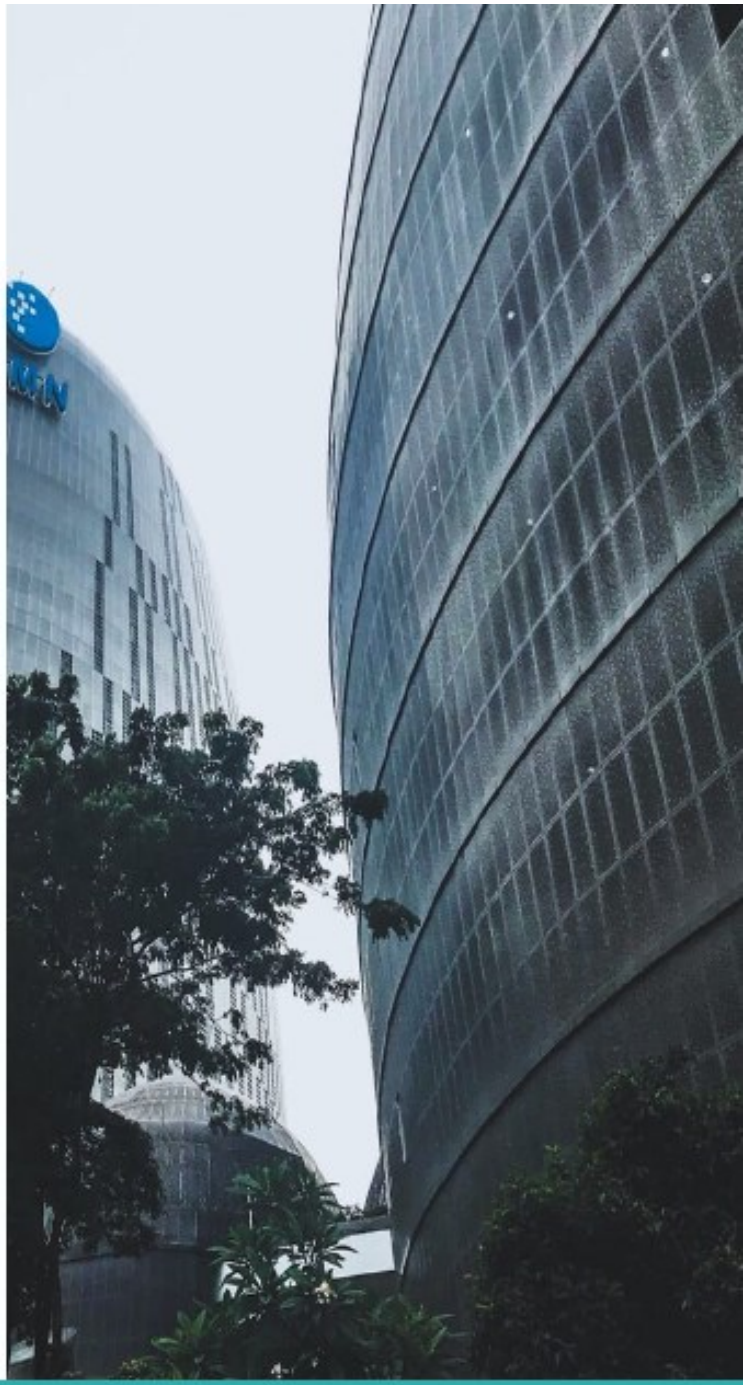
PRACTICE MODULE

IS 529– ADVANCED BIG DATA ANALYTICS
S1 BACHELOR OF INFORMATION SYSTEM PROGRAM
FACULTY OF ENGINEERING AND INFORMATION



PROGRAM STUDI SISTEM INFORMASI
FAKULTAS TEKNIK DAN INFORMATIKA
UNIVERSITAS MULTIMEDIA NUSANTARA

Gedung B Lantai 5, Kampus UMN
Jl. Scientia Boulevard, Gading Serpong, Tangerang, Banten-15811 Indonesia
Telp: +62-21.5422.0808 (ext. 1803), email: ict.lab@umn.ac.id, web: umn.ac.id

