

Power BI exercises

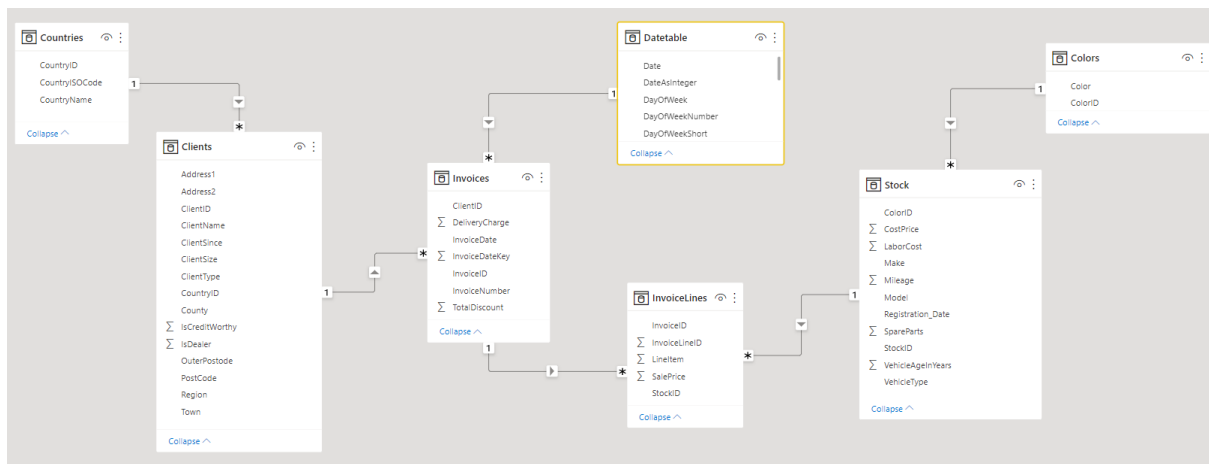
Ynte Jan Kuindersma

File to be used as datasource: CarSalesData.xlsx

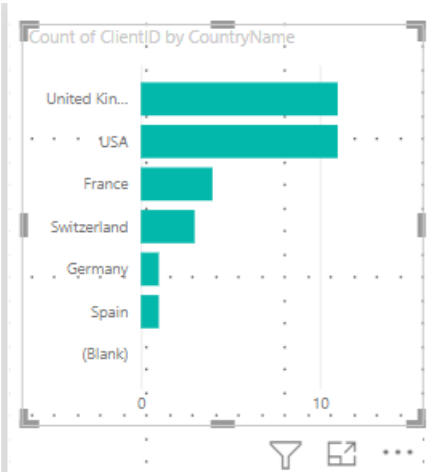
At the end of this document you will find the DAX for a Datedimension called Datetable.

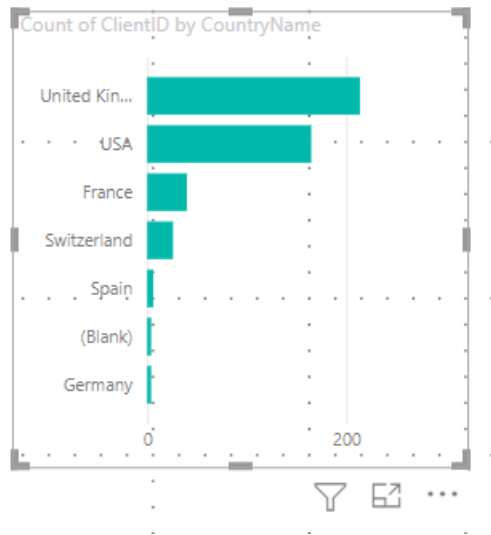
The CarSalesData tables should be related like this:

1. Countries to Clients
2. Clients to Invoices
3. Invoices to Invoicelines
4. Stock to Invoicelines
5. Colors to Stock. (Stock is the table with cars that were bought and are then sold again)
6. Datetable to invoices (Date to invoiceDate)



Exercises

#	
	<p>Number of customers per country</p> <p>Visual: Stacked Bar Chart</p> <p>Tables: Clients, Countries</p> <p>Fields: Country name, count of clientid</p> <p>Options</p> <ul style="list-style-type: none">• Sort on count of clientid, highest at the top  <p>Question: Are they really customers, ie did they buy a car? Or do we need another field for that? Look at this: clientId from table invoices</p>



