MySQL Lab Questions - Complete Solutions

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1 PART 1 — SQL Queries

1.1 Q1. Create a table named students

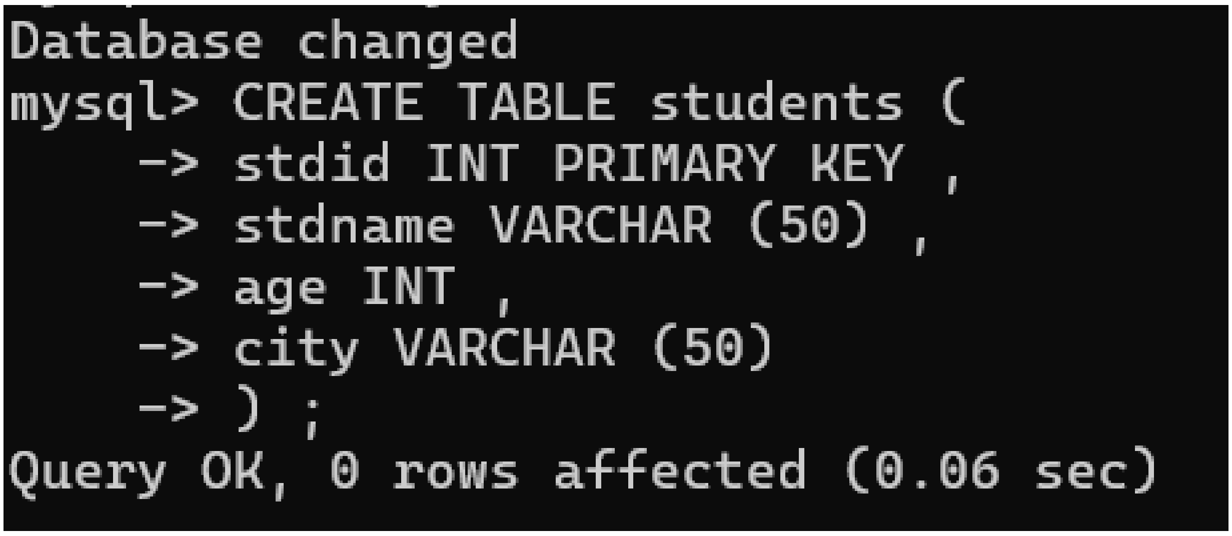
Question: Create a table named students with fields:

- stdid INT PRIMARY KEY
- stdname VARCHAR(50)
- age INT
- city VARCHAR(50)

SQL Query:

```
CREATE TABLE students (
    stdid INT PRIMARY KEY,
    stdname VARCHAR(50),
    age INT,
    city VARCHAR(50)
);
```

Output:



```
Database changed
mysql> CREATE TABLE students (
    -> stdid INT PRIMARY KEY ,
    -> stdname VARCHAR (50) ,
    -> age INT ,
    -> city VARCHAR (50)
    -> ) ;
Query OK, 0 rows affected (0.06 sec)
```

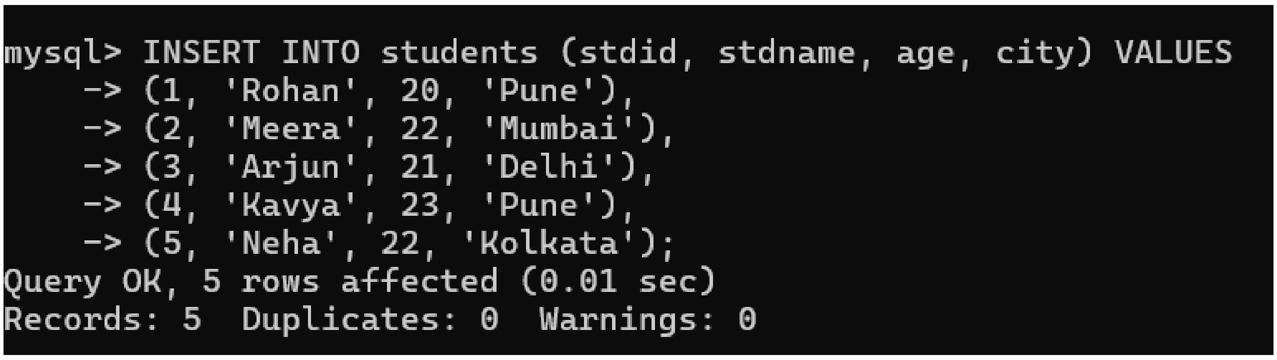
1.2 Q2. Insert records into the students table

Question: Insert the following records into the students table.