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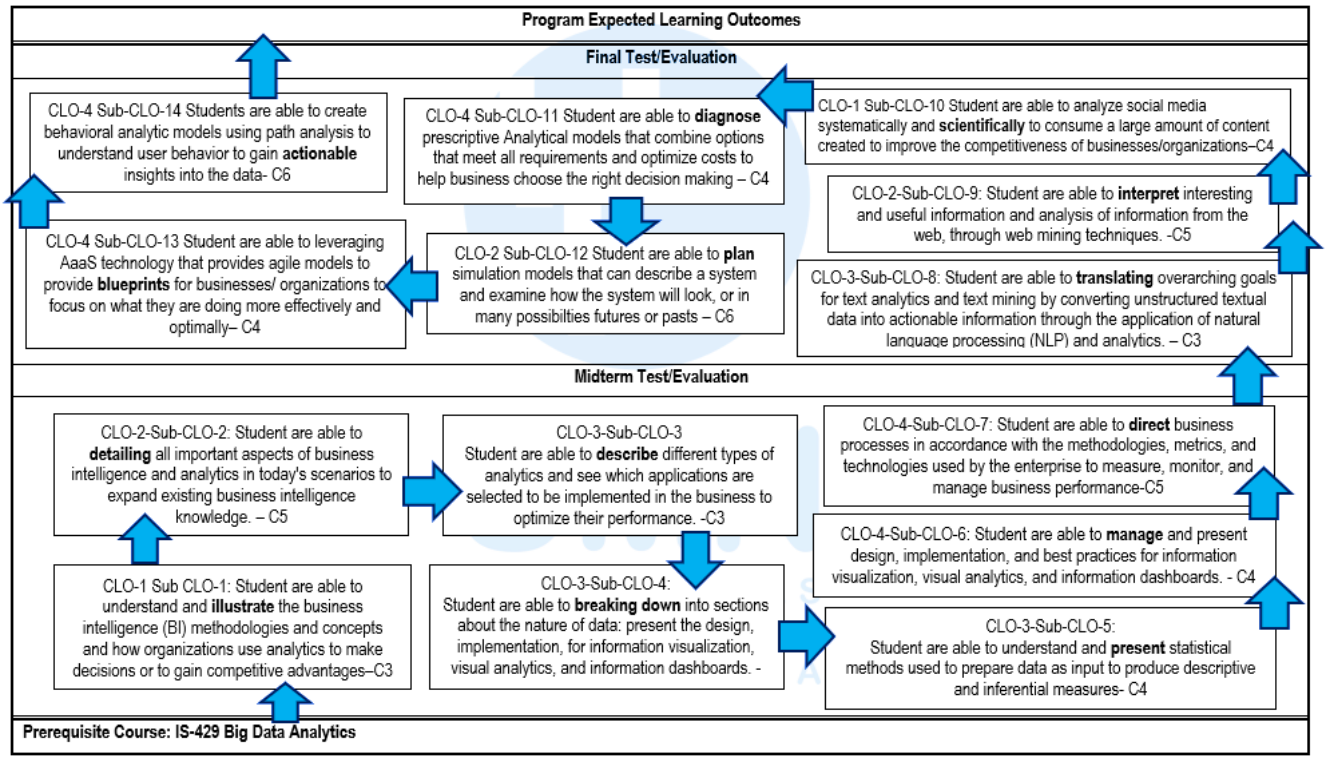
LEARNING OUTCOME STAGES CHART



MODULE 1
PBI: CREATING REPORTS AND DASHBOARDS

THEME DESCRIPTION

Students are able to analyze data to achieve goals and communicate insights and potential solutions to users and stakeholders.

