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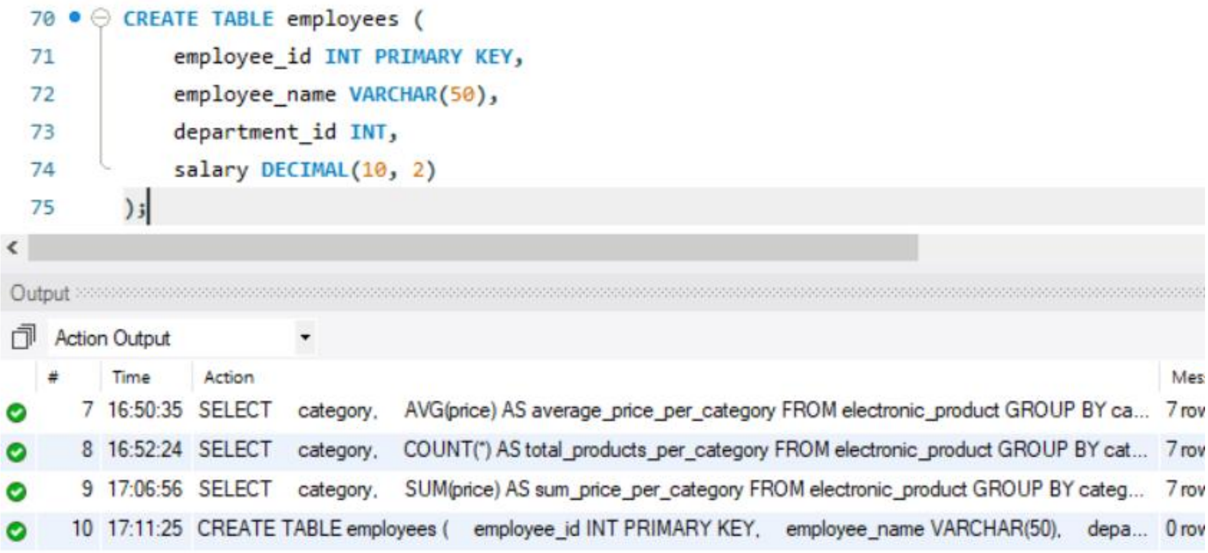
Data engineering - Batch 1

Date: 25-01-24

CODING CHALLENGE – JOINS

A) Execute all the join with examples.

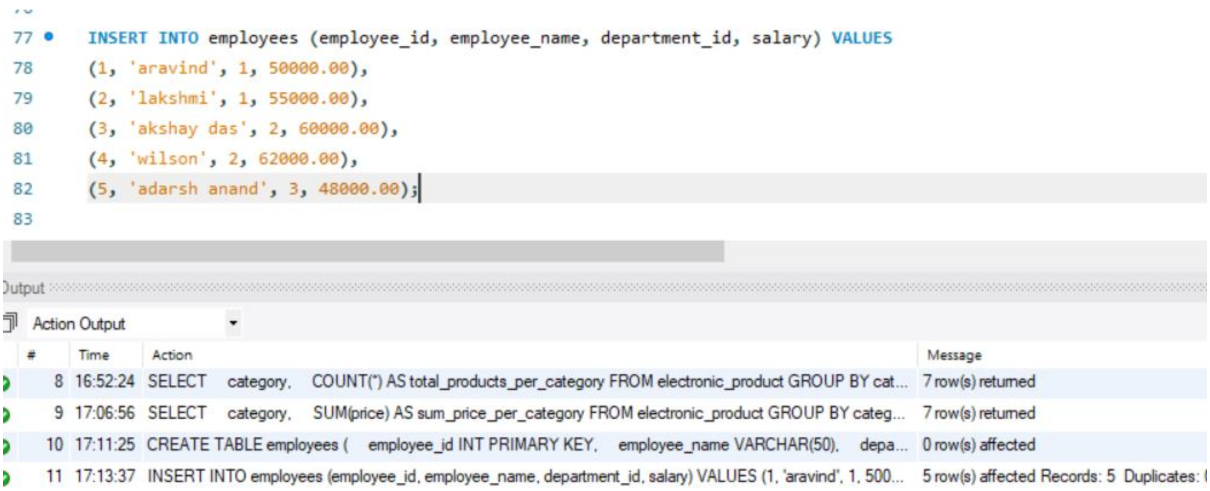
Creating a table named employee



```
CREATE TABLE employees (
    employee_id INT PRIMARY KEY,
    employee_name VARCHAR(50),
    department_id INT,
    salary DECIMAL(10, 2)
);
```

```
Output
Action Output
    #  Time      Action                                                                                        Mes
    7  16:50:35  SELECT   category,   AVG(price) AS average_price_per_category FROM electronic_product GROUP BY ca...  7 rov
    8  16:52:24  SELECT   category,   COUNT(*) AS total_products_per_category FROM electronic_product GROUP BY cat...  7 rov
    9  17:06:56  SELECT   category,   SUM(price) AS sum_price_per_category FROM electronic_product GROUP BY categ...   7 rov
   10  17:11:25  CREATE TABLE employees (   employee_id INT PRIMARY KEY,   employee_name VARCHAR(50),   depa...        0 rov
```

