JOINS

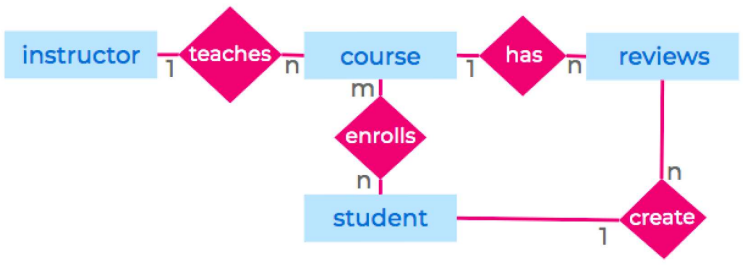
So far, we have learnt to analyse the data that is present in a single table. But in the real-world scenarios, often, the data is distributed in multiple tables. To fetch meaningful insights, we have to bring the data together by combining the tables.

We use JOIN clause to combine rows from two or more tables, based on a related column between them. There are various types of joins, namely Natural join, Inner Join, Full Join, Cross Join, Left join, Right join.

Let's learn about them in detail using the following database.

Database

Here, the database stores the data of students, courses, course reviews, instructors, etc., of an e-learning platform.



Refer the tables in the code playground for a better understanding of the database.

Natural JOIN

`NATURAL JOIN` combines the tables based on the common columns.

Syntax

SQL

```sql
SELECT *
FROM table1
   NATURAL JOIN table2;
```

Example

1. Fetch the details of courses that are being taught by "Alex".

Solving this problem involves querying on data stored in two tables, i.e.,

`course` & `instructor` . Both the tables have common column `instructor_id` . Hence, we use Natural Join.

SQL

```sql
SELECT course.name,
  instructor.full_name
FROM course
  NATURAL JOIN instructor
WHERE instructor.full_name = "Alex";
```

Output

name	full_name
Cyber Security	Alex

Try it Yourself!

Question 1:

Get the details of the instructor who is teaching "Cyber Security".

Expected Output:

full_name	gender
Alex	M

Question 2:

Get student full name and their scores in "Machine Learning" (course with id=11).

Expected Output:

full_name	score
Varun	80
Sandhya	90

INNER JOIN

`INNER JOIN` combines rows from both the tables if they meet a specified condition.

Syntax

SQL

```sql
SELECT *
FROM table1
   INNER JOIN table2
ON table1.c1 = table2.c2;
```

Note

We can use any comparison operator in the condition.

Example

Get the reviews of course “Cyber Security” (course with id=15)

SQL

```sql
SELECT student.full_name,
   review.content,
   review.created_at
FROM student
   INNER JOIN review
ON student.id = review.student_id
WHERE review.course_id = 15;
```

Output

full_name	content	created_at
Ajay	Good explanation	2021-01-19
Ajay	Cyber Security is awesome	2021-01-20

Try it Yourself!

Question 1:

Get the details of students who enrolled for "Machine Learning" (course with id=11).

Expected Output:

full_name	age	gender
Varun	16	M
Sandhya	19	F

Question 2:

Get the reviews given by "Varun" (student with id = 1)

Expected Output:

course_id	content	created_at
11	Great course	2021-01-19

LEFT JOIN

In

`LEFT JOIN` , for each row in the left table, matched rows from the right table are combined. If there is no match, NULL values are assigned to the right half of the rows in the temporary table.

Syntax

SQL

```sql
SELECT *
FROM table1
   LEFT JOIN table2
ON table1.c1 = tabl2.c2;
```

Example

Fetch the full_name of students who have not enrolled for any course

SQL

```sql
SELECT student.full_name
FROM student
   LEFT JOIN student_course
ON student.id = student_course.student_id
WHERE student_course.id IS NULL;
```

Output

full_name
Afrin

Try it Yourself!

Question 1:

Get the course details that doesn't have any students.

Expected Output:

name
Linux

Question 2:

Get the instructors details who is not assigned for any course.

Expected Output:

full_name	gender
Bentlee	M

MARKED AS COMPLETE