

Name: Keerthika Nagarajan

Superset ID: 5370583

College: Saveetha Engineering College

Assignment-Courier Management System

Database:

```
CREATE DATABASE CourierManagementSystem;
```

```
USE CourierManagementSystem;
```

```
CREATE TABLE Location (
```

```
    LocationID INT PRIMARY KEY AUTO_INCREMENT,
```

```
    LocationName VARCHAR(100) NOT NULL,
```

```
    Address TEXT NOT NULL,
```

```
    City VARCHAR(100) NOT NULL,
```

```
    State VARCHAR(50) NOT NULL,
```

```
    ZipCode VARCHAR(20) NOT NULL,
```

```
    Country VARCHAR(50) DEFAULT 'USA',
```

```
    ContactNumber VARCHAR(20) NOT NULL,
```

```
    LocationType ENUM('Warehouse', 'Distribution Center', 'Retail Outlet', 'Headquarters'),
```

```
    OperatingHours TEXT
```

```
);
```

```
CREATE TABLE User (
```

```
    UserID INT PRIMARY KEY AUTO_INCREMENT,
```

```
    Name VARCHAR(255) NOT NULL,
```

```
    Email VARCHAR(255) UNIQUE NOT NULL,
```

```
    Password VARCHAR(255) NOT NULL,
```

```
    ContactNumber VARCHAR(20) NOT NULL,
```

```
    Address TEXT NOT NULL,
```

```
    RegistrationDate DATETIME DEFAULT CURRENT_TIMESTAMP,
```

```
    LastLogin DATETIME,
```

```
    AccountStatus ENUM('Active', 'Inactive', 'Suspended') DEFAULT 'Active'
```

```
);
```

```
CREATE TABLE UserPaymentMethods (  
    PaymentMethodID INT PRIMARY KEY AUTO_INCREMENT,  
    UserID INT NOT NULL,  
    CardNumber VARCHAR(20),  
    CardType ENUM('Visa', 'MasterCard', 'Amex', 'Discover'),  
    ExpiryDate DATE,  
    BillingAddress TEXT,  
    IsDefault BOOLEAN DEFAULT FALSE,  
    FOREIGN KEY (UserID) REFERENCES User(UserID)  
);
```

```
CREATE TABLE Employee (  
    EmployeeID INT PRIMARY KEY AUTO_INCREMENT,  
    Name VARCHAR(255) NOT NULL,  
    Email VARCHAR(255) UNIQUE NOT NULL,  
    Password VARCHAR(255) NOT NULL,  
    ContactNumber VARCHAR(20) NOT NULL,  
    Role ENUM('Admin', 'Manager', 'Driver', 'Warehouse', 'Customer Service') NOT NULL,  
    Salary DECIMAL(10, 2),  
    HireDate DATE NOT NULL,  
    TerminationDate DATE,  
    Status ENUM('Active', 'On Leave', 'Terminated') DEFAULT 'Active',  
    CurrentLocationID INT,  
    VehicleInfo VARCHAR(100),  
    FOREIGN KEY (CurrentLocationID) REFERENCES Location(LocationID)  
);
```

```
ALTER TABLE Location  
ADD COLUMN ManagerID INT,  
ADD FOREIGN KEY (ManagerID) REFERENCES Employee(EmployeeID);
```

```
CREATE TABLE Orders (  
    OrderID INT PRIMARY KEY AUTO_INCREMENT,  
    UserID INT NOT NULL,  
    OrderDate DATETIME DEFAULT CURRENT_TIMESTAMP,  
    TotalAmount DECIMAL(10, 2) NOT NULL,  
    Status ENUM('Pending', 'Processing', 'Shipped', 'Delivered', 'Cancelled', 'Returned') DEFAULT  
'Pending',  
    PaymentMethodID INT,  
    ShippingMethod VARCHAR(50),  
    EstimatedDelivery DATE,  
    Notes TEXT,  
    FOREIGN KEY (UserID) REFERENCES User(UserID),  
    FOREIGN KEY (PaymentMethodID) REFERENCES UserPaymentMethods(PaymentMethodID)  
);
```

```
CREATE TABLE CourierServices (  
    ServiceID INT PRIMARY KEY AUTO_INCREMENT,  
    ServiceName VARCHAR(100) NOT NULL,  
    Description TEXT,  
    BaseCost DECIMAL(8, 2) NOT NULL,  
    CostPerKg DECIMAL(8, 2),  
    MaxWeight DECIMAL(8, 2),  
    EstimatedDeliveryDays INT,  
    IsActive BOOLEAN DEFAULT TRUE  
);
```

```
CREATE TABLE Courier (  
    CourierID INT PRIMARY KEY AUTO_INCREMENT,  
    OrderID INT NOT NULL,  
    SenderName VARCHAR(255) NOT NULL,  
    SenderAddress TEXT NOT NULL,  
    SenderContact VARCHAR(20) NOT NULL,  
    ReceiverName VARCHAR(255) NOT NULL,
```

```
ReceiverAddress TEXT NOT NULL,  
ReceiverContact VARCHAR(20) NOT NULL,  
Weight DECIMAL(8, 2) NOT NULL,  
Dimensions VARCHAR(50),  
Status ENUM('Processing', 'In Transit', 'Out for Delivery', 'Delivered', 'Failed', 'Returned') DEFAULT  
'Processing',  
TrackingNumber VARCHAR(20) UNIQUE NOT NULL,  
PickupDate DATETIME,  
DeliveryDate DATETIME,  
DeliveryProof TEXT,  
InsuranceAmount DECIMAL(10, 2) DEFAULT 0.00,  
SpecialInstructions TEXT,  
FOREIGN KEY (OrderID) REFERENCES Orders(OrderID)  
);
```

```
CREATE TABLE CourierServiceMapping (  
MappingID INT PRIMARY KEY AUTO_INCREMENT,  
CourierID INT NOT NULL,  
ServiceID INT NOT NULL,  
AppliedCost DECIMAL(10, 2) NOT NULL,  
FOREIGN KEY (CourierID) REFERENCES Courier(CourierID),  
FOREIGN KEY (ServiceID) REFERENCES CourierServices(ServiceID)  
);
```

```
CREATE TABLE Payment (  
PaymentID INT PRIMARY KEY AUTO_INCREMENT,  
CourierID INT NOT NULL,  
LocationID INT,  
Amount DECIMAL(10, 2) NOT NULL,  
PaymentDate DATETIME DEFAULT CURRENT_TIMESTAMP,  
PaymentMethod ENUM('Credit Card', 'Debit Card', 'Cash', 'Bank Transfer', 'Digital Wallet'),  
PaymentStatus ENUM('Pending', 'Completed', 'Failed', 'Refunded') DEFAULT 'Pending',  
TransactionID VARCHAR(100),
```

```
Notes TEXT,  
FOREIGN KEY (CourierID) REFERENCES Courier(CourierID),  
FOREIGN KEY (LocationID) REFERENCES Location(LocationID)  
);  
  
CREATE TABLE Parcel (  
ParcelID INT PRIMARY KEY AUTO_INCREMENT,  
CourierID INT NOT NULL,  
Description TEXT NOT NULL,  
Weight DECIMAL(8, 2) NOT NULL,  
Length DECIMAL(8, 2),  
Width DECIMAL(8, 2),  
Height DECIMAL(8, 2),  
Value DECIMAL(10, 2),  
Category ENUM('Document', 'Electronics', 'Clothing', 'Food', 'Fragile', 'Other'),  
Barcode VARCHAR(50),  
FOREIGN KEY (CourierID) REFERENCES Courier(CourierID)  
);  
  
CREATE TABLE TrackingHistory (  
TrackingID INT PRIMARY KEY AUTO_INCREMENT,  
CourierID INT NOT NULL,  
LocationID INT,  
Status VARCHAR(100) NOT NULL,  
UpdateTime DATETIME DEFAULT CURRENT_TIMESTAMP,  
EmployeeID INT,  
Notes TEXT,  
FOREIGN KEY (CourierID) REFERENCES Courier(CourierID),  
FOREIGN KEY (LocationID) REFERENCES Location(LocationID),  
FOREIGN KEY (EmployeeID) REFERENCES Employee(EmployeeID)  
);
```

```
CREATE TABLE EmployeeLocationAssignment (  
    AssignmentID INT PRIMARY KEY AUTO_INCREMENT,  
    EmployeeID INT NOT NULL,  
    LocationID INT NOT NULL,  
    StartDate DATE NOT NULL,  
    EndDate DATE,  
    IsPrimary BOOLEAN DEFAULT FALSE,  
    FOREIGN KEY (EmployeeID) REFERENCES Employee(EmployeeID),  
    FOREIGN KEY (LocationID) REFERENCES Location(LocationID)  
);
```

```
CREATE TABLE CourierEmployeeAssignment (  
    AssignmentID INT PRIMARY KEY AUTO_INCREMENT,  
    CourierID INT NOT NULL,  
    EmployeeID INT NOT NULL,  
    AssignmentDate DATETIME DEFAULT CURRENT_TIMESTAMP,  
    Status ENUM('Assigned', 'In Progress', 'Completed', 'Cancelled') DEFAULT 'Assigned',  
    CompletionDate DATETIME,  
    Notes TEXT,  
    FOREIGN KEY (CourierID) REFERENCES Courier(CourierID),  
    FOREIGN KEY (EmployeeID) REFERENCES Employee(EmployeeID)  
);
```

```
CREATE TABLE Feedback (  
    FeedbackID INT PRIMARY KEY AUTO_INCREMENT,  
    UserID INT NOT NULL,  
    CourierID INT NOT NULL,  
    Rating INT CHECK (Rating BETWEEN 1 AND 5),  
    Comments TEXT,  
    FeedbackDate DATETIME DEFAULT CURRENT_TIMESTAMP,  
    Response TEXT,  
    ResponseDate DATETIME,
```

```
FOREIGN KEY (UserID) REFERENCES User(UserID),
FOREIGN KEY (CourierID) REFERENCES Courier(CourierID)
);

CREATE TABLE Inventory (
    InventoryID INT PRIMARY KEY AUTO_INCREMENT,
    LocationID INT NOT NULL,
    ItemName VARCHAR(255) NOT NULL,
    Quantity INT NOT NULL,
    LastRestocked DATE,
    MinimumThreshold INT,
    Status ENUM('In Stock', 'Low Stock', 'Out of Stock') DEFAULT 'In Stock',
    FOREIGN KEY (LocationID) REFERENCES Location(LocationID)
);

CREATE TABLE DeliveryRoute (
    RouteID INT PRIMARY KEY AUTO_INCREMENT,
    RouteName VARCHAR(100) NOT NULL,
    StartLocationID INT NOT NULL,
    EndLocationID INT NOT NULL,
    Distance DECIMAL(8, 2),
    EstimatedTime DECIMAL(8, 2),
    Status ENUM('Active', 'Inactive', 'Under Maintenance'),
    FOREIGN KEY (StartLocationID) REFERENCES Location(LocationID),
    FOREIGN KEY (EndLocationID) REFERENCES Location(LocationID)
);

CREATE TABLE RouteSchedule (
    ScheduleID INT PRIMARY KEY AUTO_INCREMENT,
    RouteID INT NOT NULL,
    EmployeeID INT NOT NULL,
    ScheduleDate DATE NOT NULL,
```

```
StartTime TIME NOT NULL,  
EndTime TIME,  
Status ENUM('Scheduled', 'In Progress', 'Completed', 'Cancelled') DEFAULT 'Scheduled',  
VehicleID VARCHAR(50),  
FOREIGN KEY (RouteID) REFERENCES DeliveryRoute(RouteID),  
FOREIGN KEY (EmployeeID) REFERENCES Employee(EmployeeID)  
);
```

