**Courier Management System**

**Task 1 : Database Design:**

**Q- What is the relationship between the tables?**

**Ans-** The database consists of several interconnected tables that establish clear relationships among various entities. The User table, identified by the primary key **UserID**, holds user-specific information such as names, emails, and contact details. The Courier table, with **CourierID** as its primary key, manages details related to courier shipments, including sender and receiver information, weight, status, and tracking numbers.

The Courier Services table, which features a primary key **ServiceID**, lists the available courier services along with their respective costs. The Employee table, linked to the Courier Services table through the foreign key **ServiceID**, identifies employees who manage these services, detailing their roles and contact information.

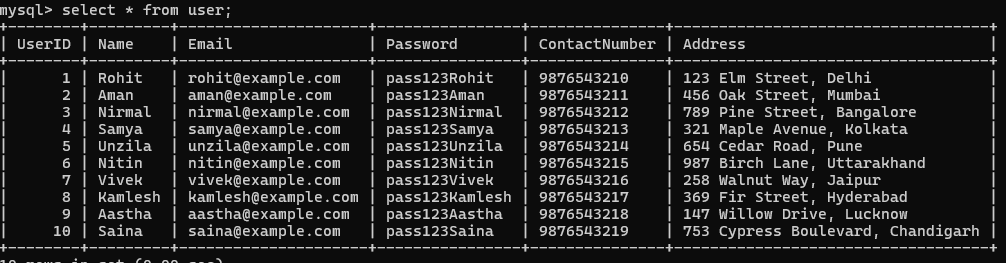
The Location table includes a primary key **LocationID** and contains addresses for different operational locations. Finally, the Payment table, which includes the primary key **PaymentID**, establishes connections to both the Courier and Location tables through the foreign keys **CourierID** and **LocationID**. This relationship allows tracking payments made for specific courier services delivered to particular locations. Overall, these tables work together to create a comprehensive system for managing users, couriers, services, employees, locations, and payments efficiently.

**To make the database we need tables, so below I have created required tables.**

**1- Create User table:**

* Query to create user table:
* create table user (UserID INT PRIMARY KEY,
* Name VARCHAR(255),
* Email VARCHAR(255) UNIQUE,
* Password VARCHAR(255),
* ContactNumber VARCHAR(20),
* Address TEXT );
* Query to insert data in user table:
* INSERT INTO user (UserID, Name, Email, Password, ContactNumber, Address)
* VALUES
* (1, 'Rohit', 'rohit@example.com', 'pass123Rohit', '9876543210', '123 Elm Street, Delhi'),
* (2, 'Aman', 'aman@example.com', 'pass123Aman', '9876543211', '456 Oak Street, Mumbai'),
* (3, 'Nirmal', 'nirmal@example.com', 'pass123Nirmal', '9876543212', '789 Pine Street, Bangalore'),
* (4, 'Samya', 'samya@example.com', 'pass123Samya', '9876543213', '321 Maple Avenue, Kolkata'),
* (5, 'Unzila', 'unzila@example.com', 'pass123Unzila', '9876543214', '654 Cedar Road, Pune'),
* (6, 'Nitin', 'nitin@example.com', 'pass123Nitin', '9876543215', '987 Birch Lane, Uttarakhand'),
* (7, 'Vivek', 'vivek@example.com', 'pass123Vivek', '9876543216', '258 Walnut Way, Jaipur'),
* (8, 'Kamlesh', 'kamlesh@example.com', 'pass123Kamlesh', '9876543217', '369 Fir Street, Hyderabad'),
* (9, 'Aastha', 'aastha@example.com', 'pass123Aastha', '9876543218', '147 Willow Drive, Lucknow'),
* (10, 'Saina', 'saina@example.com', 'pass123Saina', '9876543219', '753 Cypress Boulevard, Chandigarh');

**Result(User table):**

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**2- Create Courier table:**

