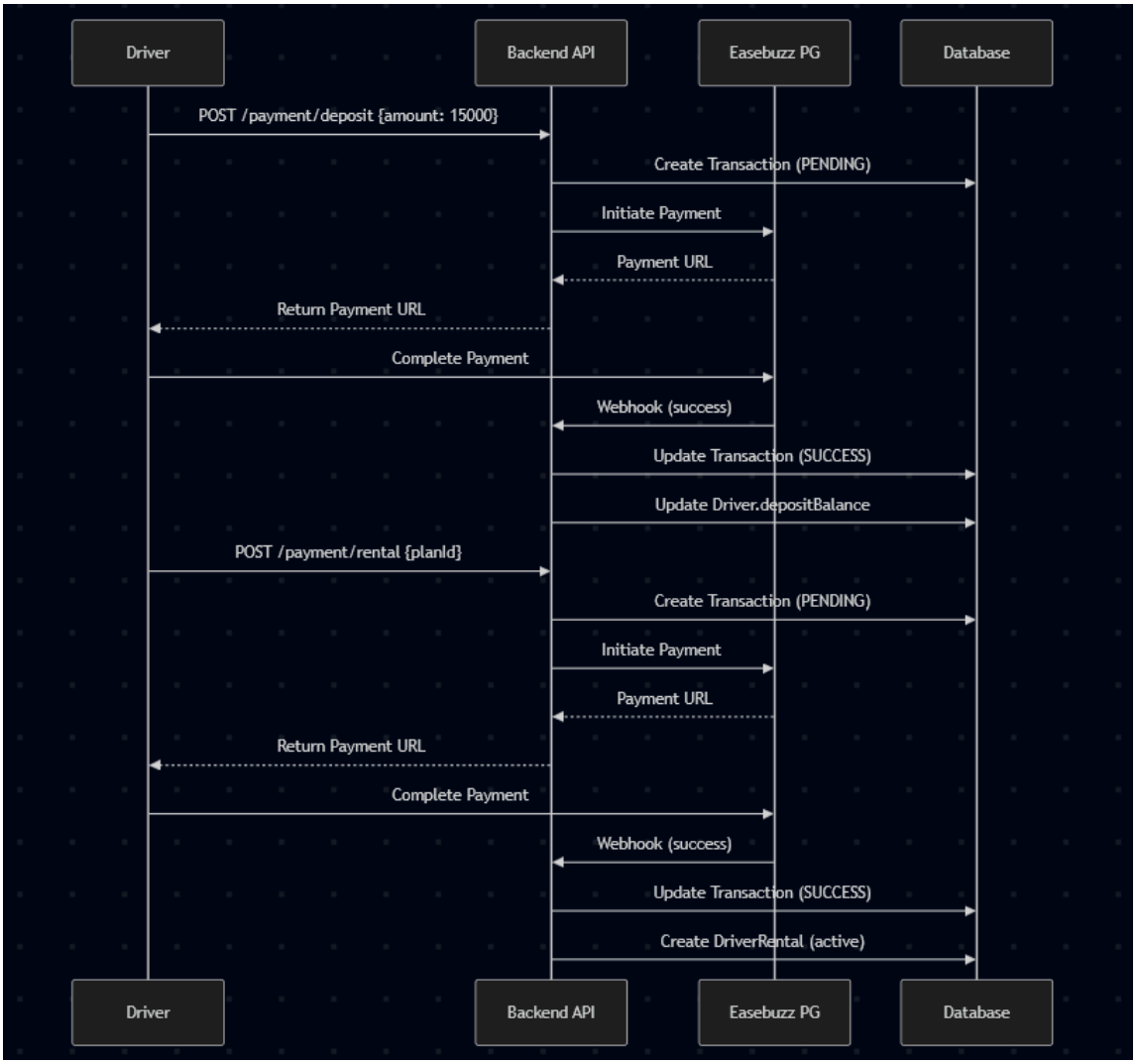
7. Business Logic Flows

7.1 Rental Model - Driver Onboarding

```
sequenceDiagram
    participant D as Driver
    participant API as Backend API
    participant PG as Easebuzz PG
    participant DB as Database

    D->>API: POST /payment/deposit {amount: 15000}
    API->>DB: Create Transaction (PENDING)
    API->>PG: Initiate Payment
    PG-->>API: Payment URL
    API-->>D: Return Payment URL
    D->>PG: Complete Payment
    PG->>API: Webhook (success)
    API->>DB: Update Transaction (SUCCESS)
    API->>DB: Update Driver.depositBalance

    D->>API: POST /payment/rental {planId}
    API->>DB: Create Transaction (PENDING)
    API->>PG: Initiate Payment
    PG-->>API: Payment URL
    API-->>D: Return Payment URL
    D->>PG: Complete Payment
    PG->>API: Webhook (success)
    API->>DB: Update Transaction (SUCCESS)
    API->>DB: Create DriverRental (active)
```