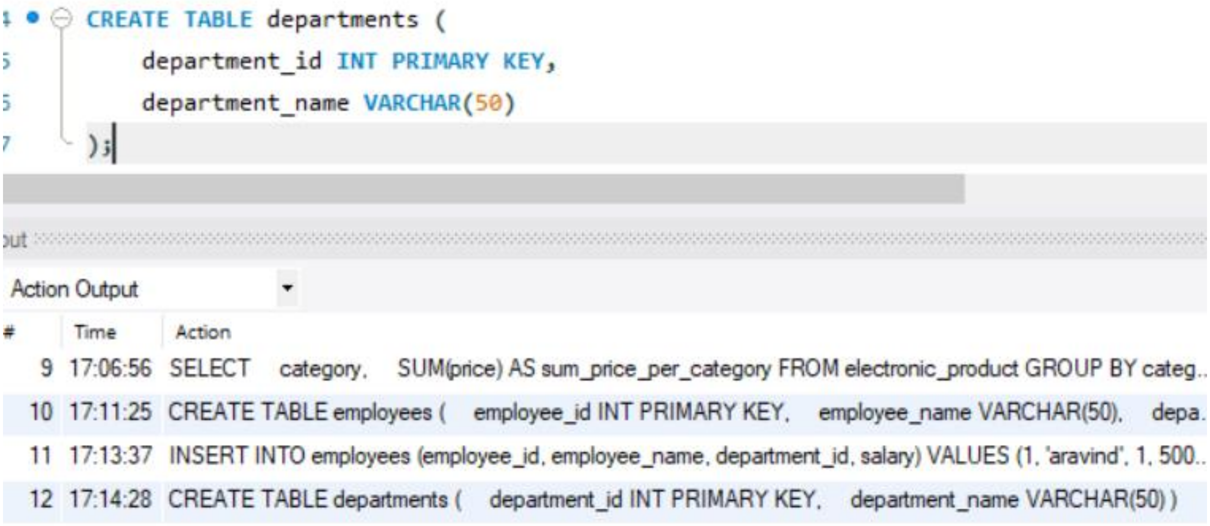
Inserting values into employee



```
INSERT INTO employees (employee_id, employee_name, department_id, salary) VALUES
(1, 'aravind', 1, 50000.00),
(2, 'lakshmi', 1, 55000.00),
(3, 'akshay das', 2, 60000.00),
(4, 'wilson', 2, 62000.00),
(5, 'adarsh anand', 3, 48000.00);
```

```
)utput
Action Output
    #  Time      Action                                                                                          Message
    8  16:52:24  SELECT   category,   COUNT(*) AS total_products_per_category FROM electronic_product GROUP BY cat...  7 row(s) returned
    9  17:06:56  SELECT   category,   SUM(price) AS sum_price_per_category FROM electronic_product GROUP BY categ...   7 row(s) returned
   10  17:11:25  CREATE TABLE employees (   employee_id INT PRIMARY KEY,   employee_name VARCHAR(50),   depa...        0 row(s) affected
   11  17:13:37  INSERT INTO employees (employee_id, employee_name, department_id, salary) VALUES (1, 'aravind', 1, 500...  5 row(s) affected Records: 5  Duplicates: (
```

