

HMI Exploring existing tools



Power BI

Semester 4 HMI

Create Dashboard

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Introduction

In this assignment, we are to research and explore a tool that can visualize the data gathered from hardware into a dashboard. We have to experiment or follow tutorial to work around the application. For this assignment, I have chosen Power BI as the software to create a dashboard. Power BI is a collection of software services, apps and connectors that work together to turn your unrelated sources of data into coherent, visually immersive, and interactive insights. Next section will be the procedure on how I managed to create a dashboard using Power BI.

Procedure

To begin with creating a dashboard, we have to follow a procedure to be able to create the perfect report of the gathered data. (See Figure 1)



Figure 1 Procedure of a Power BI Author

Creating data from scratch would take time and it is out of the scope of the assignment, so I used the data that is used in the tutorial and import it into Power BI. While following the tutorial I have learned how to clean human excel data to machine data using query editor. Human data contains empty cells, colored cells, and headers. These cells are irrelevant to the machine data and needed to be removed. During the tutorial, I learned how to build, format, filter and sort tables (See figure 2).

Country	Sum of SalesAmount	Year	Month	Sum of BudgetAmount	Year	Month	Sum of SalesAmount	Sales
Australia	\$4,383,480	2016	Jan	\$871,119	2016	Dec	\$1,949,361	\$1,949,361
Canada	\$1,088,879	2016	Feb	\$858,350	2016	Nov	\$1,878,318	\$1,878,318
France	\$1,592,881	2016	Mar	\$999,795	2016	Jun	\$1,731,788	\$1,731,788
Germany	\$1,784,107	2016	Apr	\$1,131,721	2016	Oct	\$1,608,751	\$1,608,751
United Kingdom	\$2,140,389	2016	May	\$1,226,351	2016	Sep	\$1,480,905	\$1,480,905
United States	\$5,483,883	2016	Jun	\$1,713,430	2016	Aug	\$1,462,480	\$1,462,480
Total	\$16,473,618	2016	Jul	\$1,354,917	2016	Jul	\$1,340,245	\$1,340,245
		2016	Aug	\$1,577,564	2016	May	\$1,196,981	\$1,196,981
		2016	Sep	\$1,507,678	2016	Apr	\$1,080,450	\$1,080,450
		2016	Oct	\$1,674,817	2016	Mar	\$1,010,258	\$1,010,258
		2016	Nov	\$1,975,436	2016	Jan	\$886,669	\$886,669
		2016	Dec	\$1,978,396	2016	Feb	\$847,414	\$847,414
		Total		\$16,869,574	Total		\$16,473,618	\$16,473,618

Figure 2 Data Table

After editing the tables using the query editor, we go to the next step which is modeling. In modeling, you need to have knowledge in relationship and DAX(Data Analysis Expressions). Power BI made it easier to create relationship between table by dragging a column from a table to another and this would automatically create a relationship (See Figure 3).

