Quizzes for SQL for Data Analysis – Level 2

Quiz #1 - Combining Data from Multiple Tables

#	Question	Answer
1	The UNION operator gets only the common rows between two tables.	Yes/No UNION combines the output of select statements into a single large table.
2	The EXCEPT operator returns all rows that appear in the first table but do not appear in the second table. In other words, it returns distinct rows from the left input query that aren't part of the output by the right input query.	Yes/No
3	For using UNION, INTERSECT, or EXCEPT operations, the output of the queries must have the same number of columns and the same order of columns, and the data types must be the same or compatible.	Yes/No
4	A joined table is a table derived from two other tables according to the rules of the specific join type. There are three types of JOINs: INNER, OUTER, and CROSS-JOIN.	Yes/No
5	In a database, there are two tables: table1 and table2. The number of records in table1 is 10K and in table2 is 200K. Which of the following Join type will always produce an output of 2000K records?	1. Inner Join 2. Outer Join 3. Cross Join 4. Super-duper Join
6	An INNER join is a join operation that is based on a condition. It is used to select records that have matching values in both tables.	Yes/No
7	What will be the output of the following query? SELECT o.order_id, o.customer_id, o.order_status, oi.order_item_id, oi.price FROM ecommerce_schema.orders as o INNER JOIN ecommerce_schema.order_items as oi ON o.order_id = oi.order_id ORDER BY o.order_id	1. List of customers and their orders 2. List of orders, including the customer information 3. List of items per each order, including the customer information
8	What will be the output of the following query? SELECT c.customer_id, c.customer_name, o.order_id FROM ecommerce_schema.customers as c LEFT JOIN ecommerce_schema.orders o ON c.customer_id = o.customer_id WHERE customer_city = 'franca' ORDER BY 3 DESC	1. List all customers living in a city called 'franca' with their orders only if they performed an order. 2. List all customers living in a city called 'franca' with their orders, whether they performed an order or not. 3. None of the answers

Quiz #2 - **Subqueries**

#	Question	Answer
1	A subquery is also called an inner query or inner select. It is a query within another query. The main statement containing a subquery is also called an outer query.	Yes/No
2	Subqueries are a tool for performing operations in multiple steps. Therefore, they are helpful when the results of one query need to be used in another query.	Yes/No
3	The easiest way to divide the subqueries into groups is based on the output of the subquery. What kind of result set may it generate as output?	1. A single row with a single column 2. Multiple rows with a single column 3. Multiple rows having multiple columns 4. Answers 1 and 2 5. Answers 1, 2, 3
4	The first type of subquery we will typically see is a subquery used to filter data as a conditional logic added within the WHERE section of the main query. What is the output of the following query? SELECT product_id, product_weight_g FROM ecommerce_schema.products WHERE product_weight_g > (SELECT AVG(product_weight_g) FROM ecommerce_schema.products)	1. A list of all products and the average weight of all products 2. A list of all products and their weight 3. A list of products with an average weight that is greater than the average weight of all products 4. A list of products with a weight that is greater than the average weight of all products
5	A subquery must be enclosed in parentheses and placed on the comparison operator's right side.	Yes/No
6	The operator in the WHERE section must be compatible with the subquery result. Some operators expect a single value, and some can handle single or multiple values.	Yes/No
7	A subquery can not reference the same table referenced by the outer query.	Yes/No A subquery may reference the same table referenced by the outer query.

8	When we use a subquery in an "=" comparison, the subquery's SELECT list must specify a single column. When the subquery is executed, it must return a single row with a single value for the comparison.	Yes/No
9	We can use multiple-row operators with multiple-row subqueries, such as IN, ANY, or ALL. The IN operator can be used to compare a single value with a set of values returned by the subquery.	Yes/No
10	An inline view is a subquery used as a virtual table in the FROM section of an outer query. It can be useful when we would like to simplify complex queries.	Yes/No

Quiz #3 - **Conditional Logic (CASE)**

#	Question	Answer
1	The simple CASE expression operates by comparing the input expression to the expression in each WHEN section for equivalency. If these expressions are equivalent, the expression in the THEN clause will be returned. CASE input_expression WHEN when_expression THEN result_expression END	Yes/No
2	Which of the following rules are true about the syntax of a CASE statement?	1. The CASE statement always goes inside a SELECT section. 2. The CASE statement is followed by at least one pair of WHEN and THEN statements. 3. Every CASE statement must end with the END statement. 4. The ELSE statement is optional and provides a way to capture values not specified in the WHEN/THEN statements. 5. All answers are correct
3	The following steps describe how SQL processes a query with a CASE statement: 1. For every row the SELECT statement receives, the CASE statement goes through conditions from top to bottom and returns a value when the first condition is met. 2. Once a search condition is true for a specific table row, it will stop reading and return the result. 3. If no conditions are true, it returns the value in the ELSE section. 4. If there is no ELSE part and no conditions are true, it returns NULL. 5. This sequence continues until the SQL statement finishes processing the complete table.	Yes/No
4	The second type of CASE statement is called a searched case expression. It is a more flexible structure compared to the previous simple case statement. Using this option, we can search a table for	Yes/No

	rows in which specified search conditions are true.	

Quiz #4 - **Window Functions**

#	Question	Answer
1	A window function is an aggregated function that groups rows into a single group-level row like GROUP BY.	Yes/No
2	The OVER clause is used to transform a function into a window function. SELECT user_id, age, city, avg(age) OVER (PARTITION BY city) as avg_age FROM books_schema.users	Yes/No
3	The PARTITION BY sub-section within the OVER section divides the rows into groups, also called partitions, that share the same values of the PARTITION BY expression(s).	Yes/No
4	What is the output of the following query? SELECT user_id, age, city, avg(age) OVER (PARTITION BY city) as avg_age FROM books_schema.users	1. List of users, including their age 2. List of users, including the average age of all users 3. List of users, including the average age of all users living in the same city 4. None of the answers
5	A typical use case of a window function is to create a sequential integer number for every row inside a group of rows while we decide how this group will be ordered. For that, we will use the ROW_NUMBER() window function, which is used to assign a sequential integer number to each row in the query's result set.	Yes/No
6	What is the output of the following query? SELECT user_id, age, city, avg(age) OVER () as avg_age FROM books_schema.users	1. List of users, including their age 2. List of users, including the average age of all users 3. List of users, including the average age of all users living in the same city 4. None of the answers
7	What is the output of the following query? SELECT * FROM (SELECT city, user_id, age, ROW_NUMBER() OVER (PARTITION BY city ORDER BY age ASC) as row_num FROM books_schema.users) as t WHERE row_num = 1	1. List of all users, including their age 2. The oldest user per city 3. The youngest user per city 4. None of the answers

Quiz #5 - **Simplify Queries (Views, CTEs)**

#	Question	Answer
1	A view is like a regular table; it is a way to look at data from a single table or multiple tables while replicating that data into dedicated storage in the database.	Yes/No
2	A view is a query that is stored in the data dictionary. A view is essentially a stored query, the query statement, not the output of the query. It looks and acts like a regular table, but there is no data associated with a view.	Yes/No
3	When we access a view, the database will dynamically run the stored query associated with that view.	Yes/No
4	The view has primarily two purposes: • Simplify complex SQL queries • Provide restrictions to users from accessing sensitive data.	Yes/No
5	Common Table Expression is a temporary named result set we can reference within a SELECT statement. We can use it as a more readable replacement for sub-queries. The CTE query starts with the keyword "With" and is followed by the Expression Name to which we can refer later in a query.	Yes/No