COURSE SUB-LEARNING OUTCOMES (SUB-CLO)

CLO-1-Sub-CLO-1:
Student are able to understand and illustrate the business intelligence (BI) methodologies and concepts and how organizations use analytics to make decisions or to gain competitive advantages–C3

1. Apply and Download Power BI (PBI)
2. Running Power BI Desktop
3. Loading the Source Data
4. Displaying Available Fields
5. Adding a Matrix of Sales per Country by Year
6. Adding a Column Chart of Delivery Charge by Model
7. Adding a Map of Labor Cost by Country
8. Adding a Slicer by Make

PRACTICUM SUPPORT

1. Windows Operating System
2. Java Standard Edition JRE and JDK version 1.8 or above *(installed)*
3. Microsoft Power BI version (min.) 2.86.727.0 64-bit (*installed)* or Power BI Cloud (*NO-need installation)*

PRACTICUM STEPS

1) **Apply and Download Power BI (PBI) at**:
   a. https://app.powerbi.com/ no installation uses your UMN student email (**Cloud/ online service**)
   b. https://powerbi.microsoft.com/en-us/desktop/ (Premise/ offline service)
   c. On Mac devices Other alternative: use your iPhone, iPad, and Apple Watch :
      i. https://apps.apple.com/us/app/microsoft-power-bi/id929738808
      ii. https://www.holistics.io/blog/how-to-use-power-bi-on-mac-devices/
      iii. https://ironic3d.com.au/blog/run-power-bi-on-a-mac-like-a-dev

2) **Running Power BI Desktop**
   Once you have installed Power BI Desktop successfully, you are ready to start creating dashboards and analyzing your data. You can start your Power BI Desktop experience as follows:
   a. Click the Power BI Desktop icon that was created on the Desktop as part of the installation process.
   b. You will see the Power BI Desktop splash screen, as shown in above figure.

3) Loading the Source Data

Once you have launched Power BI Desktop, you are faced with the startup screen that you saw in Figure 1-1.

a. Given that you are working with an application that lives and breathes data, it is not really surprising that the first step in a new analytical challenge is to find and load some data.

b. So, the following explains what you have to do (assuming that you have downloaded the sample data **1. Data IS-529 Lab W01 PBI CREATING REPORTS AND DASHBOARDS.xlsx** from UMN-elearning IS-529 Lab Week#1).

c. Click Get Data in the startup screen. The Get Data dialog will appear, as shown in Figure 1-2.

d. In the list of all the possible data sources on the right of this dialog, click Excel, and then click Connect.

e. The Windows Open File dialog will appear. Click the xlsx file as an input. The Windows Open dialog will look like the one in Figure 1-3.

