Droppin Database Entity Relationship Diagram
Complete Database Schema Visualization

Droppin Development Team

2025

Contents

1 Droppin Database Entity Relationship Diagram

1.1 System Overview

The Droppin delivery management system database consists of **9 core entities** with **complex relationships** supporting a complete delivery lifecycle management system.

1.2 Entity Relationship Diagram

```
erDiagram
    Users {
        int id PK
        string name
        string email UK
        string password
        string phone
        enum role
        string street
        string city
        string state
        string zipCode
        string country
        boolean isApproved
        boolean isActive
        string lang
        datetime createdAt
        datetime updatedAt
    }

    Shops {
        int id PK
        int userId FK
        string businessName
        string businessType
        string address
        string logo
        string registrationNumber
        string taxId
        string contactPersonName
        string contactPersonPhone
        string contactPersonEmail
        boolean isVerified
        decimal ToCollect
        decimal TotalCollected
        decimal settelled
        decimal shippingFees
        decimal shownShippingFees
        string apiKey UK
        datetime createdAt
        datetime updatedAt
    }

    Drivers {
        int id PK
```

```
        int userId FK
        enum vehicleType
        string licensePlate
        string model
        string color
        string driverLicense
        boolean isAvailable
        datetime locationUpdatedAt
        float rating
        int totalDeliveries
        int totalAssigned
        int totalCancelled
        int assignedToday
        int activeAssign
        boolean isVerified
        string workingArea
        decimal cashOnHand
        datetime createdAt
        datetime updatedAt
    }

    Packages {
        int id PK
        int shopId FK
        int pickupId FK
        int driverId FK
        int userId FK
        string trackingNumber UK
        enum type
        string packageDescription
        float weight
        string dimensions
        enum status
        string pickupContactName
        string pickupContactPhone
        string pickupAddress
        string deliveryContactName
        string deliveryContactPhone
        string deliveryAddress
        string schedulePickupTime
        string estimatedDeliveryTime
        datetime actualPickupTime
        datetime actualDeliveryTime
        enum priority
        enum paymentStatus
        float codAmount
        float deliveryCost
        float shownDeliveryCost
        string paymentMethod
        text paymentNotes
        boolean isPaid
        string paymentDate
        json notes
        text shopNotes
```

```
        json signature
        json deliveryPhotos
        json statusHistory
        int itemsNo
        string shopifyOrderId
        json returnDetails
        float returnRefundAmount
        float paidAmount
        json deliveredItems
        json exchangeDetails
        float rejectionShippingPaidAmount
        datetime createdAt
        datetime updatedAt
    }

    Items {
        int id PK
        int packageId FK
        string description
        int quantity
        float codAmount
        datetime createdAt
        datetime updatedAt
    }

    Pickups {
        int id PK
        int shopId FK
        datetime scheduledTime
        string pickupAddress
        int driverId FK
        enum status
        datetime actualPickupTime
        text notes
        datetime createdAt
        datetime updatedAt
    }

    PickupPackages {
        int id PK
        int pickupId FK
        int packageId FK
        datetime createdAt
        datetime updatedAt
    }

    MoneyTransactions {
        int id PK
        int shopId FK
        int driverId FK
        decimal amount
        enum attribute
        enum changeType
        string description
```

```
        datetime createdAt
        datetime updatedAt
}

Notifications {
        int id PK
        int userId FK
        enum userType
        string title
        text message
        json data
        boolean isRead
        datetime createdAt
        datetime updatedAt
}

%% Relationships
Users ||--o| Shops : "has"
Users ||--o| Drivers : "has"
Users ||--o{ Packages : "creates"
Users ||--o{ Notifications : "receives"

Shops ||--o{ Packages : "owns"
Shops ||--o{ Pickups : "schedules"
Shops ||--o{ MoneyTransactions : "has"

Drivers ||--o{ Packages : "delivers"
Drivers ||--o{ Pickups : "handles"
Drivers ||--o{ MoneyTransactions : "involves"

Packages ||--o{ Items : "contains"
Packages }o--|| Pickups : "belongs_to"

Pickups ||--o{ PickupPackages : "includes"
Packages ||--o{ PickupPackages : "included_in"
```

