ASSIGNMENT - 4

a Courier Management System with tables for Customers, Couriers, Orders, and Parcels.

TASK -1 DATABASE DESIGN

1) Define the Database Schema • Create SQL tables for entities such as User, Courier, Employee etc.

User

```
mysql> CREATE TABLE User(
-> UserID INT PRIMARY KEY,
-> Name VARCHAR(255),
-> Email VARCHAR(255) UNIQUE,
-> Password VARCHAR(255),
-> ContactNumber VARCHAR(20),
-> Address TEXT
-> );
```

Courier

```
nysql> 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
   -> );
```

CourierServices

```
mysql> CREATE TABLE CourierServices(
-> ServiceID INT PRIMARY KEY,
-> ServiceName VARCHAR(100),
-> Cost DECIMAL(8, 2)
-> );
```

Employee

```
mysql> CREATE TABLE Employee(
-> EmployeeID INT PRIMARY KEY,
-> Name VARCHAR(255),
-> Email VARCHAR(255) UNIQUE,
-> ContactNumber VARCHAR(20),
-> Role VARCHAR(50),
-> Salary DECIMAL(10, 2)
-> )
```

Location

```
mysql> CREATE TABLE Location(
-> LocationID INT PRIMARY KEY,
-> LocationName VARCHAR(100),
-> Address TEXT
-> );
```

Payment

```
nysql> 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)
    -> );
```

2) Insert sample data into the tables to simulate real-world scenarios.

User

 UserID	-+ Email 	Password	 ContactNumber	Address
2 Sanya Singh 3 Vivan Patel 4 Diya Sharma	aarav@gmail.com sanya@gmail.com vivan@gmail.com diya@gmail.com advik@gmail.com	pass456 pass789 passabc	8765432109 7654321098 6543210987	12, ABC Colony, New Delhi 34, XYZ Street, Mumbai 56, PQR Road, Bengaluru 78, LMN Avenue, Kolkata 90, EFG Lane, Chennai

Courier

mber DeliveryDate			ReceiverAddress	+ Weight Status +	Tracking
++ 101 Rahul Verma 2023-12-15 102 Neha Sharma	12, ABC Colony, New Delhi	Priya Singh	34, XYZ Street, Mumbai 78, LMN Avenue, Kolkata	2.50 In Transit	
2023-12-12			23, RST Gardens, Hyderabad		
2023-12-16	45, UVW Street, Pune 89, JKL Lane, Jaipur		67, GHI Enclave, Ahmedabad		

CourierServices

ServiceID	ServiceName	Cost
202 203 204	Express Service Local Delivery Instant Shipping Night Delivery International Shipping	299.90 199.99 149.99 249.99 399.99

Employee

EmployeeID	Name	Email	ContactNumber	Role	Salary
302 303 304	Rohit Sharma Priya Patel Anjali Singh Amit Kumar Neha Gupta	rohit@gmail.com priya@gmail.com anjali@gmail.com amit@gmail.com neha@gmail.com	9876543210 8765432109 7654321098 6543210987 5432109876	Supervisor Delivery Driver Customer Service	70000.00 60000.00 50000.00 55000.00 65000.00

Location

LocationID	LocationName	Address
402 403 404	New Delhi Mumbai Bengaluru Kolkata Chennai	New Delhi, Delhi, India Mumbai, Maharashtra, India Bengaluru, Karnataka, India Kolkata, West Bengal, India Chennai, Tamil Nadu, India

Payment

PaymentID	CourierID	LocationId	Amount	PaymentDate
501 502 503 504 505	101 102 103 104 105	402 403 404	170.00 245.00 155.00	2023-12-01 2023-12-02 2023-12-03 2023-12-04 2023-12-05

TASK-2 SELECT, WHERE

1) List all Customers.

UserID Name	Email	Password	ContactNumber	Address
2 Sanya Singh 3 Vivan Patel 4 Diya Sharma	aarav@gmail.com sanya@gmail.com vivan@gmail.com diya@gmail.com advik@gmail.com	pass456 pass789 passabc	8765432109 7654321098 6543210987	12, ABC Colony, New Delhi 34, XYZ Street, Mumbai 56, PQR Road, Bengaluru 78, LMN Avenue, Kolkata 90, EFG Lane, Chennai

2) List all orders for a specific customer:

+ CourierID SenderName iveryDate	+ SenderAddress	ReceiverName	+ ReceiverAddress	Weight Status	+ + TrackingNumber Del
 102 Neha Sharma 3-12-18 	+ 56, PQR Road, Bengaluru +	+ Ajay Kumar +	+	-+	TRACK002 202

3) List all couriers .