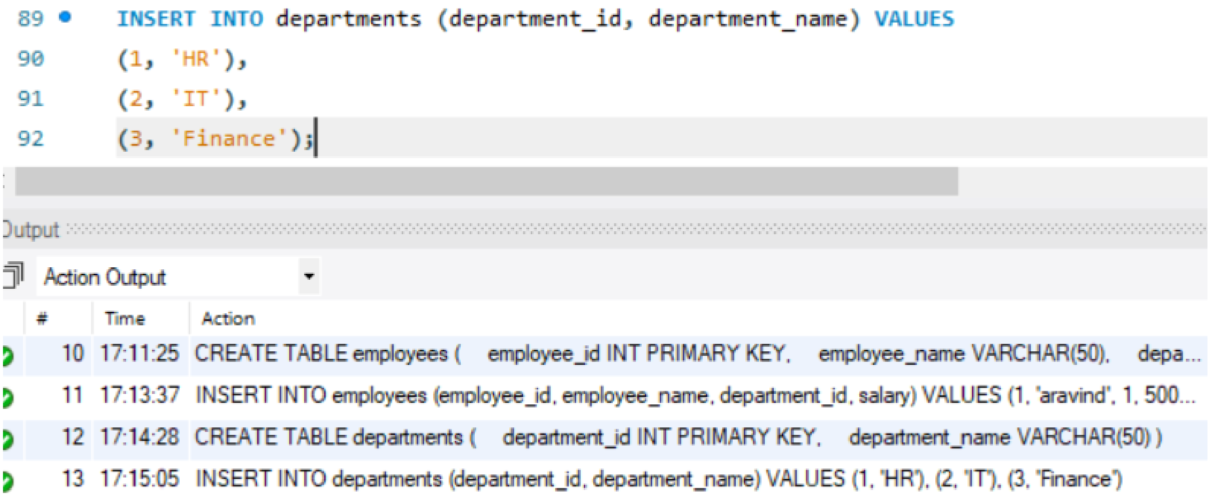
Creating table named departments



```
CREATE TABLE departments (
    department_id INT PRIMARY KEY,
    department_name VARCHAR(50)
);
```

#	Time	Action
9	17:06:56	SELECT category, SUM(price) AS sum_price_per_category FROM electronic_product GROUP BY categ..
10	17:11:25	CREATE TABLE employees (employee_id INT PRIMARY KEY, employee_name VARCHAR(50), depa.
11	17:13:37	INSERT INTO employees (employee_id, employee_name, department_id, salary) VALUES (1, 'aravind', 1, 500..
12	17:14:28	CREATE TABLE departments (department_id INT PRIMARY KEY, department_name VARCHAR(50))