Number of customers per Client Type, Client Size

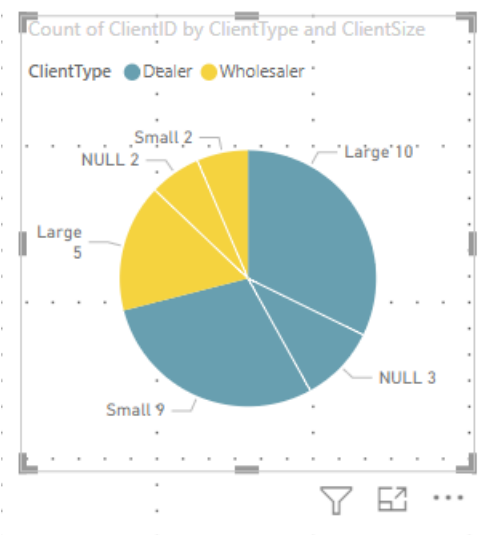
Visual: Pie Chart

Table: Clients

Fields: ClientType, ClientSize, count of clientid

Options:

- Legend ON
- Change colors of both Client types



Number of invoices per Year

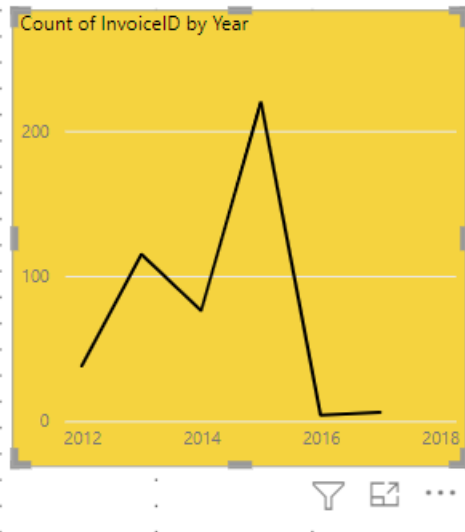
Visual: Line Chart

Tables: Invoices, DateDimension (make sure to have one...)

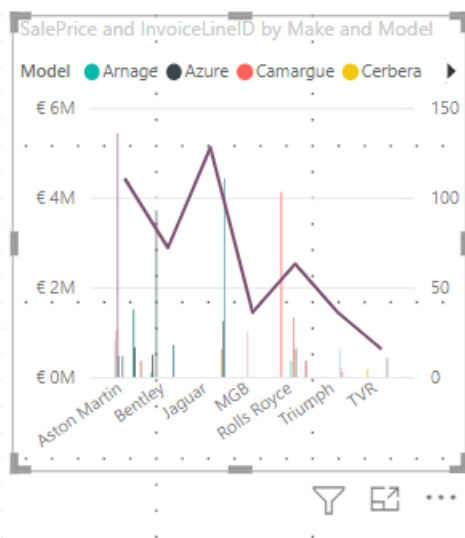
Fields: Year, count of invoiceid

Options:

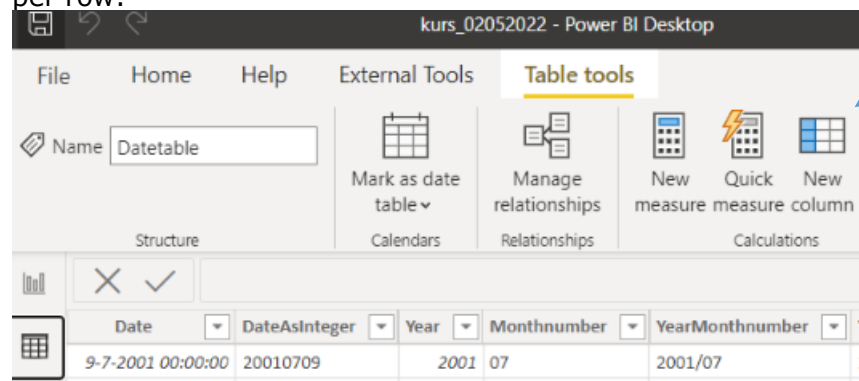
- Change background to 100% Yellow
- Change line color to Black