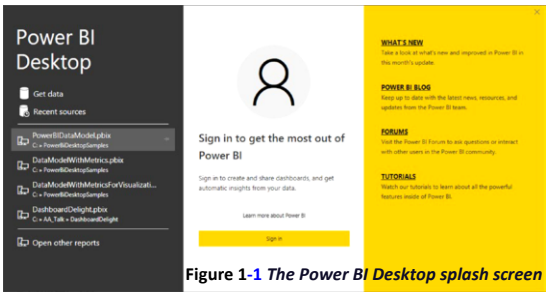


Figure 1-1 ***The Power BI Desktop splash screen***

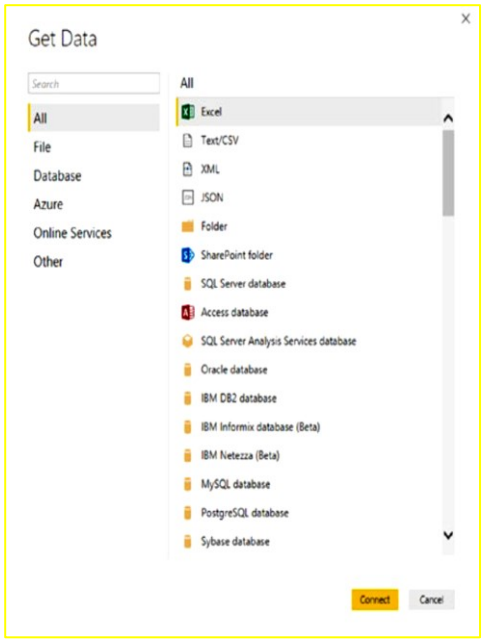


Figure 1-2. ***The Get Data dialog***

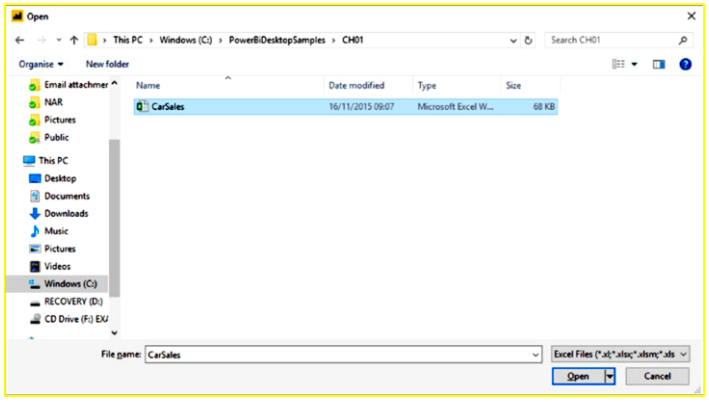


Figure 1-3. ***The Windows Open File dialog when loading data from a file source***

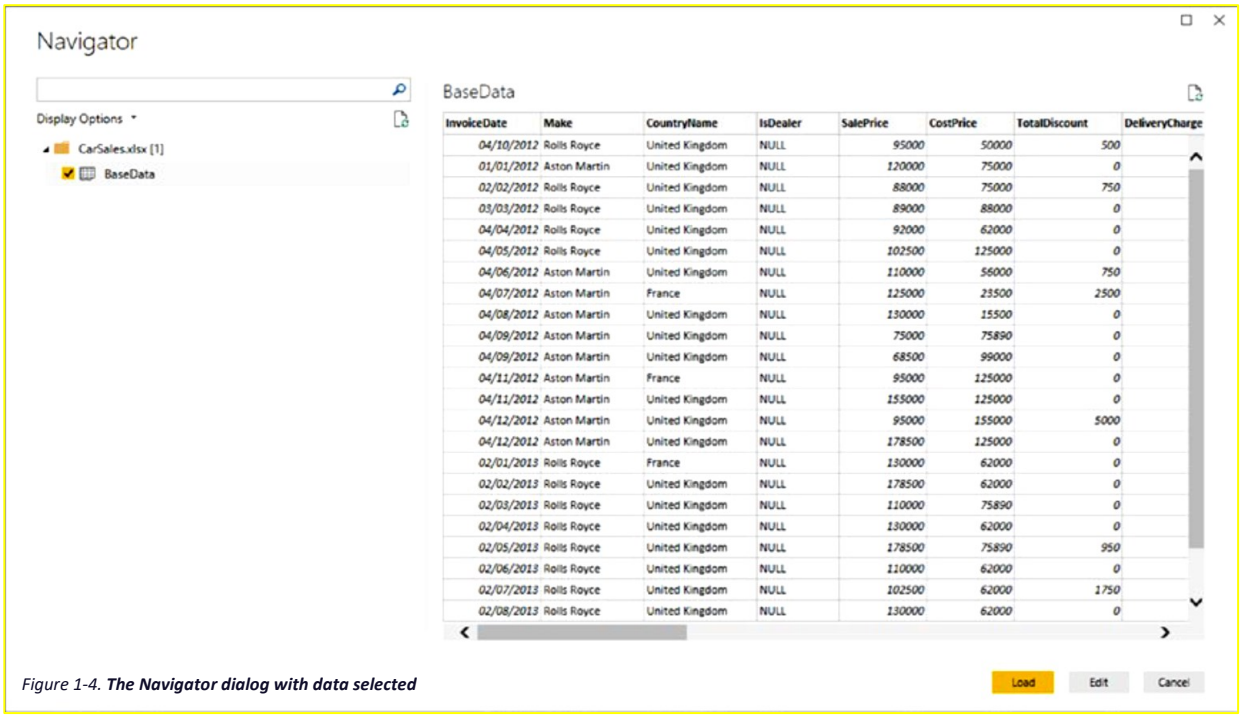
f. Click the Open button. The Connecting dialog will appear for a second or two and then the Navigator dialog will appear.