+ CourierID SenderName ber DeliveryDate	+ SenderAddress		+ ReceiverAddress 	Weight		Tracking
	† 12, ABC Colony, New Delhi		- 34, XYZ Street, Mumbai			
2023-12-15 102 Neha Sharma 2023-12-18	56, PQR Road, Bengaluru	Ajay Kumar	78, LMN Avenue, Kolkata	3.10	Pending	TRACK002
103 Kriti Patel 2023-12-12	90, EFG Lane, Chennai		23, RST Gardens, Hyderabad			TRACK003
2023-12-16	45, UVW Street, Pune		67, GHI Enclave, Ahmedabad			
105 Ananya Reddy 2023-12-14	89, JKL Lane, Jaipur	Rohan Kapoor	10, MNO Road, Chandigarh	2.30	Delivered	TRACK005

4) List all packages for a specific order:

+ + CourierID SenderName DeliveryDate	+	-+ ReceiverName	+ ReceiverAddress	+ Weight	Status	TrackingNumber
+ 101 Rahul Verma 2023-12-15	+ 12, ABC Colony, New Delhi	-+ Priya Singh	+ 34, XYZ Street, Mumbai 	2.50 	In Transit	TRACK001

5) . List all deliveries for a specific courier.

+ 		ReceiverAddress	+ Weight	++ TrackingNumber	
 105 Ananya Reddy 23-12-14	 Rohan Kapoor	10, MNO Road, Chandigarh	2.30		20

6) List all undelivered packages.

CourierID	TrackingNumber	status
102	TRACK001 TRACK002 TRACK004	In Transit Pending In Transit

7) List all packages that are scheduled for delivery today.

CourierID	TrackingNumber	deliverydate
		2023-12-12

8) List all packages with a specific status.

	SenderAddress	ReceiverName	ReceiverAddress	Weight	Status	TrackingNu
2023-12-15			34, XYZ Street, Mumbai 67, GHI Enclave, Ahmedabad			

9) Find the average delivery time for each courier

CourierID	AverageDeliveryTime
101	14.0000
102	16.0000
103	9.0000
104	12.0000
105	9.0000

10) List all packages with a specific weight range.

		ReceiverName		
105	Ananya Reddy	Rohan Kapoor	2023-12-14	2.30

11) Retrieve employees whose names contain 'John'.

```
nysql> select * from employee where Name like '%John%';
Empty set (0.00 sec)
```

12) Retrieve all courier records with payments greater than \$50.

SenderName	ReceiverName	weight	status	TrackingNumber	DeliveryDate	Amount
Rahul Verma Neha Sharma Kriti Patel Vivek Singh Ananya Reddy	Priya Singh Ajay Kumar Arjun Gupta Shreya Mishra Rohan Kapoor	3.10 1.80 2.90		TRACK002 TRACK003	2023-12-15 2023-12-18 2023-12-12 2023-12-16 2023-12-14	150.00 170.00 245.00 155.00 260.00

TASK 3: GROUPBY, AGGREGATE FUNCTIONS, HAVING, ORDER BY, WHERE

1). Calculate the total revenue generated by each location.

LocationID	LocationName	TotalRevenue
401 402 403 404 405	Bengaluru Kolkata	150.00 170.00 245.00 155.00 260.00

2) Find the total number of couriers delivered to each location.

LocationName	count	courier	perlocation
New Delhi Mumbai Bengaluru Kolkata Chennai			1 1 1 1 1

3) Find the courier with the highest average delivery time.

CourierID	AverageDeliveryTime
102	16.0000
	·+

4) Find Locations with Total Payments Less Than a Certain Amount .

amount less than 245	locationName
170.00	New Delhi Mumbai Kolkata

5) Calculate Total Payments per Location.

sum	locationname
150.00	New Delhi
170.00	Mumbai
245.00	Bengaluru
155.00	Kolkata
260.00	Chennai

6) Retrieve couriers who have received payments totaling more than \$1000 in a specific location (LocationID = 405).

```
mysql> select p.Amount , p.courierID from payment p where p.Amount>1000 and p.locationID = 405;
Empty set (0.00 sec)
```

7) Retrieve couriers who have received payments totaling more than \$150 after a certain date (PaymentDate > '2023-12-02')

Amount	courierID
245.00 155.00	103 104
260.00	105

8) Retrieve locations where the total amount received is more than \$200 before a certain date (PaymentDate > '2023-12-05").

