

## **Program 2 : Connecting to Data Source – Connecting to Database, Different types of Tableau Joins.**

Dataset used: Tableau Joins File: Contains 3 sheets : Demographics, Salary, Job Title

### **1. Connecting to Excel Files in Tableau:**

- Open Tableau and click on **Connect** in the left pane.
- Under **To a File**, choose **Microsoft Excel**.
- Browse and select your Excel file (Tableau Joins File.xlsx).
- Tableau will display the sheets from the Excel file in the Data Source tab.
- Drag the relevant sheets to the workspace.

### **2. Tableau Joins File.xlsx Dataset: has three Excel sheets**

- **Demographics:**

- EmployeeID
- NameofEmployee
- EmployeeAge
- EmployeeGender

- **Salary:**

- EmployeeID
- EmployeeSalary

These sheets have a relationship based on the EmployeeID, and you can join them using this field.

Drag and drop Demographics table- Right click-select open- that allows you to do following types of joins.

Now Drag and drop Salary table - That allows you to do join of your choice.

### **3. Types of Joins in Tableau:**

Once both tables are in the Data Source tab, Tableau automatically suggests an inner join, but you can modify the type of join depending on the scenario.

#### **a. Inner Join:**

- **Description:** Returns only records where there is a match in both tables.

- **How to Create in Tableau:**

- Drag Demographics and Salary sheets into the canvas.
- Tableau automatically detects the common field (EmployeeID). If not, manually select it.
- Choose **Inner Join** in the **Join Type** options.
- Result: You will see only employees whose employee id matches in both Demographics and Salary table.

The screenshot shows the Tableau interface with the title 'Demographics+ (Tableau Joins File)'. In the top right, there's a 'Join' dialog box titled 'Demographics' which states 'Demographics is made of 2 tables.' It shows two tables: 'Demographics' and 'Salary'. Below the join dialog, the data preview shows a joined dataset with 6 fields and 7 rows. The columns are: Employee ID, NameofEmployee, Employee Age, Employee Gender, EmployeeID (Salary), and Employee Salary. The data includes rows for Jim Halpert, Pam Beesly, Dwight Schrute, Toby Flenderson, Angela Martin, Michael Scott, and Meredith Palmer.

- b. Left Join:**

- Description:** Returns all records from the left table (Demographics), and matched records from the right table (salary). If there's no match, NULL values are returned for fields from the right table.
- How to Create in Tableau:**
  - In the join settings, select **Left Join**.
  - Result: All employees will be returned, even if data missing in Salary. Salary information will be NULL for those without a match.

This screenshot is similar to the previous one, but it shows a 'Right' join instead of a 'Left' join. The join dialog box now says 'Salary' is the primary table. The data preview shows the same 7 rows, but the structure is different. The columns are: Employee ID, NameofEmployee, Employee Age, Employee Gender, EmployeeID (Salary), and Employee Salary. The data includes rows for Jim Halpert, Pam Beesly, Dwight Schrute, Toby Flenderson, Angela Martin, Michael Scott, and Meredith Palmer, with their respective salary information.

- c. Right Join:**

- Description:** Returns all records from the right table (Salary), and matched records from the left table (Demographics). If there's no match, NULL values are returned for fields from the left table.

- **How to Create in Tableau:**

- Select **Right Join**.

- Result: You will see all salary, even if they don't have employee id. Employee information will be NULL for those salary with no matching employee id.

The screenshot shows the Tableau interface with a connection to 'Tableau Joins File' (Microsoft Excel). A join dialog is open, showing 'Demographics' and 'Salary' tables. The 'Join' dropdown is set to 'Right'. The 'Data Source' dropdown shows 'Employee ID' from 'Demographics' and 'EmployeeID (Salary)' from 'Salary'. The preview pane shows 6 rows from the 'Demographics' table and 11 rows from the 'Salary' table. The data table below shows employees with their names, age, gender, and salary, where some salary entries are null because there was no corresponding employee record.

