Learn SQL Joins

SQL JOIN

A JOIN clause is used to combine rows from two or more tables, based on a related column between them.

Different Types of SQL JOINs

Here are the different types of the JOINs in SQL:

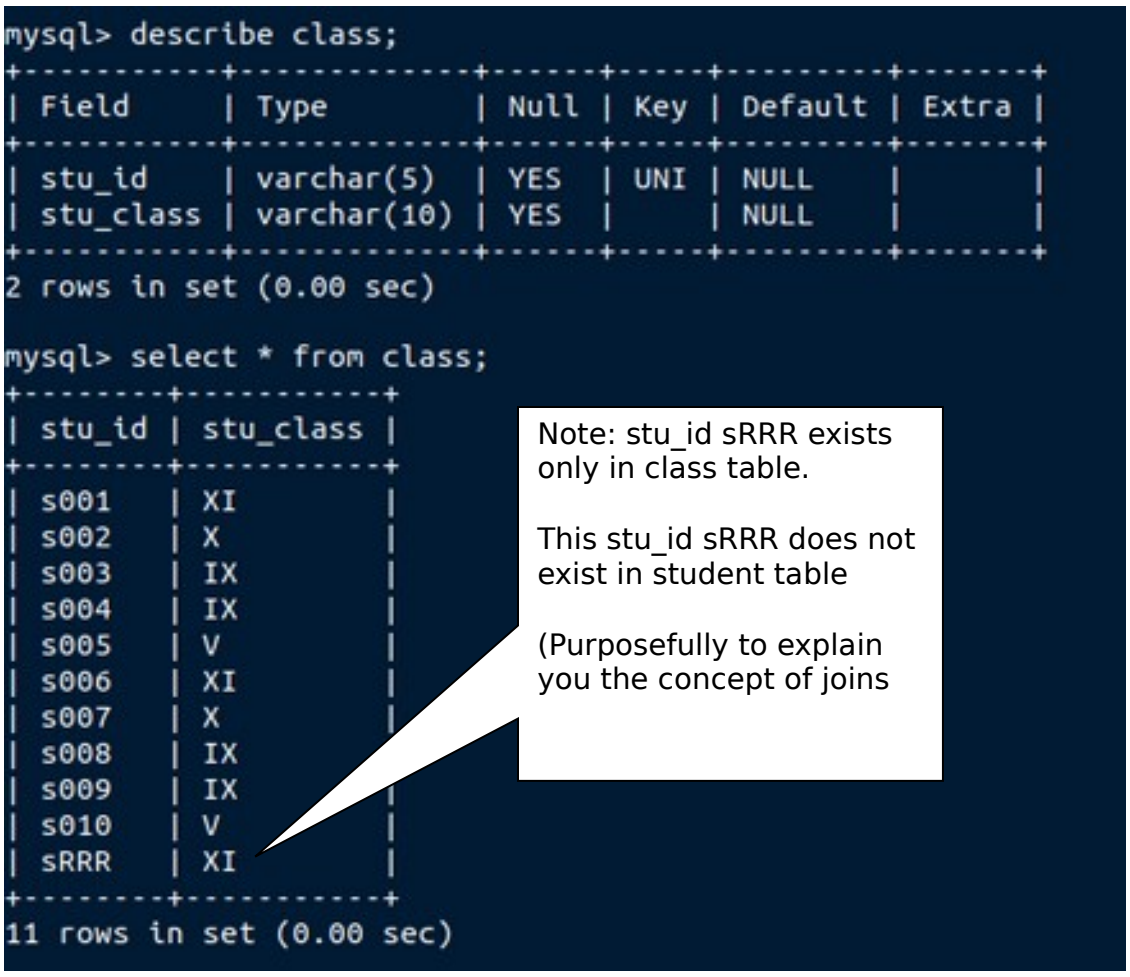
- **(INNER) JOIN**: Returns records that have matching values in both tables
- **LEFT (OUTER) JOIN**: Returns all records from the left table, and the matched records from the right table

- **RIGHT (OUTER) JOIN**: Returns all records from the right table, and the matched records from the left table

