**Performance Tuning in Snowflake:** faster execution & cost saving  
In Snowflake, performance tuning mainly focuses on query optimization, warehouse right-sizing, and leveraging caching. I usually avoid SELECT \*, use partition pruning effectively, and create materialized views for repeated queries. I also monitor query profiles to identify bottlenecks and adjust warehouse sizing to balance cost and speed.” Snowflake automatically leverages the micro partitions to improve performance. Choose right size of virtual warehouse. and should spilit files in to smaller sizes. and also create right cluster keys on big tables. and the main thing understand the storage requirements capacity or on demand.

1. Query Optimization

* Use SELECT carefully → avoid SELECT \*, fetch only required columns.
* Filter early → apply WHERE clauses to reduce data scanning.
* Use proper joins (avoid cross joins, use inner joins where possible).
* Leverage clustering when large tables frequently filter on specific columns.

2. Warehouse Optimization

* Right-size warehouses → don’t use XL if M is enough; scale up/down as needed.
* Scale out (multi-cluster) for concurrent workloads instead of overloading one warehouse.
* Suspend warehouses when idle to save cost.

3. Caching Features

* Result cache → repeated queries return instantly if results didn’t change.
* Metadata cache → Snowflake caches table/column stats for pruning.
* Warehouse cache → stores recently used data in memory for faster access.

4. Data Modeling Best Practices

* Choose the right schema design:
  + Star schema → best for analytics.
  + Snowflake schema → more normalized, less duplication.
* Use materialized views for pre-aggregated frequently queried data.

5. Partition Pruning (via Micro-partitions)

* Organize data to take advantage of automatic micro-partitioning.
* Use date or region-based filters so queries scan fewer partitions.

6. Monitoring & Tools

* Use Query Profile in Snowsight to analyze bottlenecks.
* Check bytes scanned vs returned — optimize if scanning is too high.
* Track warehouse usage & costs in ACCOUNT\_USAGE views.