

# Experiment 6: Joins

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## AIM

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To study and implement different types of joins.

## THEORY

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SQL Joins are used to combine records from two or more tables based on a related column.

### 1. INNER JOIN

Returns records with matching values in both tables.

*Syntax:* `sql SELECT columns FROM table1 INNER JOIN table2 ON table1.column = table2.column;`

### 2. LEFT JOIN

Returns all records from the left table, and matched records from the right.

*Syntax:*

`sql SELECT columns FROM table1 LEFT JOIN table2 ON table1.column = table2.column;`

### 3. RIGHT JOIN

Returns all records from the right table, and matched records from the left.

*Syntax:*

`sql SELECT columns FROM table1 RIGHT JOIN table2 ON table1.column = table2.column;`

## 4. FULL OUTER JOIN

Returns all records when there is a match in either left or right table.

*Syntax:*

sql SELECT columns FROM table1 FULL OUTER JOIN table2 ON table1.column = table2.column;

### Question 1

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Write the SQL query that achieves the selection of the first name from the "patients" table (aliased as "patient\_name") and the test name from the "test\_results" table (aliased as "t"), with an inner join on the "patient\_id" column.

PATIENTS TABLE:

ATTRIBUTES - patient\_id, first\_name, last\_name, date\_of\_birth, admission\_date, discharge\_date, doctor\_id

| patient_id | first_name | last_name | date_of_birth | admission_date | discharge_date | doctor_id |
|------------|------------|-----------|---------------|----------------|----------------|-----------|
| 1          | Alice      | Williams  | 1980-05-12    | 2024-01-10     | NULL           | 1         |
| 2          | Bob        | Miller    | 1995-08-23    | 2024-02-15     | 2024-03-01     | 2         |
| 3          | Charlie    | Davis     | 1972-11-30    | 2024-03-10     | NULL           | 1         |

TEST\_RESULT TABLES:

ATTRIBUTES - result\_id, patient\_id, test\_name, result, test\_date

| result_id | patient_id | test_name      | result              | test_date  |
|-----------|------------|----------------|---------------------|------------|
| 1         | 1          | Blood Pressure | 120/80              | 2024-01-20 |
| 2         | 2          | X-Ray          | Normal              | 2024-03-05 |
| 3         | 3          | Blood Test     | Within Normal Range | 2024-04-01 |

For example:

| Result       |                |
|--------------|----------------|
| patient_name | test_name      |
| -----        |                |
| Alice        | Blood Pressure |
| Bob          | X-Ray          |
| Charlie      | Blood Test     |

```
SELECT p.first_name AS patient_name, t.test_name FROM patients p INNER JOIN test_results t ON p.patient_id = t.patient_id;
```

Output:

| ✓            | <table><tr><th>patient_name</th><th>test_name</th></tr><tr><td colspan="2">-----</td></tr><tr><td>Alice</td><td>Blood Pressure</td></tr><tr><td>Bob</td><td>X-Ray</td></tr><tr><td>Charlie</td><td>Blood Test</td></tr></table> | patient_name | test_name | ----- |  | Alice | Blood Pressure | Bob | X-Ray | Charlie | Blood Test | <table><tr><th>patient_name</th><th>test_name</th></tr><tr><td colspan="2">-----</td></tr><tr><td>Alice</td><td>Blood Pressure</td></tr><tr><td>Bob</td><td>X-Ray</td></tr><tr><td>Charlie</td><td>Blood Test</td></tr></table> | patient_name | test_name | ----- |  | Alice | Blood Pressure | Bob | X-Ray | Charlie | Blood Test | ✓ |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-----------|-------|--|-------|----------------|-----|-------|---------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-----------|-------|--|-------|----------------|-----|-------|---------|------------|---|
| patient_name | test_name                                                                                                                                                                                                                       |              |           |       |  |       |                |     |       |         |            |                                                                                                                                                                                                                                 |              |           |       |  |       |                |     |       |         |            |   |
| -----        |                                                                                                                                                                                                                                 |              |           |       |  |       |                |     |       |         |            |                                                                                                                                                                                                                                 |              |           |       |  |       |                |     |       |         |            |   |
| Alice        | Blood Pressure                                                                                                                                                                                                                  |              |           |       |  |       |                |     |       |         |            |                                                                                                                                                                                                                                 |              |           |       |  |       |                |     |       |         |            |   |
| Bob          | X-Ray                                                                                                                                                                                                                           |              |           |       |  |       |                |     |       |         |            |                                                                                                                                                                                                                                 |              |           |       |  |       |                |     |       |         |            |   |
| Charlie      | Blood Test                                                                                                                                                                                                                      |              |           |       |  |       |                |     |       |         |            |                                                                                                                                                                                                                                 |              |           |       |  |       |                |     |       |         |            |   |
| patient_name | test_name                                                                                                                                                                                                                       |              |           |       |  |       |                |     |       |         |            |                                                                                                                                                                                                                                 |              |           |       |  |       |                |     |       |         |            |   |
| -----        |                                                                                                                                                                                                                                 |              |           |       |  |       |                |     |       |         |            |                                                                                                                                                                                                                                 |              |           |       |  |       |                |     |       |         |            |   |
| Alice        | Blood Pressure                                                                                                                                                                                                                  |              |           |       |  |       |                |     |       |         |            |                                                                                                                                                                                                                                 |              |           |       |  |       |                |     |       |         |            |   |
| Bob          | X-Ray                                                                                                                                                                                                                           |              |           |       |  |       |                |     |       |         |            |                                                                                                                                                                                                                                 |              |           |       |  |       |                |     |       |         |            |   |
| Charlie      | Blood Test                                                                                                                                                                                                                      |              |           |       |  |       |                |     |       |         |            |                                                                                                                                                                                                                                 |              |           |       |  |       |                |     |       |         |            |   |
| ✓            | <table><tr><th>patient_name</th><th>test_name</th></tr><tr><td colspan="2">-----</td></tr><tr><td>Alice</td><td>Blood Pressure</td></tr><tr><td>Bob</td><td>X-Ray</td></tr><tr><td>Charlie</td><td>Blood Test</td></tr></table> | patient_name | test_name | ----- |  | Alice | Blood Pressure | Bob | X-Ray | Charlie | Blood Test | <table><tr><th>patient_name</th><th>test_name</th></tr><tr><td colspan="2">-----</td></tr><tr><td>Alice</td><td>Blood Pressure</td></tr><tr><td>Bob</td><td>X-Ray</td></tr><tr><td>Charlie</td><td>Blood Test</td></tr></table> | patient_name | test_name | ----- |  | Alice | Blood Pressure | Bob | X-Ray | Charlie | Blood Test | ✓ |
| patient_name | test_name                                                                                                                                                                                                                       |              |           |       |  |       |                |     |       |         |            |                                                                                                                                                                                                                                 |              |           |       |  |       |                |     |       |         |            |   |
| -----        |                                                                                                                                                                                                                                 |              |           |       |  |       |                |     |       |         |            |                                                                                                                                                                                                                                 |              |           |       |  |       |                |     |       |         |            |   |
| Alice        | Blood Pressure                                                                                                                                                                                                                  |              |           |       |  |       |                |     |       |         |            |                                                                                                                                                                                                                                 |              |           |       |  |       |                |     |       |         |            |   |
| Bob          | X-Ray                                                                                                                                                                                                                           |              |           |       |  |       |                |     |       |         |            |                                                                                                                                                                                                                                 |              |           |       |  |       |                |     |       |         |            |   |
| Charlie      | Blood Test                                                                                                                                                                                                                      |              |           |       |  |       |                |     |       |         |            |                                                                                                                                                                                                                                 |              |           |       |  |       |                |     |       |         |            |   |
| patient_name | test_name                                                                                                                                                                                                                       |              |           |       |  |       |                |     |       |         |            |                                                                                                                                                                                                                                 |              |           |       |  |       |                |     |       |         |            |   |
| -----        |                                                                                                                                                                                                                                 |              |           |       |  |       |                |     |       |         |            |                                                                                                                                                                                                                                 |              |           |       |  |       |                |     |       |         |            |   |
| Alice        | Blood Pressure                                                                                                                                                                                                                  |              |           |       |  |       |                |     |       |         |            |                                                                                                                                                                                                                                 |              |           |       |  |       |                |     |       |         |            |   |
| Bob          | X-Ray                                                                                                                                                                                                                           |              |           |       |  |       |                |     |       |         |            |                                                                                                                                                                                                                                 |              |           |       |  |       |                |     |       |         |            |   |
| Charlie      | Blood Test                                                                                                                                                                                                                      |              |           |       |  |       |                |     |       |         |            |                                                                                                                                                                                                                                 |              |           |       |  |       |                |     |       |         |            |   |
| ✓            | <table><tr><th>patient_name</th><th>test_name</th></tr><tr><td colspan="2">-----</td></tr><tr><td>Alice</td><td>Blood Pressure</td></tr><tr><td>Bob</td><td>X-Ray</td></tr><tr><td>Charlie</td><td>Blood Test</td></tr></table> | patient_name | test_name | ----- |  | Alice | Blood Pressure | Bob | X-Ray | Charlie | Blood Test | <table><tr><th>patient_name</th><th>test_name</th></tr><tr><td colspan="2">-----</td></tr><tr><td>Alice</td><td>Blood Pressure</td></tr><tr><td>Bob</td><td>X-Ray</td></tr><tr><td>Charlie</td><td>Blood Test</td></tr></table> | patient_name | test_name | ----- |  | Alice | Blood Pressure | Bob | X-Ray | Charlie | Blood Test | ✓ |
| patient_name | test_name                                                                                                                                                                                                                       |              |           |       |  |       |                |     |       |         |            |                                                                                                                                                                                                                                 |              |           |       |  |       |                |     |       |         |            |   |
| -----        |                                                                                                                                                                                                                                 |              |           |       |  |       |                |     |       |         |            |                                                                                                                                                                                                                                 |              |           |       |  |       |                |     |       |         |            |   |
| Alice        | Blood Pressure                                                                                                                                                                                                                  |              |           |       |  |       |                |     |       |         |            |                                                                                                                                                                                                                                 |              |           |       |  |       |                |     |       |         |            |   |
| Bob          | X-Ray                                                                                                                                                                                                                           |              |           |       |  |       |                |     |       |         |            |                                                                                                                                                                                                                                 |              |           |       |  |       |                |     |       |         |            |   |
| Charlie      | Blood Test                                                                                                                                                                                                                      |              |           |       |  |       |                |     |       |         |            |                                                                                                                                                                                                                                 |              |           |       |  |       |                |     |       |         |            |   |
| patient_name | test_name                                                                                                                                                                                                                       |              |           |       |  |       |                |     |       |         |            |                                                                                                                                                                                                                                 |              |           |       |  |       |                |     |       |         |            |   |
| -----        |                                                                                                                                                                                                                                 |              |           |       |  |       |                |     |       |         |            |                                                                                                                                                                                                                                 |              |           |       |  |       |                |     |       |         |            |   |
| Alice        | Blood Pressure                                                                                                                                                                                                                  |              |           |       |  |       |                |     |       |         |            |                                                                                                                                                                                                                                 |              |           |       |  |       |                |     |       |         |            |   |
| Bob          | X-Ray                                                                                                                                                                                                                           |              |           |       |  |       |                |     |       |         |            |                                                                                                                                                                                                                                 |              |           |       |  |       |                |     |       |         |            |   |
| Charlie      | Blood Test                                                                                                                                                                                                                      |              |           |       |  |       |                |     |       |         |            |                                                                                                                                                                                                                                 |              |           |       |  |       |                |     |       |         |            |   |

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

## Question 2

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Write the SQL query that achieves the selection of the "name" column from the "salesman" table (aliased as "s"), the "cust\_name," "city," "grade," and "salesman\_id" columns from the "customer" table (aliased as "c"), with a left join on the "salesman\_id" column and a condition filtering for salesman\_id values that have more than one associated customer.