7.2 Payout Model - Daily Settlement

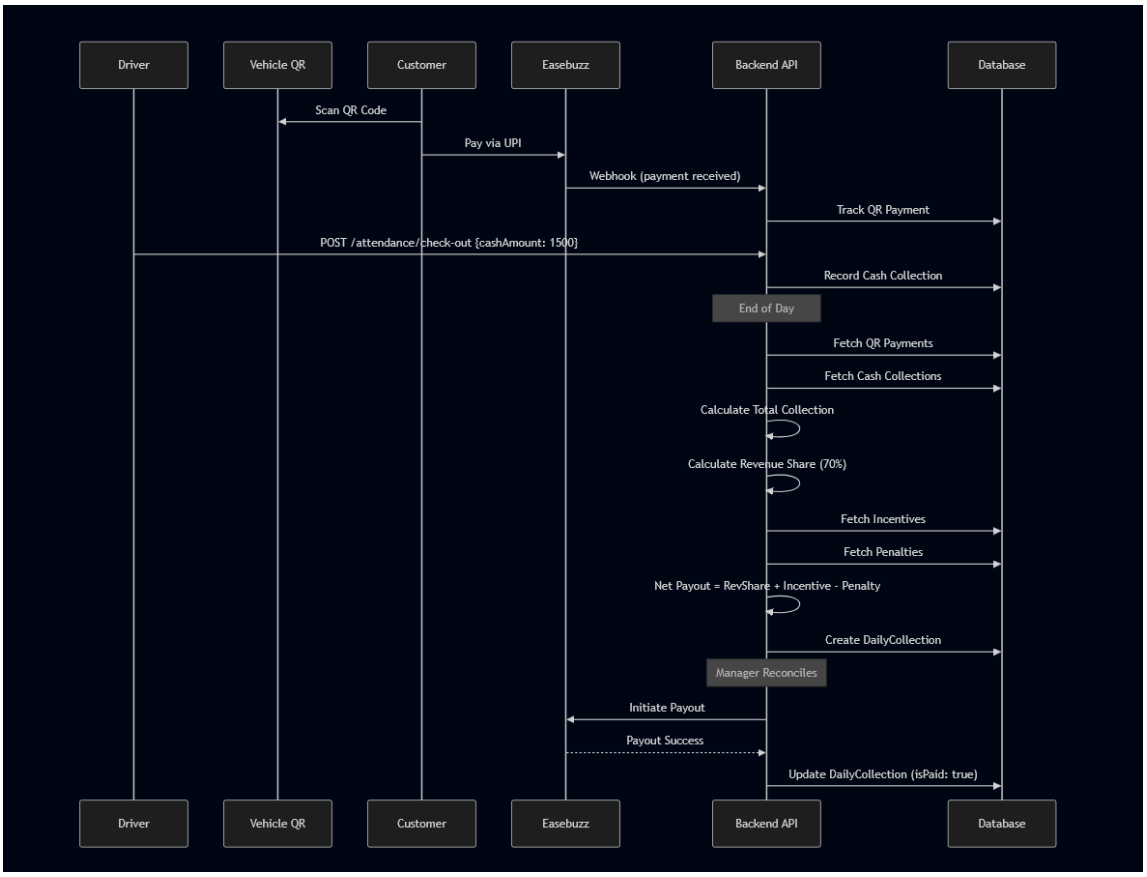
```
sequenceDiagram
    participant D as Driver
    participant V as Vehicle QR
    participant C as Customer
    participant EB as Easebuzz
    participant API as Backend API
    participant DB as Database

    C->>V: Scan QR Code
    C->>EB: Pay via UPI
    EB->>API: Webhook (payment received)
    API->>DB: Track QR Payment

    D->>API: POST /attendance/check-out {cashAmount: 1500}
    API->>DB: Record Cash Collection
```

```
    Note over API: End of Day
    API->>DB: Fetch QR Payments
    API->>DB: Fetch Cash Collections
    API->>API: Calculate Total Collection
    API->>API: Calculate Revenue Share (70%)
    API->>DB: Fetch Incentives
    API->>DB: Fetch Penalties
    API->>API: Net Payout = RevShare + Incentive - Penalty
    API->>DB: Create DailyCollection

    Note over API: Manager Reconciles
    API->>EB: Initiate Payout
    EB-->>API: Payout Success
    API->>DB: Update DailyCollection (isPaid: true)
```