Insertion Data:

```
INSERT INTO Location (LocationName, Address, City, State, ZipCode, ContactNumber, LocationType,  
OperatingHours) VALUES
```

```
('Main Warehouse', '100 Industrial Park', 'Anytown', 'CA', '90210', '555-0201', 'Warehouse', 'Mon-Fri:  
8AM-8PM, Sat: 9AM-5PM'),
```

```
('Downtown Hub', '50 Commerce St', 'Somewhere', 'NY', '10001', '555-0202', 'Distribution Center', 'Mon-  
Sun: 6AM-10PM'),
```

```
('Northside Facility', '200 Logistics Ave', 'Nowhere', 'TX', '75001', '555-0203', 'Warehouse', 'Mon-Fri:  
7AM-7PM'),
```

```
('Eastside Outlet', '300 Shopping Plaza', 'Anywhere', 'FL', '33101', '555-0204', 'Retail Outlet', 'Mon-Sat:  
9AM-9PM, Sun: 10AM-6PM'),
```

```
('Westside Center', '400 Business Park', 'Everywhere', 'IL', '60007', '555-0205', 'Distribution Center',  
'Mon-Fri: 6AM-6PM'),
```

```
('Corporate HQ', '500 Executive Blvd', 'Anytown', 'CA', '90211', '555-0206', 'Headquarters', 'Mon-Fri:  
8AM-5PM');
```

```
INSERT INTO User (Name, Email, Password, ContactNumber, Address, RegistrationDate, LastLogin,  
AccountStatus) VALUES
```

```
('John Smith', 'john.smith@email.com', 'jsmith123', '555-0101', '123 Main St, Anytown, USA', '2023-01-  
15 09:30:00', '2023-06-01 14:20:00', 'Active'),
```

```
('Sarah Johnson', 'sarah.j@email.com', 'sjohnson456', '555-0102', '456 Oak Ave, Somewhere, USA',  
'2023-01-16 10:15:00', '2023-06-02 10:45:00', 'Active'),
```

```
('Michael Brown', 'michael.b@email.com', 'mbrown789', '555-0103', '789 Pine Rd, Nowhere, USA',  
'2023-01-17 11:45:00', '2023-06-03 09:30:00', 'Active'),
```

```
('Emily Davis', 'emily.d@email.com', 'edavis321', '555-0104', '321 Elm St, Anywhere, USA', '2023-01-18  
13:20:00', '2023-06-04 16:10:00', 'Active'),
```

```
('Robert Wilson', 'robert.w@email.com', 'rwilson654', '555-0105', '654 Maple Dr, Everywhere, USA',  
'2023-01-19 14:10:00', '2023-06-05 11:25:00', 'Active'),
```



```
('Jennifer Lee', 'jennifer.l@email.com', 'jlee987', '555-0106', '987 Cedar Ln, Somewhere, USA', '2023-01-20 15:30:00', '2023-06-06 13:40:00', 'Active');
```

```
INSERT INTO Employee (Name, Email, Password, ContactNumber, Role, Salary, HireDate, Status, CurrentLocationID, VehicleInfo) VALUES
```

```
('Admin User', 'admin@courier.com', 'admin123', '555-0301', 'Admin', 75000.00, '2020-01-15', 'Active', 6, NULL),
```

```
('Warehouse Manager', 'manager@courier.com', 'manager456', '555-0302', 'Manager', 65000.00, '2020-02-20', 'Active', 1, NULL),
```

```
('Driver 1', 'driver1@courier.com', 'driver123', '555-0303', 'Driver', 45000.00, '2021-03-10', 'Active', 1, 'Ford Transit #TRN001'),
```

```
('Customer Service', 'cs@courier.com', 'cs123', '555-0304', 'Customer Service', 40000.00, '2021-04-15', 'Active', 2, NULL),
```

```
('Warehouse Staff', 'warehouse@courier.com', 'wh123', '555-0305', 'Warehouse', 38000.00, '2021-05-20', 'Active', 1, NULL),
```

```
('Operations Manager', 'ops@courier.com', 'ops123', '555-0306', 'Manager', 70000.00, '2020-06-25', 'Active', 6, NULL);
```

```
UPDATE Location SET ManagerID = 2 WHERE LocationID = 1;
```

```
UPDATE Location SET ManagerID = 4 WHERE LocationID = 2;
```

```
UPDATE Location SET ManagerID = 6 WHERE LocationID = 6;
```

```
INSERT INTO UserPaymentMethods (UserID, CardNumber, CardType, ExpiryDate, BillingAddress, IsDefault) VALUES
```

```
(1, '4111111111111111', 'Visa', '2025-12-31', '123 Main St, Anytown, USA', TRUE),
```

```
(2, '5555555555554444', 'MasterCard', '2024-10-31', '456 Oak Ave, Somewhere, USA', TRUE),
```

```
(3, '378282246310005', 'Amex', '2026-06-30', '789 Pine Rd, Nowhere, USA', TRUE),
```

```
(4, '6011111111111117', 'Discover', '2025-08-31', '321 Elm St, Anywhere, USA', TRUE),
```

```
(5, '3530111333300000', 'Amex', '2024-09-30', '654 Maple Dr, Everywhere, USA', FALSE),
```

```
(6, '5105105105105100', 'MasterCard', '2026-03-31', '987 Cedar Ln, Somewhere, USA', TRUE);
```

```
INSERT INTO CourierServices (ServiceName, Description, BaseCost, CostPerKg, MaxWeight, EstimatedDeliveryDays, IsActive) VALUES
```

```
('Standard Ground', 'Regular ground shipping', 8.99, 1.50, 50.00, 3, TRUE),
```

```
('Express 2-Day', 'Guaranteed 2-day delivery', 15.99, 2.50, 50.00, 2, TRUE),
```

```
('Overnight', 'Next business day delivery', 25.99, 4.00, 50.00, 1, TRUE),
```

```
('International Standard', 'International ground shipping', 29.99, 5.00, 50.00, 7, TRUE),  
( 'International Express', 'Fast international shipping', 49.99, 8.00, 50.00, 3, TRUE),  
( 'Same Day Delivery', 'Delivery within same day', 59.99, 10.00, 20.00, 0, TRUE);
```

```
INSERT INTO Orders (UserID, OrderDate, TotalAmount, Status, PaymentMethodID, ShippingMethod,  
EstimatedDelivery) VALUES
```

```
(1, '2023-06-01 10:15:00', 25.99, 'Delivered', 1, 'Express 2-Day', '2023-06-03'),  
(2, '2023-06-02 11:30:00', 45.50, 'Processing', 2, 'Overnight', '2023-06-03'),  
(3, '2023-06-03 09:45:00', 15.99, 'Shipped', 3, 'Standard Ground', '2023-06-06'),  
(4, '2023-06-04 14:20:00', 89.99, 'Processing', 4, 'International Express', '2023-06-07'),  
(5, '2023-06-05 16:10:00', 120.00, 'Cancelled', 5, 'Same Day Delivery', '2023-06-05'),  
(6, '2023-06-06 13:40:00', 59.99, 'Delivered', 6, 'Overnight', '2023-06-07');
```

```
ALTER TABLE Courier
```

```
MODIFY COLUMN Status ENUM('Processing', 'In Transit', 'Out for Delivery', 'Delivered', 'Failed',  
'Returned', 'Cancelled') DEFAULT 'Processing';
```

```
INSERT INTO Courier (OrderID, SenderName, SenderAddress, SenderContact, ReceiverName,  
ReceiverAddress, ReceiverContact, Weight, Dimensions, Status, TrackingNumber, PickupDate,  
DeliveryDate) VALUES
```

```
(1, 'John Smith', '123 Main St, Anytown, USA', '555-0101', 'Alice Brown', '789 Pine Rd, Nowhere, USA',  
'555-0201', 2.5, '12x8x4', 'Delivered', 'TRK123456', '2023-06-01 14:00:00', '2023-06-03 10:30:00'),  
(2, 'Sarah Johnson', '456 Oak Ave, Somewhere, USA', '555-0102', 'Bob Green', '321 Elm St, Anywhere,  
USA', '555-0202', 5.0, '18x12x6', 'In Transit', 'TRK789012', '2023-06-02 12:30:00', NULL),  
(3, 'Michael Brown', '789 Pine Rd, Nowhere, USA', '555-0103', 'Carol White', '654 Maple Dr, Everywhere,  
USA', '555-0203', 1.2, '10x6x3', 'Out for Delivery', 'TRK345678', '2023-06-03 10:45:00', NULL),  
(4, 'Emily Davis', '321 Elm St, Anywhere, USA', '555-0104', 'Dave Black', '987 Cedar Ln, Somewhere,  
USA', '555-0204', 15.0, '24x18x12', 'Processing', 'TRK901234', NULL, NULL),  
(5, 'Robert Wilson', '654 Maple Dr, Everywhere, USA', '555-0105', 'Eve Gray', '123 Main St, Anytown,  
USA', '555-0205', 25.0, '36x24x18', 'Cancelled', 'TRK567890', NULL, NULL),  
(6, 'Jennifer Lee', '987 Cedar Ln, Somewhere, USA', '555-0106', 'Frank Blue', '456 Oak Ave, Somewhere,  
USA', '555-0206', 3.5, '14x10x8', 'Delivered', 'TRK123789', '2023-06-06 15:00:00', '2023-06-07 11:15:00');
```

```
INSERT INTO CourierServiceMapping (CourierID, ServiceID, AppliedCost)
```

```
VALUES
```

```
(1, 2, 25.99),
```

(2, 3, 45.50),
(3, 1, 15.99),
(4, 5, 89.99),
(5, 6, 120.00),
(6, 3, 59.99);

INSERT INTO Payment (CourierID, LocationID, Amount, PaymentDate, PaymentMethod, PaymentStatus, TransactionID) VALUES

(1, 1, 25.99, '2023-06-01 10:20:00', 'Credit Card', 'Completed', 'TXN123456'),
(2, 2, 45.50, '2023-06-02 11:35:00', 'Credit Card', 'Completed', 'TXN789012'),
(3, 3, 15.99, '2023-06-03 09:50:00', 'Debit Card', 'Completed', 'TXN345678'),
(4, 4, 89.99, '2023-06-04 14:25:00', 'Credit Card', 'Pending', 'TXN901234'),
(5, 5, 120.00, '2023-06-05 16:15:00', 'Bank Transfer', 'Refunded', 'TXN567890'),
(6, 6, 59.99, '2023-06-06 13:45:00', 'Digital Wallet', 'Completed', 'TXN123789');

INSERT INTO Parcel (CourierID, Description, Weight, Length, Width, Height, Value, Category, Barcode) VALUES

(1, 'Important documents', 0.5, 12, 8, 4, 50.00, 'Document', 'DOC123456'),
(1, 'Books', 2.0, 12, 8, 4, 100.00, 'Other', 'BK789012'),
(2, 'Laptop', 3.0, 18, 12, 6, 1200.00, 'Electronics', 'ELEC345678'),
(2, 'Monitor', 2.0, 18, 12, 6, 300.00, 'Electronics', 'ELEC901234'),
(3, 'Clothing', 1.2, 10, 6, 3, 75.00, 'Clothing', 'CLOTH567890'),
(6, 'Gift items', 3.5, 14, 10, 8, 200.00, 'Other', 'GIFT123789');

INSERT INTO TrackingHistory (CourierID, LocationID, Status, UpdateTime, EmployeeID, Notes) VALUES