Customer Table:

| customer_id | cust_name    | city       | grade | salesman_id |
|-------------|--------------|------------|-------|-------------|
| 3002        | Nick Rimando | Chennai    | 100   | 5001        |
| 3005        | Graham Zusi  | California | 200   | 5002        |
| 3001        | Brad Guzan   | London     | 100   | 5005        |

Salesmen Table:

| salesman_id | name       | city     | commission |
|-------------|------------|----------|------------|
| 5001        | James Hoog | New York | 0.15       |
| 5002        | Nail Knite | Paris    | 0.13       |
| 5005        | Pit Alex   | London   | 0.11       |

For example:

| Result     |              |            |       |             |
|------------|--------------|------------|-------|-------------|
| name       | cust_name    | city       | grade | salesman_id |
| Bob Emily  | Nick Rimando | Chennai    | 100   | 5001        |
| Bob Emily  | Brad Davis   | New York   | 200   | 5001        |
| Nail Knite | Graham Zusi  | California | 200   | 5002        |
| Nail Knite | Julian Green | London     | 300   | 5002        |

## sql

```
SELECT s.name, c.cust_name, c.city, c.grade, c.salesman_id FROM salesman s LEFT JOIN customer c ON s.salesman_id = c.salesman_id
WHERE s.salesman_id IN ( SELECT salesman_id FROM customer GROUP BY salesman_id HAVING COUNT(*) > 1 );
```

Output:

|   | Expected       |              |            |       |             | Got            |              |            |       |             |   |
|---|----------------|--------------|------------|-------|-------------|----------------|--------------|------------|-------|-------------|---|
| ✓ | name           | cust_name    | city       | grade | salesman_id | name           | cust_name    | city       | grade | salesman_id | ✓ |
|   | -----          | -----        | -----      | ----- | -----       | -----          | -----        | -----      | ----- | -----       |   |
|   | James Hoog     | Nick Rimando | Chennai    | 100   | 5001        | James Hoog     | Nick Rimando | Chennai    | 100   | 5001        |   |
|   | James Hoog     | Brad Davis   | New York   | 200   | 5001        | James Hoog     | Brad Davis   | New York   | 200   | 5001        |   |
|   | Nail Knite     | Graham Zusi  | California | 200   | 5002        | Nail Knite     | Graham Zusi  | California | 200   | 5002        |   |
|   | Nail Knite     | Julian Green | London     | 300   | 5002        | Nail Knite     | Julian Green | London     | 300   | 5002        |   |
| ✓ | name           | cust_name    | city       | grade | salesman_id | name           | cust_name    | city       | grade | salesman_id | ✓ |
|   | -----          | -----        | -----      | ----- | -----       | -----          | -----        | -----      | ----- | -----       |   |
|   | Bob Emily      | Nick Rimando | Chennai    | 100   | 5001        | Bob Emily      | Nick Rimando | Chennai    | 100   | 5001        |   |
|   | Bob Emily      | Brad Davis   | New York   | 200   | 5001        | Bob Emily      | Brad Davis   | New York   | 200   | 5001        |   |
|   | Nail Knite     | Graham Zusi  | California | 200   | 5002        | Nail Knite     | Graham Zusi  | California | 200   | 5002        |   |
|   | Nail Knite     | Julian Green | London     | 300   | 5002        | Nail Knite     | Julian Green | London     | 300   | 5002        |   |
| ✓ | name           | cust_name    | city       | grade | salesman_id | name           | cust_name    | city       | grade | salesman_id | ✓ |
|   | -----          | -----        | -----      | ----- | -----       | -----          | -----        | -----      | ----- | -----       |   |
|   | James Williams | Nick Rimando | Chennai    | 100   | 5001        | James Williams | Nick Rimando | Chennai    | 100   | 5001        |   |
|   | James Williams | Brad Davis   | New York   | 200   | 5001        | James Williams | Brad Davis   | New York   | 200   | 5001        |   |
|   | Nail Knite     | Graham Zusi  | California | 200   | 5002        | Nail Knite     | Graham Zusi  | California | 200   | 5002        |   |
|   | Nail Knite     | Julian Green | London     | 300   | 5002        | Nail Knite     | Julian Green | London     | 300   | 5002        |   |

Passed all tests! ✓

## Question 3

Write a SQL statement to join the tables salesman, customer and orders so that the same column of each table appears once and only the relational rows are returned.

Sample table: orders

| ord_no | purch_amt | ord_date   | customer_id | salesman_id |
|--------|-----------|------------|-------------|-------------|
| 70001  | 150.5     | 2012-10-05 | 3005        | 5002        |
| 70009  | 270.65    | 2012-09-10 | 3001        | 5005        |
| 70002  | 65.26     | 2012-10-05 | 3002        | 5001        |
| 70004  | 110.5     | 2012-08-17 | 3009        | 5003        |
| 70007  | 948.5     | 2012-09-10 | 3005        | 5002        |
| 70005  | 2400.6    | 2012-07-27 | 3007        | 5001        |
| 70008  | 5760      | 2012-09-10 | 3002        | 5001        |
| 70010  | 1983.43   | 2012-10-10 | 3004        | 5006        |
| 70003  | 2400.4    | 2012-10-10 | 3009        | 5003        |
| 70012  | 250.45    | 2012-06-27 | 3008        | 5002        |
| 70011  | 75.29     | 2012-08-17 | 3003        | 5007        |
| 70013  | 3045.6    | 2012-04-25 | 3002        | 5001        |

Sample table: customer

| customer_id | cust_name      | city       | grade | salesman_id |
|-------------|----------------|------------|-------|-------------|
| 3002        | Nick Rimando   | New York   | 100   | 5001        |
| 3007        | Brad Davis     | New York   | 200   | 5001        |
| 3005        | Graham Zusi    | California | 200   | 5002        |
| 3008        | Julian Green   | London     | 300   | 5002        |
| 3004        | Fabian Johnson | Paris      | 300   | 5006        |
| 3009        | Geoff Cameron  | Berlin     | 100   | 5003        |
| 3003        | Jozy Altidor   | Moscow     | 200   | 5007        |
| 3001        | Brad Guzan     | London     |       | 5005        |

Sample table : salesman

| salesman_id | name       | city     | commission |
|-------------|------------|----------|------------|
| 5001        | James Hoog | New York | 0.15       |
| 5002        | Nail Knite | Paris    | 0.13       |
| 5005        | Pit Alex   | London   | 0.11       |
| 5006        | Mc Lyon    | Paris    | 0.14       |
| 5007        | Paul Adam  | Rome     | 0.13       |
| 5003        | Lauson Hen | San Jose | 0.12       |

For example:

| Result |           |            |               |               |       |               |               |            |
|--------|-----------|------------|---------------|---------------|-------|---------------|---------------|------------|
| ord_no | purch_amt | ord_date   | cust_name     | customer_city | grade | salesman_name | salesman_city | commission |
| 70001  | 150.5     | 2012-10-05 | Graham Zusi   | California    | 200   | Nail Knite    | Paris         | 0.13       |
| 70009  | 270.65    | 2012-09-10 | Brad Guzan    | London        | 100   | Pit Alex      | London        | 0.11       |
| 70002  | 65.26     | 2012-10-05 | Nick Rimando  | Chennai       | 100   | Bob Emily     | New York      | 0.15       |
| 70004  | 110.5     | 2012-08-17 | Geoff Cameron | Berlin        | 100   | Lauson Hen    | San Jose      | 0.12       |
| 70007  | 948.5     | 2012-09-10 | Graham Zusi   | California    | 200   | Nail Knite    | Paris         | 0.13       |
| 70005  | 2400.6    | 2012-07-27 | Brad Davis    | New York      | 200   | Bob Emily     | New York      | 0.15       |
| 70008  | 5760.0    | 2012-09-10 | Nick Rimando  | Chennai       | 100   | Bob Emily     | New York      | 0.15       |
| 70010  | 1983.43   | 2012-10-10 | Fabian Johns  | Paris         | 300   | Mc Lyon       | Paris         | 0.14       |
| 70003  | 2400.4    | 2012-10-10 | Geoff Cameron | Berlin        | 100   | Lauson Hen    | San Jose      | 0.12       |



|       |        |            |               |         |     |            |          |      |
|-------|--------|------------|---------------|---------|-----|------------|----------|------|
| 70012 | 250.45 | 2012-06-27 | Julian Green  | London  | 300 | Nail Knite | Paris    | 0.13 |
| 70011 | 75.29  | 2012-08-17 | Jozy Altidore | Moscow  | 200 | Paul Adam  | Rome     | 0.13 |
| 70013 | 3045.6 | 2012-04-25 | Nick Rimando  | Chennai | 100 | Bob Emily  | New York | 0.15 |

sql

SELECT o.ord\_no, o.purch\_amt, o.ord\_date, c.cust\_name, c.city AS customer\_city, c.grade, s.name AS salesman\_name, s.city AS salesman\_city, s.commission FROM orders o INNER JOIN customer c ON o.customer\_id = c.customer\_id INNER JOIN salesman s ON o.salesman\_id = s.salesman\_id;