Name	Demographics	Demographics	Demographics	Demographics	Salary	Salary			
Type	Field Name	Physical Table	Remote Fi...	Employee ID	NameofEmployee	Employee Age	Employee Gender	EmployeeID (Salary)	Employee Salary
All	Employee ID	Demographics	EmployeeID	1001	Jim Halpert	35	Male	1001	45,000
All	NameofEmployee	Demographics	NameofEmpl...	1002	Pam Beasley	35	Female	1002	35,000
All	Employee Age	Demographics	EmployeeAge	1003	Dwight Schrute	37	Male	1003	65,000
All	Employee Gender	Demographics	EmployeeGender	1004	Toby Flenderson	38	Male	1004	38,500
All	EmployeeID (Sal...	Salary	EmployeeID...	1005	Angela Martin	34	Female	1005	48,000
All	Employee Salary	Salary	EmployeeS...	1006	Michael Scott	40	Male	1006	70,000
All				1007	Meredith Palmer	43	Female	1007	40,000
				null		null		1010	25,000

#### d. Full Outer Join:

- **Description:** Returns all records when there is a match in either the left (Demographics) or right (Job Title) table. If there's no match, NULL values are returned for the missing side.
- **How to Create in Tableau:**

- Select **Full Outer Join**.

- Result: You will see all employees and all salary, even if they don't have a match in the other table. NULL values will appear where there's no corresponding record.

The screenshot shows the Tableau interface with a connection to 'Tableau Joins File' (Microsoft Excel). A join dialog is open, showing 'Demographics' and 'Salary' tables. The 'Join' dropdown is set to 'Full Outer'. The 'Data Source' dropdown shows 'Employee ID' from 'Demographics' and 'EmployeeID (Salary)' from 'Salary'. The preview pane shows 6 rows from the 'Demographics' table and 11 rows from the 'Salary' table. The data table below shows employees with their names, age, gender, and salary, including many null entries where there was no match in the other table.

Name	Demographics	Demographics	Demographics	Demographics	Salary	Salary			
Type	Field Name	Physical Table	Remote Fi...	Employee ID	NameofEmployee	Employee Age	Employee Gender	EmployeeID (Salary)	Employee Salary
All	Employee ID	Demographics	EmployeeID	1001	Jim Halpert	35	Male	1001	45,000
All	NameofEmployee	Demographics	NameofEmpl...	1002	Pam Beasley	35	Female	1002	35,000
All	Employee Age	Demographics	EmployeeAge	1003	Dwight Schrute	37	Male	1003	65,000
All	Employee Gender	Demographics	EmployeeGender	1004	Toby Flenderson	38	Male	1004	38,500
All	EmployeeID (Sal...	Salary	EmployeeID...	1005	Angela Martin	34	Female	1005	48,000
All	Employee Salary	Salary	EmployeeS...	1006	Michael Scott	40	Male	1006	70,000
All				1007	Meredith Palmer	43	Female	1007	40,000
				1008	Stanley Hudson	40	Male	null	null
				1009	Kevin Malone	37	Male	null	null
				1010	Ryan Howard	31	Male	null	null
				null		null		1010	25,000

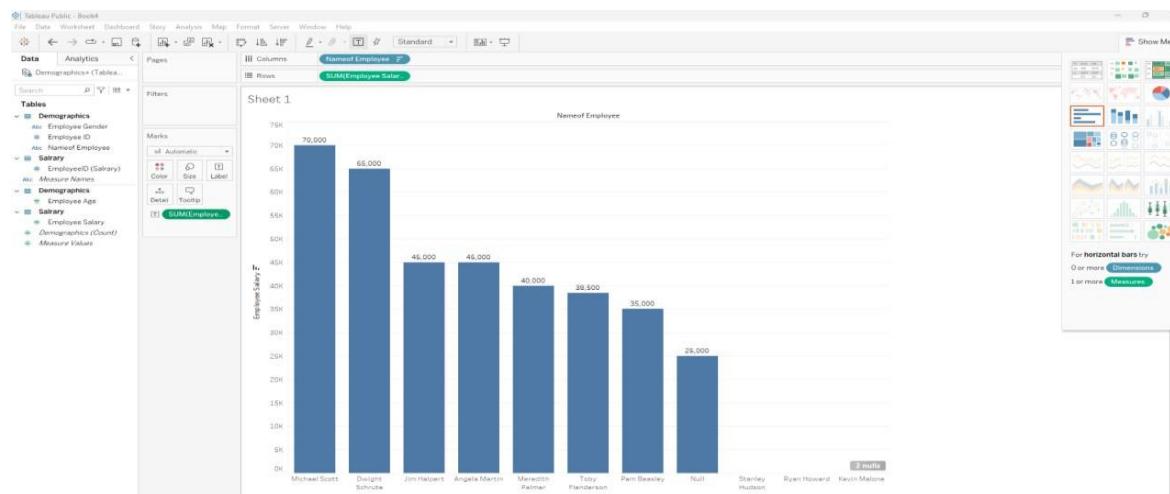
#### 4. Creating a Visualization Based on Joins:

After performing the joins, you can build different visualizations.