Insert values for departments

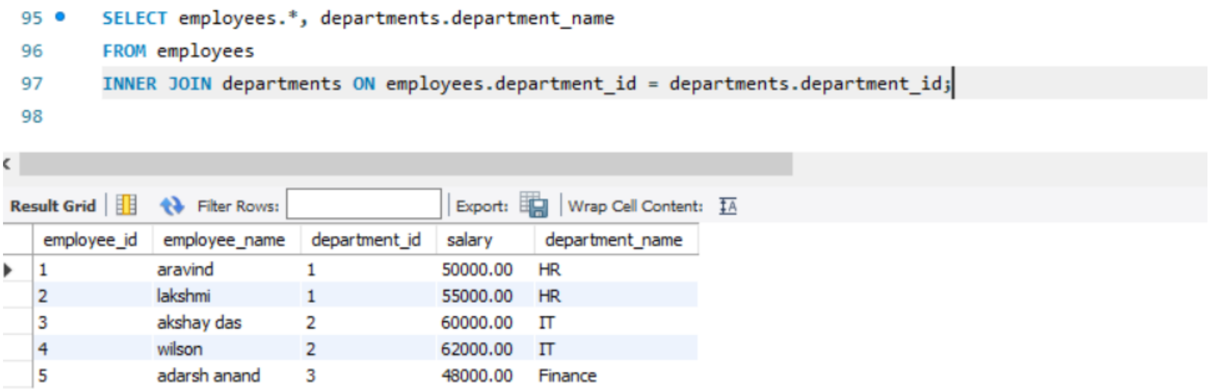


```
INSERT INTO departments (department_id, department_name) VALUES
(1, 'HR'),
(2, 'IT'),
(3, 'Finance');
```

#	Time	Action
10	17:11:25	CREATE TABLE employees (employee_id INT PRIMARY KEY, employee_name VARCHAR(50), depa...
11	17:13:37	INSERT INTO employees (employee_id, employee_name, department_id, salary) VALUES (1, 'aravind', 1, 500...
12	17:14:28	CREATE TABLE departments (department_id INT PRIMARY KEY, department_name VARCHAR(50))
13	17:15:05	INSERT INTO departments (department_id, department_name) VALUES (1, 'HR'), (2, 'IT'), (3, 'Finance')

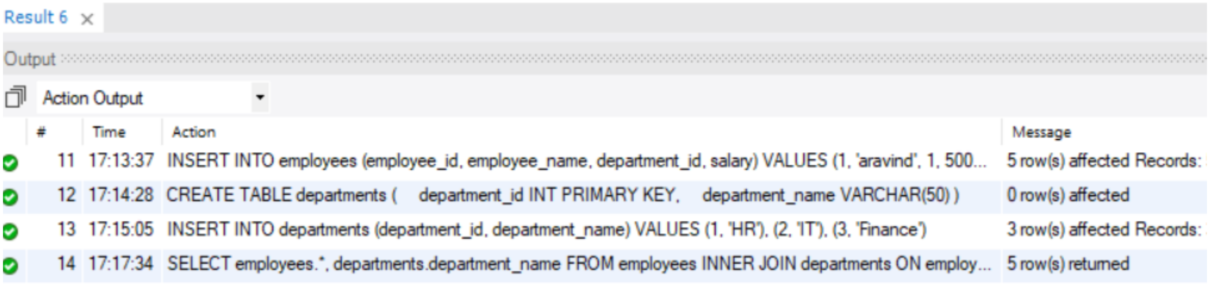
INNER JOIN

INNER JOIN contains only the rows where there is a match in both tables based on the specified join condition.



```sql
SELECT employees.*, departments.department_name
FROM employees
INNER JOIN departments ON employees.department_id = departments.department_id;
```