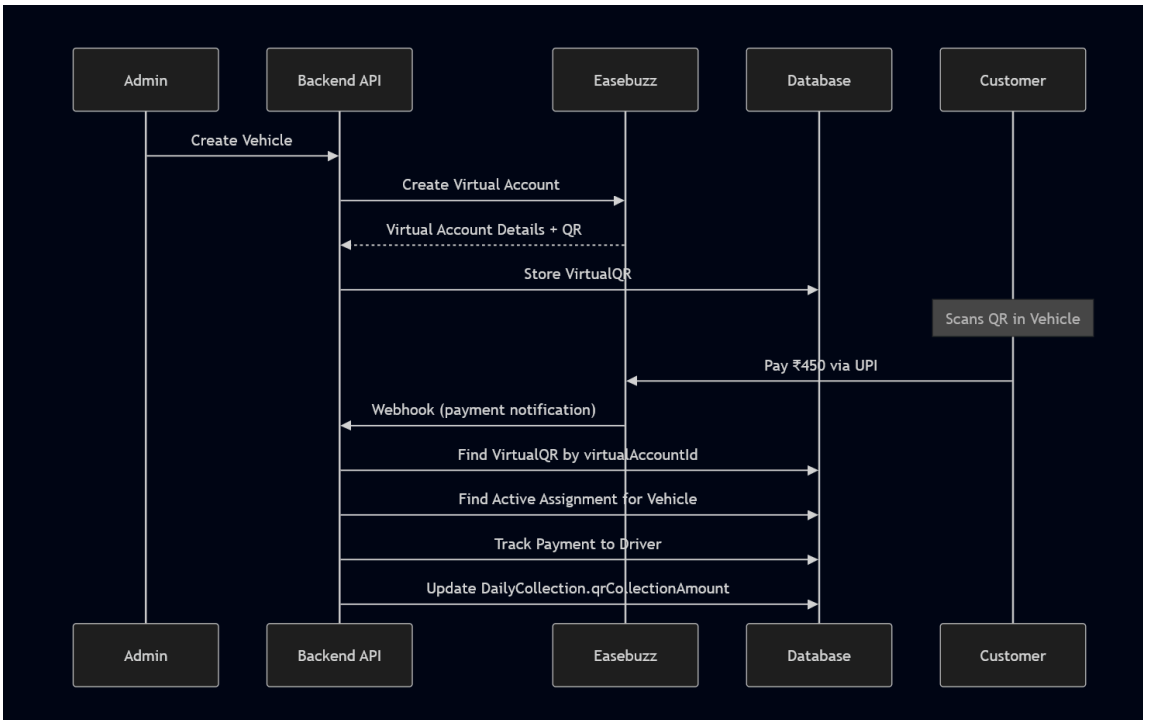


7.3 Virtual QR Payment Flow

```
sequenceDiagram
    participant Admin as Admin
    participant API as Backend API
    participant EB as Easebuzz
    participant DB as Database
    participant Customer as Customer
```

```
Admin->>API: Create Vehicle
API->>EB: Create Virtual Account
EB-->>API: Virtual Account Details + QR
API->>DB: Store VirtualQR

Note over Customer: Scans QR in Vehicle
Customer->>EB: Pay ₹450 via UPI
EB->>API: Webhook (payment notification)
API->>DB: Find VirtualQR by virtualAccountId
API->>DB: Find Active Assignment for Vehicle
API->>DB: Track Payment to Driver
API->>DB: Update DailyCollection.qrCollectionAmount
```



---

8. UI/UX Specifications

8.1 Driver Mobile App

Balance & Rental Status Screen

Top Card:

- Large balance display: "₹15,000"
- Label: "Deposit Balance"
- SIM-plan style validity: "Rental Valid: 23 days remaining"
- Progress bar showing validity percentage

Tabs:

- All Transactions (default)

- Incentives
- Penalties

Transaction List: Each entry shows:

- Icon (colored by type)
- Transaction type
- Amount (green for credit, red for debit)
- Timestamp
- Brief description

Actions:

- Tap entry → View detailed transaction
- Pull to refresh
- Infinite scroll pagination

Transaction Detail Screen

- Transaction type badge
- Amount (large, colored)
- Status badge
- Payment method
- Description
- Easebuzz transaction ID
- Metadata (if applicable)
- Timestamp
- Download receipt button

8.2 Admin Dashboard

Collections Dashboard

Filters:

- Date range picker
- Driver filter
- Vehicle filter
- Reconciliation status

Collection Cards: Each card shows:

- Driver name & photo
- Vehicle number
- QR Collection: ₹3,500
- Cash Collection: ₹1,500
- Total: ₹5,000
- Expected: ₹4,800
- Variance: +₹200 (highlighted if > threshold)
- Net Payout: ₹3,800
- Reconcile button

Actions:

- View details
- Approve/Reject reconciliation
- Trigger payout

- Export report

---

9. Security & Compliance

9.1 Payment Security

- **Hash Verification**: All Easebuzz requests verified with SHA-512/SHA-256 hash
- **Webhook Validation**: IP whitelist + hash verification
- **SSL/TLS**: All payment communications over HTTPS
- **PCI-DSS**: No card data stored in database
- **Tokenization**: Use Easebuzz tokens for recurring payments

9.2 Data Protection

- **Encryption**: Sensitive data encrypted at rest
- **Access Control**: Role-based access to financial data
- **Audit Logs**: All financial transactions logged
- **Data Retention**: Transaction data retained per regulatory requirements

9.3 Fraud Prevention

- **Duplicate Detection**: Prevent duplicate transactions
- **Amount Limits**: Min/max transaction limits
- **Velocity Checks**: Rate limiting on payment requests
- **Reconciliation**: Daily automated reconciliation
- **Alerts**: Anomaly detection for unusual patterns

---

10. Implementation Roadmap

Phase 1: Foundation (Week 1)

- [ ] Database schema design
- [ ] Prisma migration
- [ ] Easebuzz adapter setup
- [ ] Environment configuration

Phase 2: Rental Model (Week 2)

- [ ] Rental service implementation
- [ ] Payment gateway integration
- [ ] Deposit & rental payment flows
- [ ] Rental plan management

Phase 3: Payout Model (Week 3)

- [ ] Payout service implementation
- [ ] Revenue share calculation
- [ ] Daily collection tracking
- [ ] Reconciliation logic

Phase 4: Virtual QR (Week 4)

- [ ] Virtual account creation

- [ ] QR code generation
- [ ] Webhook handler
- [ ] Collection automation

Phase 5: APIs (Week 5)

- [ ] Driver APIs
- [ ] Admin APIs
- [ ] Webhook endpoints
- [ ] API documentation

Phase 6: Testing & Launch (Week 6)

- [ ] Unit tests
- [ ] Integration tests
- [ ] End-to-end testing
- [ ] Production deployment

Appendix

A. Easebuzz API References

- **Payment Gateway**: https://docs.easebuzz.in/docs/payment-gateway/rt8pognkld0wb-payment-methods
- **Payouts**: https://docs.easebuzz.in/docs/neobanking/zacms0lnxnniz-payouts
- **Virtual Accounts**: https://docs.easebuzz.in/docs/neobanking/ykrkzriis6ez5-insta-collect-virtual-accounts

B. Configuration Reference

```
# Easebuzz Configuration
EASEBUZZ_MERCHANT_KEY=your-merchant-key
EASEBUZZ_SALT_KEY=your-salt-key
EASEBUZZ_ENV=test  # test | production
EASEBUZZ_BASE_URL=https://testpay.easebuzz.in

# Payment Configuration
DEFAULT_REV_SHARE_PERCENTAGE=70
MIN_PAYOUT_AMOUNT=100
MAX_TRANSACTION_AMOUNT=100000
PAYOUT_FREQUENCY=DAILY  # DAILY | WEEKLY | ON_DEMAND

# Webhook URLs
PAYMENT_SUCCESS_URL=https://api.driversklub.com/webhooks/easebuzz/success
PAYMENT_FAILURE_URL=https://api.driversklub.com/webhooks/easebuzz/failure
```

End of Documentation