(1, 1, 'Processing', '2023-06-01 14:00:00', 3, 'Package received at warehouse'),
(1, NULL, 'In Transit', '2023-06-02 08:30:00', 3, 'Package left distribution center'),
(1, NULL, 'Delivered', '2023-06-03 10:30:00', 3, 'Package delivered to recipient'),
(2, 2, 'Processing', '2023-06-02 12:30:00', 3, 'Package received at downtown hub'),
(2, NULL, 'In Transit', '2023-06-03 09:15:00', 3, 'Package in route to destination'),
(6, 6, 'Delivered', '2023-06-07 11:15:00', 3, 'Package delivered successfully');

```
INSERT INTO EmployeeLocationAssignment (EmployeeID, LocationID, StartDate, IsPrimary) VALUES
(1, 6, '2020-01-15', TRUE),
(2, 1, '2020-02-20', TRUE),
(3, 1, '2021-03-10', FALSE),
(4, 2, '2021-04-15', TRUE),
(5, 1, '2021-05-20', FALSE),
(6, 6, '2020-06-25', TRUE);
```

```
INSERT INTO CourierEmployeeAssignment (CourierID, EmployeeID, AssignmentDate, Status)
VALUES
(1, 3, '2023-06-01 14:05:00', 'Completed'),
(2, 3, '2023-06-02 12:35:00', 'In Progress'),
(3, 3, '2023-06-03 10:50:00', 'In Progress'),
(4, 5, '2023-06-04 14:30:00', 'Assigned'),
(6, 3, '2023-06-06 15:05:00', 'Completed');
```

```
INSERT INTO Feedback (UserID, CourierID, Rating, Comments, FeedbackDate) VALUES
(1, 1, 5, 'Excellent service, delivered on time!', '2023-06-03 11:00:00'),
(2, 2, 4, 'Good service, but slightly delayed', '2023-06-04 09:30:00'),
(3, 3, 3, 'Average experience', '2023-06-05 14:15:00'),
(4, 4, NULL, 'Still waiting for delivery', '2023-06-06 10:45:00'),
(5, 5, 1, 'Order was cancelled without notice', '2023-06-07 08:20:00'),
(6, 6, 5, 'Perfect service, will use again!', '2023-06-07 12:30:00');
```

```
INSERT INTO Inventory (LocationID, ItemName, Quantity, LastRestocked, MinimumThreshold, Status)
VALUES
(1, 'Shipping Boxes (Small)', 500, '2023-05-20', 100, 'In Stock'),
(1, 'Shipping Boxes (Large)', 300, '2023-05-25', 50, 'In Stock'),
(2, 'Bubble Wrap', 200, '2023-06-01', 30, 'In Stock'),
(3, 'Packing Tape', 150, '2023-05-28', 20, 'In Stock'),
(4, 'Thermal Labels', 1000, '2023-06-05', 200, 'In Stock'),
(5, 'Packing Peanuts', 400, '2023-05-30', 100, 'In Stock');
```

INSERT INTO DeliveryRoute (RouteName, StartLocationID, EndLocationID, Distance, EstimatedTime, Status) VALUES

('Anytown Downtown', 1, 2, 15.5, 1.5, 'Active'),
('Cross-State Express', 2, 3, 250.0, 4.0, 'Active'),
('Metro Loop', 3, 4, 120.0, 2.5, 'Active'),
('Regional Circuit', 4, 5, 180.0, 3.0, 'Active'),
('Coastal Run', 5, 6, 300.0, 5.0, 'Active'),
('Corporate Shuttle', 6, 1, 10.0, 0.5, 'Active');

INSERT INTO RouteSchedule (RouteID, EmployeeID, ScheduleDate, StartTime, EndTime, Status, VehicleID) VALUES

(1, 3, '2023-06-07', '08:00:00', '10:00:00', 'Scheduled', 'TRN001'),
(2, 3, '2023-06-08', '07:00:00', '12:00:00', 'Scheduled', 'TRN001'),
(3, 3, '2023-06-09', '09:00:00', '12:30:00', 'Scheduled', 'TRN001'),
(4, 3, '2023-06-10', '08:30:00', '12:30:00', 'Scheduled', 'TRN001'),
(5, 3, '2023-06-11', '07:30:00', '13:30:00', 'Scheduled', 'TRN001'),
(6, 3, '2023-06-12', '09:30:00', '11:00:00', 'Scheduled', 'TRN001');

Task 1-13:

-- 1. List all customers:

SELECT * FROM User;

| | UserID | Name | Email | Password | ContactNumber | Address | RegistrationDate | LastLogin | AccountStatus |
|---|--------|---------------|----------------------|-------------|---------------|-------------------------------|---------------------|---------------------|---------------|
| ▶ | 1 | John Smith | john.smith@email.com | jsmith123 | 555-0101 | 123 Main St, Anytown, USA | 2023-01-15 09:30:00 | 2023-06-01 14:20:00 | Active |
| | 2 | Sarah Johnson | sarah.j@email.com | sjohnson456 | 555-0102 | 456 Oak Ave, Somewhere, USA | 2023-01-16 10:15:00 | 2023-06-02 10:45:00 | Active |
| | 3 | Michael Brown | michael.b@email.com | mbrown789 | 555-0103 | 789 Pine Rd, Nowhere, USA | 2023-01-17 11:45:00 | 2023-06-03 09:30:00 | Active |
| | 4 | Emily Davis | emily.d@email.com | edavis321 | 555-0104 | 321 Elm St, Anywhere, USA | 2023-01-18 13:20:00 | 2023-06-04 16:10:00 | Active |
| | 5 | Robert Wilson | robert.w@email.com | rwilson654 | 555-0105 | 654 Maple Dr, Everywhere, USA | 2023-01-19 14:10:00 | 2023-06-05 11:25:00 | Active |
| | 6 | Jennifer Lee | jennifer.l@email.com | jlee987 | 555-0106 | 987 Cedar Ln, Somewhere, USA | 2023-01-20 15:30:00 | 2023-06-06 13:40:00 | Active |
| * | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL |

-- 2. List all orders for a specific customer (e.g., UserID = 1):

SELECT * FROM Orders WHERE UserID = 1;

| | OrderID | UserID | OrderDate | TotalAmount | Status | PaymentMethodID | ShippingMethod | EstimatedDelivery | Notes |
|---|---------|--------|---------------------|-------------|-----------|-----------------|----------------|-------------------|-------|
| ▶ | 1 | 1 | 2023-06-01 10:15:00 | 25.99 | Delivered | 1 | Express 2-Day | 2023-06-03 | NULL |
| * | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL |

-- 3. List all couriers:

SELECT * FROM Courier;

| | CourierID | OrderID | SenderName | SenderAddress | SenderContact | ReceiverName | ReceiverAddress | ReceiverContact | Weight | Dimensions | Status | TrackingNumber | PickupDate |
|---|-----------|---------|---------------|-------------------------------|---------------|--------------|-------------------------------|-----------------|--------|------------|------------------|----------------|---------------|
| ▶ | 1 | 1 | John Smith | 123 Main St, Anytown, USA | 555-0101 | Alice Brown | 789 Pine Rd, Nowhere, USA | 555-0201 | 2.50 | 12x8x4 | Delivered | TRK123456 | 2023-06-01 14 |
| | 2 | 2 | Sarah Johnson | 456 Oak Ave, Somewhere, USA | 555-0102 | Bob Green | 321 Elm St, Anywhere, USA | 555-0202 | 5.00 | 18x12x6 | In Transit | TRK789012 | 2023-06-02 12 |
| | 3 | 3 | Michael Brown | 789 Pine Rd, Nowhere, USA | 555-0103 | Carol White | 654 Maple Dr, Everywhere, USA | 555-0203 | 1.20 | 10x6x3 | Out for Delivery | TRK345678 | 2023-06-03 10 |
| | 4 | 4 | Emily Davis | 321 Elm St, Anywhere, USA | 555-0104 | Dave Black | 987 Cedar Ln, Somewhere, USA | 555-0204 | 15.00 | 24x18x12 | Processing | TRK901234 | NULL |
| | 5 | 5 | Robert Wilson | 654 Maple Dr, Everywhere, USA | 555-0105 | Eve Gray | 123 Main St, Anytown, USA | 555-0205 | 25.00 | 36x24x18 | Cancelled | TRK567890 | NULL |
| • | 6 | 6 | Jennifer Lee | 987 Cedar Ln, Somewhere, USA | 555-0106 | Frank Blue | 456 Oak Ave, Somewhere, USA | 555-0206 | 3.50 | 14x10x8 | Delivered | TRK123789 | 2023-06-06 15 |
| | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL |

-- 4. List all packages for a specific order (e.g., OrderID = 1):

SELECT * FROM Parcel WHERE CourierID IN (SELECT CourierID FROM Courier WHERE OrderID = 1);

| | ParcelID | CourierID | Description | Weight | Length | Width | Height | Value | Category | Barcode |
|---|----------|-----------|---------------------|--------|--------|-------|--------|--------|----------|-----------|
| ▶ | 1 | 1 | Important documents | 0.50 | 12.00 | 8.00 | 4.00 | 50.00 | Document | DOC123456 |
| | 2 | 1 | Books | 2.00 | 12.00 | 8.00 | 4.00 | 100.00 | Other | BK789012 |
| • | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL |

-- 5. List all deliveries for a specific courier (e.g., EmployeeID = 3):

SELECT c.* FROM Courier c

JOIN CourierEmployeeAssignment cea ON c.CourierID = cea.CourierID

WHERE cea.EmployeeID = 3;

| | CourierID | OrderID | SenderName | SenderAddress | SenderContact | ReceiverName | ReceiverAddress | ReceiverContact | Weight | Dimensions | Status | TrackingNumber | PickupDate |
|---|-----------|---------|---------------|------------------------------|---------------|--------------|-------------------------------|-----------------|--------|------------|------------------|----------------|---------------|
| ▶ | 1 | 1 | John Smith | 123 Main St, Anytown, USA | 555-0101 | Alice Brown | 789 Pine Rd, Nowhere, USA | 555-0201 | 2.50 | 12x8x4 | Delivered | TRK123456 | 2023-06-01 14 |
| | 2 | 2 | Sarah Johnson | 456 Oak Ave, Somewhere, USA | 555-0102 | Bob Green | 321 Elm St, Anywhere, USA | 555-0202 | 5.00 | 18x12x6 | In Transit | TRK789012 | 2023-06-02 12 |
| | 3 | 3 | Michael Brown | 789 Pine Rd, Nowhere, USA | 555-0103 | Carol White | 654 Maple Dr, Everywhere, USA | 555-0203 | 1.20 | 10x6x3 | Out for Delivery | TRK345678 | 2023-06-03 10 |
| | 6 | 6 | Jennifer Lee | 987 Cedar Ln, Somewhere, USA | 555-0106 | Frank Blue | 456 Oak Ave, Somewhere, USA | 555-0206 | 3.50 | 14x10x8 | Delivered | TRK123789 | 2023-06-06 15 |

-- 6. List all undelivered packages:

SELECT * FROM Courier WHERE Status NOT IN ('Delivered', 'Cancelled');

| | CourierID | OrderID | SenderName | SenderAddress | SenderContact | ReceiverName | ReceiverAddress | ReceiverContact | Weight | Dimensions | Status | TrackingNumber | PickupDate |
|---|-----------|---------|---------------|-----------------------------|---------------|--------------|-------------------------------|-----------------|--------|------------|------------------|----------------|---------------|
| ▶ | 2 | 2 | Sarah Johnson | 456 Oak Ave, Somewhere, USA | 555-0102 | Bob Green | 321 Elm St, Anywhere, USA | 555-0202 | 5.00 | 18x12x6 | In Transit | TRK789012 | 2023-06-02 12 |
| | 3 | 3 | Michael Brown | 789 Pine Rd, Nowhere, USA | 555-0103 | Carol White | 654 Maple Dr, Everywhere, USA | 555-0203 | 1.20 | 10x6x3 | Out for Delivery | TRK345678 | 2023-06-03 10 |
| | 4 | 4 | Emily Davis | 321 Elm St, Anywhere, USA | 555-0104 | Dave Black | 987 Cedar Ln, Somewhere, USA | 555-0204 | 15.00 | 24x18x12 | Processing | TRK901234 | NULL |
| • | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL |

-- 7. List all packages that are scheduled for delivery today:

SELECT * FROM Courier

WHERE DATE(DeliveryDate) = CURDATE()

AND Status NOT IN ('Delivered', 'Cancelled');

| | CourierID | OrderID | SenderName | SenderAddress | SenderContact | ReceiverName | ReceiverAddress | ReceiverContact | Weight | Dimensions | Status | TrackingNumber | PickupDate | DeliveryDate | DeliveryProof | Insurance |
|---|-----------|---------|------------|---------------|---------------|--------------|-----------------|-----------------|--------|------------|--------|----------------|------------|--------------|---------------|-----------|
| • | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL |

-- 8. List all packages with a specific status (e.g., 'In Transit'):

SELECT * FROM Courier WHERE Status = 'In Transit';

| | CourierID | OrderID | SenderName | SenderAddress | SenderContact | ReceiverName | ReceiverAddress | ReceiverContact | Weight | Dimensions | Status | TrackingNumber | PickupDate |
|---|-----------|---------|---------------|-----------------------------|---------------|--------------|---------------------------|-----------------|--------|------------|------------|----------------|---------------------|
| ▶ | 2 | 2 | Sarah Johnson | 456 Oak Ave, Somewhere, USA | 555-0102 | Bob Green | 321 Elm St, Anywhere, USA | 555-0202 | 5.00 | 18x12x6 | In Transit | TRK789012 | 2023-06-02 12:30:00 |
| • | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL |

-- 9. Calculate the total number of packages for each courier:

SELECT c.CourierID, COUNT(p.ParcelID) AS PackageCount

FROM Courier c

LEFT JOIN Parcel p ON c.CourierID = p.CourierID

GROUP BY c.CourierID;

| | CourierID | PackageCount |
|---|-----------|--------------|
| ▶ | 1 | 2 |
| | 2 | 2 |
| | 3 | 1 |
| | 4 | 0 |
| | 5 | 0 |
| | 6 | 1 |

-- 10. Find the average delivery time for each courier (for delivered packages):

SELECT

c.CourierID,

AVG(TIMESTAMPDIFF(HOUR, c.PickupDate, c.DeliveryDate)) AS AvgDeliveryHours

FROM Courier c

WHERE c.Status = 'Delivered' AND c.PickupDate IS NOT NULL AND c.DeliveryDate IS NOT NULL

GROUP BY c.CourierID;

| | CourierID | AvgDeliveryHours |
|---|-----------|------------------|
| ▶ | 1 | 44.0000 |
| | 6 | 20.0000 |

-- 11. List all packages with a specific weight range (e.g., between 1 and 5 kg):

SELECT * FROM Parcel WHERE Weight BETWEEN 1 AND 5;

| | ParcelID | CourierID | Description | Weight | Length | Width | Height | Value | Category | Barcode |
|---|----------|-----------|-------------|--------|--------|-------|--------|---------|-------------|-------------|
| ▶ | 2 | 1 | Books | 2.00 | 12.00 | 8.00 | 4.00 | 100.00 | Other | BK789012 |
| | 3 | 2 | Laptop | 3.00 | 18.00 | 12.00 | 6.00 | 1200.00 | Electronics | ELEC345678 |
| | 4 | 2 | Monitor | 2.00 | 18.00 | 12.00 | 6.00 | 300.00 | Electronics | ELEC901234 |
| | 5 | 3 | Clothing | 1.20 | 10.00 | 6.00 | 3.00 | 75.00 | Clothing | CLOTH567890 |
| | 6 | 6 | Gift items | 3.50 | 14.00 | 10.00 | 8.00 | 200.00 | Other | GIFT123789 |
| * | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL |

-- 12. Retrieve employees whose names contain 'John':

SELECT * FROM Employee WHERE Name LIKE '%John%';

| | EmployeeID | Name | Email | Password | ContactNumber | Role | Salary | HireDate | TerminationDate | Status | CurrentLocationID | VehicleInfo |
|---|------------|------|-------|----------|---------------|------|--------|----------|-----------------|--------|-------------------|-------------|
| * | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL |

-- 13. Retrieve all courier records with payments greater than \$50:

SELECT c.* FROM Courier c

JOIN Payment p ON c.CourierID = p.CourierID

WHERE p.Amount > 50;

| | CourierID | OrderID | SenderName | SenderAddress | SenderContact | ReceiverName | ReceiverAddress | ReceiverContact | Weight | Dimensions | Status | TrackingNumber | PickupDate |
|---|-----------|---------|---------------|-------------------------------|---------------|--------------|------------------------------|-----------------|--------|------------|------------|----------------|---------------------|
| ▶ | 4 | 4 | Emily Davis | 321 Elm St, Anywhere, USA | 555-0104 | Dave Black | 987 Cedar Ln, Somewhere, USA | 555-0204 | 15.00 | 24x18x12 | Processing | TRK901234 | NULL |
| | 5 | 5 | Robert Wilson | 654 Maple Dr, Everywhere, USA | 555-0105 | Eve Gray | 123 Main St, Anytown, USA | 555-0205 | 25.00 | 36x24x18 | Cancelled | TRK567890 | NULL |
| | 6 | 6 | Jennifer Lee | 987 Cedar Ln, Somewhere, USA | 555-0106 | Frank Blue | 456 Oak Ave, Somewhere, USA | 555-0206 | 3.50 | 14x10x8 | Delivered | TRK123789 | 2023-06-06 15:00:00 |

Task 14-22:

-- 14. Find the total number of couriers handled by each employee:

SELECT

```

e.EmployeeID,
e.Name,
COUNT(cea.CourierID) AS TotalCouriersHandled
FROM Employee e
LEFT JOIN CourierEmployeeAssignment cea ON e.EmployeeID = cea.EmployeeID
GROUP BY e.EmployeeID, e.Name;

```

| | EmployeeID | Name | TotalCouriersHandled |
|---|------------|--------------------|----------------------|
| ▶ | 1 | Admin User | 0 |
| | 2 | Warehouse Manager | 0 |
| | 3 | Driver 1 | 4 |
| | 4 | Customer Service | 0 |
| | 5 | Warehouse Staff | 1 |
| | 6 | Operations Manager | 0 |

-- 15. Calculate the total revenue generated by each location:

```

SELECT
    l.LocationID,
    l.LocationName,
    COALESCE(SUM(p.Amount), 0) AS TotalRevenue
FROM Location l
LEFT JOIN Payment p ON l.LocationID = p.LocationID
GROUP BY l.LocationID, l.LocationName;

```

| | LocationID | LocationName | TotalRevenue |
|---|------------|--------------------|--------------|
| ▶ | 1 | Main Warehouse | 25.99 |
| | 2 | Downtown Hub | 45.50 |
| | 3 | Northside Facility | 15.99 |
| | 4 | Eastside Outlet | 89.99 |
| | 5 | Westside Center | 120.00 |
| | 6 | Corporate HQ | 59.99 |

-- 16. Find the total number of couriers delivered to each location:

```

SELECT
    l.LocationID,
    l.LocationName,
    COUNT(DISTINCT c.CourierID) AS CouriersDelivered
FROM Location l
JOIN Courier c ON l.LocationName = SUBSTRING_INDEX(c.ReceiverAddress, ',', 1)
WHERE c.Status = 'Delivered'
GROUP BY l.LocationID, l.LocationName;

```


| | LocationID | LocationName | CouriersDelivered |
|--|------------|--------------|-------------------|
|--|------------|--------------|-------------------|

-- 17. Find the courier with the highest average delivery time:

SELECT

c.CourierID,

c.TrackingNumber,

AVG(TIMESTAMPDIFF(HOUR, c.PickupDate, c.DeliveryDate)) AS AvgDeliveryHours

FROM Courier c

WHERE c.Status = 'Delivered' AND c.PickupDate IS NOT NULL AND c.DeliveryDate IS NOT NULL

GROUP BY c.CourierID, c.TrackingNumber

ORDER BY AvgDeliveryHours DESC

LIMIT 1;

| | CourierID | TrackingNumber | AvgDeliveryHours |
|---|-----------|----------------|------------------|
| ▶ | 1 | TRK123456 | 44.0000 |

-- 18. Find Locations with Total Payments Less Than a Certain Amount (e.g., \$1000):

SELECT

l.LocationID,

l.LocationName,

COALESCE(SUM(p.Amount), 0) AS TotalPayments

FROM Location l

LEFT JOIN Payment p ON l.LocationID = p.LocationID

GROUP BY l.LocationID, l.LocationName

HAVING TotalPayments < 1000;

| | LocationID | LocationName | TotalPayments |
|---|------------|--------------------|---------------|
| ▶ | 1 | Main Warehouse | 25.99 |
| | 2 | Downtown Hub | 45.50 |
| | 3 | Northside Facility | 15.99 |
| | 4 | Eastside Outlet | 89.99 |
| | 5 | Westside Center | 120.00 |
| | 6 | Corporate HQ | 59.99 |

-- 19. Calculate Total Payments per Location:

SELECT

l.LocationID,

l.LocationName,

COALESCE(SUM(p.Amount), 0) AS TotalPayments

FROM Location l

LEFT JOIN Payment p ON l.LocationID = p.LocationID

GROUP BY l.LocationID, l.LocationName;

| | LocationID | LocationName | TotalPayments |
|---|------------|--------------------|---------------|
| ▶ | 1 | Main Warehouse | 25.99 |
| | 2 | Downtown Hub | 45.50 |
| | 3 | Northside Facility | 15.99 |
| | 4 | Eastside Outlet | 89.99 |
| | 5 | Westside Center | 120.00 |
| | 6 | Corporate HQ | 59.99 |

-- 20. Retrieve couriers who have received payments totaling more than \$1000 in a specific location (LocationID = X):

SELECT

c.*,

SUM(p.Amount) AS TotalPayments

FROM Courier c

JOIN Payment p ON c.CourierID = p.CourierID

WHERE p.LocationID = 1 -- Replace with your LocationID

GROUP BY c.CourierID

HAVING TotalPayments > 1000;

| | CourierID | OrderID | SenderName | SenderAddress | SenderContact | ReceiverName | ReceiverAddress | ReceiverContact | Weight | Dimensions | Status | TrackingNumber | PickupDate | DeliveryDate | DeliveryProof | Insurance |
|--|-----------|---------|------------|---------------|---------------|--------------|-----------------|-----------------|--------|------------|--------|----------------|------------|--------------|---------------|-----------|
|--|-----------|---------|------------|---------------|---------------|--------------|-----------------|-----------------|--------|------------|--------|----------------|------------|--------------|---------------|-----------|

-- 21. Retrieve couriers who have received payments totaling more than \$1000 after a certain date (PaymentDate > 'YYYY-MM-DD'):

SELECT

c.*,

SUM(p.Amount) AS TotalPayments

FROM Courier c

JOIN Payment p ON c.CourierID = p.CourierID

WHERE p.PaymentDate > '2023-06-01' -- Replace with your date

GROUP BY c.CourierID

HAVING TotalPayments > 1000;

| | CourierID | OrderID | SenderName | SenderAddress | SenderContact | ReceiverName | ReceiverAddress | ReceiverContact | Weight | Dimensions | Status | TrackingNumber | PickupDate | DeliveryDate | DeliveryProof | Insurance |
|--|-----------|---------|------------|---------------|---------------|--------------|-----------------|-----------------|--------|------------|--------|----------------|------------|--------------|---------------|-----------|
|--|-----------|---------|------------|---------------|---------------|--------------|-----------------|-----------------|--------|------------|--------|----------------|------------|--------------|---------------|-----------|

-- 22. Retrieve locations where the total amount received is more than \$5000 before a certain date (PaymentDate > 'YYYY-MM-DD'):

SELECT

l.LocationID,

l.LocationName,

SUM(p.Amount) AS TotalPayments

FROM Location l

JOIN Payment p ON l.LocationID = p.LocationID

WHERE p.PaymentDate < '2023-06-30' -- Replace with your date

GROUP BY l.LocationID, l.LocationName

HAVING TotalPayments > 5000;

| | LocationID | LocationName | TotalPayments |
|--|------------|--------------|---------------|
|--|------------|--------------|---------------|

Task 23-54:

-- 23. Retrieve Payments with Courier Information:

SELECT p.*, c.*

FROM Payment p

JOIN Courier c ON p.CourierID = c.CourierID;

| | PaymentID | CourierID | LocationID | Amount | PaymentDate | PaymentMethod | PaymentStatus | TransactionID | Notes | CourierID | OrderID | SenderName | SenderAddress | SenderContact |
|---|-----------|-----------|------------|--------|---------------------|----------------|---------------|---------------|-------|-----------|---------|---------------|-------------------------------|---------------|
| ▶ | 1 | 1 | 1 | 25.99 | 2023-06-01 10:20:00 | Credit Card | Completed | TXN123456 | NULL | 1 | 1 | John Smith | 123 Main St, Anytown, USA | 555-0101 |
| | 2 | 2 | 2 | 45.50 | 2023-06-02 11:35:00 | Credit Card | Completed | TXN789012 | NULL | 2 | 2 | Sarah Johnson | 456 Oak Ave, Somewhere, USA | 555-0102 |
| | 3 | 3 | 3 | 15.99 | 2023-06-03 09:50:00 | Debit Card | Completed | TXN345678 | NULL | 3 | 3 | Michael Brown | 789 Pine Rd, Nowhere, USA | 555-0103 |
| | 4 | 4 | 4 | 89.99 | 2023-06-04 14:25:00 | Credit Card | Pending | TXN901234 | NULL | 4 | 4 | Emily Davis | 321 Elm St, Anywhere, USA | 555-0104 |
| | 5 | 5 | 5 | 120.00 | 2023-06-05 16:15:00 | Bank Transfer | Refunded | TXN567890 | NULL | 5 | 5 | Robert Wilson | 654 Maple Dr, Everywhere, USA | 555-0105 |
| | 6 | 6 | 6 | 59.99 | 2023-06-06 13:45:00 | Digital Wallet | Completed | TXN123789 | NULL | 6 | 6 | Jennifer Lee | 987 Cedar Ln, Somewhere, USA | 555-0106 |

-- 24. Retrieve Payments with Location Information:

SELECT p.*, l.*

FROM Payment p

JOIN Location l ON p.LocationID = l.LocationID;

| | PaymentID | CourierID | LocationID | Amount | PaymentDate | PaymentMethod | PaymentStatus | TransactionID | Notes | LocationID | LocationName | Address | City | State | ZipCode | Country |
|---|-----------|-----------|------------|--------|---------------------|----------------|---------------|---------------|-------|------------|--------------------|---------------------|------------|-------|---------|---------|
| ▶ | 1 | 1 | 1 | 25.99 | 2023-06-01 10:20:00 | Credit Card | Completed | TXN123456 | NULL | 1 | Main Warehouse | 100 Industrial Park | Anytown | CA | 90210 | USA |
| | 2 | 2 | 2 | 45.50 | 2023-06-02 11:35:00 | Credit Card | Completed | TXN789012 | NULL | 2 | Downtown Hub | 50 Commerce St | Somewhere | NY | 10001 | USA |
| | 3 | 3 | 3 | 15.99 | 2023-06-03 09:50:00 | Debit Card | Completed | TXN345678 | NULL | 3 | Northside Facility | 200 Logistics Ave | Nowhere | TX | 75001 | USA |
| | 4 | 4 | 4 | 89.99 | 2023-06-04 14:25:00 | Credit Card | Pending | TXN901234 | NULL | 4 | Eastside Outlet | 300 Shopping Plaza | Anywhere | FL | 33101 | USA |
| | 5 | 5 | 5 | 120.00 | 2023-06-05 16:15:00 | Bank Transfer | Refunded | TXN567890 | NULL | 5 | Westside Center | 400 Business Park | Everywhere | IL | 60007 | USA |
| | 6 | 6 | 6 | 59.99 | 2023-06-06 13:45:00 | Digital Wallet | Completed | TXN123789 | NULL | 6 | Corporate HQ | 500 Executive Blvd | Anytown | CA | 90211 | USA |

-- 25. Retrieve Payments with Courier and Location Information:

SELECT p.*, c.*, l.*

FROM Payment p

JOIN Courier c ON p.CourierID = c.CourierID

JOIN Location l ON p.LocationID = l.LocationID;

| | PaymentID | CourierID | LocationID | Amount | PaymentDate | PaymentMethod | PaymentStatus | TransactionID | Notes | CourierID | OrderID | SenderName | SenderAddress | SenderContact |
|---|-----------|-----------|------------|--------|---------------------|----------------|---------------|---------------|-------|-----------|---------|---------------|-------------------------------|---------------|
| ▶ | 1 | 1 | 1 | 25.99 | 2023-06-01 10:20:00 | Credit Card | Completed | TXN123456 | NULL | 1 | 1 | John Smith | 123 Main St, Anytown, USA | 555-0101 |
| | 2 | 2 | 2 | 45.50 | 2023-06-02 11:35:00 | Credit Card | Completed | TXN789012 | NULL | 2 | 2 | Sarah Johnson | 456 Oak Ave, Somewhere, USA | 555-0102 |
| | 3 | 3 | 3 | 15.99 | 2023-06-03 09:50:00 | Debit Card | Completed | TXN345678 | NULL | 3 | 3 | Michael Brown | 789 Pine Rd, Nowhere, USA | 555-0103 |
| | 4 | 4 | 4 | 89.99 | 2023-06-04 14:25:00 | Credit Card | Pending | TXN901234 | NULL | 4 | 4 | Emily Davis | 321 Elm St, Anywhere, USA | 555-0104 |
| | 5 | 5 | 5 | 120.00 | 2023-06-05 16:15:00 | Bank Transfer | Refunded | TXN567890 | NULL | 5 | 5 | Robert Wilson | 654 Maple Dr, Everywhere, USA | 555-0105 |
| | 6 | 6 | 6 | 59.99 | 2023-06-06 13:45:00 | Digital Wallet | Completed | TXN123789 | NULL | 6 | 6 | Jennifer Lee | 987 Cedar Ln, Somewhere, USA | 555-0106 |

-- 26. List all payments with courier details:

```

SELECT p.*, c.TrackingNumber, c.Status, c.ReceiverName
FROM Payment p
JOIN Courier c ON p.CourierID = c.CourierID;

```

| | PaymentID | CourierID | LocationID | Amount | PaymentDate | PaymentMethod | PaymentStatus | TransactionID | Notes | TrackingNumber | Status | ReceiverName |
|---|-----------|-----------|------------|--------|---------------------|----------------|---------------|---------------|-------|----------------|------------------|--------------|
| ▶ | 1 | 1 | 1 | 25.99 | 2023-06-01 10:20:00 | Credit Card | Completed | TXN123456 | NULL | TRK123456 | Delivered | Alice Brown |
| | 2 | 2 | 2 | 45.50 | 2023-06-02 11:35:00 | Credit Card | Completed | TXN789012 | NULL | TRK789012 | In Transit | Bob Green |
| | 3 | 3 | 3 | 15.99 | 2023-06-03 09:50:00 | Debit Card | Completed | TXN345678 | NULL | TRK345678 | Out for Delivery | Carol White |
| | 4 | 4 | 4 | 89.99 | 2023-06-04 14:25:00 | Credit Card | Pending | TXN901234 | NULL | TRK901234 | Processing | Dave Black |
| | 5 | 5 | 5 | 120.00 | 2023-06-05 16:15:00 | Bank Transfer | Refunded | TXN567890 | NULL | TRK567890 | Cancelled | Eve Gray |
| | 6 | 6 | 6 | 59.99 | 2023-06-06 13:45:00 | Digital Wallet | Completed | TXN123789 | NULL | TRK123789 | Delivered | Frank Blue |

-- 27. Total payments received for each courier:

```

SELECT
    c.CourierID,
    c.TrackingNumber,
    SUM(p.Amount) AS TotalPayments
FROM Courier c
LEFT JOIN Payment p ON c.CourierID = p.CourierID
GROUP BY c.CourierID, c.TrackingNumber;

```

| | CourierID | TrackingNumber | TotalPayments |
|---|-----------|----------------|---------------|
| ▶ | 1 | TRK123456 | 25.99 |
| | 6 | TRK123789 | 59.99 |
| | 3 | TRK345678 | 15.99 |
| | 5 | TRK567890 | 120.00 |
| | 2 | TRK789012 | 45.50 |
| | 4 | TRK901234 | 89.99 |

-- 28. List payments made on a specific date (e.g., '2023-06-01'):

```

SELECT * FROM Payment
WHERE DATE(PaymentDate) = '2023-06-01';

```

| | PaymentID | CourierID | LocationID | Amount | PaymentDate | PaymentMethod | PaymentStatus | TransactionID | Notes |
|---|-----------|-----------|------------|--------|---------------------|---------------|---------------|---------------|-------|
| ▶ | 1 | 1 | 1 | 25.99 | 2023-06-01 10:20:00 | Credit Card | Completed | TXN123456 | NULL |
| * | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL |

-- 29. Get Courier Information for Each Payment:

```

SELECT p.PaymentID, c.*
FROM Payment p
JOIN Courier c ON p.CourierID = c.CourierID;

```

| | PaymentID | CourierID | OrderID | SenderName | SenderAddress | SenderContact | ReceiverName | ReceiverAddress | ReceiverContact | Weight | Dimensions | Status | TrackingNumber |
|---|-----------|-----------|---------|---------------|-------------------------------|---------------|--------------|-------------------------------|-----------------|--------|------------|------------------|----------------|
| ▶ | 1 | 1 | 1 | John Smith | 123 Main St, Anytown, USA | 555-0101 | Alice Brown | 789 Pine Rd, Nowhere, USA | 555-0201 | 2.50 | 12x8x4 | Delivered | TRK123456 |
| | 2 | 2 | 2 | Sarah Johnson | 456 Oak Ave, Somewhere, USA | 555-0102 | Bob Green | 321 Elm St, Anywhere, USA | 555-0202 | 5.00 | 18x12x6 | In Transit | TRK789012 |
| | 3 | 3 | 3 | Michael Brown | 789 Pine Rd, Nowhere, USA | 555-0103 | Carol White | 654 Maple Dr, Everywhere, USA | 555-0203 | 1.20 | 10x6x3 | Out for Delivery | TRK345678 |
| | 4 | 4 | 4 | Emily Davis | 321 Elm St, Anywhere, USA | 555-0104 | Dave Black | 987 Cedar Ln, Somewhere, USA | 555-0204 | 15.00 | 24x18x12 | Processing | TRK901234 |
| | 5 | 5 | 5 | Robert Wilson | 654 Maple Dr, Everywhere, USA | 555-0105 | Eve Gray | 123 Main St, Anytown, USA | 555-0205 | 25.00 | 36x24x18 | Cancelled | TRK567890 |
| | 6 | 6 | 6 | Jennifer Lee | 987 Cedar Ln, Somewhere, USA | 555-0106 | Frank Blue | 456 Oak Ave, Somewhere, USA | 555-0206 | 3.50 | 14x10x8 | Delivered | TRK123789 |

-- 30. Get Payment Details with Location:

```

SELECT p.*, l.LocationName, l.City, l.State
FROM Payment p
JOIN Location l ON p.LocationID = l.LocationID;

```

| | PaymentID | CourierID | LocationID | Amount | PaymentDate | PaymentMethod | PaymentStatus | TransactionID | Notes | LocationName | City | State |
|---|-----------|-----------|------------|--------|---------------------|----------------|---------------|---------------|-------|--------------------|------------|-------|
| ▶ | 1 | 1 | 1 | 25.99 | 2023-06-01 10:20:00 | Credit Card | Completed | TXN123456 | NULL | Main Warehouse | Anytown | CA |
| | 2 | 2 | 2 | 45.50 | 2023-06-02 11:35:00 | Credit Card | Completed | TXN789012 | NULL | Downtown Hub | Somewhere | NY |
| | 3 | 3 | 3 | 15.99 | 2023-06-03 09:50:00 | Debit Card | Completed | TXN345678 | NULL | Northside Facility | Nowhere | TX |
| | 4 | 4 | 4 | 89.99 | 2023-06-04 14:25:00 | Credit Card | Pending | TXN901234 | NULL | Eastside Outlet | Anywhere | FL |
| | 5 | 5 | 5 | 120.00 | 2023-06-05 16:15:00 | Bank Transfer | Refunded | TXN567890 | NULL | Westside Center | Everywhere | IL |
| | 6 | 6 | 6 | 59.99 | 2023-06-06 13:45:00 | Digital Wallet | Completed | TXN123789 | NULL | Corporate HQ | Anytown | CA |