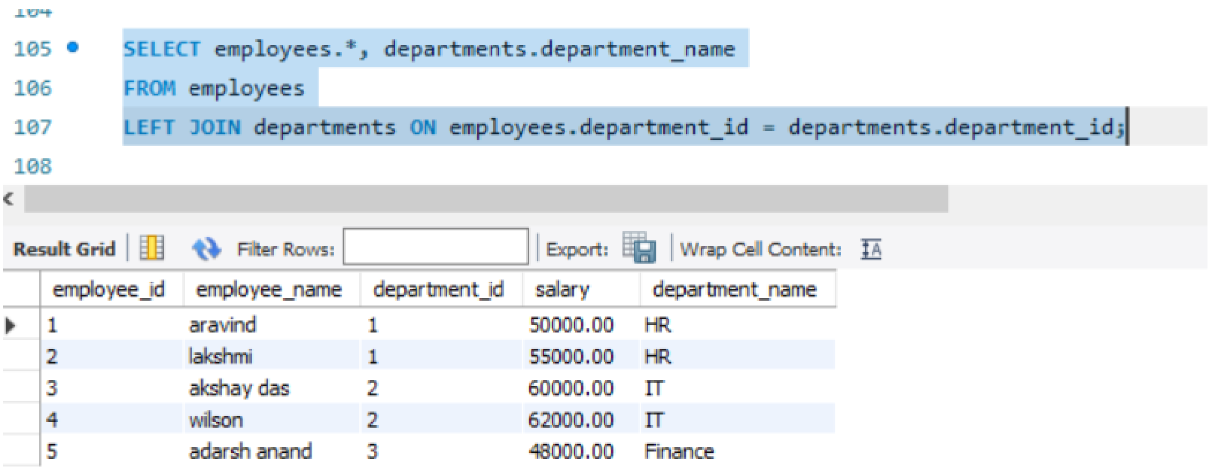
employee_id	employee_name	department_id	salary	department_name
1	aravind	1	50000.00	HR
2	lakshmi	1	55000.00	HR
3	akshay das	2	60000.00	IT
4	wilson	2	62000.00	IT
5	adarsh anand	3	48000.00	Finance



#	Time	Action	Message
11	17:13:37	INSERT INTO employees (employee_id, employee_name, department_id, salary) VALUES (1, 'aravind', 1, 500...	5 row(s) affected Records:
12	17:14:28	CREATE TABLE departments (department_id INT PRIMARY KEY, department_name VARCHAR(50))	0 row(s) affected
13	17:15:05	INSERT INTO departments (department_id, department_name) VALUES (1, 'HR'), (2, 'IT'), (3, 'Finance')	3 row(s) affected Records:
14	17:17:34	SELECT employees.*, departments.department_name FROM employees INNER JOIN departments ON employ...	5 row(s) returned

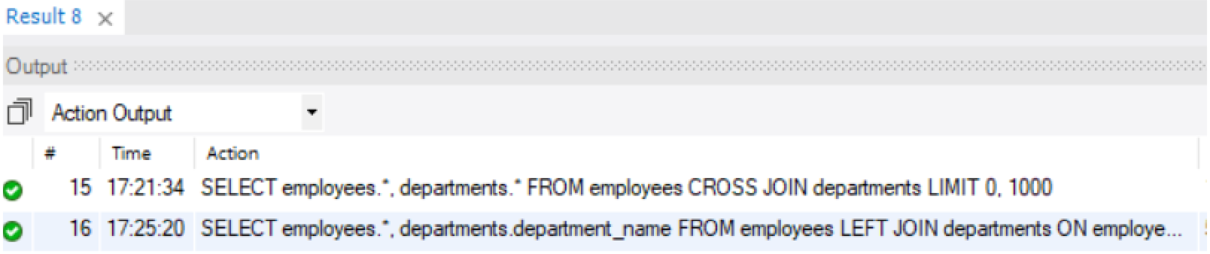
LEFT JOIN

It returns all rows from the left table and the matched rows from the right table. If there is no match in the right table, NULL values are returned for columns from the right table.



```
SELECT employees.*, departments.department_name
FROM employees
LEFT JOIN departments ON employees.department_id = departments.department_id;
```

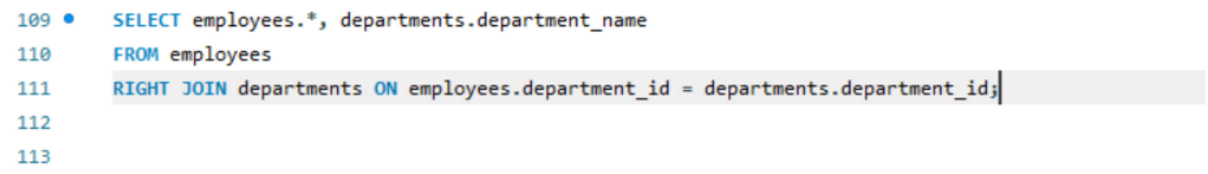
employee_id	employee_name	department_id	salary	department_name
1	aravind	1	50000.00	HR
2	lakshmi	1	55000.00	HR
3	akshay das	2	60000.00	IT
4	wilson	2	62000.00	IT
5	adarsh anand	3	48000.00	Finance