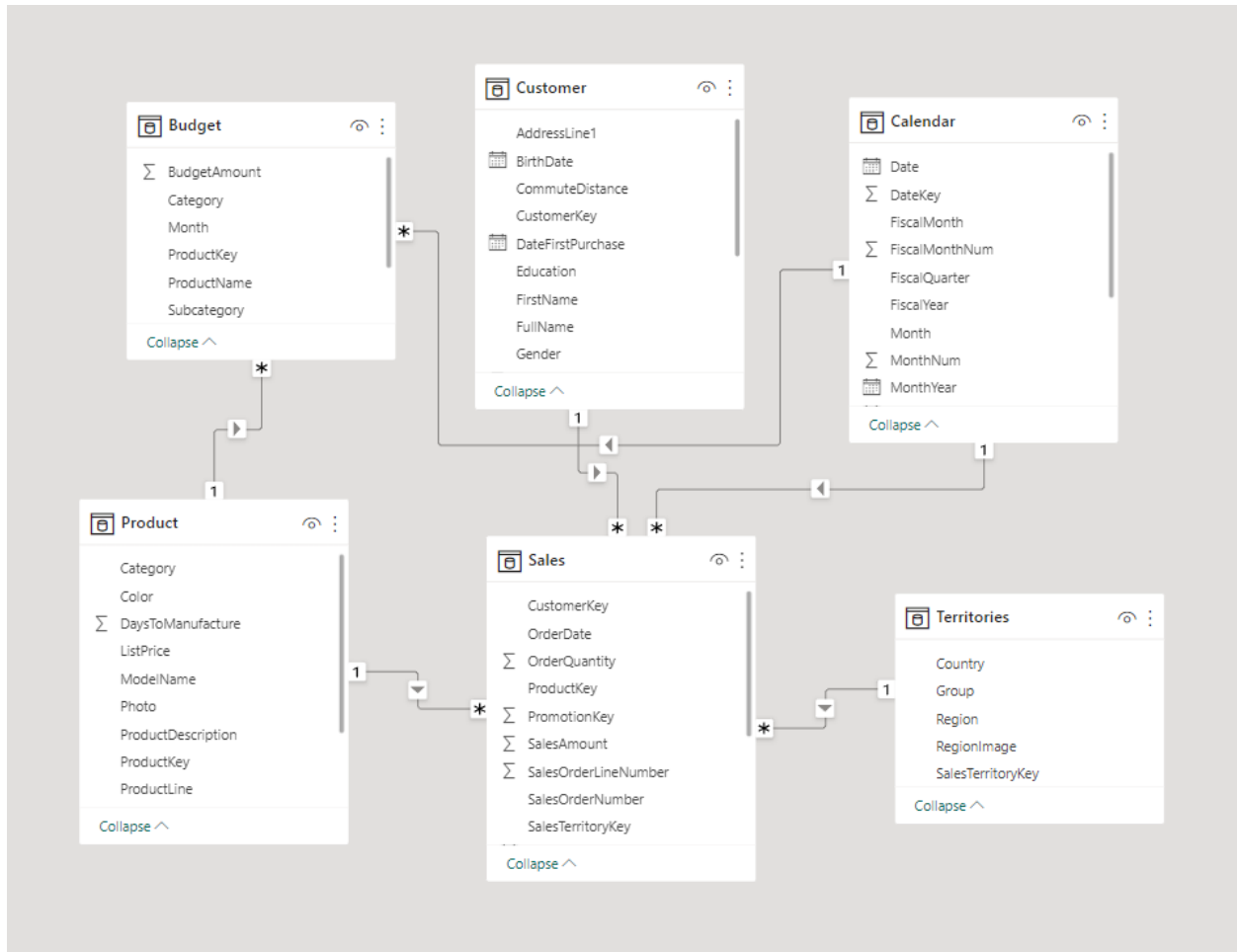


Figure 3 relationship between tables

The tutorial also mentioned DAX which is a formal language of Power BI and it is one of its main features. There are 2 ways to types of DAX, implicit and explicit measure. Implicit measure is automatically created when dragging column into the visual data box. Implicit measure formats the data for example summarizing the all the value but this can also be changed in the configuration of the column. However with explicit measure, you can create your own formula and add it into the table.

Most of the time, you will be focusing on the query editor and modeling. There is a rule in becoming a Power BI author which is the 80/20 rule. 80% of your focus and effort as a Power BI author or developer should be in these 2 engines. if you do these 2 right then the visualizations are as easy as you are going to see.

In the visualization part, it is only dragging and dropping the data that you want to see in the report. (See Figure 3)

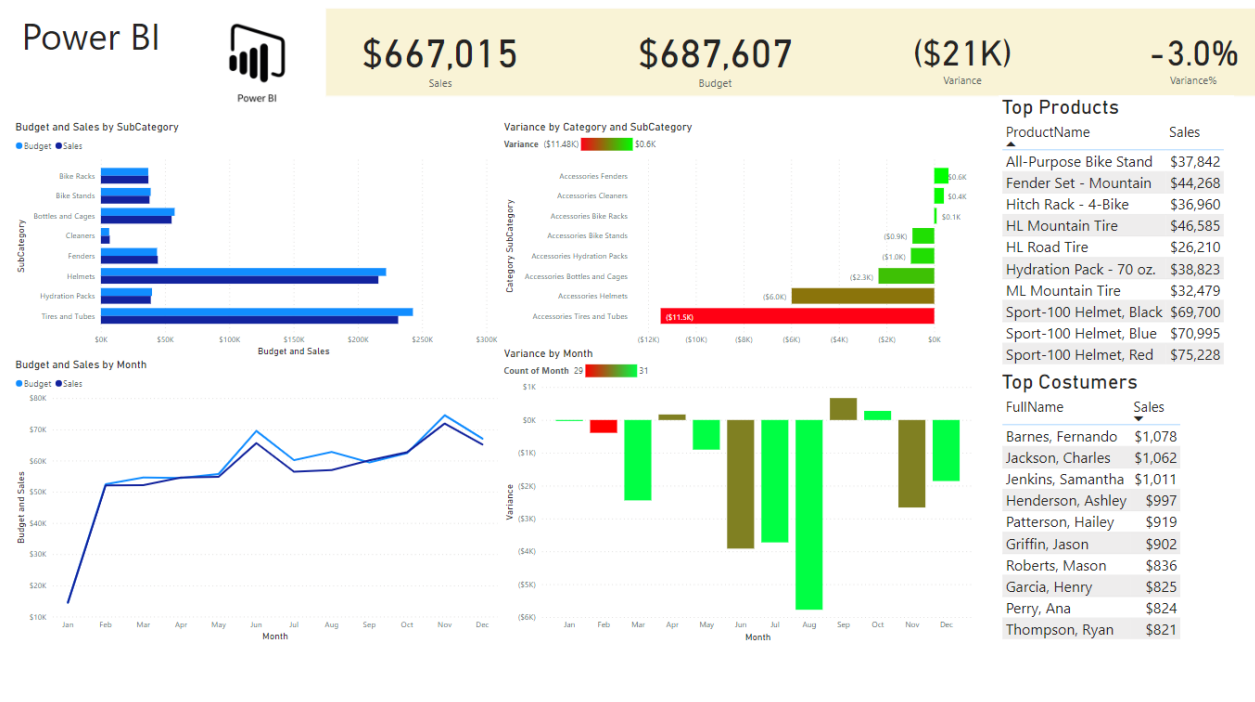


Figure 4 Visual report of the data

As you can see in figure 3, that is the final product of the dashboard. It shows the data in different graphs and tables. Publishing the dashboard to the cloud was an easy task because Power BI is a Microsoft application.

Conclusion

To conclude this assignment, it took some time to choose a dashboard software because some of them required a lot of steps to be able to launch the tool. After looking into other applications, I came across Power BI and was able to follow a tutorial swiftly. Configuring the data was the main part of Power BI and after that, implementing it into a visual report was an easy task. I have gained so many

knowledge following the tutorial and hopefully be able to implement this in the upcoming project.

Reference

ModernExcel. (2019, May 1). Power bi tutorial from beginner to pro ⚡ desktop to dashboard in 60 Minutes 🕒. YouTube. Retrieved February 12, 2023, from https://www.youtube.com/watch?v=AGrl-H87pRU&ab_channel=AviSingh-PowerBIPro