SQL Query:

```
INSERT INTO students (stdid, stdname, age, city) VALUES
(1, 'Rohan', 20, 'Pune'),
(2, 'Meera', 22, 'Mumbai'),
(3, 'Arjun', 21, 'Delhi'),
(4, 'Kavya', 23, 'Pune'),
(5, 'Neha', 22, 'Kolkata');
```

Output:



```
mysql> INSERT INTO students (stdid, stdname, age, city) VALUES
    -> (1, 'Rohan', 20, 'Pune'),
    -> (2, 'Meera', 22, 'Mumbai'),
    -> (3, 'Arjun', 21, 'Delhi'),
    -> (4, 'Kavya', 23, 'Pune'),
    -> (5, 'Neha', 22, 'Kolkata');
Query OK, 5 rows affected (0.01 sec)
Records: 5  Duplicates: 0  Warnings: 0
```

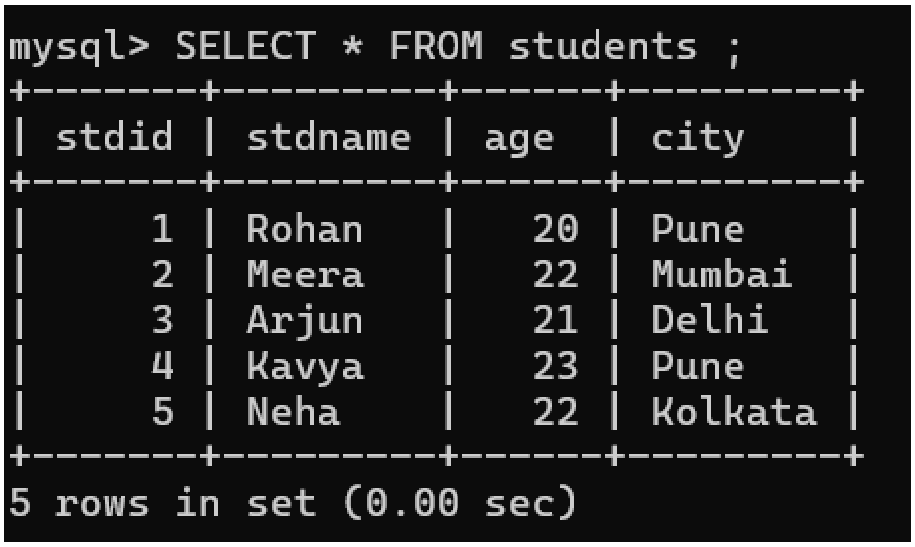
1.3 Q3. Display all student records

Question: Display all student records.

SQL Query:

```
SELECT * FROM students;
```

Output:



```
mysql> SELECT * FROM students ;
+-------+---------+------+---------+
| stdid | stdname | age  | city    |
+-------+---------+------+---------+
|     1 | Rohan   |   20 | Pune    |
|     2 | Meera   |   22 | Mumbai  |
|     3 | Arjun   |   21 | Delhi   |
|     4 | Kavya   |   23 | Pune    |
|     5 | Neha    |   22 | Kolkata |
+-------+---------+------+---------+
5 rows in set (0.00 sec)
```

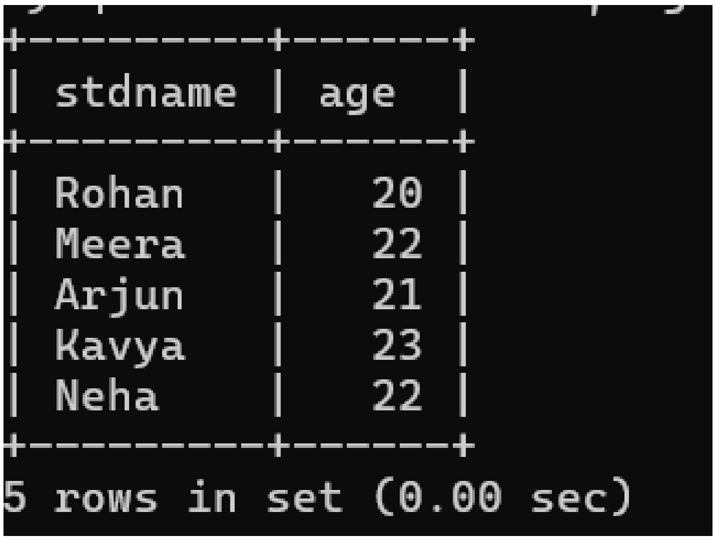
1.4 Q4. Display only the name and age of all students

Question: Display only the name and age of all students.

SQL Query:

```sql
SELECT stdname, age FROM students;
```

Output:



```
+----------+------+
| stdname  | age  |
+----------+------+
| Rohan    |   20 |
| Meera    |   22 |
| Arjun    |   21 |
| Kavya    |   23 |
| Neha     |   22 |
+----------+------+
5 rows in set (0.00 sec)
```

