

Name: Suryawanshi sangramsingh sambhaji

Batch : Delta

```
CREATE TABLE Customers (
```

```
    CustomerID INT AUTO_INCREMENT PRIMARY KEY,
```

```
    FirstName VARCHAR(50),
```

```
    LastName VARCHAR(50),
```

```
    Email VARCHAR(100),
```

```
    PhoneNumber VARCHAR(15),
```

```
    Address VARCHAR(255),
```

```
    City VARCHAR(50),
```

```
    Country VARCHAR(50),
```

```
    JoinDate DATE
```

```
);
```

```
INSERT INTO Customers (FirstName, LastName, Email, PhoneNumber, Address, City, Country, JoinDate)
VALUES
```

```
('John', 'Doe', 'john.doe@example.com', '555-1234', '123 Main St', 'New York', 'USA', '2023-01-15'),
```

```
('Jane', 'Smith', 'jane.smith@example.com', '555-5678', '456 Elm St', 'Los Angeles', 'USA', '2023-02-20'),
```

```
('Michael', 'Johnson', 'michael.johnson@example.com', '555-8765', '789 Oak St', 'Chicago', 'USA', '2023-03-10'),
```

```
('Emily', 'Davis', 'emily.davis@example.com', '555-4321', '321 Pine St', 'Houston', 'USA', '2023-04-05'),
```

```
('David', 'Brown', 'david.brown@example.com', '555-6789', '654 Maple St', 'Phoenix', 'USA', '2023-05-22'),
```

```
('Emma', 'Wilson', 'emma.wilson@example.com', '555-2345', '987 Cedar St', 'Philadelphia', 'USA', '2023-06-18'),
```

```
('Chris', 'Miller', 'chris.miller@example.com', '555-3456', '543 Birch St', 'San Antonio', 'USA', '2023-07-09'),
```

('Sophia', 'Garcia', 'sophia.garcia@example.com', '555-4567', '876 Spruce St', 'San Diego', 'USA', '2023-08-12'),

('James', 'Martinez', 'james.martinez@example.com', '555-5678', '234 Cherry St', 'Dallas', 'USA', '2023-09-01'),

('Olivia', 'Rodriguez', 'olivia.rodriguez@example.com', '555-6789', '678 Poplar St', 'San Jose', 'USA', '2023-10-14');

1. How would you retrieve all customers who live in either 'New York' or 'Los Angeles'?

```
mysql> select * from customers where city in('Los Angeles', 'New York');
```

CustomerID	FirstName	LastName	Email	PhoneNumber	Address	City	Country	JoinDate
1	John	Doe	john.doe@example.com	555-1234	123 Main St	New York	USA	2023-01-15
2	Jane	Smith	jane.smith@example.com	555-5678	456 Elm St	Los Angeles	USA	2023-02-20

2 rows in set (0.00 sec)

2. How can you find all customers whose `LastName` ends with 'son'?

```
mysql> select * from customers where lastname like '%son';
```

CustomerID	FirstName	LastName	Email	PhoneNumber	Address	City	Country	JoinDate
3	Michael	Johnson	michael.johnson@example.com	555-8765	789 Oak St	Chicago	USA	2023-03-10
6	Emma	Wilson	emma.wilson@example.com	555-2345	987 Cedar St	Philadelphia	USA	2023-06-18

2 rows in set (0.00 sec)

3. How would you calculate the number of customers in each city?

```
mysql> select city, count(*) as CustomerCount from customers group by city;
```

city	CustomerCount
New York	1
Los Angeles	1
Chicago	1
Houston	1
Phoenix	1
Philadelphia	1
San Antonio	1
San Diego	1
Dallas	1
San Jose	1

10 rows in set (0.00 sec)

4. How do you retrieve customers whose `JoinDate` is in the year 2023?

```
mysql> select * from customers where year(joindate)=2023;
```

CustomerID	FirstName	LastName	Email	PhoneNumber	Address	City	Country	JoinDate
1	John	Doe	john.doe@example.com	555-1234	123 Main St	New York	USA	2023-01-15
2	Jane	Smith	jane.smith@example.com	555-5678	456 Elm St	Los Angeles	USA	2023-02-20
3	Michael	Johnson	michael.johnson@example.com	555-8765	789 Oak St	Chicago	USA	2023-03-10
4	Emily	Davis	emily.davis@example.com	555-4321	321 Pine St	Houston	USA	2023-04-05
5	David	Brown	david.brown@example.com	555-6789	654 Maple St	Phoenix	USA	2023-05-22
6	Emma	Wilson	emma.wilson@example.com	555-2345	987 Cedar St	Philadelphia	USA	2023-06-18
7	Chris	Miller	chris.miller@example.com	555-3456	543 Birch St	San Antonio	USA	2023-07-09
8	Sophia	Garcia	sophia.garcia@example.com	555-4567	876 Spruce St	San Diego	USA	2023-08-12
9	James	Martinez	james.martinez@example.com	555-5678	234 Cherry St	Dallas	USA	2023-09-01
10	Olivia	Rodriguez	olivia.rodriguez@example.com	555-6789	678 Poplar St	San Jose	USA	2023-10-14

