

In sprint 5, you will begin to apply your practical knowledge in Power BI using the previously used database, which contains information about a company dedicated to selling products online. During the exercises, you need to devote efforts to improving the readability of the visualizations, making sure to select the most appropriate visual representations to present the information in a clear and simple way. Don't forget to add descriptive titles to your charts to facilitate the understanding of the visualized information.

Level 1

- Exercise 1

Imports data from the previously used database. After loading the data, displays the database model in Power BI.

#Explicacion:

1- Crear la table de calendario:

Model view> New table:

```
CalendarTable =  
ADDCOLUMNS (  
    CALENDARAUTO (),  
    "Year", YEAR ( [Date] ),  
    "MonthNumber", MONTH ( [Date] ),  
    "MonthName", FORMAT ( [Date], "MMMM" ),  
    "DayOfWeek", WEEKDAY ( [Date], 2 ),  
    "DayOfWeekName", FORMAT ( [Date], "dddd" ),
```

```

"WeekNumber", WEEKNUM ( [Date], 2 ),

"QuarterNumber", QUARTER ( [Date] ),

"SemesterNumber", IF ( MONTH ( [Date] ) IN { 1, 2, 3, 4, 5, 6 },
1, 2 ),

"Cuatrimestre",

SWITCH(

    TRUE(),

    MONTH ( [Date] ) IN { 1, 2, 3, 4 }, 1,

    MONTH ( [Date] ) IN { 5, 6, 7, 8 }, 2,

    MONTH ( [Date] ) IN { 9, 10, 11, 12 }, 3

)

)

```

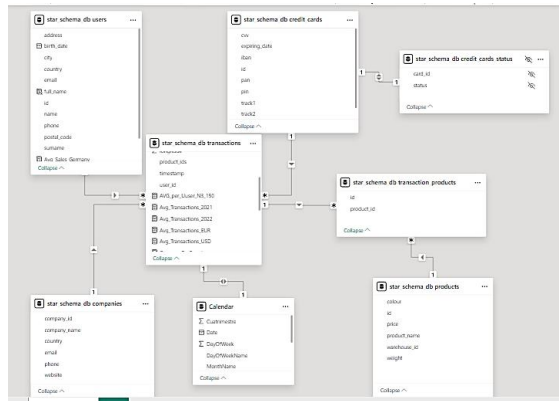
2- crear la tabla intermedia (transaction__product) con copiar la tabla transactions y dejar solo las columnas **id y product_ids**:

Home>Transform Data> transactions> product_ids :

- ✓ Split column> By Delimiter> (elegir las columnas de product_ids : Unpivot columns)
- ✓ Eliminar la tabla Attribute y cambiar el nombre de Value a product_id

3- Crear las relaciones entre las tablas recién hechas:

#Resultados:



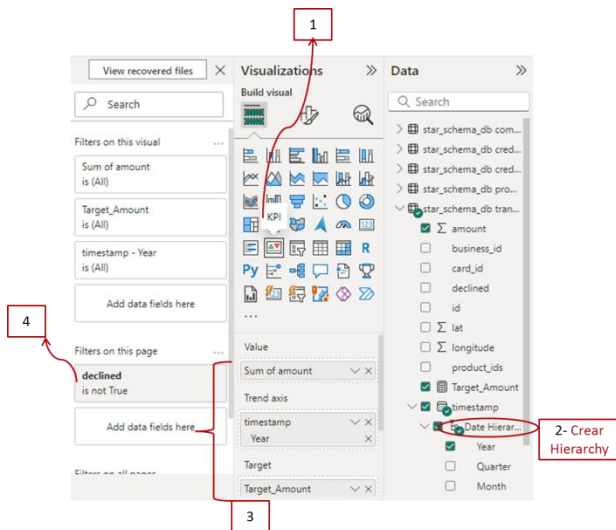
- Exercise 2

Your company is interested in evaluating the total amount of transactions made over the years. To achieve this, the creation of a key performance indicator (KPI) has been requested. The KPI should provide a clear visualization of the business objective of achieving a total amount of €25,000 per year.