- **FULL (OUTER) JOIN**: Returns all records when there is a match in either left or right table

POINTS TO REMEMBER BEFORE LEARNING SQL JOINS

- For this we will create 2 tables (student & class)
- Each table will have some entries
- For making concept of joins clear,
  - **in student table we will have a student entry which will not exists in class table**
  - **In class table we will have a entry which does not exists in student table**
- In SQL statement
  - The name of the table which appears first is known as left table
  - The name of the table which appears next to first table is known as right table



```
mysql> describe student;
+----------+-------------+------+-----+---------+-------+
| Field    | Type        | Null | Key | Default | Extra |
+----------+-------------+------+-----+---------+-------+
| stu_id   | varchar(5)  | YES  | UNI | NULL    |       |
| stu_name | varchar(50) | YES  |     | NULL    |       |
+----------+-------------+------+-----+---------+-------+
2 rows in set (0.01 sec)

mysql> select * from student;
+--------+------------+
| stu_id | stu_name   |
+--------+------------+
| s001   | gagan      |
| s002   | seema      |
| s003   | anuj       |
| s004   | nitin      |
| s005   | amit       |
| sLLL   | left singh |
+--------+------------+
6 rows in set (0.00 sec)
```

Note: stu_id sLLL exists only in student table.

This stu_id sLLL does not exist in class table

(Purposefully to explain you the concept of joins

Easiest to understand is INNER JOIN

INNER JOIN

The INNER JOIN keyword selects records that have matching values in both tables.

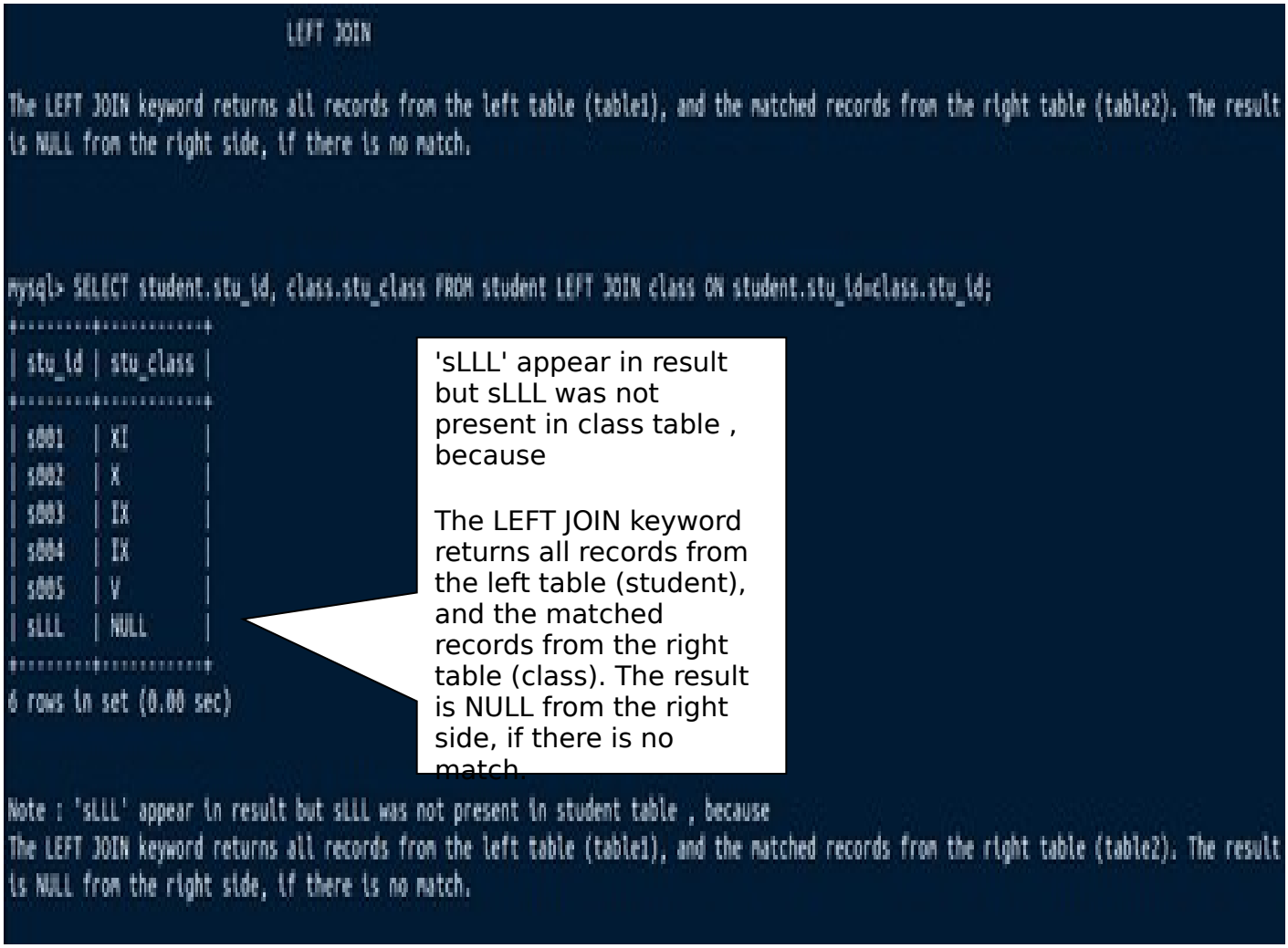
```
INNER JOIN
The INNER JOIN keyword selects records that have matching values in both tables.


SELECT student.stu_id, class.stu_class FROM student INNER JOIN class ON student.stu_id=class.stu_id;

mysql> SELECT student.stu_id, class.stu_class FROM student INNER JOIN class ON student.stu_id=class.stu_id;
+--------+-----------+
| stu_id | stu_class |
+--------+-----------+
| s001   | XI        |
| s002   | X         |
| s003   | IX        |
| s004   | IX        |
| s005   | V         |
+--------+-----------+
5 rows in set (0.00 sec)

Note : 'sLLL' dose not appear in result because sLLL was not present in student table;
```