* Query to create Courier table:
* create table courier(CourierID INT PRIMARY KEY,
* SenderName VARCHAR(255),
* SenderAddress TEXT,
* ReceiverName VARCHAR(255),
* ReceiverAddress TEXT,
* Weight DECIMAL(5, 2),
* Status VARCHAR(50),
* TrackingNumber VARCHAR(20) UNIQUE,
* DeliveryDate DATE);
* Query to insert data in Courier table:
* INSERT INTO courier (CourierID, SenderName, SenderAddress, ReceiverName, ReceiverAddress, Weight, Status, TrackingNumber, DeliveryDate)
* VALUES
* (1, 'Rohit', '123 Elm Street, Delhi', 'Aman', '456 Oak Street, Mumbai', 2.50, 'In Transit', 'TRK123456789', '2024-09-25'),
* (2, 'Nirmal', '789 Pine Street, Bangalore', 'Samya', '321 Maple Avenue, Kolkata', 1.75, 'Delivered', 'TRK123456790', '2024-09-20'),
* (3, 'Unzila', '654 Cedar Road, Pune', 'Nitin', '987 Birch Lane, Uttarakhand', 3.00, 'Pending', 'TRK123456791', '2024-09-30'),
* (4, 'Vivek', '258 Walnut Way, Jaipur', 'Kamlesh', '369 Fir Street, Hyderabad', 2.25, 'In Transit', 'TRK123456792', '2024-09-28'),
* (5, 'Aastha', '147 Willow Drive, Lucknow', 'Saina', '753 Cypress Boulevard, Chandigarh', 1.50, 'Delivered', 'TRK123456793', '2024-09-22'),
* (6, 'Nitin', '987 Birch Lane, Uttarakhand', 'Rohit', '123 Elm Street, Delhi', 2.10, 'In Transit', 'TRK123456794', '2024-09-26'),
* (7, 'Samya', '321 Maple Avenue, Kolkata', 'Unzila', '654 Cedar Road, Pune', 2.75, 'Pending', 'TRK123456795', '2024-09-29'),
* (8, 'Kamlesh', '369 Fir Street, Hyderabad', 'Vivek', '258 Walnut Way, Jaipur', 3.20, 'In Transit', 'TRK123456796', '2024-09-27'),
* (9, 'Aman', '456 Oak Street, Mumbai', 'Aastha', '147 Willow Drive, Lucknow', 1.90, 'Delivered', 'TRK123456797', '2024-09-21'),
* (10, 'Saina', '753 Cypress Boulevard, Chandigarh', 'Nirmal', '789 Pine Street, Bangalore', 2.60, 'In Transit', 'TRK123456798', '2024-09-30');

**Result(courier table):**

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**3- Create CourierServices table:**

* Query to create CourierServices table:
* create table courierservices
* (ServiceID INT PRIMARY KEY,
* ServiceName VARCHAR(100),
* Cost DECIMAL(8, 2));

* Insert data in CourierServices table :
* INSERT INTO courierservices (ServiceID, ServiceName, Cost)
* VALUES
* (1, 'Standard Delivery', 150.00),
* (2, 'Express Delivery', 300.00),
* (3, 'Same Day Delivery', 500.00),
* (4, 'Overnight Shipping', 400.00),
* (5, 'International Shipping', 1200.00),
* (6, 'Two-Day Shipping', 250.00),
* (7, 'Economy Shipping', 100.00);

**Result(courierservices table):**

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**4- Create Employee Table:**

* Query to create Employee table:
* create table employee
* (EmployeeID INT PRIMARY KEY,
* Name VARCHAR(255),
* Email VARCHAR(255) UNIQUE,
* ContactNumber VARCHAR(20),
* Role VARCHAR(50),
* Salary DECIMAL(10, 2));
* Query to insert data in Employee table:
* INSERT INTO employee (EmployeeID, Name, Email, ContactNumber, Role, Salary, ServiceID)
* VALUES
* (1, 'Priya', 'priya@courier.com', '9876543210', 'Operations Manager', 55000.00, 1), -- Standard Delivery
* (2, 'Rajesh', 'rajesh@courier.com', '9876543211', 'Delivery Executive', 30000.00, 2), -- Express Delivery
* (3, 'Nina', 'nina@courier.com', '9876543212', 'Customer Support', 35000.00, 5), -- International Shipping
* (4, 'Mohit', 'mohit@courier.com', '9876543213', 'Logistics Manager', 60000.00, 4), -- Overnight Shipping
* (5, 'Anjali', 'anjali@courier.com', 'anjali.sen@courier.com', 'Dispatch Coordinator', 40000.00, 3), -- Same Day Delivery
* (6, 'Ravi', 'ravi@courier.com', '9876543215', 'Warehouse Supervisor', 45000.00, 6), -- Two-Day Shipping
* (7, 'Sonia', 'sonia@courier.com', '9876543216', 'Field Officer', 32000.00, 7); -- Economy Shipping