10 rows in set (0.00 sec)

5. How would you update the `City` for all customers from 'San Antonio' to 'Austin'?

```
mysql> update customers set city='Austin' where city='San Diego';
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> select * from customers;
```

CustomerID	FirstName	LastName	Email	PhoneNumber	Address	City	Country	JoinDate
1	John	Doe	john.doe@example.com	555-1234	123 Main St	New York	USA	2023-01-15
2	Jane	Smith	jane.smith@example.com	555-5678	456 Elm St	Los Angeles	USA	2023-02-20
3	Michael	Johnson	michael.johnson@example.com	555-8765	789 Oak St	Chicago	USA	2023-03-10
4	Emily	Davis	emily.davis@example.com	555-4321	321 Pine St	Houston	USA	2023-04-05
5	David	Brown	david.brown@example.com	555-6789	654 Maple St	Phoenix	USA	2023-05-22
6	Emma	Wilson	emma.wilson@example.com	555-2345	987 Cedar St	Philadelphia	USA	2023-06-18
7	Chris	Miller	chris.miller@example.com	555-3456	543 Birch St	San Antonio	USA	2023-07-09
8	Sophia	Garcia	sophia.garcia@example.com	555-4567	876 Spruce St	Austin	USA	2023-08-12
9	James	Martinez	james.martinez@example.com	555-5678	234 Cherry St	Dallas	USA	2023-09-01
10	Olivia	Rodriguez	olivia.rodriguez@example.com	555-6789	678 Poplar St	San Jose	USA	2023-10-14

10 rows in set (0.00 sec)

6. How can you delete all customers who joined before '2023-04-01'?

```
mysql> select * from customers;
```

CustomerID	FirstName	LastName	Email	PhoneNumber	Address	City	Country	JoinDate	membershiplevel
4	Emily	Davis	emily.davis@example.com	555-4321	321 Pine St	Houston	United States	2023-04-05	Standard
5	David	Brown	david.brown@example.com	555-6789	654 Maple St	Phoenix	United States	2023-05-22	Standard
6	Emma	Wilson	emma.wilson@example.com	555-2345	987 Cedar St	Philadelphia	United States	2023-06-18	Standard
7	Chris	Miller	chris.miller@example.com	555-3456	543 Birch St	San Antonio	United States	2023-07-09	Standard
8	Sophia	Garcia	sophia.garcia@example.com	555-4567	876 Spruce St	Austin	United States	2023-08-12	Standard
9	James	Martinez	james.martinez@example.com	555-5678	234 Cherry St	Dallas	United States	2023-09-01	Standard
10	Olivia	Rodriguez	olivia.rodriguez@example.com	555-6789	678 Poplar St	San Jose	United States	2023-10-14	Standard

7 rows in set (0.00 sec)

7. How would you retrieve the `FirstName`, `LastName`, and `Email` of all customers, sorted by `JoinDate` in ascending order?

```
mysql> select firstname, lastname, email from customers order by joindate asc;
```

firstname	lastname	email
John	Doe	john.doe@example.com
Jane	Smith	jane.smith@example.com
Michael	Johnson	michael.johnson@example.com
Emily	Davis	emily.davis@example.com
David	Brown	david.brown@example.com
Emma	Wilson	emma.wilson@example.com
Chris	Miller	chris.miller@example.com
Sophia	Garcia	sophia.garcia@example.com
James	Martinez	james.martinez@example.com
Olivia	Rodriguez	olivia.rodriguez@example.com

10 rows in set (0.00 sec)

8. How can you find the customer(s) with the shortest `LastName`?

```
mysql> select * from customers where length(lastname) = (select min(length(lastname)) from customers);
```

CustomerID	FirstName	LastName	Email	PhoneNumber	Address	City	Country	JoinDate
1	John	Doe	john.doe@example.com	555-1234	123 Main St	New York	USA	2023-01-15

1 row in set (0.01 sec)