g. You will see that the CarSales.xlsx file appears on the left of the Navigator dialog and that any workbooks, named ranges, or data tables that it contains are also listed.

h. Click the BaseData worksheet name that is on the left. The contents of this workbook will appear in the data pane on the right of the Navigator dialog.

i. Click the check box for the BaseData worksheet on the left. The Load and Edit buttons will be activated. The Navigator dialog should look like Figure 1-4.

j. Click Load. The data will be loaded from the Excel file into Power BI Desktop.



InvoiceDate	Make	CountryName	IsDealer	SalePrice	CostPrice	TotalDiscount	DeliveryCharge
04/10/2012	Rolls Royce	United Kingdom	NULL	95000	50000	500	
01/01/2012	Aston Martin	United Kingdom	NULL	120000	75000	0	
02/02/2012	Rolls Royce	United Kingdom	NULL	88000	75000	750	
03/03/2012	Rolls Royce	United Kingdom	NULL	89000	88000	0	
04/04/2012	Rolls Royce	United Kingdom	NULL	92000	62000	0	
04/05/2012	Rolls Royce	United Kingdom	NULL	102500	125000	0	
04/06/2012	Aston Martin	United Kingdom	NULL	110000	56000	750	
04/07/2012	Aston Martin	France	NULL	125000	23500	2500	
04/08/2012	Aston Martin	United Kingdom	NULL	130000	15500	0	
04/09/2012	Aston Martin	United Kingdom	NULL	75000	75890	0	
04/09/2012	Aston Martin	United Kingdom	NULL	68500	99000	0	
04/11/2012	Aston Martin	France	NULL	95000	125000	0	
04/11/2012	Aston Martin	United Kingdom	NULL	155000	125000	0	
04/12/2012	Aston Martin	United Kingdom	NULL	95000	155000	5000	
04/12/2012	Aston Martin	United Kingdom	NULL	178500	125000	0	
02/01/2013	Rolls Royce	France	NULL	130000	62000	0	
02/02/2013	Rolls Royce	United Kingdom	NULL	178500	62000	0	
02/03/2013	Rolls Royce	United Kingdom	NULL	110000	75890	0	
02/04/2013	Rolls Royce	United Kingdom	NULL	130000	62000	0	
02/05/2013	Rolls Royce	United Kingdom	NULL	178500	75890	950	
02/06/2013	Rolls Royce	United Kingdom	NULL	110000	62000	0	
02/07/2013	Rolls Royce	United Kingdom	NULL	102500	62000	1750	
02/08/2013	Rolls Royce	United Kingdom	NULL	130000	62000	0	

Figure 1-4. ***The Navigator dialog with data selected***

4) Displaying Available Fields

Do the following to see all the fields that this table contains:

a. Click the small triangle to the left of the table name. The table will expand to reveal all the available fields that it contains. Alternatively, if the fields are already visible, they will disappear from view, leaving only the data table name visible.

b. You can see that some of the fields have a sigma (Σ) icon to their left. This indicates that the data in the field is numeric.

c. As you progress through this book, you will see that there are other icons that Power BI Desktop uses to flag different types of fields.