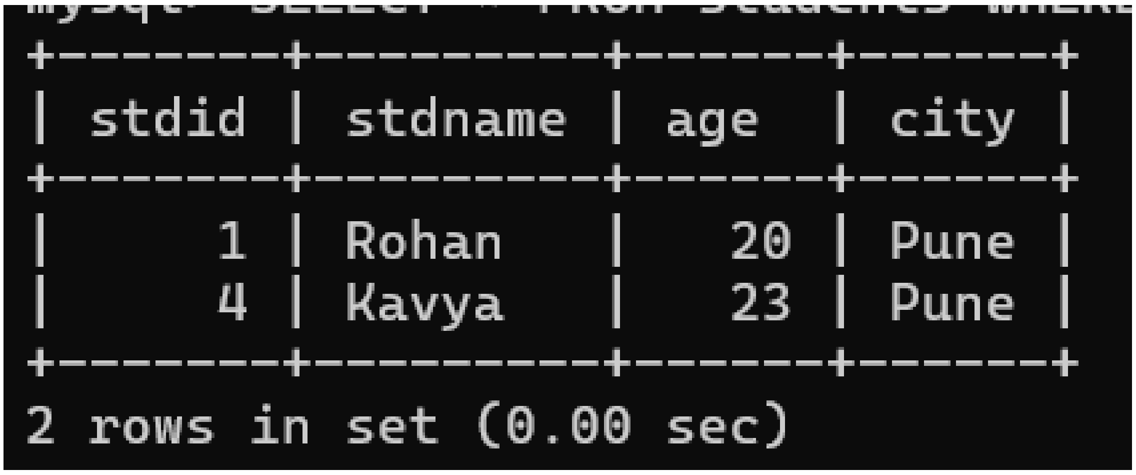
1.5 Q5. Display students who are from Pune

Question: Display students who are from Pune.

SQL Query:

```sql
SELECT * FROM students WHERE city = 'Pune';
```

Output:



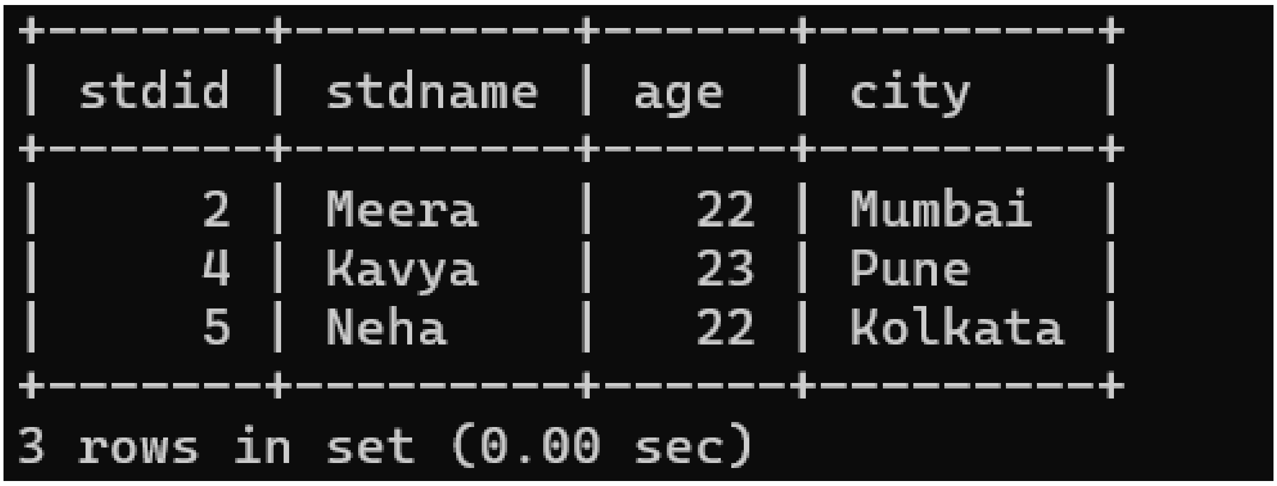
```
+-------+----------+------+------+
| stdid | stdname  | age  | city |
+-------+----------+------+------+
|     1 | Rohan    |   20 | Pune |
|     4 | Kavya    |   23 | Pune |
+-------+----------+------+------+
2 rows in set (0.00 sec)
```

1.6 Q6. Display students whose age is greater than 21

Question: Display students whose age is greater than 21.
SQL Query:

```
SELECT * FROM students WHERE age > 21;
```

Output:



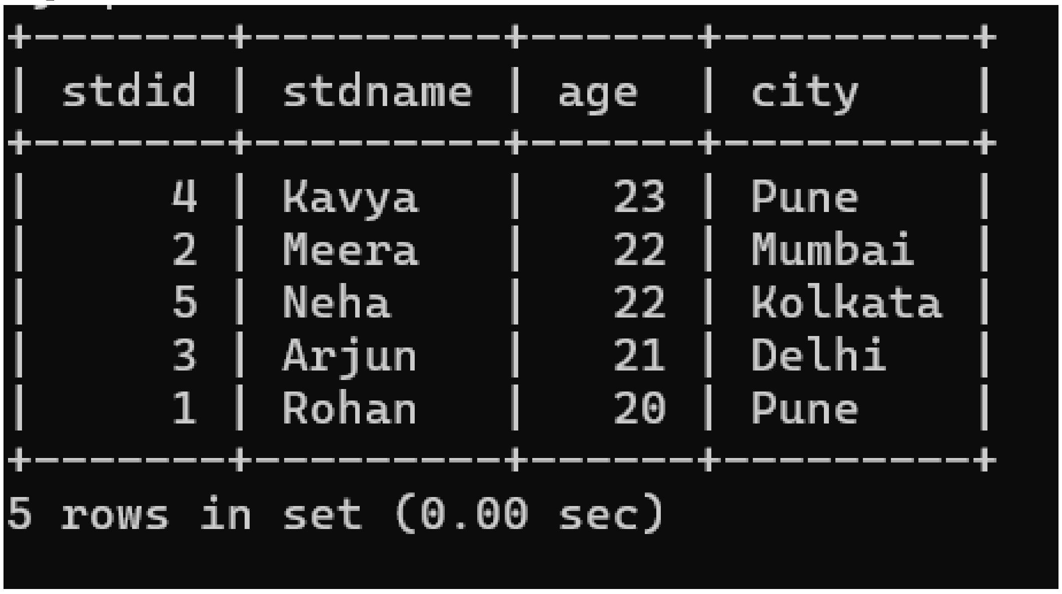
```
+-------+---------+------+---------+
| stdid | stdname | age  | city    |
+-------+---------+------+---------+
|     2 | Meera   |   22 | Mumbai  |
|     4 | Kavya   |   23 | Pune    |
|     5 | Neha    |   22 | Kolkata |
+-------+---------+------+---------+
3 rows in set (0.00 sec)
```

1.7 Q7. Display students in descending order of age

Question: Display students in descending order of age.
SQL Query:

```
SELECT * FROM students ORDER BY age DESC;
```

Output:



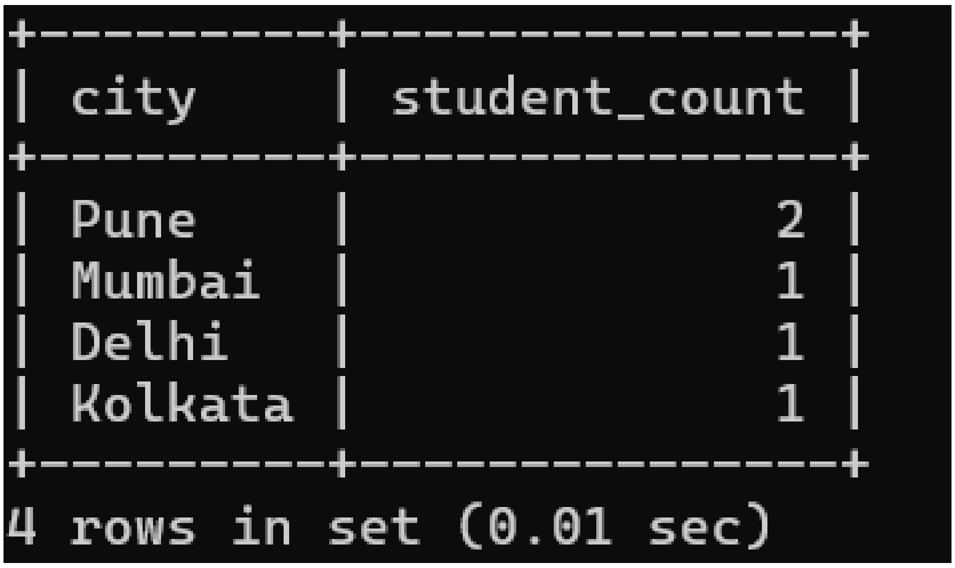
```
+-------+---------+------+---------+
| stdid | stdname | age  | city    |
+-------+---------+------+---------+
|     4 | Kavya   |   23 | Pune    |
|     2 | Meera   |   22 | Mumbai  |
|     5 | Neha    |   22 | Kolkata |
|     3 | Arjun   |   21 | Delhi   |
|     1 | Rohan   |   20 | Pune    |
+-------+---------+------+---------+
5 rows in set (0.00 sec)
```

1.8 Q8. Count how many students belong to each city

Question: Count how many students belong to each city. (Use GROUP BY)
SQL Query:

```
SELECT city, COUNT(*) AS student_count
FROM students
GROUP BY city;
```

Output:



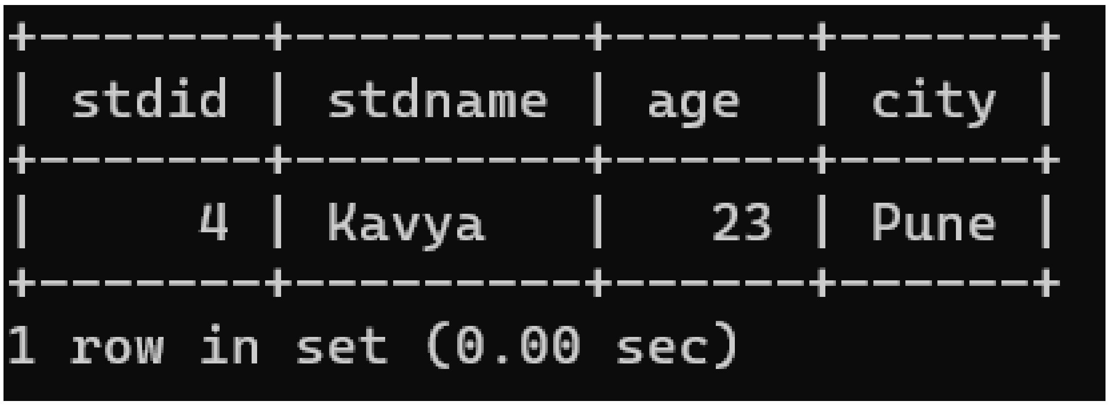
```
+---------+---------------+
| city    | student_count |
+---------+---------------+
| Pune    |             2 |
| Mumbai  |             1 |
| Delhi   |             1 |
| Kolkata |             1 |
+---------+---------------+
4 rows in set (0.01 sec)
```

1.9 Q9. Display students whose name starts with 'K'

Question: Display students whose name starts with 'K'. (Use LIKE)
SQL Query:

```
SELECT * FROM students WHERE stdname LIKE 'K%';
```

Output:



```
+-------+---------+------+------+
| stdid | stdname | age  | city |
+-------+---------+------+------+
|     4 | Kavya   |   23 | Pune |
+-------+---------+------+------+
1 row in set (0.00 sec)
```

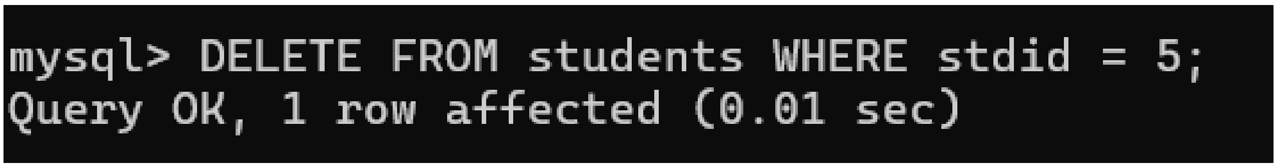
1.10 Q10. Delete student whose stdid = 5

Question: Delete student whose stdid = 5.

SQL Query:

```
DELETE FROM students WHERE stdid = 5;
```

Output:



```
mysql> DELETE FROM students WHERE stdid = 5;
Query OK, 1 row affected (0.01 sec)
```

2 PART 2 — ALTER COMMAND QUESTIONS

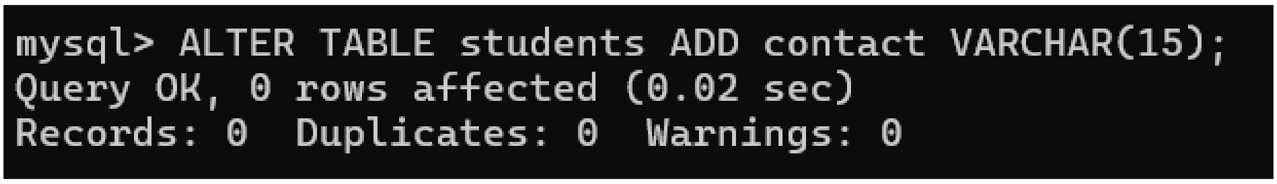
2.1 Q11. Add a new column contact

Question: Add a new column contact VARCHAR(15) to the students table.

SQL Query:

```
ALTER TABLE students ADD contact VARCHAR(15);
```

Output:



```
mysql> ALTER TABLE students ADD contact VARCHAR(15);
Query OK, 0 rows affected (0.02 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

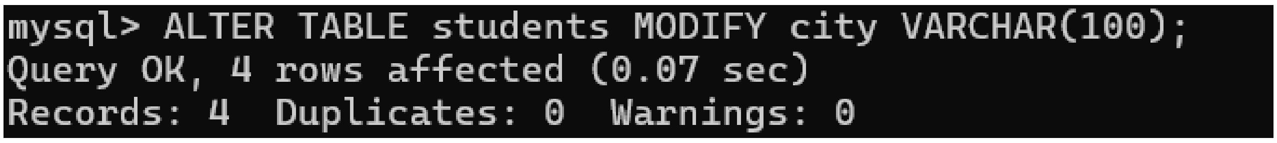
2.2 Q12. Modify the data type of city column

Question: Modify the data type of city column to VARCHAR(100).

SQL Query:

```
ALTER TABLE students MODIFY city VARCHAR(100);
```

Output:



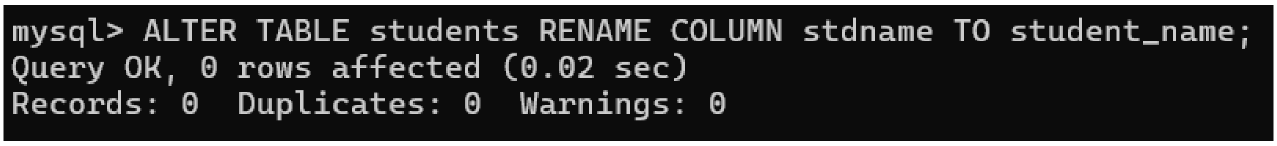
```
mysql> ALTER TABLE students MODIFY city VARCHAR(100);
Query OK, 4 rows affected (0.07 sec)
Records: 4  Duplicates: 0  Warnings: 0
```

2.3 Q13. Rename the column stdname to student_name

Question: Rename the column stdname to student_name.
SQL Query:

```
ALTER TABLE students RENAME COLUMN stdname TO student_name;
```

Output:



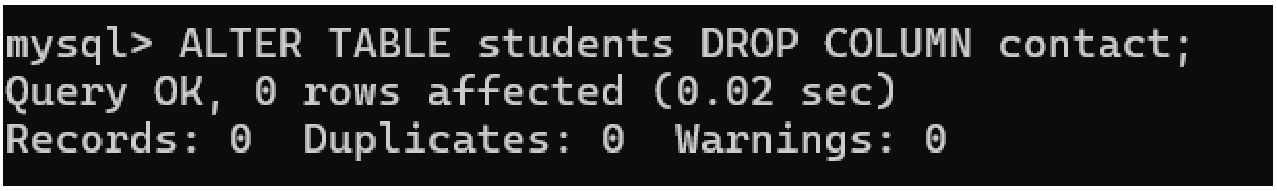
```
mysql> ALTER TABLE students RENAME COLUMN stdname TO student_name;
Query OK, 0 rows affected (0.02 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

2.4 Q14. Drop the column contact from the table

Question: Drop the column contact from the table.
SQL Query:

```
ALTER TABLE students DROP COLUMN contact;
```

Output:



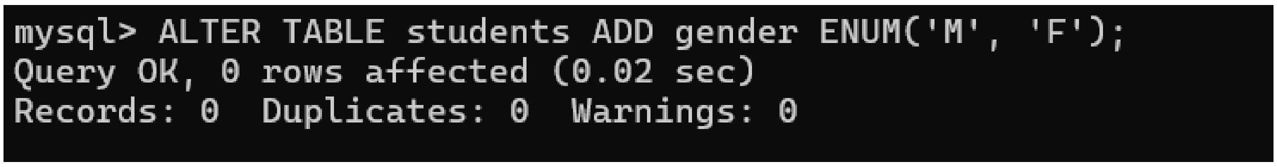
```
mysql> ALTER TABLE students DROP COLUMN contact;
Query OK, 0 rows affected (0.02 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

2.5 Q15. Add a new column gender

Question: Add a new column gender ENUM('M','F').
SQL Query:

```
ALTER TABLE students ADD gender ENUM('M', 'F');
```

Output:



```
mysql> ALTER TABLE students ADD gender ENUM('M', 'F');
Query OK, 0 rows affected (0.02 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

3 PART 3 — JOIN PRACTICE

3.1 Setup for Join Questions

Create and populate required tables:

```
-- Recreate students table with updated schema
CREATE TABLE students (
    stdid INT PRIMARY KEY,
    student_name VARCHAR(50),
    city VARCHAR(50)
);

INSERT INTO students VALUES
(1, 'Rohan', 'Pune'),
(2, 'Meera', 'Mumbai'),
(3, 'Arjun', 'Delhi'),
(4, 'Kavya', 'Pune');

-- Create marks table
CREATE TABLE marks (
    stdid INT,
    subject VARCHAR(50),
    marks INT
);

INSERT INTO marks VALUES
(1, 'Maths', 88),
(2, 'Maths', 76),
(3, 'Maths', 92),
(5, 'Maths', 67);
```

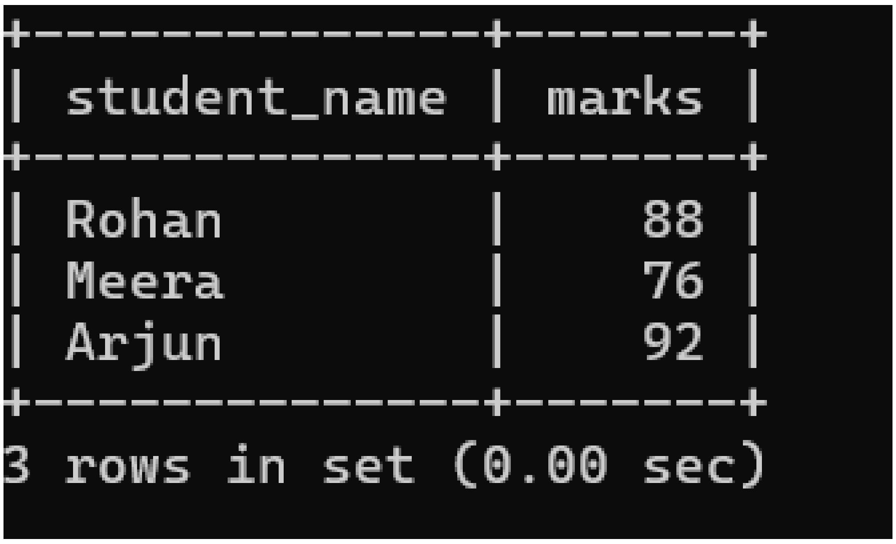
3.2 Q16. INNER JOIN

Question: Display student name and marks of only those students who have matching IDs in both tables. (Students without marks should not appear.)