-- 31. Calculating Total Payments for Each Courier:

```

SELECT
    c.CourierID,
    c.TrackingNumber,
    SUM(p.Amount) AS TotalPayments
FROM Courier c
LEFT JOIN Payment p ON c.CourierID = p.CourierID
GROUP BY c.CourierID, c.TrackingNumber;

```

| | CourierID | TrackingNumber | TotalPayments |
|---|-----------|----------------|---------------|
| ▶ | 1 | TRK123456 | 25.99 |
| | 6 | TRK123789 | 59.99 |
| | 3 | TRK345678 | 15.99 |
| | 5 | TRK567890 | 120.00 |
| | 2 | TRK789012 | 45.50 |
| | 4 | TRK901234 | 89.99 |

-- 32. List Payments Within a Date Range (e.g., June 2023):

```

SELECT * FROM Payment
WHERE PaymentDate BETWEEN '2023-06-01' AND '2023-06-30';

```

| | PaymentID | CourierID | LocationID | Amount | PaymentDate | PaymentMethod | PaymentStatus | TransactionID | Notes |
|---|-----------|-----------|------------|--------|---------------------|----------------|---------------|---------------|-------|
| ▶ | 1 | 1 | 1 | 25.99 | 2023-06-01 10:20:00 | Credit Card | Completed | TXN123456 | NULL |
| | 2 | 2 | 2 | 45.50 | 2023-06-02 11:35:00 | Credit Card | Completed | TXN789012 | NULL |
| | 3 | 3 | 3 | 15.99 | 2023-06-03 09:50:00 | Debit Card | Completed | TXN345678 | NULL |
| | 4 | 4 | 4 | 89.99 | 2023-06-04 14:25:00 | Credit Card | Pending | TXN901234 | NULL |
| | 5 | 5 | 5 | 120.00 | 2023-06-05 16:15:00 | Bank Transfer | Refunded | TXN567890 | NULL |
| | 6 | 6 | 6 | 59.99 | 2023-06-06 13:45:00 | Digital Wallet | Completed | TXN123789 | NULL |
| * | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL |

-- 33. Retrieve a list of all users and their corresponding courier records, including cases where there are no matches on either side:

```

SELECT u.*, c.*
FROM User u
LEFT JOIN Orders o ON u.UserID = o.UserID

```

```

LEFT JOIN Courier c ON o.OrderID = c.OrderID

UNION

SELECT u.*, c.*

FROM User u

RIGHT JOIN Orders o ON u.UserID = o.UserID

RIGHT JOIN Courier c ON o.OrderID = c.OrderID

WHERE u.UserID IS NULL;

```

| | UserID | Name | Email | Password | ContactNumber | Address | RegistrationDate | LastLogin | AccountStatus | CourierID | OrderID | SenderName |
|---|--------|---------------|----------------------|-------------|---------------|-------------------------------|---------------------|---------------------|---------------|-----------|---------|---------------|
| ▶ | 1 | John Smith | john.smith@email.com | jsmith123 | 555-0101 | 123 Main St, Anytown, USA | 2023-01-15 09:30:00 | 2023-06-01 14:20:00 | Active | 1 | 1 | John Smith |
| | 2 | Sarah Johnson | sarah.j@email.com | sjohnson456 | 555-0102 | 456 Oak Ave, Somewhere, USA | 2023-01-16 10:15:00 | 2023-06-02 10:45:00 | Active | 2 | 2 | Sarah Johnson |
| | 3 | Michael Brown | michael.b@email.com | mbrown789 | 555-0103 | 789 Pine Rd, Nowhere, USA | 2023-01-17 11:45:00 | 2023-06-03 09:30:00 | Active | 3 | 3 | Michael Brown |
| | 4 | Emily Davis | emily.d@email.com | edavis321 | 555-0104 | 321 Elm St, Anywhere, USA | 2023-01-18 13:20:00 | 2023-06-04 16:10:00 | Active | 4 | 4 | Emily Davis |
| | 5 | Robert Wilson | robert.w@email.com | rwilson654 | 555-0105 | 654 Maple Dr, Everywhere, USA | 2023-01-19 14:10:00 | 2023-06-05 11:25:00 | Active | 5 | 5 | Robert Wilson |
| | 6 | Jennifer Lee | jennifer.l@email.com | jlee987 | 555-0106 | 987 Cedar Ln, Somewhere, USA | 2023-01-20 15:30:00 | 2023-06-06 13:40:00 | Active | 6 | 6 | Jennifer Lee |

-- 34. Retrieve a list of all couriers and their corresponding services, including cases where there are no matches on either side:

```

SELECT c.*, cs.*

FROM Courier c

LEFT JOIN CourierServiceMapping csm ON c.CourierID = csm.CourierID

LEFT JOIN CourierServices cs ON csm.ServiceID = cs.ServiceID

UNION

SELECT c.*, cs.*

FROM Courier c

RIGHT JOIN CourierServiceMapping csm ON c.CourierID = csm.CourierID

RIGHT JOIN CourierServices cs ON csm.ServiceID = cs.ServiceID

WHERE c.CourierID IS NULL;

```

| | CourierID | OrderID | SenderName | SenderAddress | SenderContact | ReceiverName | ReceiverAddress | ReceiverContact | Weight | Dimensions | Status | TrackingNumber | PickupDate |
|---|-----------|---------|---------------|-------------------------------|---------------|--------------|-------------------------------|-----------------|--------|------------|------------------|----------------|---------------------|
| ▶ | 1 | 1 | John Smith | 123 Main St, Anytown, USA | 555-0101 | Alice Brown | 789 Pine Rd, Nowhere, USA | 555-0201 | 2.50 | 12x8x4 | Delivered | TRK123456 | 2023-06-01 14:00:00 |
| | 2 | 2 | Sarah Johnson | 456 Oak Ave, Somewhere, USA | 555-0102 | Bob Green | 321 Elm St, Anywhere, USA | 555-0202 | 5.00 | 18x12x6 | In Transit | TRK789012 | 2023-06-02 12:00:00 |
| | 3 | 3 | Michael Brown | 789 Pine Rd, Nowhere, USA | 555-0103 | Carol White | 654 Maple Dr, Everywhere, USA | 555-0203 | 1.20 | 10x6x3 | Out for Delivery | TRK345678 | 2023-06-03 10:00:00 |
| | 4 | 4 | Emily Davis | 321 Elm St, Anywhere, USA | 555-0104 | Dave Black | 987 Cedar Ln, Somewhere, USA | 555-0204 | 15.00 | 24x18x12 | Processing | TRK901234 | NULL |
| | 5 | 5 | Robert Wilson | 654 Maple Dr, Everywhere, USA | 555-0105 | Eve Gray | 123 Main St, Anytown, USA | 555-0205 | 25.00 | 36x24x18 | Cancelled | TRK567890 | NULL |
| | 6 | 6 | Jennifer Lee | 987 Cedar Ln, Somewhere, USA | 555-0106 | Frank Blue | 456 Oak Ave, Somewhere, USA | 555-0206 | 3.50 | 14x10x8 | Delivered | TRK123789 | 2023-06-06 15:00:00 |
| | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL |

-- 35. Retrieve a list of all employees and their corresponding payments, including cases where there are no matches on either side:

```

SELECT e.*, p.*

FROM Employee e

LEFT JOIN CourierEmployeeAssignment cea ON e.EmployeeID = cea.EmployeeID

LEFT JOIN Courier c ON cea.CourierID = c.CourierID

LEFT JOIN Payment p ON c.CourierID = p.CourierID

UNION

```



```

SELECT e.*, p.*
FROM Employee e
RIGHT JOIN CourierEmployeeAssignment cea ON e.EmployeeID = cea.EmployeeID
RIGHT JOIN Courier c ON cea.CourierID = c.CourierID
RIGHT JOIN Payment p ON c.CourierID = p.CourierID
WHERE e.EmployeeID IS NULL;

```

| | EmployeeID | Name | Email | Password | ContactNumber | Role | Salary | HireDate | TerminationDate | Status | CurrentLocationID | VehicleInfo | PaymentID | Cour |
|---|------------|--------------------|-----------------------|------------|---------------|------------------|----------|------------|-----------------|--------|-------------------|----------------------|-----------|------|
| ▶ | 1 | Admin User | admin@courier.com | admin123 | 555-0301 | Admin | 75000.00 | 2020-01-15 | NULL | Active | 6 | NULL | NULL | NULL |
| | 2 | Warehouse Manager | manager@courier.com | manager456 | 555-0302 | Manager | 65000.00 | 2020-02-20 | NULL | Active | 1 | NULL | NULL | NULL |
| | 3 | Driver 1 | driver1@courier.com | driver123 | 555-0303 | Driver | 45000.00 | 2021-03-10 | NULL | Active | 1 | Ford Transit #TRN001 | 6 | 6 |
| | 3 | Driver 1 | driver1@courier.com | driver123 | 555-0303 | Driver | 45000.00 | 2021-03-10 | NULL | Active | 1 | Ford Transit #TRN001 | 3 | 3 |
| | 3 | Driver 1 | driver1@courier.com | driver123 | 555-0303 | Driver | 45000.00 | 2021-03-10 | NULL | Active | 1 | Ford Transit #TRN001 | 2 | 2 |
| | 3 | Driver 1 | driver1@courier.com | driver123 | 555-0303 | Driver | 45000.00 | 2021-03-10 | NULL | Active | 1 | Ford Transit #TRN001 | 1 | 1 |
| | 4 | Customer Service | cs@courier.com | cs123 | 555-0304 | Customer Service | 40000.00 | 2021-04-15 | NULL | Active | 2 | NULL | NULL | NULL |
| | 5 | Warehouse Staff | warehouse@courier.com | wh123 | 555-0305 | Warehouse | 38000.00 | 2021-05-20 | NULL | Active | 1 | NULL | 4 | 4 |
| | 6 | Operations Manager | ops@courier.com | ops123 | 555-0306 | Manager | 70000.00 | 2020-06-25 | NULL | Active | 6 | NULL | NULL | NULL |
| | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | 5 | 5 |

-- 36. List all users and all courier services, showing all possible combinations:

```

SELECT u.*, cs.*
FROM User u
CROSS JOIN CourierServices cs;

