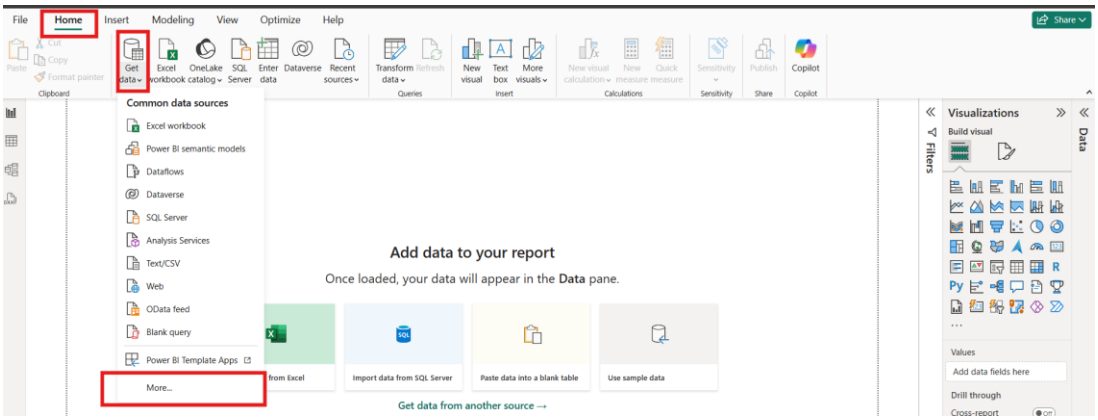
# Power BI Dashboard Development with Snowflake Data Warehouse

## Objective:

This document outlines the step-by-step process to create an interactive Power BI dashboard using data from a Snowflake data warehouse. The dashboard will showcase key performance indicators (KPIs) and visual representations of restaurant data.

## Step 1: Connecting Power BI to Snowflake Data Warehouse

1. **Open Power BI Desktop**
2. **Navigate to Data Connection:**
    a. Go to **Home** → **Get Data** → **More...** → **Snowflake**.




3. **Enter Server and Warehouse Details:**
    a. **Server:** You can find server details by going to **ACCOUNTADMIN** (bottom left) → **Account** → **View More Details** → **Account/Server URL**.
    b. **Warehouse:** Enter the appropriate Snowflake warehouse name.
4. **Connect and Load Data:**
    a. Choose the desired table(s) from the Snowflake data warehouse and click **Load**.

## Step 2: Identifying KPIs and Visual Concepts

### Key Performance Indicators (KPIs):

- **Total Number of Restaurants:** Total count of restaurants in the dataset.
- **Active Restaurants:** Restaurants without an "Eff End Date" or those still within the active period.
- **Closed/Inactive Restaurants:** Restaurants with an "Eff End Date" in the past.
- **Percentage of Restaurants in Capital Cities:** Proportion of restaurants located in capital cities.

- **State with the Most Restaurants:** State with the highest number of restaurants.

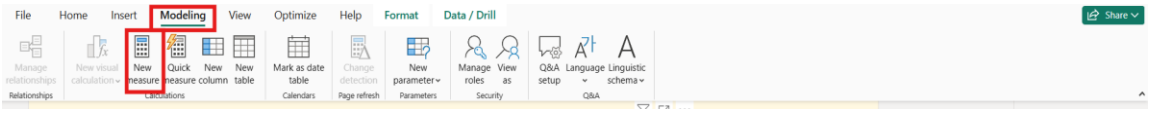
### Visual Concepts:

- **Card Visuals:**
  - Total Restaurants
  - Active Restaurants
  - Inactive Restaurants
  - Percentage of Restaurants in Capital Cities
  - State with the Most Restaurants
- **Map Visual:**
  - Geographical spread of restaurants by city and state
- **Bar Chart:**
  - Distribution of restaurants across Tier 1, Tier 2, and Tier 3 cities
- **Pie/Donut Chart:**
  - Distribution of restaurants by state

## Step 3: Creating DAX Measures for KPIs

To create a new measure in Power BI:

- Go to **Modeling** → **New Measure** → Enter the respective DAX code




### Measure 1: Total Number of Restaurants

```
TotalRestaurants = CALCULATE(COUNTROWS('Your_Table_Name'),
REMOVEFILTERS('Your_Table_Name'))
```

### Measure 2: Active Restaurants

```
Active_Restaurants = CALCULATE(COUNTROWS('Your_Table_Name'),
'Your_Table_Name'[ACTIVE_FLAG] = "YES", REMOVEFILTERS('Your_Table_Name'))
```

### Measure 3: Inactive Restaurants

```
Inactive_Restaurants = CALCULATE(COUNTROWS('Your_Table_Name'),
'Your_Table_Name'[ACTIVE_FLAG] = "NO", REMOVEFILTERS('Your_Table_Name'))
```

### Measure 4: Percentage of Restaurants in Capital Cities

```
%_Restaurants_Capital_Cities =
DIVIDE(
    CALCULATE(COUNTROWS('Your_Table_Name'),
'Your_Table_Name'[CAPITAL_CITY_FLAG] = TRUE),
```

```
    COUNTROWS('Your_Table_Name'),
    0
) * 100
```

### Measure 5: State with the Most Restaurants

```
TopState =
CALCULATE(
    FIRSTNONBLANK(
        SELECTCOLUMNS(
            TOPN(
                1,
                SUMMARIZE(
                    'Your_Table_Name',
                    'Your_Table_Name'[STATE],
                    "RestaurantCount",
CALCULATE(COUNTROWS('Your_Table_Name'), 'Your_Table_Name'[ACTIVE_FLAG] =
"YES")
                ),
                [RestaurantCount], DESC
            ),
            "State", 'Your_Table_Name'[STATE]
        ),
        1
    ),
    REMOVEFILTERS('Your_Table_Name')
)
```

**Note:** Replace `'Your_Table_Name'` and column names with the actual table and column names from your dataset.

## Step 4: Creating Visualizations

1. **Card Visuals:**
    a. **Total Restaurants:** Use the `TotalRestaurants` measure
    b. **Active Restaurants:** Use the `Active_Restaurants` measure
    c. **Inactive Restaurants:** Use the `Inactive_Restaurants` measure
    d. **% of Restaurants in Capital Cities:** Use the `%_Restaurants_Capital_Cities` measure
    e. **Top State:** Use the `TopState` measure
2. **Map Visual:**
    a. **Location Field:** `CITY` column

b. **Value Field:** Count of ACTIVE_FLAG

3. **Donut Chart:**
   a. **Legend:** STATE column
   b. **Values:** Count of ACTIVE_FLAG
4. **Stacked Column Chart:**
   a. **X-Axis:** CITY_TIER column
   b. **Y-Axis:** Count of ACTIVE_FLAG

## Step 5: Creating Filters (Slicers)

1. **State Filter:**
   a. Create a slicer with the STATE column.
2. **City Filter:**
   a. Create a slicer with the CITY column.
3. **Managing Filter Interactions:**
   a. Select the **State Filter** → Go to **Format** → **Edit Interactions** → Set visual interactions to **None** for visuals where this filter should not apply (e.g., Total Restaurants, Active Restaurants).
   b. Repeat the same process for the **City Filter**.

## Step 6: Dashboard Styling and Professional Look

- Choose a **consistent color theme** that aligns with your organization's branding or enhances readability.
- Format fonts, titles, and data labels for clarity and visual appeal.
- Add a **dashboard title** and **descriptive headers** for each visual.
- Ensure visuals are aligned and evenly spaced for a clean layout.