Press on Sheet 1:

For example:

- **Bar Chart:** Number of employees and their salary.
- Drag NameofEmployee to **Columns**.
- Drag EmployeeSalary to **Rows**.
- This chart will display the number of employees and their salary based on the type of join.
- Sort it in descending
- Drag EmployeeSalary to Marks - Select color Color, Label



Reference Video Link -

[https://www.youtube.com/watch?v=A4SVUF-fTwc&list=PLUaB-1hjhk8GwbqoVmo\\_5zuhOa0Tcl3xC&index=4](https://www.youtube.com/watch?v=A4SVUF-fTwc&list=PLUaB-1hjhk8GwbqoVmo_5zuhOa0Tcl3xC&index=4)

This same procedure we can do by connecting to any database server

We should initially connect to driver by installing it for example if you are planning for mysql

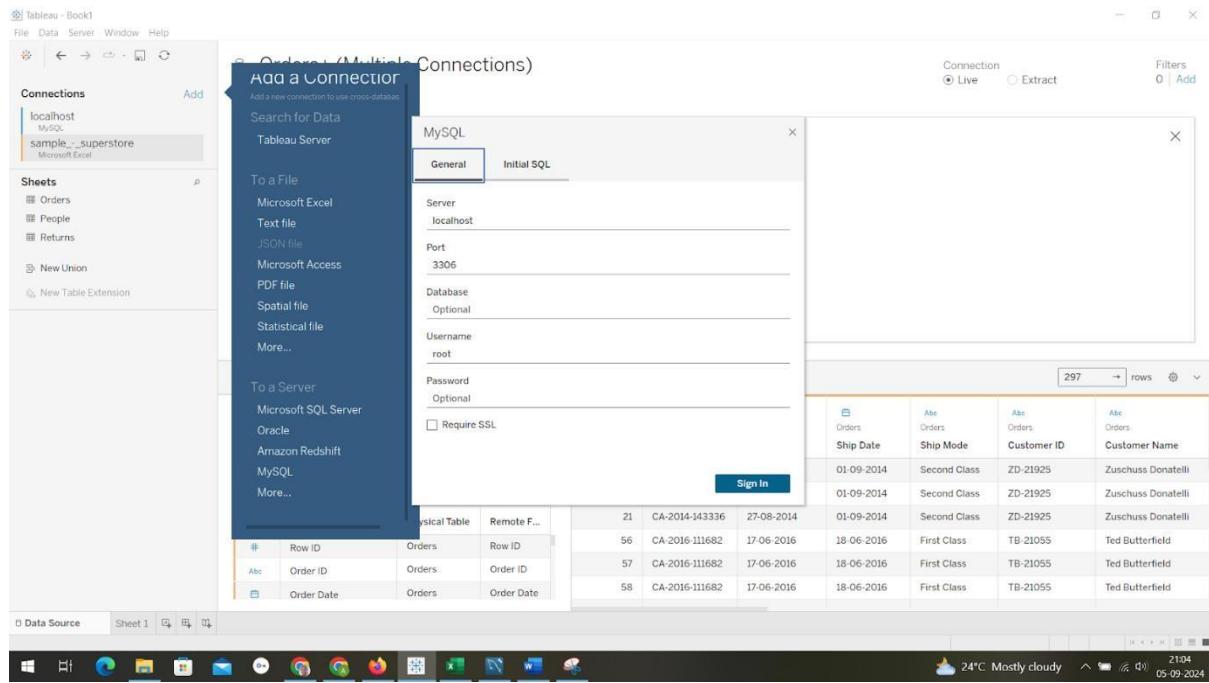
- **Install mysql driver connector as in link below:**
- <https://dev.mysql.com/downloads/connector/odbc/>

It is available in Drive Link also

[https://drive.google.com/drive/folders/1kG25wextZcEOsjfXdr5VcrwW3Dp53jBf?usp=drive\\_link](https://drive.google.com/drive/folders/1kG25wextZcEOsjfXdr5VcrwW3Dp53jBf?usp=drive_link)

After installing it

We have to connect to Mysql



For More Info : Refer Tableau Handouts and Tableau Tutorial