```

| | UserID | Name | Email | Password | ContactNumber | Address | RegistrationDate | LastLogin | AccountStatus | ServiceID | ServiceName | Description |
|---|--------|---------------|----------------------|-------------|---------------|-------------------------------|---------------------|---------------------|---------------|-----------|-----------------|---------------------|
| ▶ | 6 | Jennifer Lee | jennifer.l@email.com | jlee987 | 555-0106 | 987 Cedar Ln, Somewhere, USA | 2023-01-20 15:30:00 | 2023-06-06 13:40:00 | Active | 1 | Standard Ground | Regular ground ship |
| | 5 | Robert Wilson | robert.w@email.com | rwilson654 | 555-0105 | 654 Maple Dr, Everywhere, USA | 2023-01-19 14:10:00 | 2023-06-05 11:25:00 | Active | 1 | Standard Ground | Regular ground ship |
| | 4 | Emily Davis | emily.d@email.com | edavis321 | 555-0104 | 321 Elm St, Anywhere, USA | 2023-01-18 13:20:00 | 2023-06-04 16:10:00 | Active | 1 | Standard Ground | Regular ground ship |
| | 3 | Michael Brown | michael.b@email.com | mbrown789 | 555-0103 | 789 Pine Rd, Nowhere, USA | 2023-01-17 11:45:00 | 2023-06-03 09:30:00 | Active | 1 | Standard Ground | Regular ground ship |
| | 2 | Sarah Johnson | sarah.j@email.com | sjohnson456 | 555-0102 | 456 Oak Ave, Somewhere, USA | 2023-01-16 10:15:00 | 2023-06-02 10:45:00 | Active | 1 | Standard Ground | Regular ground ship |
| | 1 | John Smith | john.smith@email.com | jsmith123 | 555-0101 | 123 Main St, Anytown, USA | 2023-01-15 09:30:00 | 2023-06-01 14:20:00 | Active | 1 | Standard Ground | Regular ground ship |
| | 6 | Jennifer Lee | jennifer.l@email.com | jlee987 | 555-0106 | 987 Cedar Ln, Somewhere, USA | 2023-01-20 15:30:00 | 2023-06-06 13:40:00 | Active | 2 | Express 2-Day | Guaranteed 2-day c |
| | 5 | Robert Wilson | robert.w@email.com | rwilson654 | 555-0105 | 654 Maple Dr, Everywhere, USA | 2023-01-19 14:10:00 | 2023-06-05 11:25:00 | Active | 2 | Express 2-Day | Guaranteed 2-day c |
| | 4 | Emily Davis | emily.d@email.com | edavis321 | 555-0104 | 321 Elm St, Anywhere, USA | 2023-01-18 13:20:00 | 2023-06-04 16:10:00 | Active | 2 | Express 2-Day | Guaranteed 2-day c |
| | 3 | Michael Brown | michael.b@email.com | mbrown789 | 555-0103 | 789 Pine Rd, Nowhere, USA | 2023-01-17 11:45:00 | 2023-06-03 09:30:00 | Active | 2 | Express 2-Day | Guaranteed 2-day c |
| | 2 | Sarah Johnson | sarah.j@email.com | sjohnson456 | 555-0102 | 456 Oak Ave, Somewhere, USA | 2023-01-16 10:15:00 | 2023-06-02 10:45:00 | Active | 2 | Express 2-Day | Guaranteed 2-day c |
| | 1 | John Smith | john.smith@email.com | jsmith123 | 555-0101 | 123 Main St, Anytown, USA | 2023-01-15 09:30:00 | 2023-06-01 14:20:00 | Active | 2 | Express 2-Day | Guaranteed 2-day c |
| | 6 | Jennifer Lee | jennifer.l@email.com | jlee987 | 555-0106 | 987 Cedar Ln, Somewhere, USA | 2023-01-20 15:30:00 | 2023-06-06 13:40:00 | Active | 3 | Overnight | Next business day c |
| | 5 | Robert Wilson | robert.w@email.com | rwilson654 | 555-0105 | 654 Maple Dr, Everywhere, USA | 2023-01-19 14:10:00 | 2023-06-05 11:25:00 | Active | 3 | Overnight | Next business day c |
| | 4 | Emily Davis | emily.d@email.com | edavis321 | 555-0104 | 321 Elm St, Anywhere, USA | 2023-01-18 13:20:00 | 2023-06-04 16:10:00 | Active | 3 | Overnight | Next business day c |
| | 3 | Michael Brown | michael.b@email.com | mbrown789 | 555-0103 | 789 Pine Rd, Nowhere, USA | 2023-01-17 11:45:00 | 2023-06-03 09:30:00 | Active | 3 | Overnight | Next business day c |
| | 2 | Sarah Johnson | sarah.j@email.com | sjohnson456 | 555-0102 | 456 Oak Ave, Somewhere, USA | 2023-01-16 10:15:00 | 2023-06-02 10:45:00 | Active | 3 | Overnight | Next business day c |
| | 1 | John Smith | john.smith@email.com | jsmith123 | 555-0101 | 123 Main St, Anytown, USA | 2023-01-15 09:30:00 | 2023-06-01 14:20:00 | Active | 3 | Overnight | Next business day c |

-- 37. List all employees and all locations, showing all possible combinations:

```

SELECT e.*, l.*
FROM Employee e
CROSS JOIN Location l;

```

| | EmployeeID | Name | Email | Password | ContactNumber | Role | Salary | HireDate | TerminationDate | Status | CurrentLocationID | VehicleInfo | LocationID |
|---|------------|--------------------|-----------------------|------------|---------------|------------------|----------|------------|-----------------|--------|-------------------|----------------------|------------|
| ▶ | 6 | Operations Manager | ops@courier.com | ops123 | 555-0306 | Manager | 70000.00 | 2020-06-25 | NULL | Active | 6 | NULL | 1 |
| | 5 | Warehouse Staff | warehouse@courier.com | wh123 | 555-0305 | Warehouse | 38000.00 | 2021-05-20 | NULL | Active | 1 | NULL | 1 |
| | 4 | Customer Service | cs@courier.com | cs123 | 555-0304 | Customer Service | 40000.00 | 2021-04-15 | NULL | Active | 2 | NULL | 1 |
| | 3 | Driver 1 | driver1@courier.com | driver123 | 555-0303 | Driver | 45000.00 | 2021-03-10 | NULL | Active | 1 | Ford Transit #TRN001 | 1 |
| | 2 | Warehouse Manager | manager@courier.com | manager456 | 555-0302 | Manager | 65000.00 | 2020-06-25 | NULL | Active | 1 | NULL | 1 |
| | 1 | Admin User | admin@courier.com | admin123 | 555-0301 | Admin | 75000.00 | 2020-01-15 | NULL | Active | 6 | NULL | 1 |
| | 6 | Operations Manager | ops@courier.com | ops123 | 555-0306 | Manager | 70000.00 | 2020-06-25 | NULL | Active | 6 | NULL | 2 |
| | 5 | Warehouse Staff | warehouse@courier.com | wh123 | 555-0305 | Warehouse | 38000.00 | 2021-05-20 | NULL | Active | 1 | NULL | 2 |
| | 4 | Customer Service | cs@courier.com | cs123 | 555-0304 | Customer Service | 40000.00 | 2021-04-15 | NULL | Active | 2 | NULL | 2 |
| | 3 | Driver 1 | driver1@courier.com | driver123 | 555-0303 | Driver | 45000.00 | 2021-03-10 | NULL | Active | 1 | Ford Transit #TRN001 | 2 |
| | 2 | Warehouse Manager | manager@courier.com | manager456 | 555-0302 | Manager | 65000.00 | 2020-06-25 | NULL | Active | 1 | NULL | 2 |
| | 1 | Admin User | admin@courier.com | admin123 | 555-0301 | Admin | 75000.00 | 2020-01-15 | NULL | Active | 6 | NULL | 2 |
| | 6 | Operations Manager | ops@courier.com | ops123 | 555-0306 | Manager | 70000.00 | 2020-06-25 | NULL | Active | 6 | NULL | 3 |
| | 5 | Warehouse Staff | warehouse@courier.com | wh123 | 555-0305 | Warehouse | 38000.00 | 2021-05-20 | NULL | Active | 1 | NULL | 3 |
| | 4 | Customer Service | cs@courier.com | cs123 | 555-0304 | Customer Service | 40000.00 | 2021-04-15 | NULL | Active | 2 | NULL | 3 |
| | 3 | Driver 1 | driver1@courier.com | driver123 | 555-0303 | Driver | 45000.00 | 2021-03-10 | NULL | Active | 1 | Ford Transit #TRN001 | 3 |
| | 2 | Warehouse Manager | manager@courier.com | manager456 | 555-0302 | Manager | 65000.00 | 2020-06-25 | NULL | Active | 1 | NULL | 3 |
| | 1 | Admin User | admin@courier.com | admin123 | 555-0301 | Admin | 75000.00 | 2020-01-15 | NULL | Active | 6 | NULL | 3 |
| | 6 | Operations Manager | ops@courier.com | ops123 | 555-0306 | Manager | 70000.00 | 2020-06-25 | NULL | Active | 6 | NULL | 4 |
| | 5 | Warehouse Staff | warehouse@courier.com | wh123 | 555-0305 | Warehouse | 38000.00 | 2021-05-20 | NULL | Active | 1 | NULL | 4 |
| | 4 | Customer Service | cs@courier.com | cs123 | 555-0304 | Customer Service | 40000.00 | 2021-04-15 | NULL | Active | 2 | NULL | 4 |

-- 38. Retrieve a list of couriers and their corresponding sender information (if available):

```
SELECT c.*, u.Name AS SenderUserName, u.Email AS SenderEmail
FROM Courier c
LEFT JOIN Orders o ON c.OrderID = o.OrderID
LEFT JOIN User u ON o.UserID = u.UserID;
```

| | CourierID | OrderID | SenderName | SenderAddress | SenderContact | ReceiverName | ReceiverAddress | ReceiverContact | Weight | Dimensions | Status | TrackingNumber | PickupDate |
|---|-----------|---------|---------------|-------------------------------|---------------|--------------|-------------------------------|-----------------|--------|------------|------------------|----------------|---------------|
| ▶ | 1 | 1 | John Smith | 123 Main St, Anytown, USA | 555-0101 | Alice Brown | 789 Pine Rd, Nowhere, USA | 555-0201 | 2.50 | 12x8x4 | Delivered | TRK123456 | 2023-06-01 14 |
| | 2 | 2 | Sarah Johnson | 456 Oak Ave, Somewhere, USA | 555-0102 | Bob Green | 321 Elm St, Anywhere, USA | 555-0202 | 5.00 | 18x12x6 | In Transit | TRK789012 | 2023-06-02 12 |
| | 3 | 3 | Michael Brown | 789 Pine Rd, Nowhere, USA | 555-0103 | Carol White | 654 Maple Dr, Everywhere, USA | 555-0203 | 1.20 | 10x6x3 | Out for Delivery | TRK345678 | 2023-06-03 10 |
| | 4 | 4 | Emily Davis | 321 Elm St, Anywhere, USA | 555-0104 | Dave Black | 987 Cedar Ln, Somewhere, USA | 555-0204 | 15.00 | 24x18x12 | Processing | TRK901234 | NULL |
| | 5 | 5 | Robert Wilson | 654 Maple Dr, Everywhere, USA | 555-0105 | Eve Gray | 123 Main St, Anytown, USA | 555-0205 | 25.00 | 36x24x18 | Cancelled | TRK567890 | NULL |
| | 6 | 6 | Jennifer Lee | 987 Cedar Ln, Somewhere, USA | 555-0106 | Frank Blue | 456 Oak Ave, Somewhere, USA | 555-0206 | 3.50 | 14x10x8 | Delivered | TRK123789 | 2023-06-06 15 |

-- 39. Retrieve a list of couriers and their corresponding receiver information (if available):

-- In this schema, receiver info is stored directly in Courier table

```
SELECT CourierID, ReceiverName, ReceiverAddress, ReceiverContact
FROM Courier;
```

| | CourierID | ReceiverName | ReceiverAddress | ReceiverContact |
|---|-----------|--------------|-------------------------------|-----------------|
| ▶ | 1 | Alice Brown | 789 Pine Rd, Nowhere, USA | 555-0201 |
| | 2 | Bob Green | 321 Elm St, Anywhere, USA | 555-0202 |
| | 3 | Carol White | 654 Maple Dr, Everywhere, USA | 555-0203 |
| | 4 | Dave Black | 987 Cedar Ln, Somewhere, USA | 555-0204 |
| | 5 | Eve Gray | 123 Main St, Anytown, USA | 555-0205 |
| | 6 | Frank Blue | 456 Oak Ave, Somewhere, USA | 555-0206 |
| | 7 | NULL | NULL | NULL |