5) Adding a Matrix of Sales per Country by Year

It is now time to draw on the blank canvas that is your first dashboard. To begin, let's start with a simple matrix of sales per country for each year that Brilliant British Cars has been trading. I

a. In the Visualizations pane, click the matrix icon

b. A blank matrix will appear on the dashboard canvas. Leaving the freshly created matrix selected, click the check box to the left of the CountryName field in the Fields list.
The list of countries where cars have been sold will appear as the left-hand column of the matrix.

c. Drag the ReportingYear field into the Visualizations pane over the Columns fields area (this is called the field well). This adds the model years as column headers in the matrix.

d. Leaving the matrix selected, click the check box to the left of the SalePrice field in the Fields list
The aggregated sale price for all vehicles sold by country and by year will appear in the matrix.

e. Drag the corner handle of the matrix to resize it so that there is no spare whitespace inside the matrix itself. It would be hard to make this any simpler. Within seconds, you have created a matrix of sales by year and country and the totals have been added automatically.

6) **Adding a Column Chart of Delivery Charge by Model**

Now that you have seen how easy it is to create a matrix in Power BI Desktop, the time has come to add some visual impact to your analysis. This time, you will use the available data to display the total delivery charge for each model of car sold.

a. Click an empty area of the dashboard canvas to unselect any visualizations.
b. Drag the Model field onto an empty area of the dashboard canvas. Power BI Desktop automatically creates a table displaying all the vehicle models sold.
c. Drag the DeliveryCharge field from the Fields pane onto the table that you just created. Power BI Desktop will calculate the total DeliveryCharge for each available make.
d. Leaving the table selected, click the clustered column chart icon in the Visualizations pane. This is the second icon on the left on the upper row of the selection of visualizations. Power BI Desktop will switch the table to a chart.
e. Drag the corner handle of the chart to resize it so that all the makes are visible on the bottom axis.

7) **Adding a Map of Labor Cost by Country**

Tables and charts are all very well, but nothing beats a good picture when it comes to illustrating a point or highlighting an insight. So, as we have a dataset that includes information for a range of countries, why not display some of our analysis as a map?

a. Click any empty part of the dashboard canvas to unselect any visualizations.
b. Click the filled map icon in the Visualizations pane
c. Leaving the (slightly clunky) empty card visualization selected, click the check box to the left of the SpareParts field in the Fields list. This displays the spare parts total in the source data.
d. Drag the corner handle of the matrix to resize it so that there is no spare whitespace inside the matrix itself.

8) **Adding a Slicer by Make**

As a final tweak, you will add some interactivity to the dashboard that you are building. You will add a slicer (an interactive selection tool) that will let you—or any user of this dashboard—filter by any or all car models sold. Here is how you can do this:

a. Drag the Make field to a blank area on the dashboard canvas.
b. Power BI Desktop will create a list of vehicle models
c. Click the slicer icon in the Visualizations pane
d. Drag the corner handle of the slicer to resize it so that there is no spare whitespace inside the slicer.

9) So here you have **your first Power BI dashboard**. How long did it take you to build this dashboard, do you think? Fifteen minutes? Thirty minutes?

a. Indeed, however long it took, you have also learned the basics of dashboarding with Power BI Desktop. In fact, extending a dashboard by adding further visualizations is so intuitive that it is too easy to miss the salient points of what you have seen so far. So, to resume, what you have just learned is that:
   - You can place any visualization anywhere on the dashboard canvas.
   - You can resize an element quickly and easily.
   - You can convert any type of visualization to any other type in a single click.
b. Save your report into 1.IA IS-529 Lab W01 PBI- CREATING REPORTS AND DASHBOARDS yourname-NIM.pbix and submit to e-Learning IS-529 Lab Week#1