2 Entity Descriptions

2.1 Core Entities

2.1 Users

Primary Entity for all system participants

Field	Type	Description
id	INTEGER PK	Auto-incrementing primary key
name	STRING	Full name of the user
email	STRING UK	Unique email address
password	STRING	Hashed password (bcrypt)
phone	STRING	Contact phone number
role	ENUM	user, shop, driver, admin
street	STRING	Address street
city	STRING	Address city
state	STRING	Address state
zipCode	STRING	Address zip code
country	STRING	Address country
isApproved	BOOLEAN	Account approval status
isActive	BOOLEAN	Account active status
lang	STRING	Language preference
createdAt	DATETIME	Record creation timestamp
updatedAt	DATETIME	Record update timestamp

2.1 Shops

Business entities that create and manage delivery packages

Field	Type	Description
id	INTEGER PK	Auto-incrementing primary key
userId	INTEGER FK	References Users.id
businessName	STRING	Official business name
businessType	STRING	Type of business
address	STRING	Business address
logo	STRING	Logo file path
registrationNumber	STRING	Business registration number
taxId	STRING	Tax identification number
contactPersonName	STRING	Primary contact person
contactPersonPhone	STRING	Contact phone number
contactPersonEmail	STRING	Contact email address
isVerified	BOOLEAN	Business verification status
ToCollect	DECIMAL(10,2)	Amount pending collection
TotalCollected	DECIMAL(10,2)	Total amount collected
settelled	DECIMAL(10,2)	Amount settled
shippingFees	DECIMAL(10,2)	Default shipping fees
shownShippingFees	DECIMAL(10,2)	Customer-facing shipping fees
apiKey	STRING UK	Unique API key for integrations
createdAt	DATETIME	Record creation timestamp
updatedAt	DATETIME	Record update timestamp

2.1   Drivers

Delivery personnel who handle package transportation

Field	Type	Description
id	INTEGER PK	Auto-incrementing primary key
userId	INTEGER FK	References Users.id
vehicleType	ENUM	car, motorcycle, bicycle, van, truck
licensePlate	STRING	Vehicle license plate
model	STRING	Vehicle model
color	STRING	Vehicle color
driverLicense	STRING	Driver's license number
isAvailable	BOOLEAN	Driver availability status
locationUpdatedAt	DATETIME	Last location update
rating	FLOAT	Driver performance rating
totalDeliveries	INTEGER	Total completed deliveries
totalAssigned	INTEGER	Total assigned packages
totalCancelled	INTEGER	Total cancelled packages
assignedToday	INTEGER	Packages assigned today
activeAssign	INTEGER	Currently active assignments
isVerified	BOOLEAN	Driver verification status
workingArea	STRING	Designated working area
cashOnHand	DECIMAL(10,2)	COD cash currently held
createdAt	DATETIME	Record creation timestamp
updatedAt	DATETIME	Record update timestamp

2.1   Packages

Central delivery entity with comprehensive status tracking

Field	Type	Description
id	INTEGER PK	Auto-incrementing primary key
shopId	INTEGER FK	References Shops.id
pickupId	INTEGER FK	References Pickups.id
driverId	INTEGER FK	References Drivers.id
userId	INTEGER FK	References Users.id
trackingNumber	STRING UK	Unique tracking identifier
type	ENUM	new, return, exchange
packageDescription	STRING	Package contents description
weight	FLOAT	Package weight
dimensions	STRING	Package dimensions
status	ENUM	20+ status values
pickupContactName	STRING	Pickup contact person
pickupContactPhone	STRING	Pickup contact phone
pickupAddress	STRING	Pickup address
deliveryContactName	STRING	Delivery contact person
deliveryContactPhone	STRING	Delivery contact phone
deliveryAddress	STRING	Delivery address
schedulePickupTime	STRING	Scheduled pickup time
estimatedDeliveryTime	STRING	Estimated delivery time
actualPickupTime	DATETIME	Actual pickup timestamp
actualDeliveryTime	DATETIME	Actual delivery timestamp
priority	ENUM	normal, express, same-day

Field	Type	Description
paymentStatus	ENUM	pending, paid, failed
codAmount	FLOAT	Cash on delivery amount
deliveryCost	FLOAT	Delivery cost
shownDeliveryCost	FLOAT	Customer-facing delivery cost
paymentMethod	STRING	Payment method
paymentNotes	TEXT	Payment-related notes
isPaid	BOOLEAN	Payment status
paymentDate	STRING	Payment date
notes	JSON	Array of note objects
shopNotes	TEXT	Shop-specific notes
signature	JSON	Digital signature data
deliveryPhotos	JSON	Delivery photo metadata
statusHistory	JSON	Complete status audit trail
itemsNo	INTEGER	Number of items
shopifyOrderId	STRING	Shopify order reference
returnDetails	JSON	Return request details
returnRefundAmount	FLOAT	Return refund amount
paidAmount	FLOAT	Amount paid for partial delivery
deliveredItems	JSON	Items delivered in partial delivery
exchangeDetails	JSON	Exchange operation details
rejectionShippingPaidAmount	FLOAT	Shipping paid at rejection
createdAt	DATETIME	Record creation timestamp
updatedAt	DATETIME	Record update timestamp