-- 40. Retrieve a list of couriers along with the courier service details (if available):

```
SELECT c.*, cs.ServiceName, cs.Description, csm.AppliedCost
FROM Courier c
LEFT JOIN CourierServiceMapping csm ON c.CourierID = csm.CourierID
LEFT JOIN CourierServices cs ON csm.ServiceID = cs.ServiceID;
```

| | CourierID | OrderID | SenderName | SenderAddress | SenderContact | ReceiverName | ReceiverAddress | ReceiverContact | Weight | Dimensions | Status | TrackingNumber | PickupDate |
|---|-----------|---------|---------------|-------------------------------|---------------|--------------|-------------------------------|-----------------|--------|------------|------------------|----------------|---------------|
| ▶ | 1 | 1 | John Smith | 123 Main St, Anytown, USA | 555-0101 | Alice Brown | 789 Pine Rd, Nowhere, USA | 555-0201 | 2.50 | 12x8x4 | Delivered | TRK123456 | 2023-06-01 14 |
| | 2 | 2 | Sarah Johnson | 456 Oak Ave, Somewhere, USA | 555-0102 | Bob Green | 321 Elm St, Anywhere, USA | 555-0202 | 5.00 | 18x12x6 | In Transit | TRK789012 | 2023-06-02 12 |
| | 3 | 3 | Michael Brown | 789 Pine Rd, Nowhere, USA | 555-0103 | Carol White | 654 Maple Dr, Everywhere, USA | 555-0203 | 1.20 | 10x6x3 | Out for Delivery | TRK345678 | 2023-06-03 10 |
| | 4 | 4 | Emily Davis | 321 Elm St, Anywhere, USA | 555-0104 | Dave Black | 987 Cedar Ln, Somewhere, USA | 555-0204 | 15.00 | 24x18x12 | Processing | TRK901234 | NULL |
| | 5 | 5 | Robert Wilson | 654 Maple Dr, Everywhere, USA | 555-0105 | Eve Gray | 123 Main St, Anytown, USA | 555-0205 | 25.00 | 36x24x18 | Cancelled | TRK567890 | NULL |
| | 6 | 6 | Jennifer Lee | 987 Cedar Ln, Somewhere, USA | 555-0106 | Frank Blue | 456 Oak Ave, Somewhere, USA | 555-0206 | 3.50 | 14x10x8 | Delivered | TRK123789 | 2023-06-06 15 |

-- 41. Retrieve a list of employees and the number of couriers assigned to each employee:

```
SELECT
    e.EmployeeID,
    e.Name,
    COUNT(cea.CourierID) AS CouriersAssigned
FROM Employee e
LEFT JOIN CourierEmployeeAssignment cea ON e.EmployeeID = cea.EmployeeID
GROUP BY e.EmployeeID, e.Name;
```


| | EmployeeID | Name | CouriersAssigned |
|---|------------|--------------------|------------------|
| ▶ | 1 | Admin User | 0 |
| | 2 | Warehouse Manager | 0 |
| | 3 | Driver 1 | 4 |
| | 4 | Customer Service | 0 |
| | 5 | Warehouse Staff | 1 |
| | 6 | Operations Manager | 0 |

-- 42. Retrieve a list of locations and the total payment amount received at each location:

SELECT

l.LocationID,

l.LocationName,

COALESCE(SUM(p.Amount), 0) AS TotalPayments

FROM Location l

LEFT JOIN Payment p ON l.LocationID = p.LocationID

GROUP BY l.LocationID, l.LocationName;

| | LocationID | LocationName | TotalPayments |
|---|------------|--------------------|---------------|
| ▶ | 1 | Main Warehouse | 25.99 |
| | 2 | Downtown Hub | 45.50 |
| | 3 | Northside Facility | 15.99 |
| | 4 | Eastside Outlet | 89.99 |
| | 5 | Westside Center | 120.00 |
| | 6 | Corporate HQ | 59.99 |

-- 43. Retrieve all couriers sent by the same sender (based on SenderName):

SELECT SenderName, GROUP_CONCAT(CourierID) AS CourierIDs

FROM Courier

GROUP BY SenderName

HAVING COUNT(*) > 1;

| | SenderName | CourierIDs |
|---|------------|------------|
| ▶ | SenderName | CourierIDs |

-- 44. List all employees who share the same role:

SELECT Role, GROUP_CONCAT(EmployeeID) AS EmployeeIDs

FROM Employee

GROUP BY Role

HAVING COUNT(*) > 1;

| | Role | EmployeeIDs |
|---|---------|-------------|
| ▶ | Manager | 2,6 |

-- 45. Retrieve all payments made for couriers sent from the same location:

SELECT p.LocationID, l.LocationName, GROUP_CONCAT(p.PaymentID) AS PaymentIDs

```

FROM Payment p
JOIN Location l ON p.LocationID = l.LocationID
GROUP BY p.LocationID, l.LocationName
HAVING COUNT(*) > 1;

```

| | LocationID | LocationName | PaymentIDs |
|--|------------|--------------|------------|
|--|------------|--------------|------------|

-- 46. Retrieve all couriers sent from the same location (based on SenderAddress):

```

SELECT
    SUBSTRING_INDEX(SenderAddress, ',', 1) AS SenderLocation,
    GROUP_CONCAT(CourierID) AS CourierIDs
FROM Courier
GROUP BY SenderLocation
HAVING COUNT(*) > 1;

```

| | SenderLocation | CourierIDs |
|--|----------------|------------|
|--|----------------|------------|

-- 47. List employees and the number of couriers they have delivered:

```

SELECT
    e.EmployeeID,
    e.Name,
    COUNT(cea.CourierID) AS CouriersDelivered
FROM Employee e
JOIN CourierEmployeeAssignment cea ON e.EmployeeID = cea.EmployeeID
JOIN Courier c ON cea.CourierID = c.CourierID
WHERE c.Status = 'Delivered'
GROUP BY e.EmployeeID, e.Name;

```

| | EmployeeID | Name | CouriersDelivered |
|---|------------|----------|-------------------|
| ▶ | 3 | Driver 1 | 2 |

-- 48. Find couriers that were paid an amount greater than the cost of their respective courier services:

```

SELECT c.*, p.Amount, csm.AppliedCost
FROM Courier c
JOIN Payment p ON c.CourierID = p.CourierID
JOIN CourierServiceMapping csm ON c.CourierID = csm.CourierID
WHERE p.Amount > csm.AppliedCost;

```

| CourierID | OrderID | SenderName | SenderAddress | SenderContact | ReceiverName | ReceiverAddress | ReceiverContact | Weight | Dimensions | Status | TrackingNumber | PickupDate | DeliveryDate | DeliveryProof | Insurance |
|-----------|---------|------------|---------------|---------------|--------------|-----------------|-----------------|--------|------------|--------|----------------|------------|--------------|---------------|-----------|
|-----------|---------|------------|---------------|---------------|--------------|-----------------|-----------------|--------|------------|--------|----------------|------------|--------------|---------------|-----------|

-- 49. Find couriers that have a weight greater than the average weight of all couriers:

SELECT * FROM Courier

WHERE Weight > (SELECT AVG(Weight) FROM Courier);

| | CourierID | OrderID | SenderName | SenderAddress | SenderContact | ReceiverName | ReceiverAddress | ReceiverContact | Weight | Dimensions | Status | TrackingNumber | PickupDate |
|---|-----------|---------|---------------|-------------------------------|---------------|--------------|------------------------------|-----------------|--------|------------|------------|----------------|------------|
| ▶ | 4 | 4 | Emily Davis | 321 Elm St, Anytown, USA | 555-0104 | Dave Black | 987 Cedar Ln, Somewhere, USA | 555-0204 | 15.00 | 24x18x12 | Processing | TRK901234 | NULL |
| | 5 | 5 | Robert Wilson | 654 Maple Dr, Everywhere, USA | 555-0105 | Eve Gray | 123 Main St, Anytown, USA | 555-0205 | 25.00 | 36x24x18 | Cancelled | TRK567890 | NULL |
| * | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL |

-- 50. Find the names of all employees who have a salary greater than the average salary:

SELECT Name, Salary FROM Employee

WHERE Salary > (SELECT AVG(Salary) FROM Employee);

| | Name | Salary |
|---|--------------------|----------|
| ▶ | Admin User | 75000.00 |
| | Warehouse Manager | 65000.00 |
| | Operations Manager | 70000.00 |

-- 51. Find the total cost of all courier services where the cost is less than the maximum cost:

SELECT SUM(CostPerKg) AS TotalCost

FROM CourierServices

WHERE CostPerKg < (SELECT MAX(CostPerKg) FROM CourierServices);

| | TotalCost |
|---|-----------|
| ▶ | 21.00 |

-- 52. Find all couriers that have been paid for:

SELECT DISTINCT c.*

FROM Courier c

WHERE EXISTS (SELECT 1 FROM Payment p WHERE p.CourierID = c.CourierID);

| | CourierID | OrderID | SenderName | SenderAddress | SenderContact | ReceiverName | ReceiverAddress | ReceiverContact | Weight | Dimensions | Status | TrackingNumber |
|---|-----------|---------|---------------|-------------------------------|---------------|--------------|-------------------------------|-----------------|--------|------------|------------------|----------------|
| ▶ | 1 | 1 | John Smith | 123 Main St, Anytown, USA | 555-0101 | Alice Brown | 789 Pine Rd, Nowhere, USA | 555-0201 | 2.50 | 12x8x4 | Delivered | TRK123456 |
| | 2 | 2 | Sarah Johnson | 456 Oak Ave, Somewhere, USA | 555-0102 | Bob Green | 321 Elm St, Anywhere, USA | 555-0202 | 5.00 | 18x12x6 | In Transit | TRK789012 |
| | 3 | 3 | Michael Brown | 789 Pine Rd, Nowhere, USA | 555-0103 | Carol White | 654 Maple Dr, Everywhere, USA | 555-0203 | 1.20 | 10x6x3 | Out for Delivery | TRK345678 |
| | 4 | 4 | Emily Davis | 321 Elm St, Anywhere, USA | 555-0104 | Dave Black | 987 Cedar Ln, Somewhere, USA | 555-0204 | 15.00 | 24x18x12 | Processing | TRK901234 |
| | 5 | 5 | Robert Wilson | 654 Maple Dr, Everywhere, USA | 555-0105 | Eve Gray | 123 Main St, Anytown, USA | 555-0205 | 25.00 | 36x24x18 | Cancelled | TRK567890 |
| | 6 | 6 | Jennifer Lee | 987 Cedar Ln, Somewhere, USA | 555-0106 | Frank Blue | 456 Oak Ave, Somewhere, USA | 555-0206 | 3.50 | 14x10x8 | Delivered | TRK123789 |
| * | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL | NULL |

-- 53. Find the locations where the maximum payment amount was made:

SELECT l.LocationID, l.LocationName, p.Amount

FROM Location l

JOIN Payment p ON l.LocationID = p.LocationID

WHERE p.Amount = (SELECT MAX(Amount) FROM Payment);

| | LocationID | LocationName | Amount |
|---|------------|-----------------|--------|
| ▶ | 5 | Westside Center | 120.00 |

| | CourierID | OrderID | SenderName | SenderAddress | SenderContact | ReceiverName | ReceiverAddress | ReceiverContact | Weight | Dimensions | Status | TrackingNumber | PickupDate |
|---|-----------|---------|---------------|-------------------------------|---------------|--------------|------------------------------|-----------------|--------|------------|------------|----------------|-----------------------------|
| ▶ | 2 | 2 | Sarah Johnson | 456 Oak Ave, Somewhere, USA | 555-0102 | Bob Green | 321 Elm St, Anywhere, USA | 555-0202 | 5.00 | 18x12x6 | In Transit | TRK789012 | 2023-06-02 12:30:00 |
| | 4 | 4 | Emily Davis | 321 Elm St, Anywhere, USA | 555-0104 | Dave Black | 987 Cedar Ln, Somewhere, USA | 555-0204 | 15.00 | 24x18x12 | Processing | TRK901234 | HULL |
| | 5 | 5 | Robert Wilson | 654 Maple Dr, Everywhere, USA | 555-0105 | Eve Gray | 123 Main St, Anytown, USA | 555-0205 | 25.00 | 36x24x18 | Cancelled | TRK567890 | HULL |
| ■ | 6 | 6 | Jennifer Lee | 987 Cedar Ln, Somewhere, USA | 555-0106 | Frank Blue | 456 Oak Ave, Somewhere, USA | 555-0206 | 3.50 | 14x10x8 | Delivered | TRK123789 | 2023-06-06 15:00:00 HULL |