Lab 13: Table Types in Snowflake

Tables are database objects logically structured as a collection of rows and columns. All data in Snowflake is stored in database tables. Apart from standard database tables, Snowflake supports other table types that are especially useful for storing data that does not need to be maintained for extended periods of time.

When data is loaded into Snowflake, Snowflake reorganizes that data into its internal optimized, compressed, columnar format. Snowflake stores this optimized data in cloud storage.

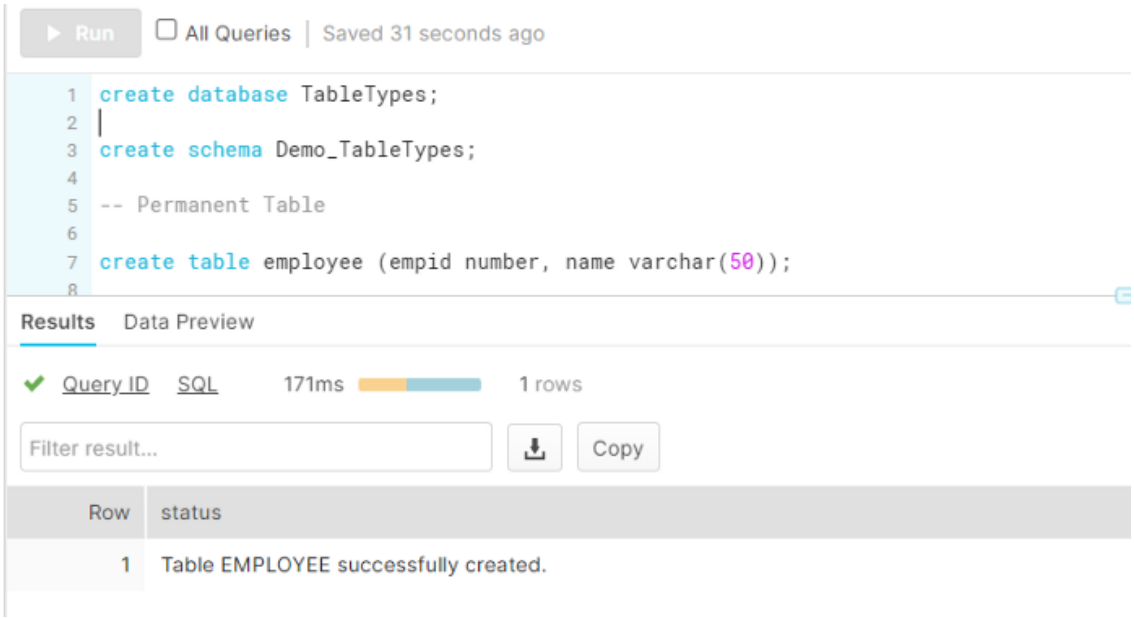
Snowflake supports different types of tables

- Permanent Table
- Transient Table
- Temporary Table
- External Table

Permanent Table:

These are the standard, regular database tables. Permanent tables are the default table type in Snowflake and do not need any additional syntax while creating to make them permanent.

```
create database TableTypes;
create schema Demo_TableTypes;
-- Permanent Table
create table employee (empid number, name varchar(50));
```



The data stored in permanent tables consumes space and contributes to the storage charges that Snowflake bills your account. It also comes with additional features like Time-Travel and Fail-Safe which helps in data availability and recovery.

Transient Table:

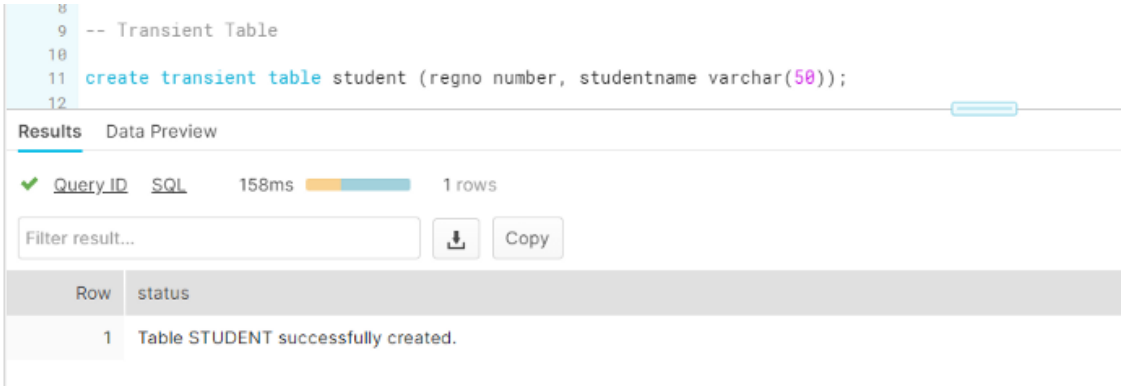
Transient tables in Snowflake are similar to permanent tables except that that they do not have a Fail-safe period and only have a very limited Time-Travel period. These are best suited in scenarios where the data in your table is not

critical and can be recovered from external means if required.