Output:

| Expected |           |            |               |               |       |               |               |            | Got    |           |            |               |               |       |               |               |            |  |
|----------|-----------|------------|---------------|---------------|-------|---------------|---------------|------------|--------|-----------|------------|---------------|---------------|-------|---------------|---------------|------------|--|
| ord_no   | purch_amt | ord_date   | cust_name     | customer_city | grade | salesman_name | salesman_city | commission | ord_no | purch_amt | ord_date   | cust_name     | customer_city | grade | salesman_name | salesman_city | commission |  |
| 70001    | 150.5     | 2012-10-05 | Graham Zusi   | California    | 200   | Nail Knite    | Paris         | 0.13       | 70001  | 150.5     | 2012-10-05 | Graham Zusi   | California    | 200   | Nail Knite    | Paris         | 0.13       |  |
| 70009    | 270.65    | 2012-09-10 | Brad Guzan    | London        | 100   | Pit Alex      | London        | 0.11       | 70009  | 270.65    | 2012-09-10 | Brad Guzan    | London        | 100   | Pit Alex      | London        | 0.11       |  |
| 70002    | 65.26     | 2012-10-05 | Nick Rimando  | Chennai       | 100   | James Hoog    | New York      | 0.15       | 70002  | 65.26     | 2012-10-05 | Nick Rimando  | Chennai       | 100   | James Hoog    | New York      | 0.15       |  |
| 70004    | 110.5     | 2012-08-17 | Geoff Cameron | Berlin        | 100   | Lauson Hen    | San Jose      | 0.12       | 70004  | 110.5     | 2012-08-17 | Geoff Cameron | Berlin        | 100   | Lauson Hen    | San Jose      | 0.12       |  |
| 70007    | 948.5     | 2012-09-10 | Graham Zusi   | California    | 200   | Nail Knite    | Paris         | 0.13       | 70007  | 948.5     | 2012-09-10 | Graham Zusi   | California    | 200   | Nail Knite    | Paris         | 0.13       |  |
| 70005    | 2400.6    | 2012-07-27 | Brad Davis    | New York      | 200   | James Hoog    | New York      | 0.15       | 70005  | 2400.6    | 2012-07-27 | Brad Davis    | New York      | 200   | James Hoog    | New York      | 0.15       |  |
| 70008    | 5760.0    | 2012-09-10 | Nick Rimando  | Chennai       | 100   | James Hoog    | New York      | 0.15       | 70008  | 5760.0    | 2012-09-10 | Nick Rimando  | Chennai       | 100   | James Hoog    | New York      | 0.15       |  |
| 70010    | 1983.43   | 2012-10-10 | Fabian Johns  | Paris         | 300   | Mc Lyon       | Paris         | 0.14       | 70010  | 1983.43   | 2012-10-10 | Fabian Johns  | Paris         | 300   | Mc Lyon       | Paris         | 0.14       |  |
| 70003    | 2480.4    | 2012-10-10 | Geoff Cameron | Berlin        | 100   | Lauson Hen    | San Jose      | 0.12       | 70003  | 2480.4    | 2012-10-10 | Geoff Cameron | Berlin        | 100   | Lauson Hen    | San Jose      | 0.12       |  |
| 70012    | 250.45    | 2012-06-27 | Julian Green  | London        | 300   | Nail Knite    | Paris         | 0.13       | 70012  | 250.45    | 2012-06-27 | Julian Green  | London        | 300   | Nail Knite    | Paris         | 0.13       |  |
| 70011    | 75.29     | 2012-08-17 | Jozy Altidore | Moscow        | 200   | Paul Adam     | Rome          | 0.13       | 70011  | 75.29     | 2012-08-17 | Jozy Altidore | Moscow        | 200   | Paul Adam     | Rome          | 0.13       |  |
| 70013    | 3045.6    | 2012-04-25 | Nick Rimando  | Chennai       | 100   | James Hoog    | New York      | 0.15       | 70013  | 3045.6    | 2012-04-25 | Nick Rimando  | Chennai       | 100   | James Hoog    | New York      | 0.15       |  |
|          |           |            |               |               |       |               |               |            |        |           |            |               |               |       |               |               |            |  |
| ord_no   | purch_amt | ord_date   | cust_name     | customer_city | grade | salesman_name | salesman_city | commission | ord_no | purch_amt | ord_date   | cust_name     | customer_city | grade | salesman_name | salesman_city | commission |  |
| 70001    | 150.5     | 2012-10-05 | Graham Zusi   | California    | 200   | Nail Knite    | Paris         | 0.13       | 70001  | 150.5     | 2012-10-05 | Graham Zusi   | California    | 200   | Nail Knite    | Paris         | 0.13       |  |
| 70009    | 270.65    | 2012-09-10 | Brad Guzan    | London        | 100   | Pit Alex      | London        | 0.11       | 70009  | 270.65    | 2012-09-10 | Brad Guzan    | London        | 100   | Pit Alex      | London        | 0.11       |  |
| 70002    | 65.26     | 2012-10-05 | Nick Rimando  | Chennai       | 100   | Bob Emily     | New York      | 0.15       | 70002  | 65.26     | 2012-10-05 | Nick Rimando  | Chennai       | 100   | Bob Emily     | New York      | 0.15       |  |
| 70004    | 110.5     | 2012-08-17 | Geoff Cameron | Berlin        | 100   | Lauson Hen    | San Jose      | 0.12       | 70004  | 110.5     | 2012-08-17 | Geoff Cameron | Berlin        | 100   | Lauson Hen    | San Jose      | 0.12       |  |
| 70007    | 948.5     | 2012-09-10 | Graham Zusi   | California    | 200   | Nail Knite    | Paris         | 0.13       | 70007  | 948.5     | 2012-09-10 | Graham Zusi   | California    | 200   | Nail Knite    | Paris         | 0.13       |  |
| 70005    | 2400.6    | 2012-07-27 | Brad Davis    | New York      | 200   | Bob Emily     | New York      | 0.15       | 70005  | 2400.6    | 2012-07-27 | Brad Davis    | New York      | 200   | Bob Emily     | New York      | 0.15       |  |
| 70008    | 5760.0    | 2012-09-10 | Nick Rimando  | Chennai       | 100   | Bob Emily     | New York      | 0.15       | 70008  | 5760.0    | 2012-09-10 | Nick Rimando  | Chennai       | 100   | Bob Emily     | New York      | 0.15       |  |
| 70010    | 1983.43   | 2012-10-10 | Fabian Johns  | Paris         | 300   | Mc Lyon       | Paris         | 0.14       | 70010  | 1983.43   | 2012-10-10 | Fabian Johns  | Paris         | 300   | Mc Lyon       | Paris         | 0.14       |  |
| 70003    | 2480.4    | 2012-10-10 | Geoff Cameron | Berlin        | 100   | Lauson Hen    | San Jose      | 0.12       | 70003  | 2480.4    | 2012-10-10 | Geoff Cameron | Berlin        | 100   | Lauson Hen    | San Jose      | 0.12       |  |
| 70012    | 250.45    | 2012-06-27 | Julian Green  | London        | 300   | Nail Knite    | Paris         | 0.13       | 70012  | 250.45    | 2012-06-27 | Julian Green  | London        | 300   | Nail Knite    | Paris         | 0.13       |  |
| 70011    | 75.29     | 2012-08-17 | Jozy Altidore | Moscow        | 200   | Paul Adam     | Rome          | 0.13       | 70011  | 75.29     | 2012-08-17 | Jozy Altidore | Moscow        | 200   | Paul Adam     | Rome          | 0.13       |  |
| 70013    | 3045.6    | 2012-04-25 | Nick Rimando  | Chennai       | 100   | Bob Emily     | New York      | 0.15       | 70013  | 3045.6    | 2012-04-25 | Nick Rimando  | Chennai       | 100   | Bob Emily     | New York      | 0.15       |  |
|          |           |            |               |               |       |               |               |            |        |           |            |               |               |       |               |               |            |  |
| ord_no   | purch_amt | ord_date   | cust_name     | customer_city | grade | salesman_name | salesman_city | commission | ord_no | purch_amt | ord_date   | cust_name     | customer_city | grade | salesman_name | salesman_city | commission |  |
| 70001    | 150.5     | 2012-10-05 | Graham Zusi   | California    | 200   | Nail Knite    | Paris         | 0.13       | 70001  | 150.5     | 2012-10-05 | Graham Zusi   | California    | 200   | Nail Knite    | Paris         | 0.13       |  |
| 70009    | 270.65    | 2012-09-10 | Brad Guzan    | London        | 100   | Pit Alex      | London        | 0.11       | 70009  | 270.65    | 2012-09-10 | Brad Guzan    | London        | 100   | Pit Alex      | London        | 0.11       |  |
| 70002    | 65.26     | 2012-10-05 | Nick Rimando  | Chennai       | 100   | James William | New York      | 0.15       | 70002  | 65.26     | 2012-10-05 | Nick Rimando  | Chennai       | 100   | James William | New York      | 0.15       |  |
| 70004    | 110.5     | 2012-08-17 | Geoff Cameron | Berlin        | 100   | Lauson Hen    | San Jose      | 0.12       | 70004  | 110.5     | 2012-08-17 | Geoff Cameron | Berlin        | 100   | Lauson Hen    | San Jose      | 0.12       |  |
| 70007    | 948.5     | 2012-09-10 | Graham Zusi   | California    | 200   | Nail Knite    | Paris         | 0.13       | 70007  | 948.5     | 2012-09-10 | Graham Zusi   | California    | 200   | Nail Knite    | Paris         | 0.13       |  |
| 70005    | 2400.6    | 2012-07-27 | Brad Davis    | New York      | 200   | James William | New York      | 0.15       | 70005  | 2400.6    | 2012-07-27 | Brad Davis    | New York      | 200   | James William | New York      | 0.15       |  |
| 70008    | 5760.0    | 2012-09-10 | Nick Rimando  | Chennai       | 100   | James William | New York      | 0.15       | 70008  | 5760.0    | 2012-09-10 | Nick Rimando  | Chennai       | 100   | James William | New York      | 0.15       |  |
| 70010    | 1983.43   | 2012-10-10 | Fabian Johns  | Paris         | 300   | Mc Lyon       | Paris         | 0.14       | 70010  | 1983.43   | 2012-10-10 | Fabian Johns  | Paris         | 300   | Mc Lyon       | Paris         | 0.14       |  |
| 70003    | 2480.4    | 2012-10-10 | Geoff Cameron | Berlin        | 100   | Lauson Hen    | San Jose      | 0.12       | 70003  | 2480.4    | 2012-10-10 | Geoff Cameron | Berlin        | 100   | Lauson Hen    | San Jose      | 0.12       |  |
| 70012    | 250.45    | 2012-06-27 | Julian Green  | London        | 300   | Nail Knite    | Paris         | 0.13       | 70012  | 250.45    | 2012-06-27 | Julian Green  | London        | 300   | Nail Knite    | Paris         | 0.13       |  |
| 70011    | 75.29     | 2012-08-17 | Jozy Altidore | Moscow        | 200   | Paul Adam     | Rome          | 0.13       | 70011  | 75.29     | 2012-08-17 | Jozy Altidore | Moscow        | 200   | Paul Adam     | Rome          | 0.13       |  |
| 70013    | 3045.6    | 2012-04-25 | Nick Rimando  | Chennai       | 100   | James William | New York      | 0.15       | 70013  | 3045.6    | 2012-04-25 | Nick Rimando  | Chennai       | 100   | James William | New York      | 0.15       |  |

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

# Question 4

Write the SQL query that achieves the selection of the "nurse\_id" from the "nurses" table (aliased as "n") and the "department\_name" from the "departments" table, with an inner join on the "department\_id" column and conditions filtering for a nurse with the first name 'David' and last name 'Moore'.