Note : Neither 'sLLL' not appear in result nor ‘sRRR’ because sLLL was not present in student table

And sRRR was not present in class Table

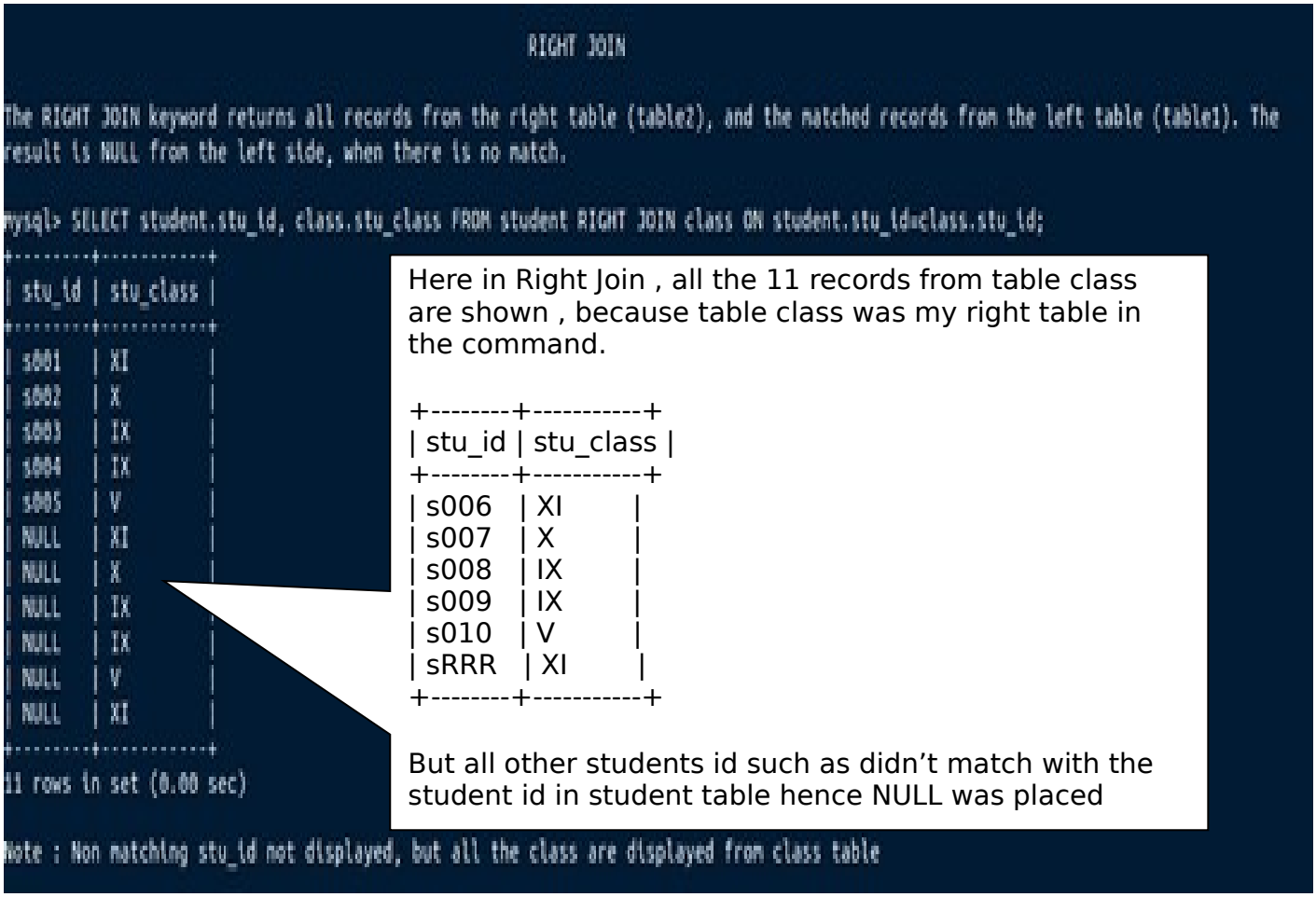
LEFT JOIN

The LEFT JOIN keyword returns all records from the left table (table1), and the matched records from the right table (table2). The result is NULL from the right side, if there is no match.