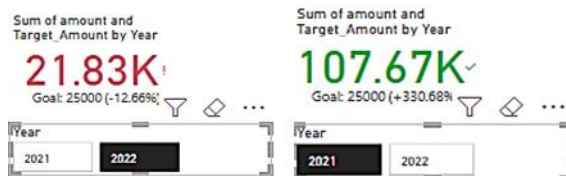
#Explicacion:

1- crear un (New Measurment): [\[target_amount=25000\]](#)

2- Report view> Visualizations



#Resultado:

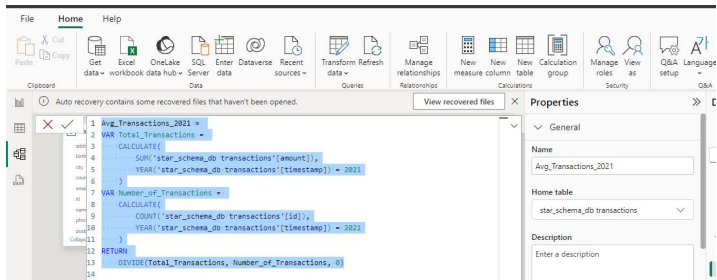


- Exercise 3

Marketing asks you to create a new DAX measure that calculates the average sum of transactions made during the year 2021. Visualize this average in a meter that reflects the sales made, remember that the company has a goal of 250.

Explacion:

1- Modeling>New Measurement:



2- Report>Gauge Chart:

2-1- new measurement:

```
1 target_goal_250 = 250
```

2-2- new measurement:

```
1 minimum_goal = 0
```

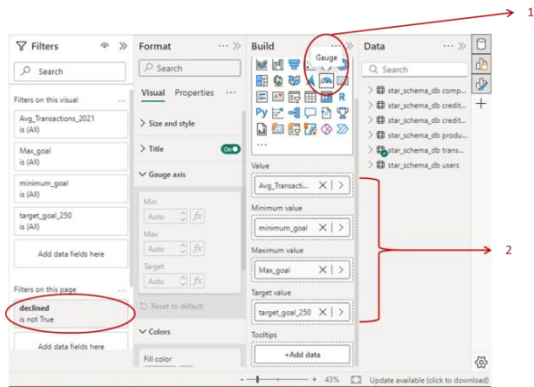
2-3- new measurement (en lugar de poner un MAX fijo, lo he calculado para que sea mas dinamico)

```

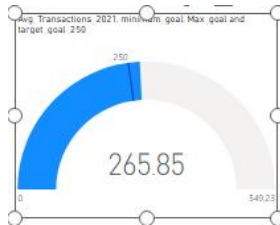
1 Max_Transactions =
2     MAXX(
3         ALL('star_schema_db_transactions'),
4         [Avg_Transactions_2021]
5     ) + 50
6

```

3- Report view> Gauge chart:



#Resultado:

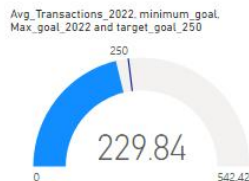


- Exercise 4

Perform the same procedure you performed in exercise 3 for the year 2022.

#Los pasos igual que en Ejercicio 3 pero solo cambie el año por 2022:

#resultado:



- Exercise 5

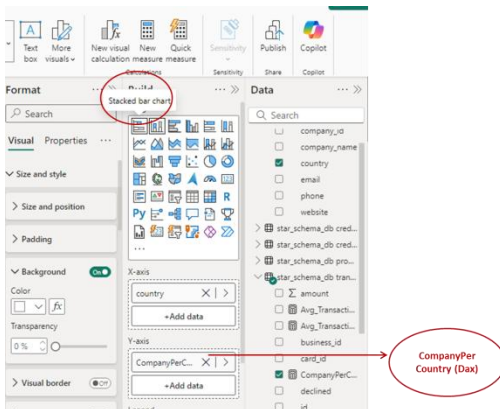
The goal of this exercise is to create a KPI that visualizes the number of companies per country participating in the transactions. The business goal is to ensure that there are at least 3 participating companies per country. To achieve this, it will be necessary to use DAX to calculate and represent this information in a clear and concise way.