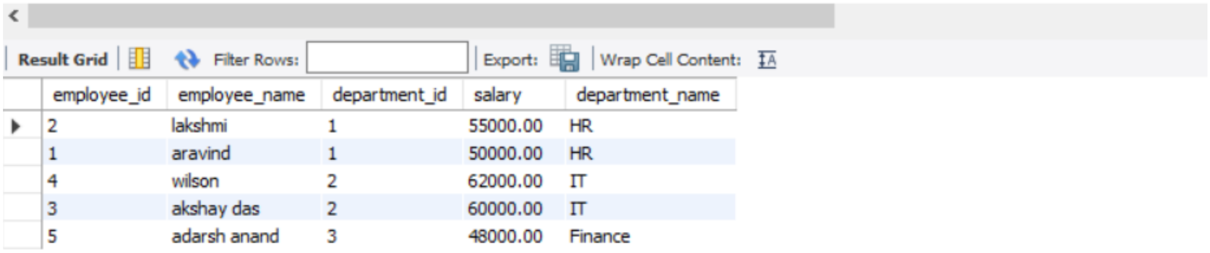
#	Time	Action
15	17:21:34	SELECT employees.*, departments.* FROM employees CROSS JOIN departments LIMIT 0, 1000
16	17:25:20	SELECT employees.*, departments.department_name FROM employees LEFT JOIN departments ON employe...

RIGHT JOIN

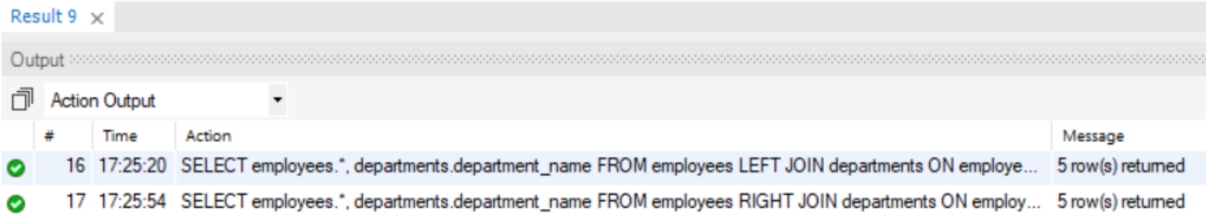
It returns all rows from the right table and the matched rows from the left table. If there is no match in the left table, NULL values are returned for columns from the left table.



```sql
SELECT employees.*, departments.department_name
FROM employees
RIGHT JOIN departments ON employees.department_id = departments.department_id;
```