NURSES TABLE:

ATTRIBUTES - nurse\_id, first\_name, last\_name, department\_id

| nurse_id | first_name | last_name | department_id |
|----------|------------|-----------|---------------|
| 1        | Emma       | Taylor    | 1             |
| 2        | David      | Moore     | 2             |
| 3        | Sophia     | Clerk     | 1             |

DEPARTMENTS TABLE:

ATTRIBUTES - department\_id, department\_name

| department_id | department_name |
|---------------|-----------------|
| 1             | Cardiology      |
| 2             | Orthopedics     |
| 3             | Pediatrics      |

For example:

| Result   |                 |
|----------|-----------------|
| nurse_id | department_name |
| 2        | Orthopedics     |

sql

SELECT n.nurse\_id, d.department\_name FROM nurses n INNER JOIN departments d ON n.department\_id = d.department\_id WHERE n.first\_name = 'David' AND n.last\_name = 'Moore';

Output:



|   | Expected |                 | Got      |                 |   |
|---|----------|-----------------|----------|-----------------|---|
| ✓ | nurse_id | department_name | nurse_id | department_name | ✓ |
|   | 2        | Orthopedics     | 2        | Orthopedics     |   |
| ✓ | nurse_id | department_name | nurse_id | department_name | ✓ |
|   | 2        | Orthopedics     | 2        | Orthopedics     |   |
| ✓ | nurse_id | department_name | nurse_id | department_name | ✓ |
|   | 2        | Orthopedics     | 2        | Orthopedics     |   |

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

## Question 5

From the following tables write a SQL query to locate those salespeople who do not live in the same city where their customers live and have received a commission of more than 12% from the company. Return Customer Name, customer city, Salesman, salesman city, commission.

Sample table: customer

| customer_id | cust_name      | city       | grade | salesman_id |
|-------------|----------------|------------|-------|-------------|
| 3002        | Nick Rimando   | New York   | 100   | 5001        |
| 3007        | Brad Davis     | New York   | 200   | 5001        |
| 3005        | Graham Zusi    | California | 200   | 5002        |
| 3008        | Julian Green   | London     | 300   | 5002        |
| 3004        | Fabian Johnson | Paris      | 300   | 5006        |
| 3009        | Geoff Cameron  | Berlin     | 100   | 5003        |
| 3003        | Jozy Altidor   | Moscow     | 200   | 5007        |
| 3001        | Brad Guzan     | London     |       | 5005        |

Sample table: salesman

| salesman_id | name       | city     | commission |
|-------------|------------|----------|------------|
| 5001        | James Hoog | New York | 0.15       |
| 5002        | Nail Knite | Paris    | 0.13       |
| 5005        | Pit Alex   | London   | 0.11       |
| 5006        | Mc Lyon    | Paris    | 0.14       |
| 5007        | Paul Adam  | Rome     | 0.13       |
| 5003        | Lauson Hen | San Jose | 0.12       |

For example:

| Result        |            |            |          |            |
|---------------|------------|------------|----------|------------|
| Customer Name | city       | Salesman   | city     | commission |
| Nick Rimando  | Chennai    | Bob Enily  | New York | 0.15       |
| Graham Zusi   | California | Nail Knite | Paris    | 0.13       |
| Julian Green  | London     | Nail Knite | Paris    | 0.13       |
| Jozy Altidore | Moscow     | Paul Adam  | Rome     | 0.13       |

## sql

```
SELECT c.cust_name AS "Customer Name", c.city AS "city", s.name AS "Salesman", s.city AS "city", s.commission FROM customer c INNER JOIN salesman s ON c.salesman_id = s.salesman_id WHERE c.city <> s.city AND s.commission > 0.12;
```

Output:

|   | Expected      |            |                |          |            | Got           |            |                |          |            |   |
|---|---------------|------------|----------------|----------|------------|---------------|------------|----------------|----------|------------|---|
| ✓ | Customer Name | city       | Salesman       | city     | commission | Customer Name | city       | Salesman       | city     | commission | ✓ |
|   | Nick Rimando  | Chennai    | James Hoog     | New York | 0.15       | Nick Rimando  | Chennai    | James Hoog     | New York | 0.15       |   |
|   | Graham Zusi   | California | Nail Knite     | Paris    | 0.13       | Graham Zusi   | California | Nail Knite     | Paris    | 0.13       |   |
|   | Julian Green  | London     | Nail Knite     | Paris    | 0.13       | Julian Green  | London     | Nail Knite     | Paris    | 0.13       |   |
|   | Jozy Altidore | Moscow     | Paul Adam      | Rome     | 0.13       | Jozy Altidore | Moscow     | Paul Adam      | Rome     | 0.13       |   |
| ✓ | Customer Name | city       | Salesman       | city     | commission | Customer Name | city       | Salesman       | city     | commission | ✓ |
|   | Nick Rimando  | Chennai    | Bob Emily      | New York | 0.15       | Nick Rimando  | Chennai    | Bob Emily      | New York | 0.15       |   |
|   | Graham Zusi   | California | Nail Knite     | Paris    | 0.13       | Graham Zusi   | California | Nail Knite     | Paris    | 0.13       |   |
|   | Julian Green  | London     | Nail Knite     | Paris    | 0.13       | Julian Green  | London     | Nail Knite     | Paris    | 0.13       |   |
|   | Jozy Altidore | Moscow     | Paul Adam      | Rome     | 0.13       | Jozy Altidore | Moscow     | Paul Adam      | Rome     | 0.13       |   |
| ✓ | Customer Name | city       | Salesman       | city     | commission | Customer Name | city       | Salesman       | city     | commission | ✓ |
|   | Nick Rimando  | Chennai    | James Williams | New York | 0.15       | Nick Rimando  | Chennai    | James Williams | New York | 0.15       |   |
|   | Graham Zusi   | California | Nail Knite     | Paris    | 0.13       | Graham Zusi   | California | Nail Knite     | Paris    | 0.13       |   |
|   | Julian Green  | London     | Nail Knite     | Paris    | 0.13       | Julian Green  | London     | Nail Knite     | Paris    | 0.13       |   |
|   | Jozy Altidore | Moscow     | Paul Adam      | Rome     | 0.13       | Jozy Altidore | Moscow     | Paul Adam      | Rome     | 0.13       |   |

## Question 6

SQL statement to generate a report with customer name, city, order number, order date, order amount, salesperson name, and commission to determine if any of the existing customers have not placed orders or if they have placed orders through their salesman or by themselves.

Sample table: customer

| customer_id | cust_name      | city       | grade | salesman_id |
|-------------|----------------|------------|-------|-------------|
| 3002        | Nick Rimando   | New York   | 100   | 5001        |
| 3007        | Brad Davis     | New York   | 200   | 5001        |
| 3005        | Graham Zusi    | California | 200   | 5002        |
| 3008        | Julian Green   | London     | 300   | 5002        |
| 3004        | Fabian Johnson | Paris      | 300   | 5006        |
| 3009        | Geoff Cameron  | Berlin     | 100   | 5003        |
| 3003        | Jozy Altidor   | Moscow     | 200   | 5007        |
| 3001        | Brad Guzan     | London     |       | 5005        |

Sample table: orders

| ord_no | purch_amt | ord_date   | customer_id | salesman_id |
|--------|-----------|------------|-------------|-------------|
| 70001  | 150.5     | 2012-10-05 | 3005        | 5002        |
| 70009  | 270.65    | 2012-09-10 | 3001        | 5005        |
| 70002  | 65.26     | 2012-10-05 | 3002        | 5001        |
| 70004  | 110.5     | 2012-08-17 | 3009        | 5003        |
| 70007  | 948.5     | 2012-09-10 | 3005        | 5002        |
| 70005  | 2400.6    | 2012-07-27 | 3007        | 5001        |
| 70008  | 5760      | 2012-09-10 | 3002        | 5001        |
| 70010  | 1983.43   | 2012-10-10 | 3004        | 5006        |
| 70003  | 2480.4    | 2012-10-10 | 3009        | 5003        |
| 70012  | 250.45    | 2012-06-27 | 3008        | 5002        |
| 70011  | 75.29     | 2012-08-17 | 3003        | 5007        |
| 70013  | 3045.6    | 2012-04-25 | 3002        | 5001        |

Sample table: salesman

| salesman_id | name       | city     | commission |
|-------------|------------|----------|------------|
| 5001        | James Hoog | New York | 0.15       |
| 5002        | Nail Knite | Paris    | 0.13       |
| 5005        | Pit Alex   | London   | 0.11       |
| 5006        | Mc Lyon    | Paris    | 0.14       |
| 5007        | Paul Adam  | Rome     | 0.13       |
| 5003        | Lauson Hen | San Jose | 0.12       |