SQL Query:

```
SELECT s.student_name, m.marks
FROM students s
INNER JOIN marks m ON s.stdid = m.stdid;
```

Output:



```
+--------------+-------+
| student_name | marks |
+--------------+-------+
| Rohan        |    88 |
| Meera        |    76 |
| Arjun        |    92 |
+--------------+-------+
3 rows in set (0.00 sec)
```

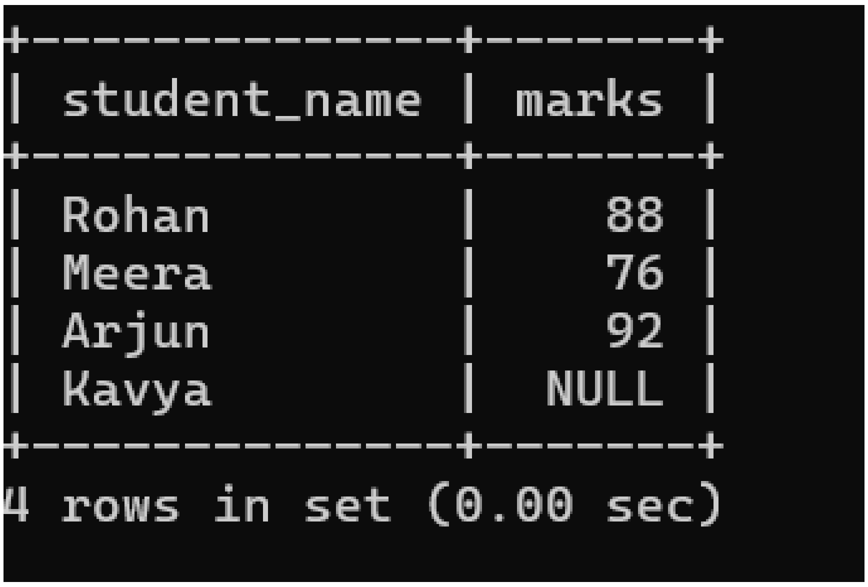
3.3 Q17. LEFT JOIN

Question: Display all students and their marks. (If marks not available, show NULL.)

SQL Query:

```
SELECT s.student_name, m.marks
FROM students s
LEFT JOIN marks m ON s.stdid = m.stdid;
```

Output:



```
+--------------+-------+
| student_name | marks |
+--------------+-------+
| Rohan        |    88 |
| Meera        |    76 |
| Arjun        |    92 |
| Kavya        |  NULL |
+--------------+-------+
4 rows in set (0.00 sec)
```

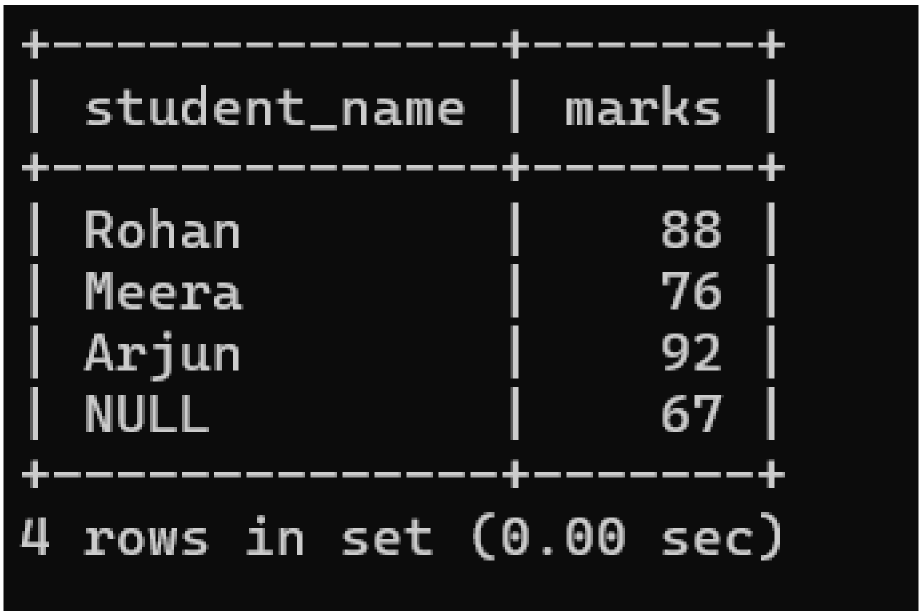
3.4 Q18. RIGHT JOIN

Question: Display all marks records along with student names. (If student doesn't exist in students table, show NULL.)