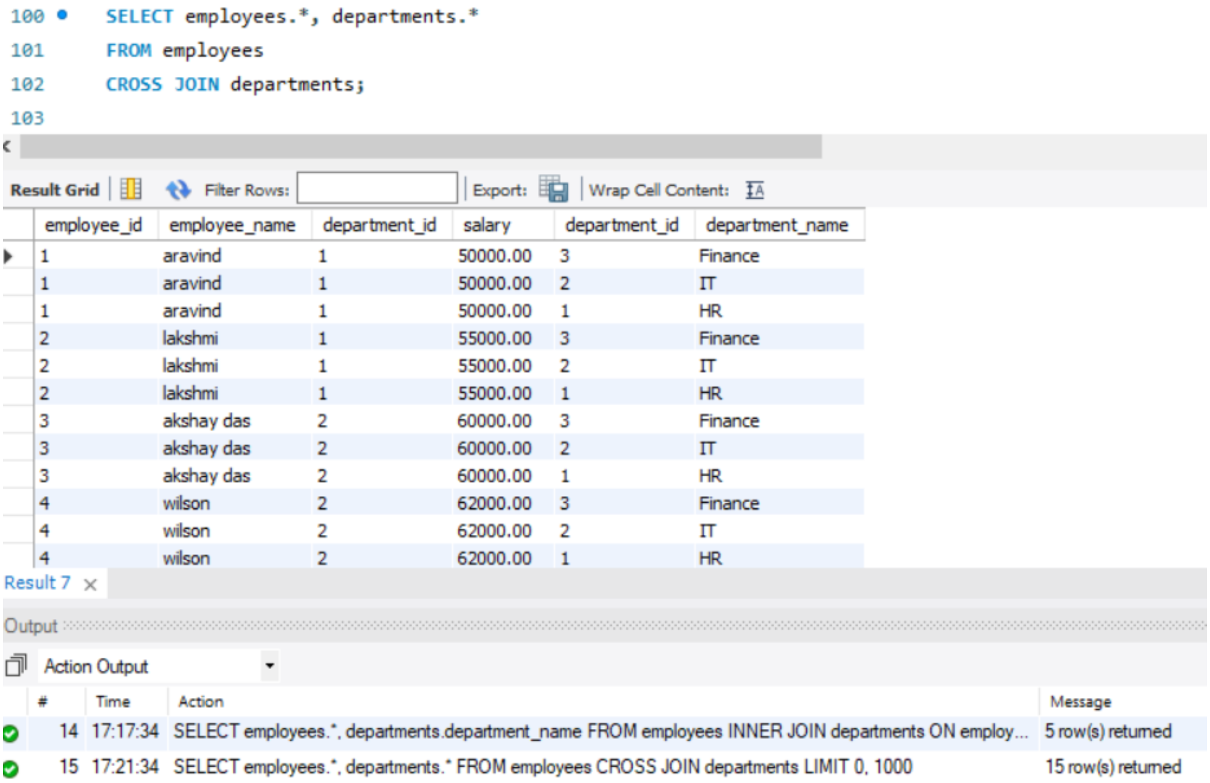
employee_id	employee_name	department_id	salary	department_name
2	lakshmi	1	55000.00	HR
1	aravind	1	50000.00	HR
4	wilson	2	62000.00	IT
3	akshay das	2	60000.00	IT
5	adarsh anand	3	48000.00	Finance



#	Time	Action	Message
16	17:25:20	SELECT employees.*, departments.department_name FROM employees LEFT JOIN departments ON employe...	5 row(s) returned
17	17:25:54	SELECT employees.*, departments.department_name FROM employees RIGHT JOIN departments ON employ...	5 row(s) returned

CROSS JOIN

It returns the Cartesian product of two tables. It combines each row from the first table with every row from the second table, resulting in every possible combination of rows between the two tables.



```
SELECT employees.*, departments.*
FROM employees
CROSS JOIN departments;
```

employee_id	employee_name	department_id	salary	department_id	department_name
1	aravind	1	50000.00	3	Finance
1	aravind	1	50000.00	2	IT
1	aravind	1	50000.00	1	HR
2	lakshmi	1	55000.00	3	Finance
2	lakshmi	1	55000.00	2	IT
2	lakshmi	1	55000.00	1	HR
3	akshay das	2	60000.00	3	Finance
3	akshay das	2	60000.00	2	IT
3	akshay das	2	60000.00	1	HR
4	wilson	2	62000.00	3	Finance
4	wilson	2	62000.00	2	IT
4	wilson	2	62000.00	1	HR

#	Time	Action	Message
14	17:17:34	SELECT employees.*, departments.department_name FROM employees INNER JOIN departments ON employ...	5 row(s) returned
15	17:21:34	SELECT employees.*, departments.* FROM employees CROSS JOIN departments LIMIT 0, 1000	15 row(s) returned