

Lab 4

SELECT: OUTER JOIN, SQL Set Operators

1. Learning Objectives

After the successful completion of this lab, you will be able to

- Write a query to retrieve data from two or more tables using OUTER JOIN
- Combine query results from multiple SELECT statements using SQL set operators
- Use the tool Oracle SQL Developer to edit and run SQL statements and find the information about tables.

2. Tasks to Complete

Complete the questions about N-Table SELECT queries on the **MGS Database** included in the later part of this document. These queries use the tables in **user mgs**.

Each query gets desired data from multiple tables using the concepts below:

- outer join: left outer join, right out join, or full outer join
- SQL set operators: UNION, INTERSECT, or MINUS

RELATED KNOWLEDGE POINTS

- An inner join is a join without the keywords LEFT, RIGHT, FULL, NATURAL, or CROSS. Only rows that make the join condition evaluate to true are included in the query result.
- An outer join is a join that includes at least one of the keywords: LEFT, RIGHT, FULL. An outer join returns what's returned by the corresponding inner join. In addition, an outer join may return some extra data from one or more tables that don't make the join condition evaluate to true. When an extra row in one table with unmatched columns is retrieved, the columns from the other table in the SELECT clause will be displayed as NULLs.
- There are 3 major SQL set operators: UNION, INTERSECT, MINUS. Their math counterparts are \cup , \cap , $-$ respectively.

NOTE: the links to online Oracle SQL Language references are available in the **Canvas Page: Links to Oracle SQL Language References**.

3. Submission Requirements

WHEN

- See Lab 4 Canvas Page for details.

WHAT

- A text file with the extension **.sql**, including all your SQL statements.
- The file is in the following format.

Mark each query based on the question number. Write your FULL name on the first page.

Sample:

```
--Lab 4
--Your full name
```

```
--Q1
Your solution.
--Q2
Your solution.
```

...

HOW

- Submit your SQL script file by attaching it to the link **Lab 4** in folder **Assignments\Labs** on Canvas.

4. Grading

This assignment is graded based on the **CORRECTNESS** of **YOUR ANSWER**.

If your answer is not **100% correct**, you will get **partial credits**.

There are **7 questions**. Each question counts **14 points**.

N-Table SELECT queries on MGS Database

NOTES FOR ALL QUESTIONS

- For all questions, you will need **AT MOST TWO** tables in your queries.
- For queries involving joins, it is recommended that you use **JOIN ON**.
- You do **NOT** need to use any summary query.

1. For each category that **has at least one product**, print its id, name, and the id and name of each product in that category.

Sort the result in the increasing order of category ids.

HINT:

- You need to use an inner join.

OUTPUT

CATEGORY_ID	CATEGORY_NAME	PRODUCT_ID	PRODUCT_NAME
1	Guitars	1	Fender Stratocaster
1	Guitars	2	Gibson Les Paul
1	Guitars	3	Gibson SG
1	Guitars	4	Yamaha FG700S
1	Guitars	5	Washburn D10S
1	Guitars	6	Rodriguez Caballero 11
2	Basses	7	Fender Precision
2	Basses	8	Hofner Icon
3	Drums	9	Ludwig 5-piece Drum Set with Cymbals
3	Drums	10	Tama 5-Piece Drum Set with Cymbals

2. For each product category, print its id, name, and the id and name of each product in that category.
The query result includes ALL categories (those with some products and those without any product).
Sort the result in the increasing order of category ids.
You are REQUIRED to use an outer join.
If your answer does not use an outer join, you will get 0 for this question.

OUTPUT

CATEGORY_ID	CATEGORY_NAME	PRODUCT_ID	PRODUCT_NAME
1	Guitars	1	Fender Stratocaster
1	Guitars	2	Gibson Les Paul
1	Guitars	3	Gibson SG
1	Guitars	4	Yamaha FG700S
1	Guitars	5	Washburn D10S
1	Guitars	6	Rodriguez Caballero 11
2	Basses	7	Fender Precision
2	Basses	8	Hofner Icon
3	Drums	9	Ludwig 5-piece Drum Set with Cymbals
3	Drums	10	Tama 5-Piece Drum Set with Cymbals
4	Keyboards	(null)	(null)

3. Print the id and name of each category to which **NO product** currently belongs.
Sort the result in the increasing order of category ids.
You are REQUIRED to use an outer join.
If your answer does not use an outer join, you will get 0 for this question.

OUTPUT

CATEGORY_ID	CATEGORY_NAME
4	Keyboards

4. Print the id, first name, and last name of each customer who has a **gmail account** and uses one address for **both shipping and billing**.
Sort the result in the increasing order of customer ids.
You are REQUIRED to use a SQL set operator.
If your answer does not use a SQL set operator, you will get 0 for this question.

OUTPUT

CUSTOMER_ID	FIRST_NAME	LAST_NAME
2	Barry	Zimmer
5	Erin	Valentino

5. Print the id, first name, and last name of each customer who uses one address for **both shipping and billing** but does **not have a gmail account**.
Sort the result in increasing order of customer ids.
You are REQUIRED to use a SQL set operator.
If your answer does not use a SQL set operator, you will get 0 for this question.

OUTPUT

CUSTOMER_ID	FIRST_NAME	LAST_NAME
3	Christine	Brown
6	Frank Lee	Wilson

6. Print the id, first name, and last name of each customer who has a **gmail account or** (meaning inclusive or) uses one address for **both shipping and billing**.
Sort the result in the increasing order of customer ids.

You are REQUIRED to use a SQL set operator.

If your answer does not use a SQL set operator, you will get 0 for this question.

OUTPUT

CUSTOMER_ID	FIRST_NAME	LAST_NAME
2	Barry	Zimmer
3	Christine	Brown
5	Erin	Valentino
6	Frank Lee	Wilson

7. Print the order id, customer id, **shipping status**, and order date of each order.
If an order has a **specific ship date**, display the shipping status as **Shipped**.
Otherwise, display the shipping status as **NOT Shipped**.
Sort the result in the increasing order of order dates.

You are REQUIRED to use a SQL set operator.

If your answer does not use a SQL set operator, you will get 0 for this question.

OUTPUT

ORDER_ID	CUSTOMER_ID	SHIP_STATUS	ORDER_DATE
1	1	Shipped	28-MAR-12
2	2	Shipped	28-MAR-12
3	1	Shipped	29-MAR-12
4	3	Shipped	30-MAR-12
5	4	Shipped	31-MAR-12
6	5	NOT Shipped	31-MAR-12
7	6	Shipped	01-APR-12
8	7	NOT Shipped	02-APR-12
9	4	NOT Shipped	03-APR-12