RIGHT JOIN

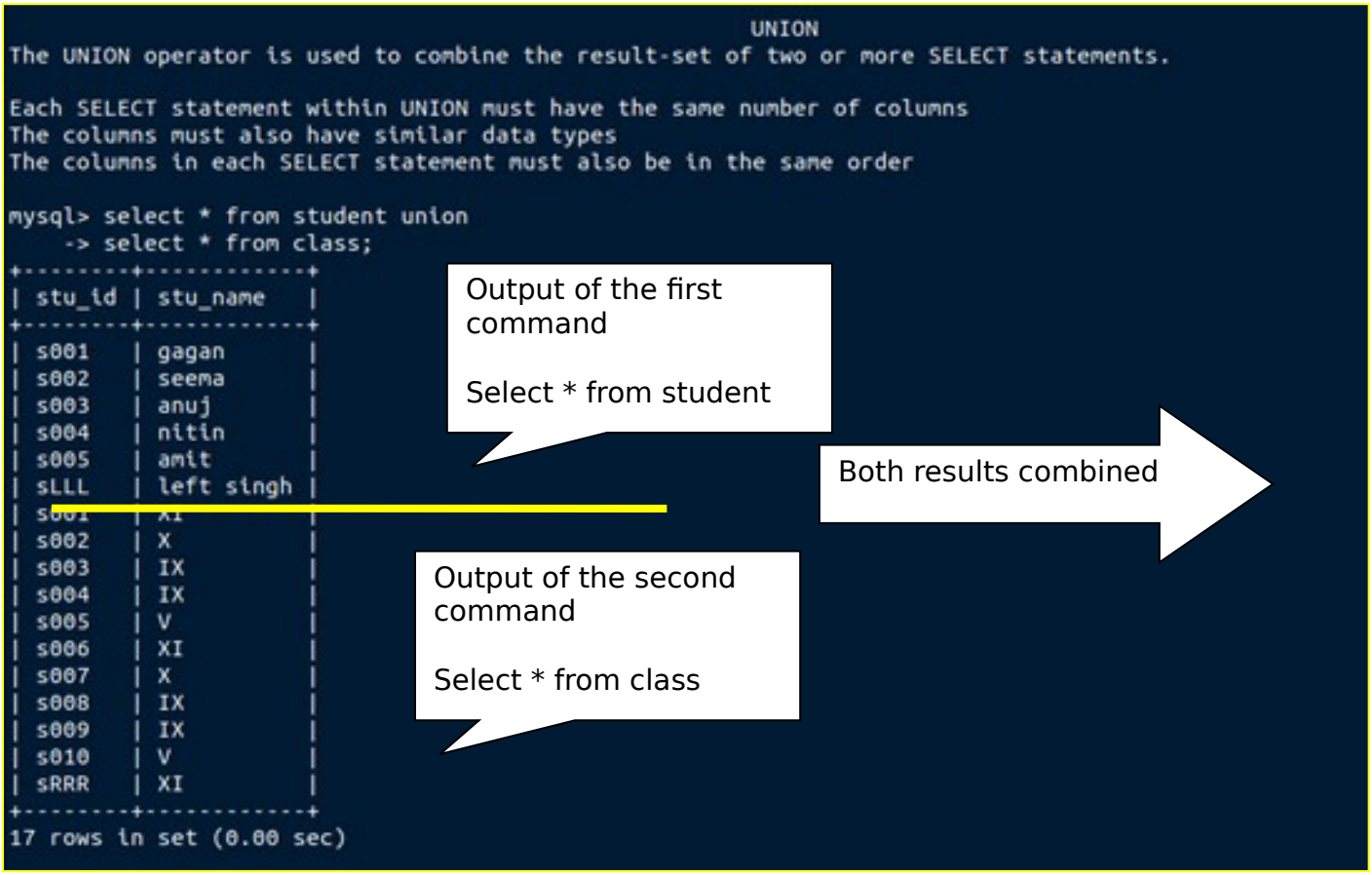
The RIGHT JOIN keyword returns all records from the right table (class), and the matched records from the left table (student). The result is NULL from the left side, when there is no match.



UNION

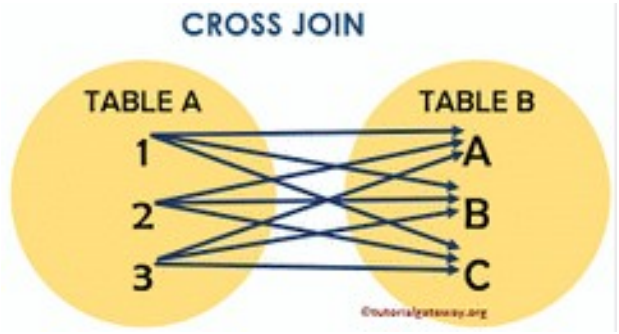
The UNION operator is used to combine the result-set of two or more SELECT statements.

1. Each SELECT statement within UNION must have the same number of columns
2. The columns must also have similar data types
3. The columns in each SELECT statement must also be in the same order