**Result(employee table):**

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**5- Create Location Table:**

* Query to create Location table:
* create table location
* (LocationID INT PRIMARY KEY,
* LocationName VARCHAR(100),
* Address TEXT);
* Query to insert data in Location table:
* INSERT INTO location (LocationID, LocationName, Address)
* VALUES
* (1, 'Warehouse A', '123 Logistics Park, Delhi'),
* (2, 'Warehouse B', '456 Distribution Center, Mumbai'),
* (3, 'Warehouse C', '789 Shipping Hub, Bangalore'),
* (4, 'Office HQ', '321 Corporate Blvd, Gurugram'),
* (5, 'Branch Office', '654 Retail Plaza, Kolkata'),
* (6, 'Depot North', '987 Industrial Zone, Pune'),
* (7, 'Depot South', '159 Commerce Street, Chennai');

**Result(location table):**

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**6- Create Payment table:**

* Query to create Payment table:
* create table payment
* (PaymentID INT PRIMARY KEY,
* CourierID INT,
* LocationId INT,
* Amount DECIMAL(10, 2),
* PaymentDate DATE,
* FOREIGN KEY (CourierID) REFERENCES Courier(CourierID),
* FOREIGN KEY (LocationID) REFERENCES Location(LocationID));
* Query to insert data in Payment table:
* INSERT INTO payment (PaymentID, CourierID, LocationID, Amount, PaymentDate)
* VALUES
* (1, 1, 1, 150.00, '2024-01-15'), -- Payment for CourierID 1 at LocationID 1
* (2, 2, 2, 300.00, '2024-02-16'), -- Payment for CourierID 2 at LocationID 2
* (3, 3, 3, 500.00, '2024-03-17'), -- Payment for CourierID 3 at LocationID 3
* (4, 4, 4, 400.00, '2024-04-18'), -- Payment for CourierID 4 at LocationID 4
* (5, 5, 5, 1200.00, '2024-05-19'), -- Payment for CourierID 5 at LocationID 5
* (6, 6, 6, 250.00, '2024-06-20'), -- Payment for CourierID 6 at LocationID 6
* (7, 7, 7, 100.00, '2024-07-21'), -- Payment for CourierID 7 at LocationID 7
* (8, 1, 2, 150.00, '2024-08-22'), -- Payment for CourierID 1 at LocationID 2
* (9, 3, 4, 500.00, '2024-09-23'), -- Payment for CourierID 3 at LocationID 4
* (10, 2, 5, 300.00, '2024-10-24'); -- Payment for CourierID 2 at LocationID 5

**Result:**

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**Task 2: Select,Where:**

**Q1- Query to list all customers**

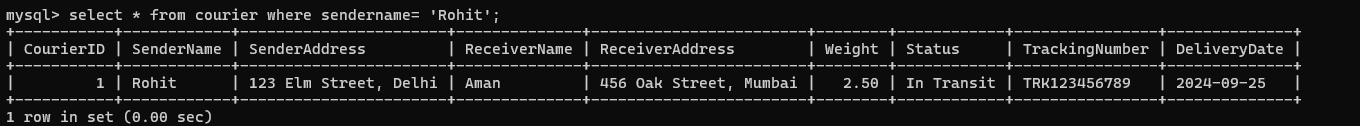
**Ans:** use “ Select \* from user” to see list of all customers.