Transient tables, like permanent tables, contribute to your account's overall storage expenses. However, since Transient Tables do not use Fail-safe, there are no Fail-safe costs (i.e. the costs associated with maintaining the data required for Fail-safe disaster recovery).

To create a Transient table in Snowflake, You need to mention ***transient*** in the create table syntax.

```
create transient table student (regno number, studentname varchar(50));
```

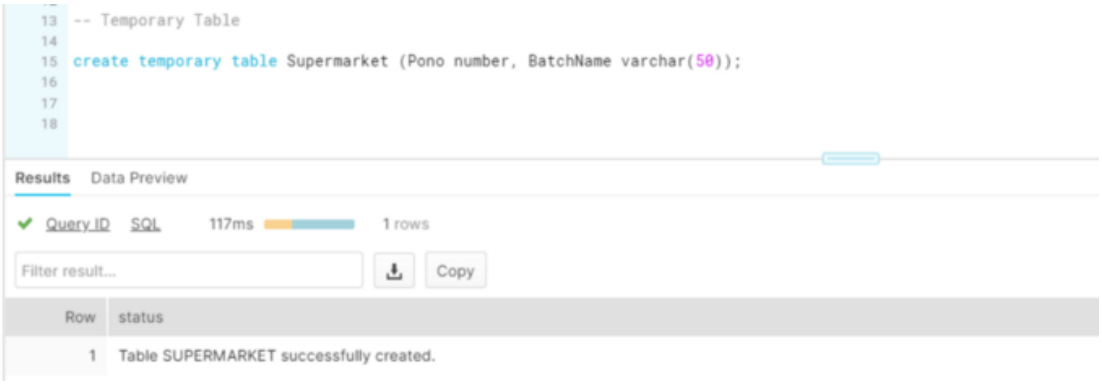


Temporary Table:

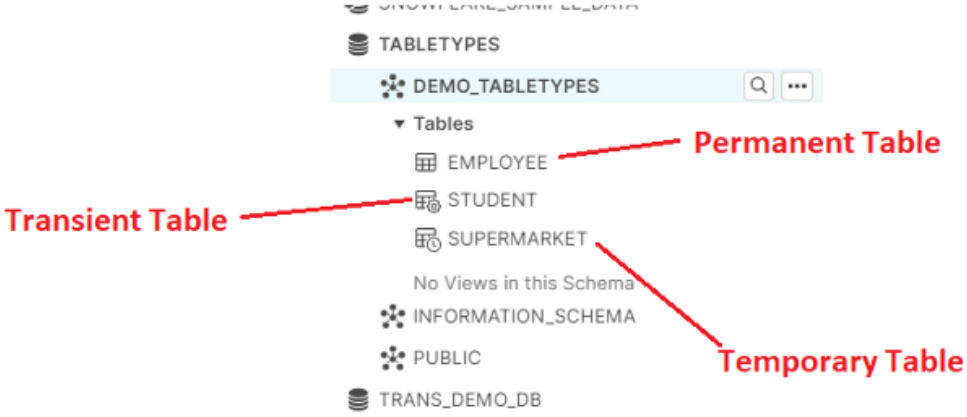
Snowflake supports creating temporary tables to store transient, non-permanent data. Temporary tables exist only within the session. They are created and persist only for the session remainder. They are not visible to other sessions or users and don't support standard features like cloning.

Therefore the data stored in the system is cleaned entirely and is not recoverable either by the user-created table or Snowflake.

```
-- Temporary Table
create temporary table Supermarket (Pono number, BatchName varchar(50));
```

