5 smart techniques in SQL should be in your project

Normally in a company there is a DB and DBA who manages the DB. The SQL coder evaluates the DB and produces the results. This is normal flow of work through the DB in a company but in real world things are very complex.

Suppose a financial analyst is writing a big complex SQL query or a risk manager from different project querying at the same time.

And then a data engineer comes and extracts your data and uploads it in data warehouse. This process is known as ETL process where data engineer extracts the data and then transforms it with feature engineering queries and then loads the data in data warehouse. All these processes is done in SQL by writing each step query.

A data warehouse is special database that collects and integrates data from different sources to enable analytics and support decision-making.

At the end of this, data analyst will come into picture and write query to publish a valuable data or insights.

There are multiple roles which want to access the database.

What are challenges?

* Redundancy of code
* Performance issues
* Complexity
* Hard to maintain
* DB stress
* Security

Solutions

* Subquery
* CTE
* Views
* Temp Tables
* CTAS

Database Architecture

An environment will be having two sides, client and server. Client side is someone like simple query to see, visualise the data. Each time a query is performed, database engine handles it. A database engine is the brain of the database, executing multiple operations such as storing, retrieving, and managing data within the database.

In database engine, the important part is the storage. There are 2 types of storage, Disk and Cache. Disk storage is long term memory where the data is stored permanently. Cache is short term memory for temp storage.

User data storage – it’s the main content of the database. This is where the actual data that users care about is stored.

System CataLog – internal storage for its own information. A blueprint that keeps track of everything about the database itself, not the user data.

Information schema – a system defined schema with built in views that provide inform about the data like tables and columns.

Temp Data Storage – short term tasks for sorting the data.