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**Q2 – Query to list all orders for a specific customer**

**Ans:** Use “SELECT \* FROM courier WHERE SenderName = 'Rohit';



**Q3- Query to list all couriers**

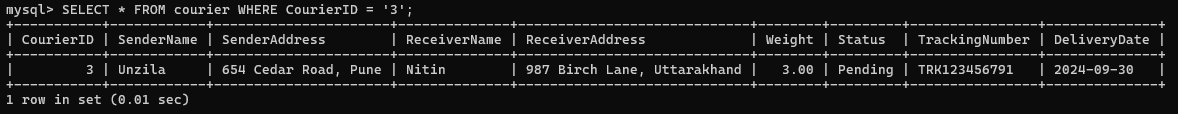
**Ans:** Use “Select \* from courier”

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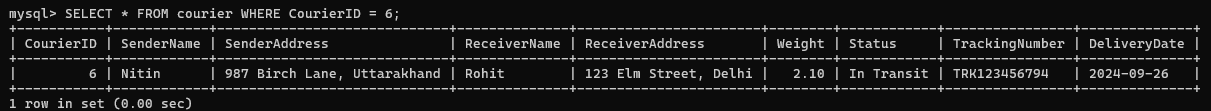
**Q4- Query to list all packages for a specific order**

**Ans:** Use “SELECT \* FROM courier WHERE CourierID = '3';”



**Q-5 Query to list all deliveries for a specific courier**

Ans: Use “SELECT \* FROM courier WHERE CourierID = 6;”



**Q-6 Query to list all undelivered packages**

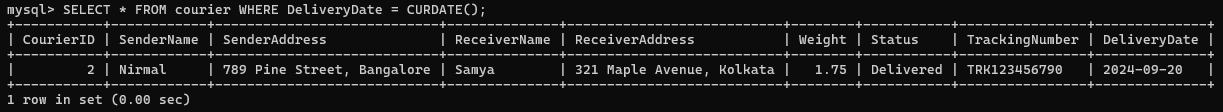
Ans: Use “SELECT \* FROM courier WHERE Status != 'delivered';”

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**Q-7 Query to list all packages that are scheduled for delivery today**

Ans: Use “SELECT \* FROM courier WHERE DeliveryDate = CURDATE();”



**Q-8 Query to list all packages with a specific status**

Ans: Use “SELECT \* FROM courier WHERE Status = 'In Transit';”

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Q**-9 Query to Calculate the total number of packages for each courier**

Ans: Use “SELECT CourierID, COUNT(\*) AS TotalPackages FROM courier GROUP BY CourierID;”

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**Q10- Query to find the average delivery time for each courier**

Ans: Use “SELECT CourierID, AVG(DATEDIFF(DeliveryDate, '2022-01-01')) AS AverageDeliveryDate

FROM courier

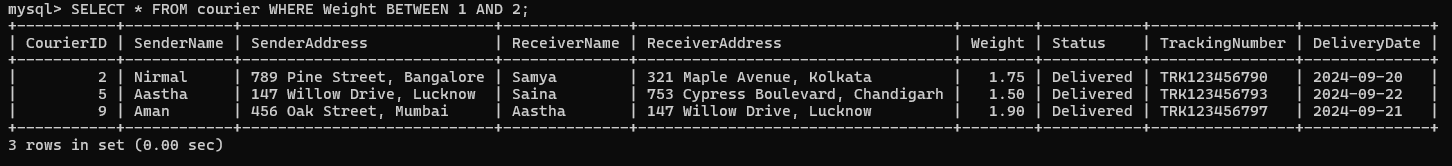
GROUP BY CourierID;”

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**Q11- Query to list all packages with a specific weight range**

Ans: Use “SELECT \* FROM courier WHERE Weight BETWEEN 1 AND 2;”



**Q12- Query to Retrieve employees whose names contain 'Nina'**

Ans: Use “SELECT \* FROM employee WHERE Name LIKE '%Nina%';”

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**Q13- Query to retrieve all courier records with payments greater than $50**

Ans: Use “SELECT c.\*

FROM courier c

JOIN payment p ON c.CourierID = p.CourierID

WHERE p.Amount > 50;”

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