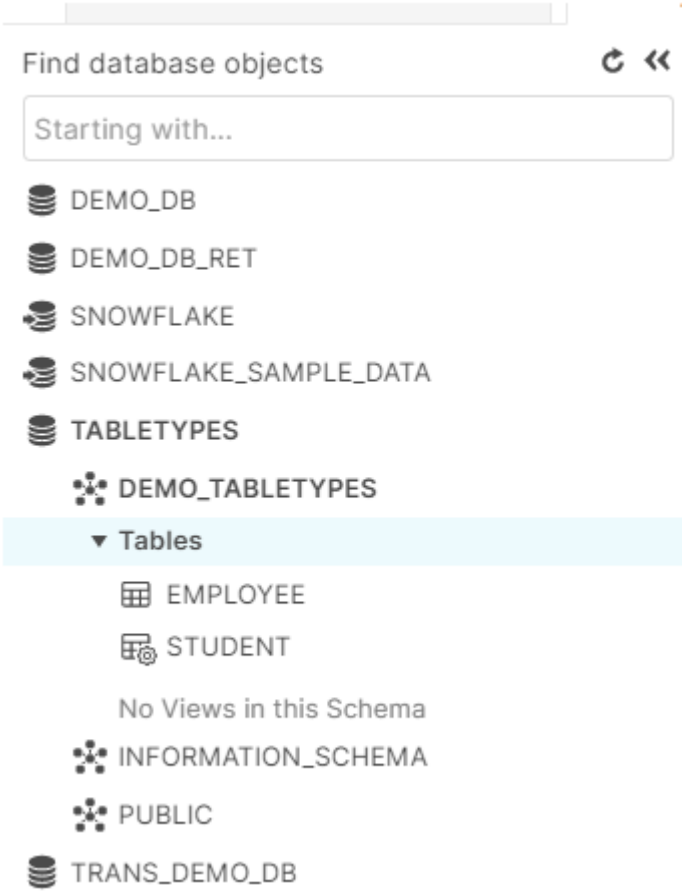


PFB the icon displayed for **different tables**,



Though Temporary tables are dropped at the end of the session, Snowflake recommends explicitly dropping these tables once they are no longer needed to prevent any unexpected storage changes when working with large temporary tables.

If logout the particular session and re login then particular temporary table will not be displayed.



As shown in **Figure 1.1**, the temporary table (SUPERMARKET) has been dropped after relogging in.

Next, will will cover how to differentiate Temporary Tables from Non-Temporary Tables.

Types of Table in Snowflake

In this section, we see about **How Snowflake behave when we create temporary table that has the same name as an existing table in the same schema?**

Before answering this question let's see how to find type of table present in database.

> *SHOW TABLES --- Lists the tables for which you have access privileges, including dropped tables that are still within the Time Travel retention period and, therefore, can be undropped.*

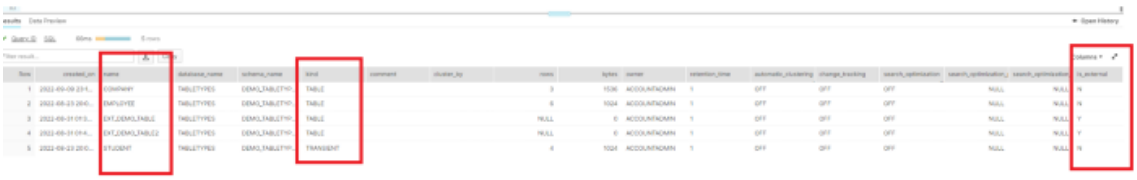
Syntax:

```
SHOW TABLES;
```

Example:

```
SHOW TABLES;
```

Output:



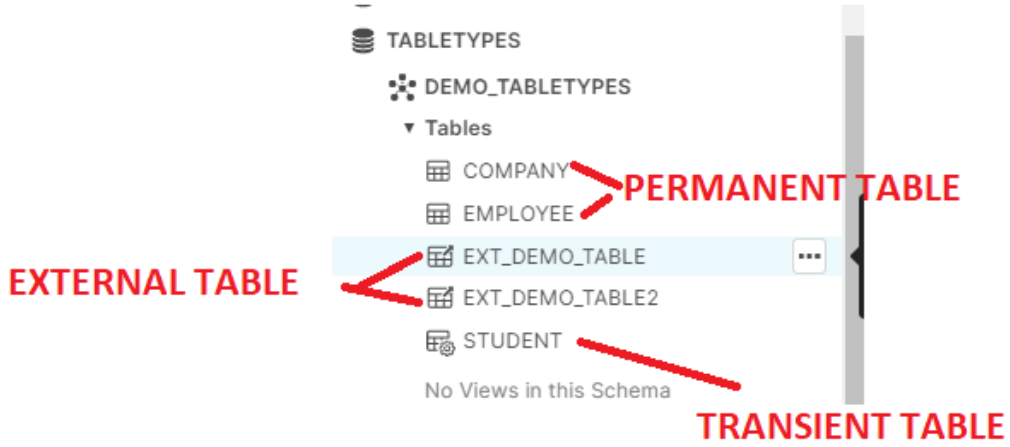
Scenario 1:

When you create a temporary table that has the same name as an existing table in the same schema ?