For example:

| Result        |            |        |            |              |            |            |
|---------------|------------|--------|------------|--------------|------------|------------|
| cust_name     | city       | ord_no | ord_date   | Order Amount | name       | commission |
| Nick Rimando  | Chennai    | 70002  | 2012-10-05 | 65.26        | Bob Emily  | 0.15       |
| Nick Rimando  | Chennai    | 70008  | 2012-09-10 | 5760.0       | Bob Emily  | 0.15       |
| Nick Rimando  | Chennai    | 70013  | 2012-04-25 | 3045.6       | Bob Emily  | 0.15       |
| Graham Zusi   | California | 70001  | 2012-10-05 | 150.5        | Nail Knite | 0.13       |
| Graham Zusi   | California | 70007  | 2012-09-10 | 948.5        | Nail Knite | 0.13       |
| Brad Guzan    | London     | 70009  | 2012-09-10 | 270.65       | Pit Alex   | 0.11       |
| Fabian Johns  | Paris      | 70010  | 2012-10-10 | 1983.43      | Mc Lyon    | 0.14       |
| Brad Davis    | New York   | 70005  | 2012-07-27 | 2400.6       | Bob Emily  | 0.15       |
| Geoff Cameron | Berlin     | 70003  | 2012-10-10 | 2480.4       | Lauson Hen | 0.12       |
| Geoff Cameron | Berlin     | 70004  | 2012-08-17 | 110.5        | Lauson Hen | 0.12       |
| Julian Green  | London     | 70012  | 2012-06-27 | 250.45       | Nail Knite | 0.13       |
| Jozy Altidore | Moscow     | 70011  | 2012-08-17 | 75.29        | Paul Adam  | 0.13       |

SELECT c.cust\_name, c.city, o.ord\_no, o.ord\_date, o.purch\_amt AS "Order Amount", s.name, s.commission FROM customer c LEFT JOIN orders o ON c.customer\_id = o.customer\_id LEFT JOIN salesman s ON o.salesman\_id = s.salesman\_id;

Output:

| Expected |               |            |        |            |              |                |            | Got           |            |        |            |              |                |            |  |   |
|----------|---------------|------------|--------|------------|--------------|----------------|------------|---------------|------------|--------|------------|--------------|----------------|------------|--|---|
| ✓        | cust_name     | city       | ord_no | ord_date   | Order Amount | name           | commission | cust_name     | city       | ord_no | ord_date   | Order Amount | name           | commission |  | ✓ |
|          | Nick Rimando  | Chennai    | 70002  | 2012-10-05 | 65.26        | James Hoog     | 0.15       | Nick Rimando  | Chennai    | 70002  | 2012-10-05 | 65.26        | James Hoog     | 0.15       |  |   |
|          | Nick Rimando  | Chennai    | 70008  | 2012-09-10 | 5760.0       | James Hoog     | 0.15       | Nick Rimando  | Chennai    | 70008  | 2012-09-10 | 5760.0       | James Hoog     | 0.15       |  |   |
|          | Nick Rimando  | Chennai    | 70013  | 2012-04-25 | 3045.6       | James Hoog     | 0.15       | Nick Rimando  | Chennai    | 70013  | 2012-04-25 | 3045.6       | James Hoog     | 0.15       |  |   |
|          | Graham Zusi   | California | 70001  | 2012-10-05 | 150.5        | Nail Knite     | 0.13       | Graham Zusi   | California | 70001  | 2012-10-05 | 150.5        | Nail Knite     | 0.13       |  |   |
|          | Graham Zusi   | California | 70007  | 2012-09-10 | 948.5        | Nail Knite     | 0.13       | Graham Zusi   | California | 70007  | 2012-09-10 | 948.5        | Nail Knite     | 0.13       |  |   |
|          | Brad Guzan    | London     | 70009  | 2012-09-10 | 270.65       | Pit Alex       | 0.11       | Brad Guzan    | London     | 70009  | 2012-09-10 | 270.65       | Pit Alex       | 0.11       |  |   |
|          | Fabian Johns  | Paris      | 70010  | 2012-10-10 | 1983.43      | Mc Lyon        | 0.14       | Fabian Johns  | Paris      | 70010  | 2012-10-10 | 1983.43      | Mc Lyon        | 0.14       |  |   |
|          | Brad Davis    | New York   | 70005  | 2012-07-27 | 2400.6       | James Hoog     | 0.15       | Brad Davis    | New York   | 70005  | 2012-07-27 | 2400.6       | James Hoog     | 0.15       |  |   |
|          | Geoff Cameron | Berlin     | 70003  | 2012-10-10 | 2480.4       | Lauson Hen     | 0.12       | Geoff Cameron | Berlin     | 70003  | 2012-10-10 | 2480.4       | Lauson Hen     | 0.12       |  |   |
|          | Geoff Cameron | Berlin     | 70004  | 2012-08-17 | 110.5        | Lauson Hen     | 0.12       | Geoff Cameron | Berlin     | 70004  | 2012-08-17 | 110.5        | Lauson Hen     | 0.12       |  |   |
|          | Julian Green  | London     | 70012  | 2012-06-27 | 250.45       | Nail Knite     | 0.13       | Julian Green  | London     | 70012  | 2012-06-27 | 250.45       | Nail Knite     | 0.13       |  |   |
|          | Jozy Altidore | Moscow     | 70011  | 2012-08-17 | 75.29        | Paul Adam      | 0.13       | Jozy Altidore | Moscow     | 70011  | 2012-08-17 | 75.29        | Paul Adam      | 0.13       |  |   |
| ✓        | cust_name     | city       | ord_no | ord_date   | Order Amount | name           | commission | cust_name     | city       | ord_no | ord_date   | Order Amount | name           | commission |  | ✓ |
|          | Nick Rimando  | Chennai    | 70002  | 2012-10-05 | 65.26        | Bob Emilly     | 0.15       | Nick Rimando  | Chennai    | 70002  | 2012-10-05 | 65.26        | Bob Emilly     | 0.15       |  |   |
|          | Nick Rimando  | Chennai    | 70008  | 2012-09-10 | 5760.0       | Bob Emilly     | 0.15       | Nick Rimando  | Chennai    | 70008  | 2012-09-10 | 5760.0       | Bob Emilly     | 0.15       |  |   |
|          | Nick Rimando  | Chennai    | 70013  | 2012-04-25 | 3045.6       | Bob Emilly     | 0.15       | Nick Rimando  | Chennai    | 70013  | 2012-04-25 | 3045.6       | Bob Emilly     | 0.15       |  |   |
|          | Graham Zusi   | California | 70001  | 2012-10-05 | 150.5        | Nail Knite     | 0.13       | Graham Zusi   | California | 70001  | 2012-10-05 | 150.5        | Nail Knite     | 0.13       |  |   |
|          | Graham Zusi   | California | 70007  | 2012-09-10 | 948.5        | Nail Knite     | 0.13       | Graham Zusi   | California | 70007  | 2012-09-10 | 948.5        | Nail Knite     | 0.13       |  |   |
|          | Brad Guzan    | London     | 70009  | 2012-09-10 | 270.65       | Pit Alex       | 0.11       | Brad Guzan    | London     | 70009  | 2012-09-10 | 270.65       | Pit Alex       | 0.11       |  |   |
|          | Fabian Johns  | Paris      | 70010  | 2012-10-10 | 1983.43      | Mc Lyon        | 0.14       | Fabian Johns  | Paris      | 70010  | 2012-10-10 | 1983.43      | Mc Lyon        | 0.14       |  |   |
|          | Brad Davis    | New York   | 70005  | 2012-07-27 | 2400.6       | Bob Emilly     | 0.15       | Brad Davis    | New York   | 70005  | 2012-07-27 | 2400.6       | Bob Emilly     | 0.15       |  |   |
|          | Geoff Cameron | Berlin     | 70003  | 2012-10-10 | 2480.4       | Lauson Hen     | 0.12       | Geoff Cameron | Berlin     | 70003  | 2012-10-10 | 2480.4       | Lauson Hen     | 0.12       |  |   |
|          | Geoff Cameron | Berlin     | 70004  | 2012-08-17 | 110.5        | Lauson Hen     | 0.12       | Geoff Cameron | Berlin     | 70004  | 2012-08-17 | 110.5        | Lauson Hen     | 0.12       |  |   |
|          | Julian Green  | London     | 70012  | 2012-06-27 | 250.45       | Nail Knite     | 0.13       | Julian Green  | London     | 70012  | 2012-06-27 | 250.45       | Nail Knite     | 0.13       |  |   |
|          | Jozy Altidore | Moscow     | 70011  | 2012-08-17 | 75.29        | Paul Adam      | 0.13       | Jozy Altidore | Moscow     | 70011  | 2012-08-17 | 75.29        | Paul Adam      | 0.13       |  |   |
| ✓        | cust_name     | city       | ord_no | ord_date   | Order Amount | name           | commission | cust_name     | city       | ord_no | ord_date   | Order Amount | name           | commission |  | ✓ |
|          | Nick Rimando  | Chennai    | 70002  | 2012-10-05 | 65.26        | James Williams | 0.15       | Nick Rimando  | Chennai    | 70002  | 2012-10-05 | 65.26        | James Williams | 0.15       |  |   |
|          | Nick Rimando  | Chennai    | 70008  | 2012-09-10 | 5760.0       | James Williams | 0.15       | Nick Rimando  | Chennai    | 70008  | 2012-09-10 | 5760.0       | James Williams | 0.15       |  |   |
|          | Nick Rimando  | Chennai    | 70013  | 2012-04-25 | 3045.6       | James Williams | 0.15       | Nick Rimando  | Chennai    | 70013  | 2012-04-25 | 3045.6       | James Williams | 0.15       |  |   |
|          | Graham Zusi   | California | 70001  | 2012-10-05 | 150.5        | Nail Knite     | 0.13       | Graham Zusi   | California | 70001  | 2012-10-05 | 150.5        | Nail Knite     | 0.13       |  |   |
|          | Graham Zusi   | California | 70007  | 2012-09-10 | 948.5        | Nail Knite     | 0.13       | Graham Zusi   | California | 70007  | 2012-09-10 | 948.5        | Nail Knite     | 0.13       |  |   |
|          | Brad Guzan    | London     | 70009  | 2012-09-10 | 270.65       | Pit Alex       | 0.11       | Brad Guzan    | London     | 70009  | 2012-09-10 | 270.65       | Pit Alex       | 0.11       |  |   |
|          | Fabian Johns  | Paris      | 70010  | 2012-10-10 | 1983.43      | Mc Lyon        | 0.14       | Fabian Johns  | Paris      | 70010  | 2012-10-10 | 1983.43      | Mc Lyon        | 0.14       |  |   |
|          | Brad Davis    | New York   | 70005  | 2012-07-27 | 2400.6       | James Williams | 0.15       | Brad Davis    | New York   | 70005  | 2012-07-27 | 2400.6       | James Williams | 0.15       |  |   |
|          | Geoff Cameron | Berlin     | 70003  | 2012-10-10 | 2480.4       | Lauson Hen     | 0.12       | Geoff Cameron | Berlin     | 70003  | 2012-10-10 | 2480.4       | Lauson Hen     | 0.12       |  |   |
|          | Geoff Cameron | Berlin     | 70004  | 2012-08-17 | 110.5        | Lauson Hen     | 0.12       | Geoff Cameron | Berlin     | 70004  | 2012-08-17 | 110.5        | Lauson Hen     | 0.12       |  |   |
|          | Julian Green  | London     | 70012  | 2012-06-27 | 250.45       | Nail Knite     | 0.13       | Julian Green  | London     | 70012  | 2012-06-27 | 250.45       | Nail Knite     | 0.13       |  |   |
|          | Jozy Altidore | Moscow     | 70011  | 2012-08-17 | 75.29        | Paul Adam      | 0.13       | Jozy Altidore | Moscow     | 70011  | 2012-08-17 | 75.29        | Paul Adam      | 0.13       |  |   |

Question 7



Write the SQL query that achieves the selection of all columns from the "patients" table (aliased as "p"), with an inner join on the "patient\_id" column and conditions filtering for test results with the test name 'X-Ray' and a result of 'Normal'.