3 Supporting Entities

3.1 Items

Individual items within packages

Field	Type	Description
id	INTEGER PK	Auto-incrementing primary key
packageId	INTEGER FK	References Packages.id
description	STRING	Item description
quantity	INTEGER	Item quantity
codAmount	FLOAT	Item-specific COD amount
createdAt	DATETIME	Record creation timestamp
updatedAt	DATETIME	Record update timestamp

3.2 Pickups

Scheduled pickup operations from shops

Field	Type	Description
id	INTEGER PK	Auto-incrementing primary key
shopId	INTEGER FK	References Shops.id
scheduledTime	DATETIME	Scheduled pickup time
pickupAddress	STRING	Pickup address
driverId	INTEGER FK	References Drivers.id
status	ENUM	pending, scheduled, picked_up, in_storage, completed, cancelled
actualPickupTime	DATETIME	Actual pickup timestamp
notes	TEXT	Pickup-related notes
createdAt	DATETIME	Record creation timestamp
updatedAt	DATETIME	Record update timestamp

3.3 PickupPackages (Junction Table)

Many-to-many relationship between pickups and packages

Field	Type	Description
id	INTEGER PK	Auto-incrementing primary key
pickupId	INTEGER FK	References Pickups.id
packageId	INTEGER FK	References Packages.id
createdAt	DATETIME	Record creation timestamp
updatedAt	DATETIME	Record update timestamp

3.4 MoneyTransactions

Financial transaction logging and audit trail

Field	Type	Description
id	INTEGER PK	Auto-incrementing primary key

Field	Type	Description
shopId	INTEGER FK	References Shops.id
driverId	INTEGER FK	References Drivers.id
amount	DECIMAL(10,2)	Transaction amount
attribute	ENUM	ToCollect, TotalCollected, Revenue, DriverCashOnHand
changeType	ENUM	increase, decrease
description	STRING	Transaction description
createdAt	DATETIME	Record creation timestamp
updatedAt	DATETIME	Record update timestamp

3.5 Notifications

System notifications and alerts

Field	Type	Description
id	INTEGER PK	Auto-incrementing primary key
userId	INTEGER FK	References Users.id
userType	ENUM	admin, shop, driver
title	STRING	Notification title
message	TEXT	Notification message
data	JSON	Additional notification data
isRead	BOOLEAN	Read status
createdAt	DATETIME	Record creation timestamp
updatedAt	DATETIME	Record update timestamp

4   Relationships and Constraints

4.1   Primary Relationships

4.1   One-to-One Relationships

- **Users   Shops:** Each user can have one shop profile
- **Users   Drivers:** Each user can have one driver profile

4.1   One-to-Many Relationships

- **Shops → Packages:** One shop can have many packages
- **Drivers → Packages:** One driver can deliver many packages
- **Packages → Items:** One package can contain many items
- **Shops → Pickups:** One shop can schedule many pickups
- **Drivers → Pickups:** One driver can handle many pickups
- **Shops → MoneyTransactions:** One shop can have many transactions
- **Drivers → MoneyTransactions:** One driver can have many transactions
- **Users → Notifications:** One user can receive many notifications

4.1   Many-to-Many Relationships

- **Pickups   Packages:** Through PickupPackages junction table

4.2   Database Constraints

4.2   Primary Keys

- All entities have auto-incrementing integer primary keys

4.2   Foreign Key Constraints

- All foreign key relationships maintain referential integrity
- Cascade rules defined for data consistency

4.2   Unique Constraints

- **Users.email:** Unique email addresses across all users
- **Shops.apiKey:** Unique API keys for external integrations
- **Packages.trackingNumber:** Unique tracking numbers for package identification

4.2   Check Constraints

- **Enum Values:** All enum fields have predefined valid values
- **Decimal Precision:** Monetary fields use DECIMAL(10,2) for precision
- **Boolean Defaults:** Appropriate default values for status fields