Cross Join / Cartesian Product

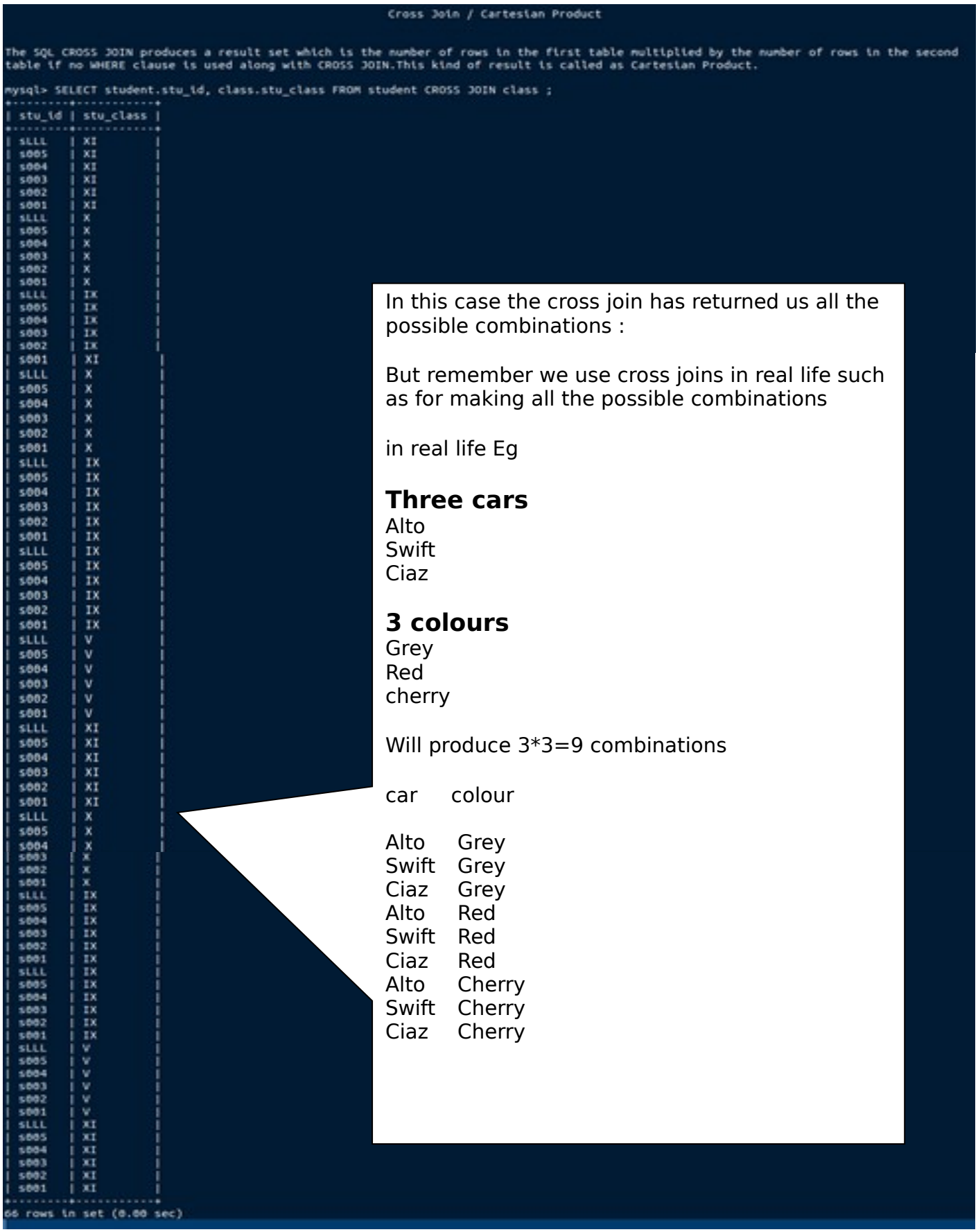
The SQL CROSS JOIN produces a result set which is the number of rows in the first table multiplied by the number of rows in the second table if no WHERE clause is used along with CROSS JOIN.This kind of result is called as Cartesian Product.



Why Use Cross Join,

When to use Cross Join ?

A **cross join** is used when you wish to create a combination of every row from two tables. All row combinations are included in the result; this is commonly called **cross** product **join**. A common **use** for a **cross join** is to create obtain all combinations of items,



In this case the cross join has returned us all the possible combinations :

But remember we use cross joins in real life such as for making all the possible combinations

in real life Eg

Three cars

Alto
Swift
Ciaz

3 colours

Grey
Red
cherry

Will produce 3*3=9 combinations

car	colour
Alto	Grey
Swift	Grey
Ciaz	Grey
Alto	Red
Swift	Red
Ciaz	Red
Alto	Cherry
Swift	Cherry
Ciaz	Cherry