PATIENTS TABLE:

ATTRIBUTES - patient\_id, first\_name, last\_name, date\_of\_birth, admission\_date, discharge\_date, doctor\_id

| patient_id | first_name | last_name | date_of_birth | admission_date | discharge_date | doctor_id |
|------------|------------|-----------|---------------|----------------|----------------|-----------|
| 1          | Alice      | Woods     | 1980-05-12    | 2024-01-10     | NULL           | 1         |
| 2          | Bob        | Miller    | 1995-08-23    | 2024-02-15     | 2024-03-01     | 2         |
| 3          | Charlie    | Davis     | 1972-11-30    | 2024-03-18     | NULL           | 1         |

TEST\_RESULT TABLES:

ATTRIBUTES - result\_id, patient\_id, test\_name, result, test\_date

| result_id | patient_id | test_name      | result              | test_date  |
|-----------|------------|----------------|---------------------|------------|
| 1         | 1          | Blood Pressure | 120/80              | 2024-01-20 |
| 2         | 2          | X-Ray          | Normal              | 2024-03-05 |
| 3         | 1          | Blood Test     | Within Normal Range | 2024-04-01 |

For example:

| patient_id | first_name | last_name | date_of_birth | admission_date | discharge_date | doctor_id |
|------------|------------|-----------|---------------|----------------|----------------|-----------|
| 2          | Bob        | Miller    | 1995-08-23    | 2024-02-15     | 2024-03-01     | 2         |

# sql

SELECT p.\* FROM patients p INNER JOIN test\_results t ON p.patient\_id = t.patient\_id WHERE t.test\_name = 'X-Ray' AND t.result = 'Normal';

Output:

|            | Expected                                                                                                                                                                                                                                                                                                              | Got        |               |                |                |                |                |           |   |     |        |            |            |            |   |                                                                                                                                                                                                                                                                                                                       |            |            |           |               |                |                |           |   |     |        |            |            |            |   |   |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|---------------|----------------|----------------|----------------|----------------|-----------|---|-----|--------|------------|------------|------------|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|------------|-----------|---------------|----------------|----------------|-----------|---|-----|--------|------------|------------|------------|---|---|
| ✓          | <table><thead><tr><th>patient_id</th><th>first_name</th><th>last_name</th><th>date_of_birth</th><th>admission_date</th><th>discharge_date</th><th>doctor_id</th></tr></thead><tbody><tr><td>2</td><td>Bob</td><td>Miller</td><td>1995-08-23</td><td>2024-02-15</td><td>2024-03-01</td><td>2</td></tr></tbody></table> | patient_id | first_name    | last_name      | date_of_birth  | admission_date | discharge_date | doctor_id | 2 | Bob | Miller | 1995-08-23 | 2024-02-15 | 2024-03-01 | 2 | <table><thead><tr><th>patient_id</th><th>first_name</th><th>last_name</th><th>date_of_birth</th><th>admission_date</th><th>discharge_date</th><th>doctor_id</th></tr></thead><tbody><tr><td>2</td><td>Bob</td><td>Miller</td><td>1995-08-23</td><td>2024-02-15</td><td>2024-03-01</td><td>2</td></tr></tbody></table> | patient_id | first_name | last_name | date_of_birth | admission_date | discharge_date | doctor_id | 2 | Bob | Miller | 1995-08-23 | 2024-02-15 | 2024-03-01 | 2 | ✓ |
| patient_id | first_name                                                                                                                                                                                                                                                                                                            | last_name  | date_of_birth | admission_date | discharge_date | doctor_id      |                |           |   |     |        |            |            |            |   |                                                                                                                                                                                                                                                                                                                       |            |            |           |               |                |                |           |   |     |        |            |            |            |   |   |
| 2          | Bob                                                                                                                                                                                                                                                                                                                   | Miller     | 1995-08-23    | 2024-02-15     | 2024-03-01     | 2              |                |           |   |     |        |            |            |            |   |                                                                                                                                                                                                                                                                                                                       |            |            |           |               |                |                |           |   |     |        |            |            |            |   |   |
| patient_id | first_name                                                                                                                                                                                                                                                                                                            | last_name  | date_of_birth | admission_date | discharge_date | doctor_id      |                |           |   |     |        |            |            |            |   |                                                                                                                                                                                                                                                                                                                       |            |            |           |               |                |                |           |   |     |        |            |            |            |   |   |
| 2          | Bob                                                                                                                                                                                                                                                                                                                   | Miller     | 1995-08-23    | 2024-02-15     | 2024-03-01     | 2              |                |           |   |     |        |            |            |            |   |                                                                                                                                                                                                                                                                                                                       |            |            |           |               |                |                |           |   |     |        |            |            |            |   |   |
| ✓          | <table><thead><tr><th>patient_id</th><th>first_name</th><th>last_name</th><th>date_of_birth</th><th>admission_date</th><th>discharge_date</th><th>doctor_id</th></tr></thead><tbody><tr><td>2</td><td>Bob</td><td>Miller</td><td>1995-08-23</td><td>2024-02-15</td><td>2024-03-01</td><td>2</td></tr></tbody></table> | patient_id | first_name    | last_name      | date_of_birth  | admission_date | discharge_date | doctor_id | 2 | Bob | Miller | 1995-08-23 | 2024-02-15 | 2024-03-01 | 2 | <table><thead><tr><th>patient_id</th><th>first_name</th><th>last_name</th><th>date_of_birth</th><th>admission_date</th><th>discharge_date</th><th>doctor_id</th></tr></thead><tbody><tr><td>2</td><td>Bob</td><td>Miller</td><td>1995-08-23</td><td>2024-02-15</td><td>2024-03-01</td><td>2</td></tr></tbody></table> | patient_id | first_name | last_name | date_of_birth | admission_date | discharge_date | doctor_id | 2 | Bob | Miller | 1995-08-23 | 2024-02-15 | 2024-03-01 | 2 | ✓ |
| patient_id | first_name                                                                                                                                                                                                                                                                                                            | last_name  | date_of_birth | admission_date | discharge_date | doctor_id      |                |           |   |     |        |            |            |            |   |                                                                                                                                                                                                                                                                                                                       |            |            |           |               |                |                |           |   |     |        |            |            |            |   |   |
| 2          | Bob                                                                                                                                                                                                                                                                                                                   | Miller     | 1995-08-23    | 2024-02-15     | 2024-03-01     | 2              |                |           |   |     |        |            |            |            |   |                                                                                                                                                                                                                                                                                                                       |            |            |           |               |                |                |           |   |     |        |            |            |            |   |   |
| patient_id | first_name                                                                                                                                                                                                                                                                                                            | last_name  | date_of_birth | admission_date | discharge_date | doctor_id      |                |           |   |     |        |            |            |            |   |                                                                                                                                                                                                                                                                                                                       |            |            |           |               |                |                |           |   |     |        |            |            |            |   |   |
| 2          | Bob                                                                                                                                                                                                                                                                                                                   | Miller     | 1995-08-23    | 2024-02-15     | 2024-03-01     | 2              |                |           |   |     |        |            |            |            |   |                                                                                                                                                                                                                                                                                                                       |            |            |           |               |                |                |           |   |     |        |            |            |            |   |   |
| ✓          | <table><thead><tr><th>patient_id</th><th>first_name</th><th>last_name</th><th>date_of_birth</th><th>admission_date</th><th>discharge_date</th><th>doctor_id</th></tr></thead><tbody><tr><td>2</td><td>Bob</td><td>Miller</td><td>1995-08-23</td><td>2024-02-15</td><td>2024-03-01</td><td>2</td></tr></tbody></table> | patient_id | first_name    | last_name      | date_of_birth  | admission_date | discharge_date | doctor_id | 2 | Bob | Miller | 1995-08-23 | 2024-02-15 | 2024-03-01 | 2 | <table><thead><tr><th>patient_id</th><th>first_name</th><th>last_name</th><th>date_of_birth</th><th>admission_date</th><th>discharge_date</th><th>doctor_id</th></tr></thead><tbody><tr><td>2</td><td>Bob</td><td>Miller</td><td>1995-08-23</td><td>2024-02-15</td><td>2024-03-01</td><td>2</td></tr></tbody></table> | patient_id | first_name | last_name | date_of_birth | admission_date | discharge_date | doctor_id | 2 | Bob | Miller | 1995-08-23 | 2024-02-15 | 2024-03-01 | 2 | ✓ |
| patient_id | first_name                                                                                                                                                                                                                                                                                                            | last_name  | date_of_birth | admission_date | discharge_date | doctor_id      |                |           |   |     |        |            |            |            |   |                                                                                                                                                                                                                                                                                                                       |            |            |           |               |                |                |           |   |     |        |            |            |            |   |   |
| 2          | Bob                                                                                                                                                                                                                                                                                                                   | Miller     | 1995-08-23    | 2024-02-15     | 2024-03-01     | 2              |                |           |   |     |        |            |            |            |   |                                                                                                                                                                                                                                                                                                                       |            |            |           |               |                |                |           |   |     |        |            |            |            |   |   |
| patient_id | first_name                                                                                                                                                                                                                                                                                                            | last_name  | date_of_birth | admission_date | discharge_date | doctor_id      |                |           |   |     |        |            |            |            |   |                                                                                                                                                                                                                                                                                                                       |            |            |           |               |                |                |           |   |     |        |            |            |            |   |   |
| 2          | Bob                                                                                                                                                                                                                                                                                                                   | Miller     | 1995-08-23    | 2024-02-15     | 2024-03-01     | 2              |                |           |   |     |        |            |            |            |   |                                                                                                                                                                                                                                                                                                                       |            |            |           |               |                |                |           |   |     |        |            |            |            |   |   |

