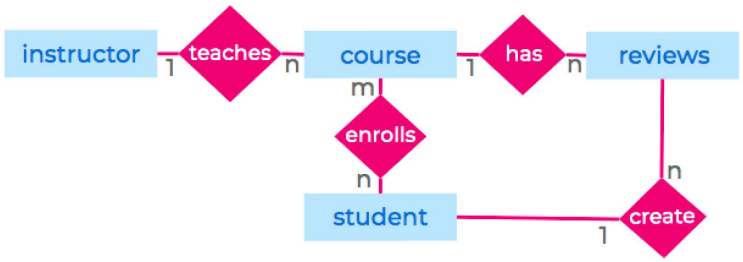
Querying with Joins

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.

Joins on Multiple Tables

We can also perform join on a combined table.

Example

Fetch all the students who enrolled for the courses taught by the instructor “Arun” (id = 102)

SQL

```sql
SELECT T.name AS course_name,
   student.full_name
FROM (course
   INNER JOIN student_course
ON course.id = student_course.course_id) AS T
   INNER JOIN student
ON T.student_id = student.id
WHERE course.instructor_id = 102;
```

Output

course_name	full_name
Machine Learning	Varun
Machine Learning	Sandya

course_name	full_name

Note

Best Practices

1. Use

   `ALIAS` to name the combined table.

2. Use alias table names to refer the columns in the combined table.

Try it Yourself!

Question 1:

Fetch the name of the students who gave reviews to the "Machine Learning" course.

Expected Output:

full_name
Varun

Question 2:

Fetch the course names in which "Varun" has registered.

Expected Output:

course_name
Machine Learning

Let's learn about the Right Join, Full Join and Cross Join in the upcoming cheatsheet.

Using joins with other clauses

We can apply

`WHERE` , `ORDER BY` , `HAVING` , `GROUP BY` , `LIMIT` , `OFFSET` and other clauses (which are used for retrieving data tables) on the temporary joined table as well.

Example:

Get the name of the student who scored highest in "Machine Learning" course.

SQL

```sql
SELECT student.full_name
FROM (course
   INNER JOIN student_course
ON course.id = student_course.course_id) AS T
   INNER JOIN student
ON T.student_id = student.id
WHERE course.name = "Machine Learning"
ORDER BY student_course.score DESC
LIMIT 1;
```

Output

full_name
Sandhya

Try it Yourself!

Question 1:

Get all the courses taken by the student with id=1 and his respective scores in each course

Expected Output

name	score
Machine learning	80

Question 2:

Get all the students who registered for at least one course.

Expected Output

full_name
Varun
Ajay

full_name
Sandhya

Using joins with aggregations

We can apply

`WHERE` , `ORDER BY` , `HAVING` , `GROUP BY` , `LIMIT` , `OFFSET` and other clauses (which are used for retrieving data tables) on the temporary joined table as well.

- Get the highest score in each course.

SQL

```sql
SELECT
  course.name AS course_name,
  MAX(score) AS highest_score
FROM
  course
  LEFT JOIN student_course
ON course.id = student_course.course_id
GROUP BY
  course.id;
```

Output

course_name	highest_score
Machine Learning	90
Cyber Security	60
Linux	

Try it Yourself!

Question 1:

Get the course name and the average score for each course.

Expected Output

name	avg_score
Machine Learning	85
Cyber Security	60
Linux	

Question 2:

Get the number of students in each course .

Expected Output

name	no_of_students
Machine learning	2
Cyber Security	1
linux	0

MARKED AS COMPLETE