Turnover versus number of invoicelines per Make
 Visual: Line and clustered chart
 Tables: Invoicelines, Stock
 Fields: count of invoicelineid, Make and Salesprice



Extra: Try to use Margin instead of Salesprice. This is how:
 You need to add a calculated column in Table Invoicelines to calculate the margin per row:



File Home Help External Tools **Table tools** **Column tools**

Name Format Summarization Data type \$ % 0

Structure Formatting Properties

1 margin = InvoiceLines[SalesPrice]-RELATED(Stock[CostPrice])

InvoiceLineID	InvoiceID	StockID	SalePrice	LineItem	margin
3	1	1	95000	1	45000
4	2	2	120000	1	45000
5	3	3	88000	1	13000
6	4	4	89000	1	1000

margin = InvoiceLines[SalesPrice]-RELATED(Stock[CostPrice])

Options:

- Sorted on Margin

Customername, Margin, Margin as a Percentage of Total and Margin as a Percentage of COMPLETE Total. Complete means over all the records, neglecting all filters. Filter the Visual on Margin > 500.000

Visual: Table

Tables: Clients, Invoicelines

Fields: Clientsname, Margin, MarginPercentage (via Show Value as Percentage of Grand Total) and use a measure MarginRelative for calculate Percentage of Complete Total:

MarginRelative =

`DIVIDE(sum(InvoiceLines[margin]),CALCULATE(SUM(InvoiceLines[margin]),ALL(Invoicelines)))`

Options:

- Sort op Margin descending

ClientName	Margin	%GT Margin	MarginRelative
Aldo Motors	€ 1.226.380	15,88%	10,83%
Wheels R' Us	€ 1.223.290	15,84%	10,80%
Bright Orange	€ 976.460	12,64%	8,62%
Honest John	€ 896.570	11,61%	7,91%
Cut'n Shut	€ 834.670	10,81%	7,37%
Sporty Types Corp	€ 768.570	9,95%	6,78%
Style 'N Ride	€ 649.045	8,40%	5,73%
Ambassador Cars	€ 583.735	7,56%	5,15%
BritWheels	€ 563.955	7,30%	4,98%
Total	€ 7.722.675	100,00%	68,17%

Comparison Number of Invoices 2013 versus 2012

Visual: Gauge

Table: Invoices

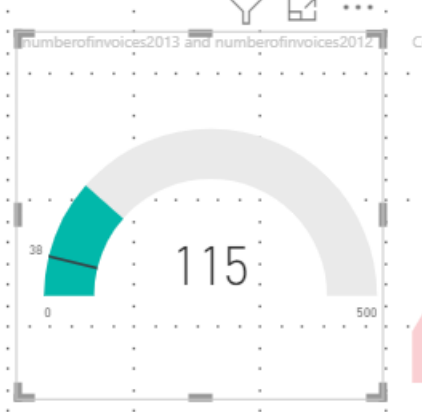
Fields: 2 measures:

Target Value =

invoices2012 =

`calculate(count(Invoices[InvoiceID]),year(Invoices[InvoiceDate])=2012)`

Value =
 invoices2013 =
 calculate(count(Invoices[InvoiceID]),year(Invoices[InvoiceDate])=2013)



Number of invoices of the last year in the database, with trendline over the years
 Visual: KPI

Tables: Datedimension, Invoices

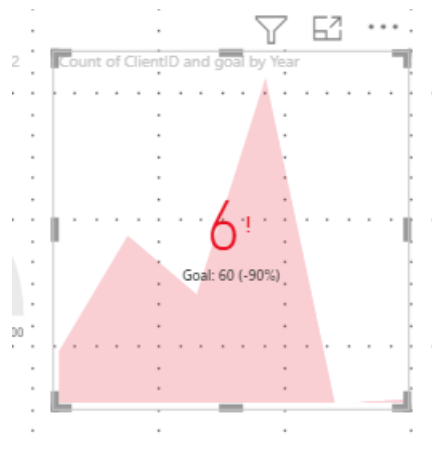
Fields:

Indicator = count of invoiceid

Trend axis = year

Target goals: measure

goal = 60



Place on Page 2:

Visual: Matrix

Crosstab of margin per Make, Country, Year

Tables: Countries, Datedimension, Invoicelines, Stock

Fields: Countryname, Year, Margin, Make

Rows: Make, Countryname

Columns: Year

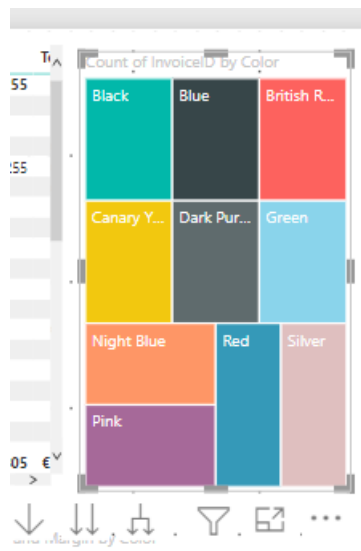
Values: Margin

Options:

- Play with Drill down and Drill Through

Make	2012	2013	2014	2015	2016	2017
Aston Martin	€ 277.110	€ 1.111.460	€ 390.160	€ 2.030.995	€ 82.290	€ 89.255
France	€ 71.500	€ 250.920	€ 66.500	€ 316.415		
Switzerland		€ 158.990		€ 93.055		
United Kingdom	€ 205.610	€ 701.550	€ 136.860	€ 691.800		
USA			€ 186.800	€ 929.725	€ 82.290	€ 89.255
Bentley	€ 429.600	€ 212.600	€ 845.700	€ 330.700		
				€ 16.050		
France	€ 48.000	€ 61.800	€ 16.050	-€ 9.700		
Spain				€ 16.050		
Switzerland	€ 84.300		€ 82.050			
United Kingdom	€ 279.000	€ 173.300	€ 242.700	€ 183.750		
USA	€ 18.300	-€ 22.500	€ 504.900	€ 124.550		
Jaguar	€ 260.000	€ 285.350	€ 457.000	€ 424.700		
France	€ 6.500	€ 14.500	€ 12.250	€ 26.250		
Germany				-€ 10.250		
Spain		-€ 5.750				
Switzerland	€ 21.000	€ 84.500	€ 88.000	€ 16.750		
United Kingdom	€ 121.000	€ 177.600	€ 53.750	€ 99.850		
Total	€ 1.033.210	€ 2.980.135	€ 1.803.360	€ 5.265.295	€ 82.290	€ 164.805

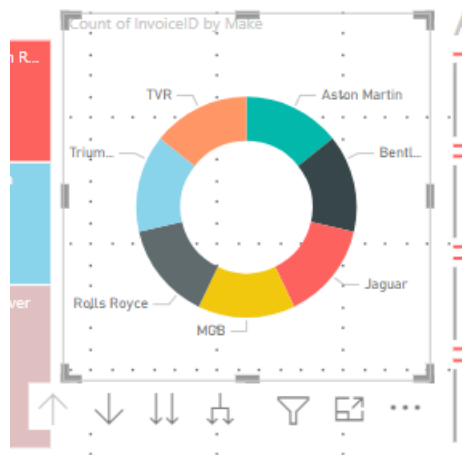
Count of invoices per Color per Country
Visual: Treemap
Tables: Colors, Countries, Invoices
Group: Color, Country
Values: count of invoiceid



Options:

- Play with Drill down and Drill Through

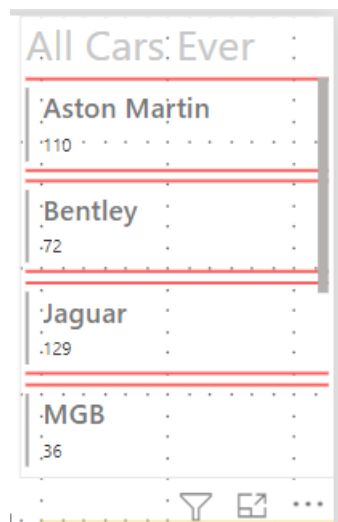
Count of invoices per Make per Country
Visual: Donut Chart
Tables: Stock, Countries, Invoices
Legend: Make, Country
Values: count of invoiceid



Options:

- Play with Drill down and Drill Through

Count of cars per Make
 Visual: Multi row Card
 Table: Stock
 Fields: Make, count of stockid