Passed all tests! ✓

# Question 8

Write a SQL statement to make a report with customer name, city, order number, order date, and order amount in ascending order according to the order date to determine whether any of the existing customers have placed an order or not

Sample table: orders

| ord_no | purch_amt | ord_date   | customer_id | salesman_id |
|--------|-----------|------------|-------------|-------------|
| 70001  | 150.5     | 2012-10-05 | 3005        | 5002        |
| 70009  | 270.65    | 2012-09-10 | 3001        | 5005        |
| 70002  | 65.26     | 2012-10-05 | 3002        | 5001        |
| 70004  | 110.5     | 2012-08-17 | 3009        | 5003        |
| 70007  | 948.5     | 2012-09-10 | 3005        | 5002        |
| 70005  | 2400.6    | 2012-07-27 | 3007        | 5001        |
| 70008  | 5760      | 2012-09-10 | 3002        | 5001        |
| 70010  | 1983.43   | 2012-10-10 | 3004        | 5006        |
| 70003  | 2480.4    | 2012-10-10 | 3009        | 5003        |
| 70012  | 250.45    | 2012-06-27 | 3008        | 5002        |
| 70011  | 75.29     | 2012-08-17 | 3003        | 5007        |
| 70013  | 3045.6    | 2012-04-25 | 3002        | 5001        |

Sample table: customer

| customer_id | cust_name      | city       | grade | salesman_id |
|-------------|----------------|------------|-------|-------------|
| 3002        | Nick Rimando   | New York   | 100   | 5001        |
| 3007        | Brad Davis     | New York   | 200   | 5001        |
| 3005        | Graham Zusi    | California | 200   | 5002        |
| 3008        | Julian Green   | London     | 300   | 5002        |
| 3004        | Fabian Johnson | Paris      | 300   | 5006        |
| 3009        | Geoff Cameron  | Berlin     | 100   | 5003        |
| 3003        | Jozy Altidore  | Moscow     | 200   | 5007        |

For example:

| Result        |            |        |            |              |
|---------------|------------|--------|------------|--------------|
| cust_name     | city       | ord_no | ord_date   | Order Amount |
| Nick Rimando  | Chennai    | 70013  | 2012-04-25 | 3045.6       |
| Julian Green  | London     | 70012  | 2012-06-27 | 250.45       |
| Brad Davis    | New York   | 70005  | 2012-07-27 | 2400.6       |
| Geoff Cameron | Berlin     | 70004  | 2012-08-17 | 110.5        |
| Jozy Altidore | Moscow     | 70011  | 2012-08-17 | 75.29        |
| Nick Rimando  | Chennai    | 70008  | 2012-09-10 | 5760.0       |
| Graham Zusi   | California | 70007  | 2012-09-10 | 948.5        |
| Brad Guzan    | London     | 70009  | 2012-09-10 | 270.65       |
| Nick Rimando  | Chennai    | 70002  | 2012-10-05 | 65.26        |
| Graham Zusi   | California | 70001  | 2012-10-05 | 150.5        |
| Fabian Johns  | Paris      | 70010  | 2012-10-10 | 1983.43      |
| Geoff Cameron | Berlin     | 70003  | 2012-10-10 | 2480.4       |

# sql

```
SELECT c.cust_name, c.city, o.ord_no, o.ord_date, o.purch_amt AS "Order Amount" FROM customer c LEFT JOIN orders o ON c.customer_id = o.customer_id ORDER BY o.ord_date ASC;
```



Output:

| Expected |               |            |        |            |              | Got           |            |        |            |              |  |   |
|----------|---------------|------------|--------|------------|--------------|---------------|------------|--------|------------|--------------|--|---|
| ✓        | cust_name     | city       | ord_no | ord_date   | Order Amount | cust_name     | city       | ord_no | ord_date   | Order Amount |  | ✓ |
|          | Nick Rimando  | Chennai    | 70013  | 2012-04-25 | 3045.6       | Nick Rimando  | Chennai    | 70013  | 2012-04-25 | 3045.6       |  |   |
|          | Julian Green  | London     | 70012  | 2012-06-27 | 250.45       | Julian Green  | London     | 70012  | 2012-06-27 | 250.45       |  |   |
|          | Brad Davis    | New York   | 70005  | 2012-07-27 | 2400.6       | Brad Davis    | New York   | 70005  | 2012-07-27 | 2400.6       |  |   |
|          | Geoff Cameron | Berlin     | 70004  | 2012-08-17 | 110.5        | Geoff Cameron | Berlin     | 70004  | 2012-08-17 | 110.5        |  |   |
|          | Jozy Altidore | Moscow     | 70011  | 2012-08-17 | 75.29        | Jozy Altidore | Moscow     | 70011  | 2012-08-17 | 75.29        |  |   |
|          | Nick Rimando  | Chennai    | 70008  | 2012-09-10 | 5760.0       | Nick Rimando  | Chennai    | 70008  | 2012-09-10 | 5760.0       |  |   |
|          | Graham Zusi   | California | 70007  | 2012-09-10 | 948.5        | Graham Zusi   | California | 70007  | 2012-09-10 | 948.5        |  |   |
|          | Brad Guzan    | London     | 70009  | 2012-09-10 | 270.65       | Brad Guzan    | London     | 70009  | 2012-09-10 | 270.65       |  |   |
|          | Nick Rimando  | Chennai    | 70002  | 2012-10-05 | 65.26        | Nick Rimando  | Chennai    | 70002  | 2012-10-05 | 65.26        |  |   |
|          | Graham Zusi   | California | 70001  | 2012-10-05 | 150.5        | Graham Zusi   | California | 70001  | 2012-10-05 | 150.5        |  |   |
|          | Fabian Johns  | Paris      | 70010  | 2012-10-10 | 1983.43      | Fabian Johns  | Paris      | 70010  | 2012-10-10 | 1983.43      |  |   |
|          | Geoff Cameron | Berlin     | 70003  | 2012-10-10 | 2480.4       | Geoff Cameron | Berlin     | 70003  | 2012-10-10 | 2480.4       |  |   |
| ✓        | cust_name     | city       | ord_no | ord_date   | Order Amount | cust_name     | city       | ord_no | ord_date   | Order Amount |  | ✓ |
|          | Nick Rimando  | Chennai    | 70013  | 2012-04-25 | 3045.6       | Nick Rimando  | Chennai    | 70013  | 2012-04-25 | 3045.6       |  |   |
|          | Julian Green  | London     | 70012  | 2012-06-27 | 250.45       | Julian Green  | London     | 70012  | 2012-06-27 | 250.45       |  |   |
|          | Brad Davis    | New York   | 70005  | 2012-07-27 | 2400.6       | Brad Davis    | New York   | 70005  | 2012-07-27 | 2400.6       |  |   |
|          | Geoff Cameron | Berlin     | 70004  | 2012-08-17 | 110.5        | Geoff Cameron | Berlin     | 70004  | 2012-08-17 | 110.5        |  |   |
|          | Jozy Altidore | Moscow     | 70011  | 2012-08-17 | 75.29        | Jozy Altidore | Moscow     | 70011  | 2012-08-17 | 75.29        |  |   |
|          | Nick Rimando  | Chennai    | 70008  | 2012-09-10 | 5760.0       | Nick Rimando  | Chennai    | 70008  | 2012-09-10 | 5760.0       |  |   |
|          | Graham Zusi   | California | 70007  | 2012-09-10 | 948.5        | Graham Zusi   | California | 70007  | 2012-09-10 | 948.5        |  |   |
|          | Brad Guzan    | London     | 70009  | 2012-09-10 | 270.65       | Brad Guzan    | London     | 70009  | 2012-09-10 | 270.65       |  |   |
|          | Nick Rimando  | Chennai    | 70002  | 2012-10-05 | 65.26        | Nick Rimando  | Chennai    | 70002  | 2012-10-05 | 65.26        |  |   |
|          | Graham Zusi   | California | 70001  | 2012-10-05 | 150.5        | Graham Zusi   | California | 70001  | 2012-10-05 | 150.5        |  |   |
|          | Fabian Johns  | Paris      | 70010  | 2012-10-10 | 1983.43      | Fabian Johns  | Paris      | 70010  | 2012-10-10 | 1983.43      |  |   |
|          | Geoff Cameron | Berlin     | 70003  | 2012-10-10 | 2480.4       | Geoff Cameron | Berlin     | 70003  | 2012-10-10 | 2480.4       |  |   |
| ✓        | cust_name     | city       | ord_no | ord_date   | Order Amount | cust_name     | city       | ord_no | ord_date   | Order Amount |  | ✓ |
|          | Nick Rimando  | Chennai    | 70013  | 2012-04-25 | 3045.6       | Nick Rimando  | Chennai    | 70013  | 2012-04-25 | 3045.6       |  |   |
|          | Julian Green  | London     | 70012  | 2012-06-27 | 250.45       | Julian Green  | London     | 70012  | 2012-06-27 | 250.45       |  |   |
|          | Brad Davis    | New York   | 70005  | 2012-07-27 | 2400.6       | Brad Davis    | New York   | 70005  | 2012-07-27 | 2400.6       |  |   |
|          | Geoff Cameron | Berlin     | 70004  | 2012-08-17 | 110.5        | Geoff Cameron | Berlin     | 70004  | 2012-08-17 | 110.5        |  |   |
|          | Jozy Altidore | Moscow     | 70011  | 2012-08-17 | 75.29        | Jozy Altidore | Moscow     | 70011  | 2012-08-17 | 75.29        |  |   |
|          | Nick Rimando  | Chennai    | 70008  | 2012-09-10 | 5760.0       | Nick Rimando  | Chennai    | 70008  | 2012-09-10 | 5760.0       |  |   |
|          | Graham Zusi   | California | 70007  | 2012-09-10 | 948.5        | Graham Zusi   | California | 70007  | 2012-09-10 | 948.5        |  |   |
|          | Brad Guzan    | London     | 70009  | 2012-09-10 | 270.65       | Brad Guzan    | London     | 70009  | 2012-09-10 | 270.65       |  |   |
|          | Nick Rimando  | Chennai    | 70002  | 2012-10-05 | 65.26        | Nick Rimando  | Chennai    | 70002  | 2012-10-05 | 65.26        |  |   |
|          | Graham Zusi   | California | 70001  | 2012-10-05 | 150.5        | Graham Zusi   | California | 70001  | 2012-10-05 | 150.5        |  |   |
|          | Fabian Johns  | Paris      | 70010  | 2012-10-10 | 1983.43      | Fabian Johns  | Paris      | 70010  | 2012-10-10 | 1983.43      |  |   |
|          | Geoff Cameron | Berlin     | 70003  | 2012-10-10 | 2480.4       | Geoff Cameron | Berlin     | 70003  | 2012-10-10 | 2480.4       |  |   |