SQL Query:

```
SELECT s.student_name, m.marks
FROM students s
RIGHT JOIN marks m ON s.stdid = m.stdid;
```

Output:



```
+--------------+-------+
| student_name | marks |
+--------------+-------+
| Rohan        |    88 |
| Meera        |    76 |
| Arjun        |    92 |
| NULL         |    67 |
+--------------+-------+
4 rows in set (0.00 sec)
```

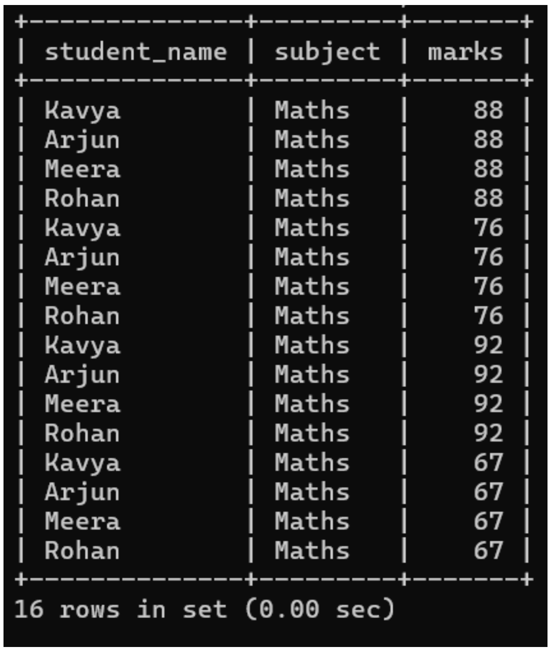
3.5 Q19. CROSS JOIN

Question: Display all possible combinations of students and subjects. (Use CROSS JOIN between students and marks table to show every pair.)

SQL Query:

```
SELECT s.student_name, m.subject, m.marks
FROM students s
CROSS JOIN marks m;
```

Output:



```
+--------------+---------+-------+
| student_name | subject | marks |
+--------------+---------+-------+
| Kavya        | Maths   |    88 |
| Arjun        | Maths   |    88 |
| Meera        | Maths   |    88 |
| Rohan        | Maths   |    88 |
| Kavya        | Maths   |    76 |
| Arjun        | Maths   |    76 |
| Meera        | Maths   |    76 |
| Rohan        | Maths   |    76 |
| Kavya        | Maths   |    92 |
| Arjun        | Maths   |    92 |
| Meera        | Maths   |    92 |
| Rohan        | Maths   |    92 |
| Kavya        | Maths   |    67 |
| Arjun        | Maths   |    67 |
| Meera        | Maths   |    67 |
| Rohan        | Maths   |    67 |
+--------------+---------+-------+
16 rows in set (0.00 sec)
```

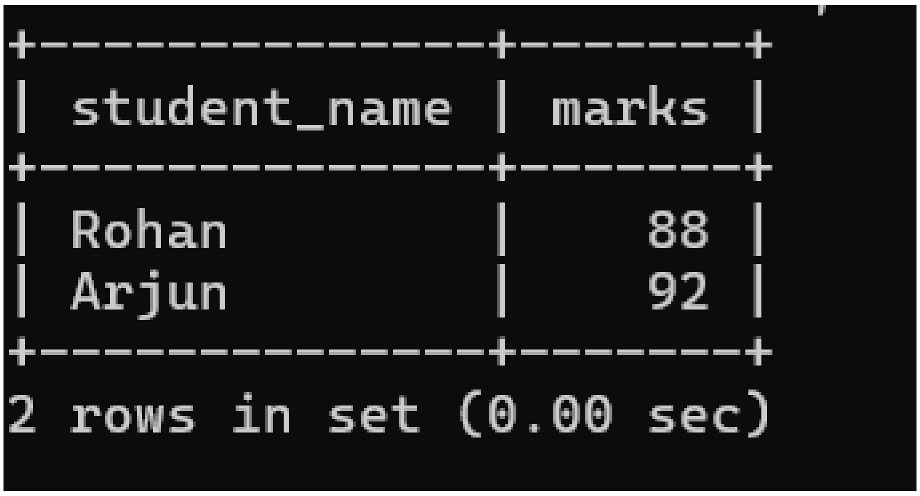
3.6 Q20. JOIN with Filtering

Question: Using INNER JOIN, display students who scored more than 80.

SQL Query:

```
SELECT s.student_name, m.marks
FROM students s
INNER JOIN marks m ON s.stdid = m.stdid
WHERE m.marks > 80;
```

Output:



```
+--------------+-------+
| student_name | marks |
+--------------+-------+
| Rohan        |    88 |
| Arjun        |    92 |
+--------------+-------+
2 rows in set (0.00 sec)
```