SQL and Excel Project

**PURPOSE**

This Project aims to integrate Excel and SQL Server creating a dashboard based on the AdventureWorks database from Microsoft. The database can be downloaded by clicking [here](https://github.com/Microsoft/sql-server-samples/releases/download/adventureworks/AdventureWorksDW2014.bak).

Microsoft has sample databases that can be downloaded from its GitHub account. For more information about the AdventureWorks database, you can check [this GitHub Link](https://github.com/microsoft/sql-server-samples/tree/master/samples/databases/adventure-works). There you’ll find some explanation of the database and how to install it.

**DATABASE**

AdventureWorks

**KPI’s**

1. Total Internet Sales per Category
2. Total Internet Revenue per Month
3. Total Revenue and Cost of Internet Sales per Country Sales
4. Total Internet Sales per Customer Gender

**TABLES USED**

* FactInternetSales: base table with internet sales, will be used to build all KPIs
* DimProduct: used as intermediate connection between FactInternetSales and DimProductSubCategory: to build KPI 1)
* DimProductCategory: used to get the category name to build KPI 1)
* DimSalesTerritory: create geographical relationship to create KPI 3)
* DimCustomer: take the gender to create KPI 4)

**SQL QUERY:**

Can be found in the folder. In summary, the query creates a VIEW by doing a sequence of nested and non-nested left join to gather FactInternetSales with dimension tables specified at **TABLES USED**. Nested joins between DimProduct, DimProductSubcategory and DimProductCategory to get Category Name. And non-nested joins to get Country name and customer Gender.

**CONNECTING SQL TO EXCEL**

There are two ways of importing data from SQL to Excel. Both follows the same initial path: Get Data -> From Database -> SQL Server -> Copy and Paste Server and Database names. The difference between both options is below:

1. Click OK and enter user and password if prompted -> Select the View created with the SQL query (or select the database you want to connect to) -> Load or Transform the data in Power Query and the connection will be done.
2. Instead of clicking in OK, goes to the Advanced Options and copy and paste the SQL query into the box -> Load or Transform the data in Power Query and the connection will be done too.

To update the data in the Excel, click on the table -> table design -> update

If necessary to add new columns or new data to the table in Excel, ALTER the View in SQL and update the data in Excel (option 1) or opens Power Query and changes the source code to include the new change.

**POWER QUERY**

To open the table in Power Query, go to query -> edit. There you can edit your table using the Power Query editor. This functionality is also available in Power BI.

**PIVOT TABLES IN EXCEL**

1. Sales Quantity by Category
2. Sales Quantity by Month
3. Sales Quantity by Gender
4. Revenue and Cost by Country

**CHARTS IN EXCEL**

Charts will contain the same information of the Pivot Tables. The following list shows the information and chart type displayed.

1. Sales Quantity per Category: Pie Chart
2. Sales Quantity by Month: Bar Chart
3. Sales Quantity by Gender: Doughnut Chart
4. Revenue and Cost by Country: Column Chart

**FINAL REPORT**

The final report contains three sheets: Report, Analysis and Sales. The Sales sheet contains the data connected to the View in SQL database. The Analysis sheet contains the Pivot Tables created using the table in Sales. The Report sheet contains the charts created with the pivot tables from the Analysis sheet.

**CHANGES IN THE DATABASE**

Changes in the database can be updated to the table in the Sales sheet by just clicking on the Design tab and then the Update option. This will update the table in the Sales sheet along with the pivot table in the Analysis sheet and finally the charts in the Report sheet. The process described facilitates the use of automatic reports and removes the need to create repetitive reports.

An example of change was provided in the sql file named SQLQueryDatabaseModification. There, we changed the OrderQuantity of the bikes to 20. After providing the updates of the paragraph above, the data in the sales table, pivot table and the charts will update accordingly with the latest information. A print of the Report sheet with the charts can be seem below.

