**Лабораторная работа 12**

Power BI Desktop has automatically detected and created table relationships. So the first step is to ensure all the relationships are properly created, and if not, create them yourselves.

1. Start with the "[Lab 2 - Starting.pbix](https://github.com/MicrosoftLearning/Analyzing-Visualizing-Data-PowerBI/blob/master/Lab2/Lab%202%20-%20Starting.zip?raw=true) " file.
2. Open the **Lab 2 - Starting.pbix** file.
3. In the navigation pane on the left, click **Model**.
4. Notice that there is a many to one relationship from the **ProductID** column on the **Sales** table to the **ProductID** column on the **Products** table.
5. Notice that there is a many to one relationship from the **ManufacturerID** column on the **Products** table to the **ManufacturerID** column on the **Manufacturers** table.
6. Drag the **Date** column on the **Sales** table to the **Date** column on the **Date** table.

Now you want to create a relationship between the Sales table and the Locations table. First, you merge the Country and Zip columns in both Sales and Locations table as a new column, CountryZip. Then, you create a relationship on the CountryZip column for both tables.

1. In the navigation pane on the left, click **Data**.
2. In the navigation pane on the right, click **Location**.
3. On the **Modeling** ribbon, click **New Column**.
4. In the formula bar for the new column, type **CountryZip = Location[Country] & ", " & Location[Zip]**, and press Enter.
5. In the navigation pane on the right, click **Sales**.
6. On the **Modeling** ribbon, click **New Column**.
7. In the formula bar for the new column, type **CountryZip = Sales[Country Name] & ", " & Sales[Zip]**, and press Enter.
8. In the navigation pane on the left, click **Model**.
9. Drag the **CountryZip** column on the **Sales** table to the **CountryZip** column on the **Locations** table.
10. Click **Save**, to save the Power BI file.

**Exercise 5**

You want to know how much sales (revenue) in total does the VanArsdel have and to compare this with the figure from the same period last year. You need to create several calculated measures to help with this comparison. To do so, in either the **Report** view or the **Data** view, right-click the **Sales** table, click **New** Measure, and type in the corresponding DAX formulas for the measure you want to create. This will create the measures with the **Home Table** properties set to the **Sales** table.

Specifically, you will create the following measures:

1. **Total Sales**: calculates the total sales. Format this measure as **Currency**. (Hint: Check out the **SUM** function).
2. **LY Sales**: calculates last year sales. Format this measure as **Currency**. (Hint: You might find the **CALCULATE** and **SAMEPERIODLASTYEAR** function useful).
3. **Sales Var**: calculates sales variance between this year and last year sales. Format this measure as **Currency**. (Hint: This is simply the difference between **Total Sales** and **LY Sales**).
4. **Sales Var %**: calculates sales variance between this year and last year sales in percentage. Format this measure as **Percentage**. (Hint: This is simply the percentage of **Sales Var** from **LY Sales**. You might find the **DIVIDE** function useful).
5. If it is not already open, open the **Lab 2 - Starting.pbix** file.
6. In the navigation pane on the left, click **Data**.
7. In the navigation pane on the right, click **Sales**.
8. On the **Modeling** ribbon, click **New Measure**.
9. In the formula bar for the new measure, type **Total Sales = SUM(Sales[Revenue])**, and press Enter.
10. On the **Modeling** ribbon, click **Format**, click **Currency**, and click **Currency general**.
11. On the **Modeling** ribbon, click **New Measure**.
12. In the formula bar for the new measure, type **LY Sales = CALCULATE([Total Sales],SAMEPERIODLASTYEAR(‘Date’[Date]))**, and press Enter.
13. On the **Modeling** ribbon, click **Format**, click **Currency**, and click **Currency general**.
14. On the Modeling ribbon, click **New Measure**.
15. In the formula bar for the new measure, type **Sales Var = [Total Sales] - [LY Sales]**, and press Enter.
16. On the **Modeling** ribbon, click **Format**, click **Currency**, and click **Currency general**.
17. On the **Modeling** ribbon, click **New Measure**.
18. In the formula bar for the new measure, type **Sales Var % = DIVIDE([Sales Var],[LY Sales])**, and press Enter.
19. On the **Modeling** ribbon, click Format, and click Percentage.
20. Click **Save**, to save the Power BI file.