Passed all tests! ✓

## Question 9

|   | Expected     |                | Got          |                |   |
|---|--------------|----------------|--------------|----------------|---|
| ✓ | cust_name    | name           | cust_name    | name           | ✓ |
|   | -----        | -----          | -----        | -----          |   |
|   | Brad Guzan   | Pit Alex       | Brad Guzan   | Pit Alex       |   |
|   | Fabian Johns | Mc Lyon        | Fabian Johns | Mc Lyon        |   |
|   | Brad Davis   | James Hoog     | Brad Davis   | James Hoog     |   |
| ✓ | cust_name    | name           | cust_name    | name           | ✓ |
|   | -----        | -----          | -----        | -----          |   |
|   | Brad Guzan   | Pit Alex       | Brad Guzan   | Pit Alex       |   |
|   | Fabian Johns | Mc Lyon        | Fabian Johns | Mc Lyon        |   |
|   | Brad Davis   | Bob Emily      | Brad Davis   | Bob Emily      |   |
| ✓ | cust_name    | name           | cust_name    | name           | ✓ |
|   | -----        | -----          | -----        | -----          |   |
|   | Brad Guzan   | Pit Alex       | Brad Guzan   | Pit Alex       |   |
|   | Fabian Johns | Mc Lyon        | Fabian Johns | Mc Lyon        |   |
|   | Brad Davis   | James Williams | Brad Davis   | James Williams |   |

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

## sql

```
SELECT c.cust_name, s.name FROM customer c LEFT JOIN salesman s ON c.salesman_id = s.salesman_id WHERE c.city = s.city;
```

Output:

|   | Expected     |                | Got          |                |   |
|---|--------------|----------------|--------------|----------------|---|
| ✓ | cust_name    | name           | cust_name    | name           | ✓ |
|   | -----        | -----          | -----        | -----          |   |
|   | Brad Guzan   | Pit Alex       | Brad Guzan   | Pit Alex       |   |
|   | Fabian Johns | Mc Lyon        | Fabian Johns | Mc Lyon        |   |
|   | Brad Davis   | James Hoog     | Brad Davis   | James Hoog     |   |
| ✓ | cust_name    | name           | cust_name    | name           | ✓ |
|   | -----        | -----          | -----        | -----          |   |
|   | Brad Guzan   | Pit Alex       | Brad Guzan   | Pit Alex       |   |
|   | Fabian Johns | Mc Lyon        | Fabian Johns | Mc Lyon        |   |
|   | Brad Davis   | Bob Emilly     | Brad Davis   | Bob Emilly     |   |
| ✓ | cust_name    | name           | cust_name    | name           | ✓ |
|   | -----        | -----          | -----        | -----          |   |
|   | Brad Guzan   | Pit Alex       | Brad Guzan   | Pit Alex       |   |
|   | Fabian Johns | Mc Lyon        | Fabian Johns | Mc Lyon        |   |
|   | Brad Davis   | James Williams | Brad Davis   | James Williams |   |

Passed all tests! ✓

**Correct**

Marks for this submission: 1.00/1.00.

## Question 10

---

From the following tables write a SQL query to find the salesperson(s) and the customer(s) he represents. Return Customer Name, city, Salesman, commission.

Sample table: customer

| customer_id | cust_name      | city       | grade | salesman_id |
|-------------|----------------|------------|-------|-------------|
| 3002        | Nick Rimando   | New York   | 100   | 5001        |
| 3007        | Brad Davis     | New York   | 200   | 5001        |
| 3005        | Graham Zusi    | California | 200   | 5002        |
| 3008        | Julian Green   | London     | 300   | 5002        |
| 3004        | Fabian Johnson | Paris      | 300   | 5006        |
| 3009        | Geoff Cameron  | Berlin     | 100   | 5003        |
| 3003        | Jozy Altidor   | Moscow     | 200   | 5007        |
| 3001        | Brad Guzan     | London     |       | 5005        |

Sample table: salesman

| salesman_id | name       | city     | commission |
|-------------|------------|----------|------------|
| 5001        | James Hoog | New York | 0.15       |
| 5002        | Nail Knite | Paris    | 0.13       |
| 5005        | Pit Alex   | London   | 0.11       |
| 5006        | Mc Lyon    | Paris    | 0.14       |
| 5007        | Paul Adam  | Rome     | 0.13       |
| 5003        | Lauson Hen | San Jose | 0.12       |

For example:

| Result        |            |            |            |
|---------------|------------|------------|------------|
| Customer Name | city       | Salesman   | commission |
| Nick Rimando  | Chennai    | Bob Emily  | 0.15       |
| Graham Zusi   | California | Nail Knite | 0.13       |
| Brad Guzan    | London     | Pit Alex   | 0.11       |
| Fabian Johns  | Paris      | Mc Lyon    | 0.14       |
| Brad Davis    | New York   | Bob Emily  | 0.15       |
| Geoff Cameron | Berlin     | Lauson Hen | 0.12       |
| Julian Green  | London     | Nail Knite | 0.13       |
| Jozy Altidore | Moscow     | Paul Adam  | 0.13       |

## sql

```
SELECT c.cust_name AS "Customer Name", c.city AS "city", s.name AS "Salesman", s.commission AS "commission" FROM customer c JOIN salesman s ON c.salesman_id = s.salesman_id;
```

Output:

|   | Expected      |            |                |            | Got           |            |                |            |   |
|---|---------------|------------|----------------|------------|---------------|------------|----------------|------------|---|
| ✓ | Customer Name | city       | Salesman       | commission | Customer Name | city       | Salesman       | commission | ✓ |
|   | Nick Rimando  | Chennai    | James Hoog     | 0.15       | Nick Rimando  | Chennai    | James Hoog     | 0.15       |   |
|   | Graham Zusi   | California | Nail Knite     | 0.13       | Graham Zusi   | California | Nail Knite     | 0.13       |   |
|   | Brad Guzan    | London     | Pit Alex       | 0.11       | Brad Guzan    | London     | Pit Alex       | 0.11       |   |
|   | Fabian Johns  | Paris      | Mc Lyon        | 0.14       | Fabian Johns  | Paris      | Mc Lyon        | 0.14       |   |
|   | Brad Davis    | New York   | James Hoog     | 0.15       | Brad Davis    | New York   | James Hoog     | 0.15       |   |
|   | Geoff Cameron | Berlin     | Lauson Hen     | 0.12       | Geoff Cameron | Berlin     | Lauson Hen     | 0.12       |   |
|   | Julian Green  | London     | Nail Knite     | 0.13       | Julian Green  | London     | Nail Knite     | 0.13       |   |
|   | Jozy Altidore | Moscow     | Paul Adam      | 0.13       | Jozy Altidore | Moscow     | Paul Adam      | 0.13       |   |
| ✓ | Customer Name | city       | Salesman       | commission | Customer Name | city       | Salesman       | commission | ✓ |
|   | Nick Rimando  | Chennai    | Bob Emily      | 0.15       | Nick Rimando  | Chennai    | Bob Emily      | 0.15       |   |
|   | Graham Zusi   | California | Nail Knite     | 0.13       | Graham Zusi   | California | Nail Knite     | 0.13       |   |
|   | Brad Guzan    | London     | Pit Alex       | 0.11       | Brad Guzan    | London     | Pit Alex       | 0.11       |   |
|   | Fabian Johns  | Paris      | Mc Lyon        | 0.14       | Fabian Johns  | Paris      | Mc Lyon        | 0.14       |   |
|   | Brad Davis    | New York   | Bob Emily      | 0.15       | Brad Davis    | New York   | Bob Emily      | 0.15       |   |
|   | Geoff Cameron | Berlin     | Lauson Hen     | 0.12       | Geoff Cameron | Berlin     | Lauson Hen     | 0.12       |   |
|   | Julian Green  | London     | Nail Knite     | 0.13       | Julian Green  | London     | Nail Knite     | 0.13       |   |
|   | Jozy Altidore | Moscow     | Paul Adam      | 0.13       | Jozy Altidore | Moscow     | Paul Adam      | 0.13       |   |
| ✓ | Customer Name | city       | Salesman       | commission | Customer Name | city       | Salesman       | commission | ✓ |
|   | Nick Rimando  | Chennai    | James Williams | 0.15       | Nick Rimando  | Chennai    | James Williams | 0.15       |   |
|   | Graham Zusi   | California | Nail Knite     | 0.13       | Graham Zusi   | California | Nail Knite     | 0.13       |   |
|   | Brad Guzan    | London     | Pit Alex       | 0.11       | Brad Guzan    | London     | Pit Alex       | 0.11       |   |
|   | Fabian Johns  | Paris      | Mc Lyon        | 0.14       | Fabian Johns  | Paris      | Mc Lyon        | 0.14       |   |
|   | Brad Davis    | New York   | James Williams | 0.15       | Brad Davis    | New York   | James Williams | 0.15       |   |
|   | Geoff Cameron | Berlin     | Lauson Hen     | 0.12       | Geoff Cameron | Berlin     | Lauson Hen     | 0.12       |   |
|   | Julian Green  | London     | Nail Knite     | 0.13       | Julian Green  | London     | Nail Knite     | 0.13       |   |
|   | Jozy Altidore | Moscow     | Paul Adam      | 0.13       | Jozy Altidore | Moscow     | Paul Adam      | 0.13       |   |

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00

## RESULT

Thus, the SQL queries to implement different types of joins have been executed successfully.