#Explication:

1-Modeling>New Measurement:

```
1 Companies_Per_Country =  
2 VAR Active_Companies =  
3     CALCULATE(  
4         DISTINCTCOUNT('star_schema_db_companies'[company_id]),  
5         FILTER(  
6             'star_schema_db_companies',  
7             'star_schema_db_companies'[company_id] IN  
8                 VALUES('star_schema_db_transactions'[business_id])  
9         )  
10    )  
11 RETURN Active_Companies  
12
```

2- Report View> Stacked bar chart:



3- format de chart>columns> color (fx):

Color - Categories ✕

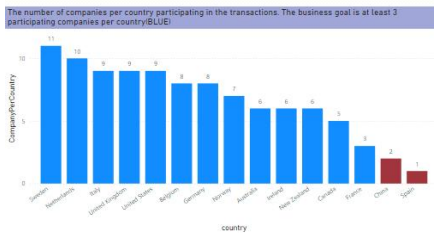
Format style
Rules ▼

What field should we base this on?
CompanyPerCountry ▼

Rules 11 Reverse color order + New rule

| | | | | | | | | | | |
|----------|----|---|---------|-----|---|---|--------|------|---|-------|
| If value | >= | 0 | Percent | and | < | 3 | Number | then | ■ | ↑ ↓ ✕ |
| If value | > | 3 | Percent | and | < | 0 | Number | then | ■ | ↑ ↓ ✕ |

#Resultado:

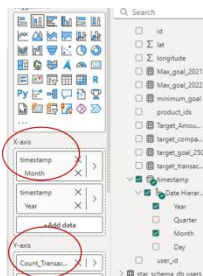


- Exercise 6

Create a new KPI that allows you to visualize the number of declined transactions over time. The company set a goal of having fewer than 10 declined transactions per month.

#Explicacion:

1- Report view> visualization>Stacked column chart:



2- format>color conditional:

Color - Categories ✕

Format style
Rules ▼

What field should we base this on?
Count_Transaction_declined ▼

Rules 11 Reverse color order + New rule

| | | | | | | | | | | |
|----------|----|----|--------|-----|---|----|--------|------|-------|--|
| If value | >= | 0 | Number | and | < | 10 | Number | then | Green | ↑ ↓ ✕ |
| If value | > | 10 | Number | and | < | 18 | Number | then | Red | ↑ ↓ ✕ |

3- format> reference line (goal =10):

Search

Visual Properties ...

Visual area background

Reference line (1)

Apply settings to

+ Add line

Constant line 1 ✕

Type
Constant line ▼

Line

Value
10 fx

Color

Suggestions

Search

- ☐ id
- ☐ lat
- ☐ longitude
- ☐ Max_goal_2021
- ☐ Max_goal_2022
- ☐ minimum_goal
- ☐ product_ids
- ☐ target_Amou...
- ☐ target_compa...
- ☐ target_goal_250
- ☐ target_transac...
- ☒ timestamp
- ☒ Date Hierar...
- ☐ Quarter
- ☒ Month

X-axis

timestamp ✕ >

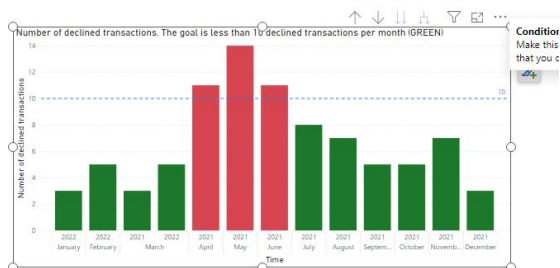
Month ✕ >

timestamp ✕ >

Year ✕ >

+Add data

#Resultado:



- Exercise 7

Create a grouped column chart that reflects the sum of sales per month. The company's goal is to have at least 10,000 transactions per month.