Amount	courierID
150.00	101
170.00	102
155.00	104

TASK 4: INNER JOIN, FULL OUTER JOIN, CROSS JOIN, LEFT OUTER JOIN, RIGHT OUTER JOIN

1) Retrieve Payments with Courier Information .

		 		SenderAddress	+ ReceiverName	+ R
+			++	-+	+	+
501 101 4. XYZ Street, Mumbai		150.00 2023-12-01 Transit TRACKO01	101 Rahul Verma 2023-12-15	12, ABC Colony, New Delhi	Priya Singh	3
502 102	402 1	170.00 2023-12-02	102 Neha Sharma	56, PQR Road, Bengaluru	Ajay Kumar	7
8, LMN Avenue, Kolkata 		nding TRACK002 245.00 2023-12-03	2023-12-18 	90, EFG Lane, Chennai	Arjun Gupta	1 2
3, RST Gardens, Hyderabad		livered TRACK003	2023-12-12	7 50, El d'Edile, chemiai	Al Juli dupea	4
504 104 7 CUT Englava Abmodahad		L55.00 2023-12-04		45, UVW Street, Pune	Shreya Mishra	6
7, GHI Enclave, Ahmedabad 505 105 0, MNO Road, Chandigarh	405 2	Transit TRACK004 260.00 2023-12-05 livered TRACK005	2023-12-16 105 Ananya Reddy 2023-12-14	89, JKL Lane, Jaipur	Rohan Kapoor	1

2) Retrieve Payments with Location Information.

PaymentID (CourierID	LocationId	Amount	PaymentDate	LocationID	LocationName	Address
501 502 503 504 505	101 102 103 104 105	402 403 404 405	170.00 245.00 155.00 260.00	2023-12-01 2023-12-02 2023-12-03 2023-12-04 2023-12-05	402 403 404 405	New Delhi Mumbai Bengaluru Kolkata Chennai	New Delhi, Delhi, India Mumbai, Maharashtra, India Bengaluru, Karnataka, India Kolkata, West Bengal, India Chennai, Tamil Nadu, India

3) Retrieve Payments with Courier and Location Information.

amount	CourierId	SenderName	receiverName	LocationName
150.00 170.00 245.00 155.00 260.00	102 103 104	Rahul Verma Neha Sharma Kriti Patel Vivek Singh Ananya Reddy	Priya Singh Ajay Kumar Arjun Gupta Shreya Mishra Rohan Kapoor	New Delhi Mumbai Bengaluru Kolkata Chennai

4) List all payments with courier details.

Amount courierID	SenderName	ReceiverName	status	weight
170.00 102 245.00 103 155.00 104	Rahul Verma Neha Sharma Kriti Patel Vivek Singh Ananya Reddy	Arjun Gupta	In Transit Pending Delivered In Transit Delivered	2.50 3.10 1.80 2.90 2.30

5) Total payments received for each courier.

CourierID	TotalPaymentsReceived
101	150.00
102	170.00
103	245.00
104	155.00
105	260.00

6) List payments made on a specific date.

	CourierID	т	Amount	PaymentDate
505	105		260.00	2023-12-05

7) Get Courier Information for Each Payment.

payment amount	paymentID	CourierID	SenderName	ReceiverName	status	weight	DeliveryDate
150.00 170.00 245.00 155.00 260.00	501 502 503 504 505	102 103 104	Neha Sharma Kriti Patel Vivek Singh	Ajay Kumar		3.10 1.80 2.90	2023-12-18

8) Get Payment Details with Location .

PaymentId	amount	paymentDate	LocationName
502 503 504	170.00 245.00 155.00	2023-12-02 2023-12-03	New Delhi Mumbai Bengaluru Kolkata Chennai

9) Calculating Total Payments for Each Courier.

CourierID	TotalPayments
101 102	150.00 170.00
103	245.00
104 105	155.00 260.00
103	200.00

10) List Payments Within a Date Range.

PaymentID	CourierID	LocationId	Amount	PaymentDate
501 502 503 504	101 102 103 104	402 403	170.00 245.00	2023-12-01 2023-12-02 2023-12-03 2023-12-04

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

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

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

EmployeeID	Name	paymentID	Amount
301 301 301 301 301 301	Rohit Sharma Rohit Sharma Rohit Sharma Rohit Sharma Rohit Sharma	505 504 503 502 501	260.00 155.00 245.00 170.00 150.00

14) List all users and all courier services, showing all possible combinations.