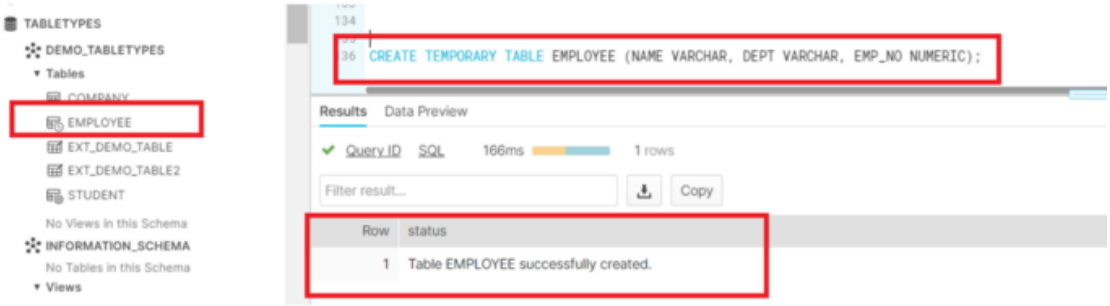
Snowflake supports creating a temporary table that has the same name as an existing permanent/transient table in the same schema. However, note that the temporary table takes precedence in the session over any other table with the same name in the same schema.

Temporary table take precedence and hides the existing non-temporary table.

Screenshot 1: Before creating temporary table in my database.



Screenshot 2: After creating temporary table in my database,



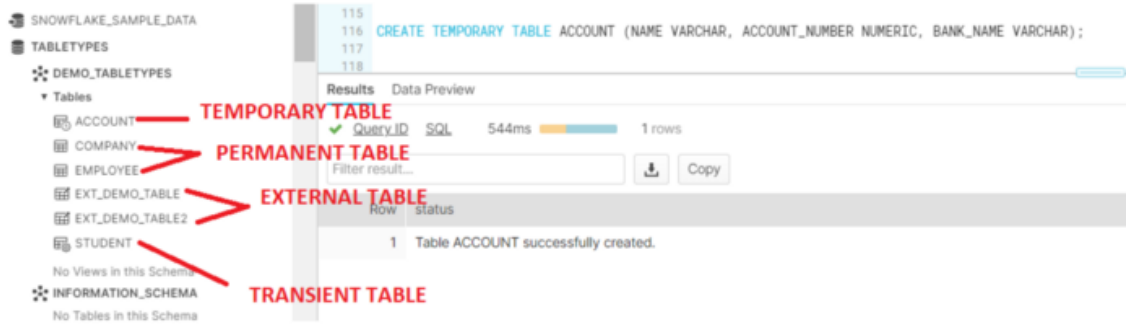
In above screenshot Temporary table take precedence and hides the existing permanent table.

Scenario 2:

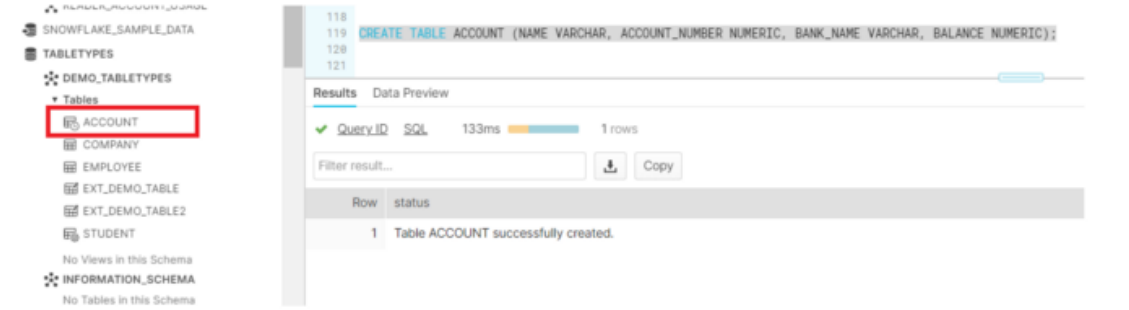
When you create a table that has the same name as an existing temporary table in the same schema ?

The newly-created table is hidden by the temporary table.

Screenshot 1: Before creating permanent table same name like temporary table name in my database.



Screenshot 2: After creating permanent table (Account) same name like temporary table (Account) name in my database.



In above screenshot Temporary table take precedence and hides the newly created permanent table.

All queries and other operations performed in the session on the table effect only the temporary table.

Comparison of Snowflake Table Types

The below table summarizes the differences between the three table types, particularly with regard to their impact on Time Travel and Fail-safe:

Table Type	Availability	Time-Travel Retention period in days	Fail-Safe period in days
Temporary	Remainder of session	0 or 1 (Default is 1)	0
Transient	Until explicitly dropped	0 or 1 (Default is 1)	0
Permanent (Standard Edition)	Until explicitly dropped	0 or 1 (Default is 1)	7
Permanent (Enterprise and higher Edition)	Until explicitly dropped	0 to 90 (default is configurable)	7