4.3   Performance Indexes

4.3   Primary Indexes

- **idx_packages_status:** ON Packages (status) - Status-based queries
- **idx_packages_shopId:** ON Packages (shopId) - Shop package lookups
- **idx_packages_driverId:** ON Packages (driverId) - Driver assignment queries
- **idx_packages_createdAt:** ON Packages (createdAt) - Time-based queries
- **idx_packages_actualDeliveryTime:** ON Packages (actualDeliveryTime) - Delivery tracking

4.3   Composite Indexes

- **idx_packages_shop_status:** ON Packages (shopId, status) - Shop status filtering
- **idx_packages_driver_status:** ON Packages (driverId, status) - Driver status filtering

---

5 Data Types and Enums

5.1 Status Enums

5.1 Package Status (20+ values)

- **Creation:** awaiting_schedule, awaiting_pickup, scheduled_for_pickup
- **Processing:** pending, assigned, pickedup, in-transit
- **Completion:** delivered, delivered-awaiting-return, delivered-returned
- **Cancellation:** cancelled, cancelled-awaiting-return, cancelled-returned
- **Rejection:** rejected, rejected-awaiting-return, rejected-returned
- **Returns:** return-requested, return-in-transit, return-pending, return-completed
- **Exchanges:** exchange-awaiting-schedule, exchange-awaiting-pickup, exchange-in-process, exchange-in-transit, exchange-awaiting-return, exchange-returned, exchange-cancelled

5.1 Pickup Status (6 values)

- **pending:** Pickup request created
- **scheduled:** Pickup time confirmed
- **picked_up:** Packages collected
- **in_storage:** Packages in storage
- **completed:** Pickup process completed
- **cancelled:** Pickup cancelled

5.1 Payment Status (3 values)

- **pending:** Payment not yet processed
- **paid:** Payment completed
- **failed:** Payment failed

5.1 User Role (4 values)

- **user:** Basic user account
- **shop:** Shop owner account
- **driver:** Driver account
- **admin:** System administrator

5.2 Data Type Specifications

5.2 Financial Fields

- **DECIMAL(10,2):** Monetary values with 2 decimal precision
- **FLOAT:** Weights, ratings, and non-monetary amounts

5.2 JSON Fields

- **Package Notes:** Array of note objects with timestamps and authors
- **Status History:** Complete audit trail of status changes
- **Delivery Photos:** Array of photo metadata and URLs
- **Signature Data:** Digital signature information and coordinates
- **Return/Exchange Details:** Complex return and exchange operation data
- **Notification Data:** Additional context for notifications

5.2 Text Fields

- **TEXT:** Long-form content like notes and descriptions

- **STRING:** Short text fields with length limits

---

6   Database Optimizations

6.1   SQLite Configuration

6.1   Performance PRAGMAs

```
PRAGMA journal_mode=WAL;        -- Write-Ahead Logging for concurrency
PRAGMA synchronous=NORMAL;      -- Balanced performance and safety
PRAGMA temp_store=MEMORY;       -- Memory-based temporary storage
PRAGMA cache_size=-20000;       -- 20MB memory cache
ANALYZE;                        -- Update query statistics
```

6.1   Connection Management

- **Connection Pooling:** Efficient database connection reuse
- **Query Optimization:** Prepared statements and parameterized queries
- **Transaction Management:** Proper transaction boundaries for data consistency

6.2   Query Optimization

6.2   Index Strategy

- **Single Column Indexes:** On frequently queried columns
- **Composite Indexes:** On commonly combined query conditions
- **Covering Indexes:** Include frequently accessed columns

6.2   Query Patterns

- **Efficient Joins:** Proper foreign key relationships for optimal joins
- **Pagination:** LIMIT/OFFSET for large result sets
- **Filtering:** WHERE clauses on indexed columns

6.3   Data Integrity

6.3   Referential Integrity

- **Foreign Key Constraints:** Maintain data consistency
- **Cascade Rules:** Define behavior for related record updates/deletes
- **Check Constraints:** Validate data at database level

6.3   Audit Trail

- **Timestamps:** Automatic createdAt/updatedAt tracking
- **Status History:** Complete package status change log
- **Transaction Logging:** Financial transaction audit trail

This Entity Relationship Diagram provides a comprehensive view of the Droppin database schema, supporting a complete delivery management system with robust data integrity and performance optimization.

Document Version: 1.0
Last Updated: 2025
Prepared by: Droppin Development Team