UserID	Name	Email	Password	ContactNumber	Address	ServiceID	ServiceName	Cost
4 3 2	Diya Sharma Vivan Patel Sanya Singh	advik@gmail.com diya@gmail.com vivan@gmail.com sanya@gmail.com aarav@gmail.com	passabc pass789 pass456		90, EFG Lane, Chennai 78, LMN Avenue, Kolkata 56, PQR Road, Bengaluru 34, XYZ Street, Mumbai 12, ABC Colony, New Delhi	201 201 201	Express Service Express Service Express Service Express Service Express Service	299.90 299.90 299.90

15) List all employees and all locations, showing all possible combinations:

EmployeeID Name	Email	ContactNumber	Role	Salary	LocationID	LocationName	Address
303 Anjali Singh 302 Priya Patel		7654321098 8765432109	Logistics Coordinator Customer Service Delivery Driver Supervisor Manager	65000.00 55000.00 50000.00 60000.00 70000.00	401 401 401	New Delhi New Delhi New Delhi New Delhi New Delhi	New Delhi, Delhi, India New Delhi, Delhi, India New Delhi, Delhi, India New Delhi, Delhi, India New Delhi, Delhi, India

16) Retrieve a list of couriers and their corresponding sender information.

courierID	SenderName	SenderAddress
102 103 104	Rahul Verma Neha Sharma Kriti Patel Vivek Singh Ananya Reddy	12, ABC Colony, New Delhi 56, PQR Road, Bengaluru 90, EFG Lane, Chennai 45, UVW Street, Pune 89, JKL Lane, Jaipur

17) Retrieve a list of couriers and their corresponding receiver information.

CourierID	ReceiverName	ReceiverAddress
102	Priya Singh Ajay Kumar Arjun Gupta Shreya Mishra Rohan Kapoor	34, XYZ Street, Mumbai 78, LMN Avenue, Kolkata 23, RST Gardens, Hyderabad 67, GHI Enclave, Ahmedabad 10, MNO Road, Chandigarh

18) Retrieve a list of couriers along with the courier service details.

courierID	ServiceID	ServiceName
105	201	Express Service
104	201	Express Service
103	201	Express Service
102	201	Express Service
101	201	Express Service

19) Retrieve a list of locations and the total payment amount received at each location.

Amount	locationName
150.00	New Delhi
170.00	Mumbai
245.00	Bengaluru
155.00	Kolkata
260.00	Chennai

20) Retrieve all couriers sent by the same sender.

```
mysql> select courierID , SenderName ,count(courierID) from courier group by SenderName,courierID having count(*)>1;
Empty set (0.00 sec)
```

21) List all employees who share the same role.

EmployeeID Name	Email	ContactNumber		Salary
302 Priya Patel 303 Anjali Singh	priya@gmail.com	8765432109	Delivery Driver Delivery Driver	60000.00

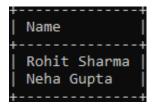
22) Retrieve all payments made for couriers sent from the same location.

payment amount	Address	
	New Delhi , Delhi,India New Delhi , Delhi,India	

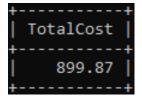
23) Find couriers that were paid an amount greater than the cost of their respective courier services.

courierID	Weight
102 104	3.10 2.90

24) Find the names of all employees who have a salary greater than the average salary.



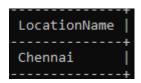
25) Find the total cost of all courier services where the cost is less than the maximum cost.



26) Find all couriers that have been paid for.

CourierID Sen	derName	SenderAddress	ReceiverName	ReceiverAddress	Weight	Status	TrackingNumber	DeliveryDate
102 Neh 103 Kri 104 Viv	a Sharma ti Patel ek Singh	90, EFG Lane, Chennai 45, UVW Street, Pune	Ajay Kumar Arjun Gupta Shreya Mishra	34, XYZ Street, Mumbai 78, LMN Avenue, Kolkata 23, RST Gardens, Hyderabad 67, GHI Enclave, Ahmedabad 10, MNO Road, Chandigarh	3.10 1.80 2.90	In Transit Pending Delivered In Transit Delivered	TRACK002 TRACK003 TRACK004	2023-12-15 2023-12-18 2023-12-12 2023-12-16 2023-12-14

27) Find the locations where the maximum payment amount was made .



28) Find all couriers whose weight is greater than the weight of all couriers sent by a specific sender.

CourierID	SenderName	SenderAddress	ReceiverName	ReceiverAddress	Weight	Status	TrackingNumber	DeliveryDate
104	Vivek Singh		Shreya Mishra	78, LMN Avenue, Kolkata 67, GHI Enclave, Ahmedabad	2.90	Pending In Transit	TRACK004	2023-12-18 2023-12-16