TCS Snowflake Developer Interview Guide – Experienced 3+

1. Basic Introduction, Projects, Roles, and Responsibilities

- **Introduction:** General background, educational qualifications, and work experience.

- **Projects:** Detailed discussion on past and ongoing projects involving Snowflake, emphasizing specific use cases, challenges, and the impact of implemented solutions.

- **Roles and Responsibilities:** Overview of current/previous job responsibilities, such as data pipeline creation, optimization of Snowflake queries, and end-to-end implementation of Snowflake solutions.

2. Snowflake Concepts

- **Snowpipe:** Continuous data ingestion service in Snowflake. It automates the loading of data into Snowflake tables as soon as files are available in a stage.

- **Zero-Copy Cloning:** Feature that allows you to create a copy of a database, schema, or table without duplicating the underlying storage.

- **Redshift vs. Snowflake:**

    Redshift: Managed data warehouse solution by AWS. Good for OLAP but requires significant configuration and maintenance.

    Snowflake: Fully managed, serverless data warehouse with features like scalability, concurrency, and simplicity.

- **Why Snowflake:** Key advantages like ease of use, scalability, better cost management, and features like time travel, secure data sharing, and multi-cloud support.

3. Why Not AWS Only, and Coming Back to Snowflake

- **AWS limitations:** Complexity in setup and scaling compared to Snowflake's managed services.

- **Snowflake's edge:** Multi-cloud flexibility, native support for structured and semi-structured data, and advanced features like Snowpipe and Zero-Copy Cloning.

4. Connection with Snowflake

- Discussed tools or methods used for connecting with Snowflake:

    - JDBC/ODBC Drivers.

    - Native integrations with ETL tools like Informatica, Talend, or Azure Data Factory.

    - APIs for custom application integration.

5. Number of Rows in Different Joins

a	b
1	1
1	1
NULL	
	1
2	2
3	NULL
	4
	NULL

- **Inner Join:** Matches rows where `a` and `b` have equal non-null values → 7 rows.
- **Left Join:** All rows from `a` and matching rows from `b` → 9 rows.
- **Right Join:** All rows from `b` and matching rows from `a` → 10 rows.
- **Full Outer Join:** All rows from both tables with nulls for non-matching → 12 rows.

6. WAQ for Desired Output (Age Group Count)

Base Table:

id	age
1	22
2	23
3	30
4	28

Required Output:

age group	count
age bet_21-24	2
age bet_27-31	2

Query:

```sql
SELECT
    CASE
        WHEN age BETWEEN 21 AND 24 THEN 'age bet_21-24'
        WHEN age BETWEEN 27 AND 31 THEN 'age bet_27-31'
    END AS age_group,
    COUNT(*) AS count
FROM base_table
GROUP BY age_group;
```

7. WAQ for Desired Output (Node Parent Relationship)

Input Table:

Input Table:

Node	Parent
1	Root
2	1
3	1
4	2
5	3

Required Output:

Node	Parent	Node_pos
1	Root	Parent
2	1	Parent
3	1	Parent
4	2	Leaf
5	3	Leaf

Query:

```sql
SELECT
    Node,
    Parent,
    CASE
        WHEN Node IN (SELECT Parent FROM input_table) THEN 'Parent'
        ELSE 'Leaf'
    END AS Node_pos
FROM input_table;
```

8. Find Employees with Maximum Salary in Each Department

Method 1: Subquery

```sql
SELECT e.name, e.departmentId, e.salary
FROM employee e
WHERE e.salary = (
    SELECT MAX(salary)
    FROM employee e2
    WHERE e2.departmentId = e.departmentId
)
ORDER BY e.departmentId;
```

Method 2: Join

```
SELECT e.employee_id, e.employee_name, e.department_id, e.salary
FROM employees e
JOIN (
    SELECT department_id, MAX(salary) AS max_salary
    FROM employees
    GROUP BY department_id
) dept_max
ON e.department_id = dept_max.department_id AND e.salary = dept_max.max_salary;
```

9. Other Snowflake Topics

- **Information Schema:** System tables providing metadata about Snowflake objects.

- **Query Logging & Query History:** Use Snowflake's QUERY_HISTORY view or Information Schema tables to monitor queries.

- **Schema Definition:** Structuring database objects (tables, views, etc.) within a logical grouping.

Let me know if you'd like any section expanded further!

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https://www.glassdoor.co.in/Reviews/Tata-Consultancy-Services-Reviews-E13461.htm

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