Differences in Number of invoices per Year

Visual: Water Fall chart

Tables: Invoicelines, DateDimension

Category: Year

Y axis: salestotalDelta

Add 3 measures:

salestotalcurrentyear = COUNT(Invoices[InvoiceID])

salestotallastyear =

CALCULATE

(

COUNT(


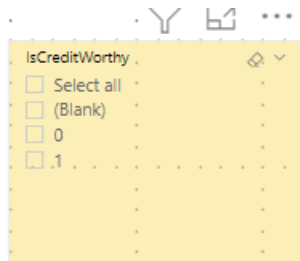
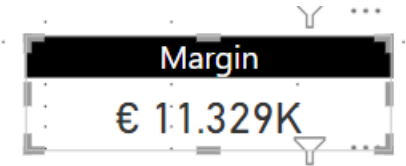
Invoices[InvoiceID]);

SAMEPERIODLASTYEAR(DateDimension[DateKey]

)

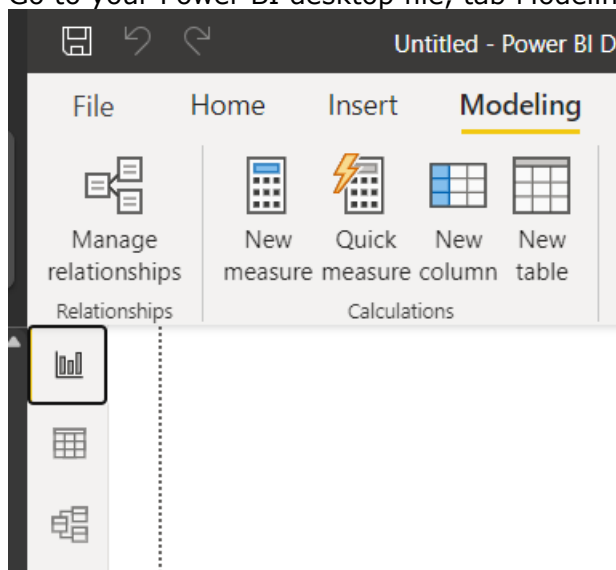
)

salestotalDelta = [salestotalcurrentyear]-[salestotallastyear]

	
	<p>Add a filter to page 2 Visual: Slicer Table: Clients Fields: IsCreditWorthy</p> 
	<p>Visual: Card Table: Invoicelines Fields: Margin</p> 

Dax for creating the datedimension called Datetable

1. Copy the text in courier below (CTRL-C)
2. Go to your Power BI desktop file, tab Modeling and click New Table



3. Paste the DAX (CTRL-V)

Datetable =

`ADDCOLUMNS (`


```

CALENDAR (DATE(2000,1,1), DATE(2025,12,31)),

"DateAsInteger", FORMAT ([Date], "YYYYMMDD" ),

"Year", YEAR ([Date] ),

"Monthnumber", FORMAT ([Date], "MM" ),

"YearMonthnumber", FORMAT ([Date], "YYYY/MM" ),

"YearMonthShort", FORMAT ([Date], "YYYY/mmm" ),

"MonthNameShort", FORMAT ([Date], "mmm" ),

"MonthNameLong", FORMAT ([Date], "mmmm" ),

"DayOfWeekNumber", WEEKDAY ([Date] ),

"DayOfWeek", FORMAT ([Date], "dddd" ),

"DayOfWeekShort", FORMAT ([Date], "ddd" ),

"Quarter", "Q" & FORMAT ([Date], "Q" ),

"YearQuarter", FORMAT ([Date], "YYYY" ) & "/Q" & FORMAT ([Date],

"Q" ),

"IsoWeeknum", weeknum([date],21),

"Weeknum1", weeknum([date],1),

"IsoWeeknum2", weeknum([date],2),

"YearWeek21", FORMAT ([Date], "YYYY" ) & "/W" &

weeknum([date],21),

"YearWeek21Number", FORMAT ([Date], "YYYY" ) &

format(weeknum([date],21),"00")

)

```

Datamodelling: create Sales Facttable

- Clients: Countryid
- Invoices: Clientid
- Invoices: Invoicedate
- Invoicelines: Salesprice
- Invoicelines: Stockid
- Stock: Costprice
- Stock: ColorID

Extra

- Invoices: Totaldiscount divided by # rows
- Invoices: DeliveryCharge divided by # rows

Modelling: Create Dimensions

- Colors
- Countries
- Clients
- Stock: Make + Model
- Datetime