#Explicacion:

1- Report view> visualization>Stacked column chart ➡

(Filter: declined=false)

X-axis

| | |
|-----------|---|
| timestamp | X |
| Year | X |
| Month | X |

+Add data

Y-axis

| | |
|---------------|---|
| Sum of amount | X |
|---------------|---|

2- Model view> New Measurement:

target_transaction_monthly_SUM = 10000

3- format> color conditional:

Color - Categories

Format style

Rules

What field should we base this on?

Sum of amount

Summarization

Sum

Rules

| | | | | | | | | | |
|----------|----|-------|--------|-----|---|--------|--------|------|-------|
| If value | >= | 0 | Number | and | < | 10000 | Number | then | Red |
| If value | > | 10000 | Number | and | < | 100000 | Number | then | Green |

TI Reverse color order

+ New rule

4- format> reference line (goal =10000) (los pasos igual que en ejercicio anterior)

#Resultado:



- Exercise 8

In this exercise, the aim is to delve deeper into the transactions carried out by each user and present the information in a clear and understandable way. In a table, present the following information:

- Name and surname of the users (a new column will need to be created to combine this information).
- Age of users.
- Average transactions in euros.
- Average transactions in dollars (conversion: 1 euro equals 1.08 dollars).

The necessary changes must be made to identify users who had an average of 300 or more euros and 320 or more dollars in their transactions.

#Explicacion:

1- Model view> New column:

```
full_name = 'star_schema_db users'[name] & " " & 'star_schema_db users'[surname]
```

2- Model view>New Measurement:

(antes, hay que cambiar el tipo de dato de birth_date a Date)

```
User_Age = DATEDIFF(SELECTEDVALUE('star_schema_db users'[birth_date]), TODAY(), YEAR)
```

Sin selectedvalue da error!!

3- Model view> New Measurement:

Avg_Transactions_EUR =
 CALCULATE(AVERAGE('star_schema_db
 transactions'[amount]))

4- Model view> New Measurement:

Avg_Transactions_USD =
 [Avg_Transactions_EUR] * 1.08

4- Model view>New Measurement:

High_Value_User =

IF(

[Avg_Transactions_EUR] >= 300 ||
 [Avg_Transactions_USD] >= 320,

"High Value",

"Normal")

#Resultado:

| full_name | User_Age | Avg_Transactions_EUR | Avg_Transactions_USD | High_Value_User |
|-------------------|----------|----------------------|----------------------|-----------------|
| Abra Doyle | 39 | | | Normal |
| Acton Gallegos | 36 | 283.15 | 305.80 | Normal |
| Aiko Chaney | 39 | 278.36 | 300.62 | Normal |
| Ainsley Herrera | 29 | 105.51 | 113.95 | Normal |
| Alan Vazquez | 29 | 257.86 | 278.48 | Normal |
| Alika Kinney | 29 | 394.59 | 426.16 | High Value |
| Alika Valdez | 35 | | | Normal |
| Allegra Stanton | 35 | | | Normal |
| Allen Calhoun | 38 | 286.60 | 309.53 | Normal |
| Allistair Holmes | 35 | | | Normal |
| Amal Kennedy | 39 | 411.64 | 444.57 | High Value |
| Amber Blevins | 46 | 193.33 | 208.80 | Normal |
| Amelia Valenzuela | 39 | 321.39 | 347.10 | High Value |
| Andrew Strong | 28 | 375.48 | 405.51 | High Value |
| Aquila Haley | 29 | | | Normal |
| Aquila Strickland | 45 | | | Normal |
| Aretha Chang | 27 | | | Normal |
| Astra Alexander | 42 | | | Normal |
| Astra Baldwin | 26 | 472.18 | 509.95 | High Value |
| Ashena Malone | 34 | 162.56 | 175.56 | Normal |
| Ayva Key | 38 | 396.04 | 427.72 | High Value |
| Barrett Andrews | 30 | | | Normal |
| Benedict Wheeler | 26 | | | Normal |
| Bert Juarez | 37 | 381.17 | 411.66 | High Value |
| Bertha Sloan | 29 | 58.16 | 62.81 | Normal |
| Beverly Burr | 29 | 82.43 | 89.02 | Normal |

