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| **Temporary Table** | **View** | **Materialized View** | **CTE** |
| A table that exists temporarily for the duration of a database session or transaction. | A virtual table defined by a SQL query. It does not store data but references underlying tables dynamically. | A database object that stores the result of a query physically, similar to a table. | A temporary result set defined within a SQL query using the WITH clause. It is not a database object. |
| Created using the “create temp table” statement. | Created using the “create view” statement. | Created using the “create materialized view” statement. | Defined in-line with a query and used only for that query. |
| Stores data physically in the database but is accessible only within the session. | Does not store data; fetches live data from the base tables on query execution. | Stores query results physically and needs to be refreshed to reflect changes in the base tables. | Exists in memory for the duration of the query execution. |
| Automatically dropped when the session ends or by using “drop table” statement. | Persistent (exists until explicitly dropped). | Persistent (exists until explicitly dropped). | Non-persistent (exists only during the execution of the query). |
| Used for intermediate results or temporary computations that are session-specific. | Used for simplifying complex queries, abstracting data, or providing a security layer by restricting access to specific columns/rows. | Used for performance optimization when query results are frequently used and expensive to compute. | Used for query readability, modularizing subqueries, and recursive queries. |
| Example:  create temp table temp\_table (id serial, name text);  insert into temp\_table values (1, 'alice'); | Example:  create view employee\_view as select id, name from employees;  select \* from employee\_view; | Example:  create materialized view employee\_mv as select id, name from employees;  refresh materialized view employee\_mv; | Example:  with cte as (  select id, name from employees where department = 'sales'  )  select \* from cte; |