9. How do you retrieve customers whose `PhoneNumber` contains the sequence '567'?

```
mysql> select * from customers where phonenumber like '%567%';
```

CustomerID	FirstName	LastName	Email	PhoneNumber	Address	City	Country	JoinDate
2	Jane	Smith	jane.smith@example.com	555-5678	456 Elm St	Los Angeles	USA	2023-02-20
8	Sophia	Garcia	sophia.garcia@example.com	555-4567	876 Spruce St	Austin	USA	2023-08-12
9	James	Martinez	james.martinez@example.com	555-5678	234 Cherry St	Dallas	USA	2023-09-01

3 rows in set (0.00 sec)

10. How would you add a new column `MembershipLevel` to the `Customers` table and set the default value to 'Standard'?

```
mysql> alter table customers add membershiplevel varchar(20) default 'Standard';
Query OK, 0 rows affected (0.06 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

```
mysql> desc customers;
```

Field	Type	Null	Key	Default	Extra
CustomerID	int	NO	PRI	NULL	auto_increment
FirstName	varchar(50)	YES		NULL	
LastName	varchar(50)	YES		NULL	
Email	varchar(100)	YES		NULL	
PhoneNumber	varchar(15)	YES		NULL	
Address	varchar(255)	YES		NULL	
City	varchar(50)	YES		NULL	
Country	varchar(50)	YES		NULL	
JoinDate	date	YES		NULL	
membershiplevel	varchar(20)	YES		Standard	

10 rows in set (0.01 sec)

11. How would you change the `Email` of a customer with `CustomerID` 3 to 'new.email@example.com'?

```
mysql> update customers set email = 'new.email@example.com' where customerId = 3;
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> select * from customers;
```

CustomerID	FirstName	LastName	Email	PhoneNumber	Address	City	Country	JoinDate	membershiplevel
1	John	Doe	john.doe@example.com	555-1234	123 Main St	New York	USA	2023-01-15	Standard
2	Jane	Smith	jane.smith@example.com	555-5678	456 Elm St	Los Angeles	USA	2023-02-20	Standard
3	Michael	Johnson	new.email@example.com	555-8765	789 Oak St	Chicago	USA	2023-03-10	Standard
4	Emily	Davis	emily.davis@example.com	555-4321	321 Pine St	Houston	USA	2023-04-05	Standard
5	David	Brown	david.brown@example.com	555-6789	654 Maple St	Phoenix	USA	2023-05-22	Standard
6	Emma	Wilson	emma.wilson@example.com	555-2345	987 Cedar St	Philadelphia	USA	2023-06-18	Standard
7	Chris	Miller	chris.miller@example.com	555-3456	543 Birch St	San Antonio	USA	2023-07-09	Standard
8	Sophia	Garcia	sophia.garcia@example.com	555-4567	876 Spruce St	Austin	USA	2023-08-12	Standard
9	James	Martinez	james.martinez@example.com	555-5678	234 Cherry St	Dallas	USA	2023-09-01	Standard
10	Olivia	Rodriguez	olivia.rodriguez@example.com	555-6789	678 Poplar St	San Jose	USA	2023-10-14	Standard

```
10 rows in set (0.00 sec)
```

12. How can you retrieve the `FirstName` and `LastName` of customers who live in cities that start with 'S'?

```
mysql> select firstname, lastname from customers where city like 'S%';
```

firstname	lastname
Chris	Miller
Olivia	Rodriguez

```
2 rows in set (0.00 sec)
```

13. How would you find the total number of distinct countries represented by the customers?

```
mysql> select count(distinct country) as distinctcountries from customers;
```

distinctcountries
1

```
1 row in set (0.01 sec)
```

14. How can you find the maximum length of the `Address` column across all customers?

```
mysql> select max(length(address)) as maxaddresslength from customers;
```

maxaddresslength
13

```
1 row in set (0.00 sec)
```

15. How would you retrieve all customers where the `Email` domain is 'example.com'?