RESULTS / OUTCOMES

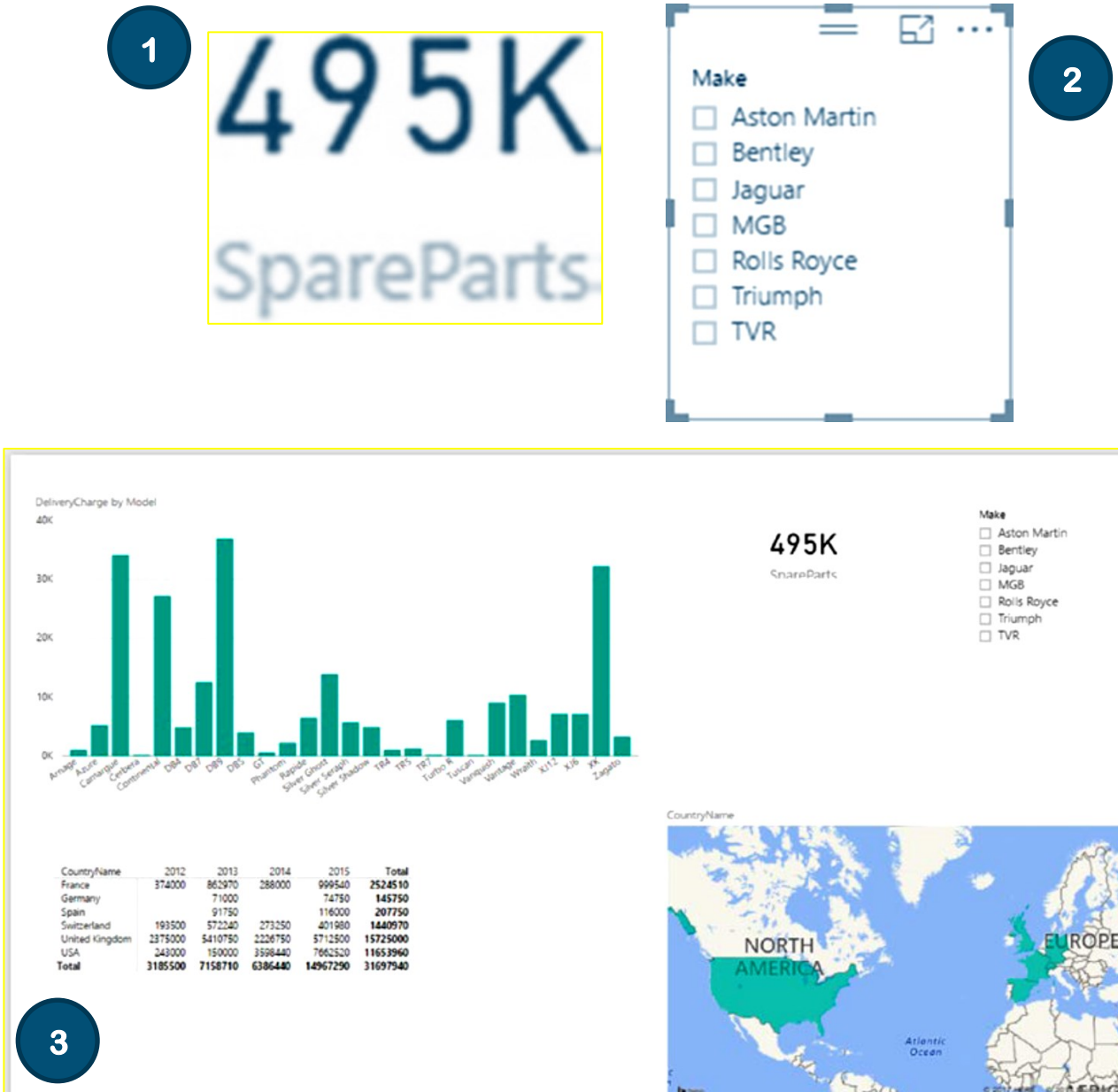


Figure 1-18. ***The final version of your first dashboard***

REFERENCE

1. https://docs.microsoft.com/en-us/power-bi/
2. https://community.powerbi.com/
3. Adam Aspin. 2018. Pro Power BI Desktop. Apress Media, LLC, New York, NY 10004-1562. USA.

The End