```
mysql> select * from customers where email like '%@example.com';
```

CustomerID	FirstName	LastName	Email	PhoneNumber	Address	City	Country	JoinDate	membershiplevel
1	John	Doe	john.doe@example.com	555-1234	123 Main St	New York	USA	2023-01-15	Standard
2	Jane	Smith	jane.smith@example.com	555-5678	456 Elm St	Los Angeles	USA	2023-02-20	Standard
3	Michael	Johnson	new.email@example.com	555-8765	789 Oak St	Chicago	USA	2023-03-10	Standard
4	Emily	Davis	emily.davis@example.com	555-4321	321 Pine St	Houston	USA	2023-04-05	Standard
5	David	Brown	david.brown@example.com	555-6789	654 Maple St	Phoenix	USA	2023-05-22	Standard
6	Emma	Wilson	emma.wilson@example.com	555-2345	987 Cedar St	Philadelphia	USA	2023-06-18	Standard
7	Chris	Miller	chris.miller@example.com	555-3456	543 Birch St	San Antonio	USA	2023-07-09	Standard
8	Sophia	Garcia	sophia.garcia@example.com	555-4567	876 Spruce St	Austin	USA	2023-08-12	Standard
9	James	Martinez	james.martinez@example.com	555-5678	234 Cherry St	Dallas	USA	2023-09-01	Standard
10	Olivia	Rodriguez	olivia.rodriguez@example.com	555-6789	678 Poplar St	San Jose	USA	2023-10-14	Standard

```
10 rows in set (0.00 sec)
```

16. How do you display the `CustomerID`, `FirstName`, and `JoinDate` for customers who have joined in the last 3 months?

```
mysql> select customerid, firstname, joindate from customers where joindate >= date_sub(curdate(), interval 3 month);
Empty set (0.00 sec)
```

17. How can you change the `Country` of all customers living in 'USA' to 'United States'?

```
mysql> update customers set country = 'United States' where country = 'USA';
Query OK, 10 rows affected (0.01 sec)
Rows matched: 10 Changed: 10 Warnings: 0
```

```
mysql> select * from customers;
```

CustomerID	FirstName	LastName	Email	PhoneNumber	Address	City	Country	JoinDate	membershiplevel
1	John	Doe	john.doe@example.com	555-1234	123 Main St	New York	United States	2023-01-15	Standard
2	Jane	Smith	jane.smith@example.com	555-5678	456 Elm St	Los Angeles	United States	2023-02-20	Standard
3	Michael	Johnson	new.email@example.com	555-8765	789 Oak St	Chicago	United States	2023-03-10	Standard
4	Emily	Davis	emily.davis@example.com	555-4321	321 Pine St	Houston	United States	2023-04-05	Standard
5	David	Brown	david.brown@example.com	555-6789	654 Maple St	Phoenix	United States	2023-05-22	Standard
6	Emma	Wilson	emma.wilson@example.com	555-2345	987 Cedar St	Philadelphia	United States	2023-06-18	Standard
7	Chris	Miller	chris.miller@example.com	555-3456	543 Birch St	San Antonio	United States	2023-07-09	Standard
8	Sophia	Garcia	sophia.garcia@example.com	555-4567	876 Spruce St	Austin	United States	2023-08-12	Standard
9	James	Martinez	james.martinez@example.com	555-5678	234 Cherry St	Dallas	United States	2023-09-01	Standard
10	Olivia	Rodriguez	olivia.rodriguez@example.com	555-6789	678 Poplar St	San Jose	United States	2023-10-14	Standard

```
10 rows in set (0.00 sec)
```

18. How would you retrieve the `FirstName`, `LastName`, and `PhoneNumber` for customers whose phone number starts with '555'?

```
mysql> select firstname, lastname, phonenumber from customers where phonenumber like '555%';
```

firstname	lastname	phonenumber
John	Doe	555-1234
Jane	Smith	555-5678
Michael	Johnson	555-8765
Emily	Davis	555-4321
David	Brown	555-6789
Emma	Wilson	555-2345
Chris	Miller	555-3456
Sophia	Garcia	555-4567
James	Martinez	555-5678
Olivia	Rodriguez	555-6789

```
10 rows in set (0.00 sec)
```

19. How can you calculate the average length of `FirstName` for all customers?

```
+-----+
| avgfirstnamelength |
+-----+
|          5.1000 |
+-----+
1 row in set (0.00 sec)
```

20. How would you find customers who have both 'a' and 'e' in their `FirstName`?

```
mysql> select * from customers where firstname like '%a%' and firstnae like '%e%';
```

CustomerID	FirstName	LastName	Email	PhoneNumber	Address	City	Country	JoinDate	membershiplevel
2	Jane	Smith	jane.smith@example.com	555-5678	456 Elm St	Los Angeles	United States	2023-02-20	Standard
3	Michael	Johnson	new_email@example.com	555-8765	789 Oak St	Chicago	United States	2023-03-10	Standard
6	Emma	Wilson	emma.wilson@example.com	555-2345	987 Cedar St	Philadelphia	United States	2023-06-18	Standard
9	James	Martinez	james.martinez@example.com	555-5678	234 Cherry St	Dallas	United States	2023-09-01	Standard

4 rows in set (0.00 sec)