- Exercise 9

Write a short paragraph, no more than 50 words, explaining the meaning of the figures presented in the Power BI visualizations. You can interpret the data in general or focus on a specific country. Accompany your interpretations with a screenshot of the visualizations you will analyze.

Level 2

Exercise 1

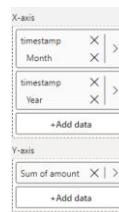
From the marketing area they need to examine the monthly trend of transactions carried out in 2021, specifically, they want to know the variation of transactions depending on the month. Remember to visualize the business goal of achieving at least €12,500 in transactions per month. In this exercise, it will be necessary to identify the months in which the established goal was not achieved. If necessary, you can perform two visualizations.

#Explicacion:

1- Report view> stacked Column Chart ➡

2- Filters> year (basic filter): 2021

3- Format> Reference line> add line (type: Y-Axis constant) & value:



Value - Apply settings to

Format style

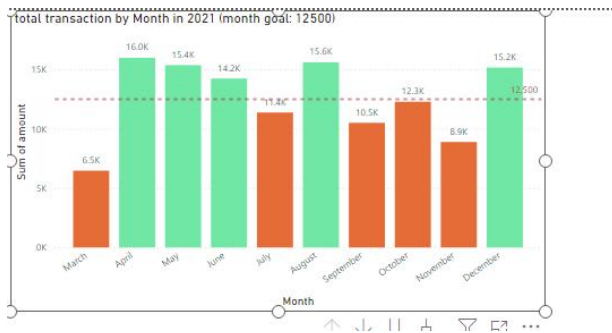
Field value

What field should we base this on?

Goal_2021_12500

4- Format> color conditional (If sum o amount>12500: green else: Red)

#Resultado:



Exercise 2

In your assignment, you want to gain a deeper understanding of transactions in Germany. Therefore, you are asked to develop DAX measures to create visualizations that highlight the average sales in Germany. Keep in mind that the company's goal is to achieve a figure of 250 euros per year. Configure the visualization so that the minimum value is 100 and the maximum is 350, thus providing a more effective representation of the information.

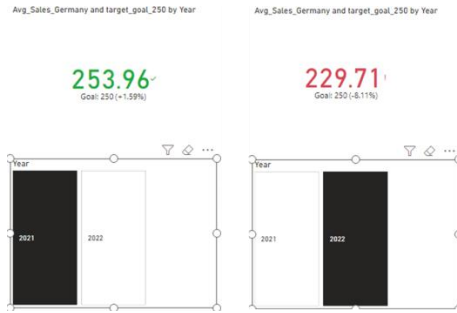
#Explicacion:

1- Model view> New Measurement:

```
1 Avg_Sales_Germany = COALESCE(
2 CALCULATE(AVERAGE('star_schema_db transactions'[amount]), 'star_schema_db companies'[country]
= "Germany"),0)
```

2- Report view> Visualization> KPI

#Resultado:



Exercise 3

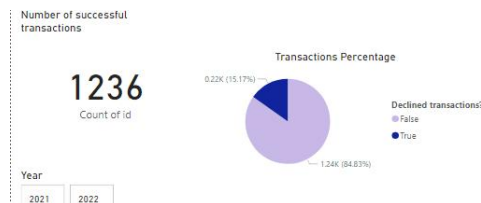
Write a short paragraph, maximum 25 words, indicating in which month the proposed objective of exercise 1 was not met.

Level 3

Exercise 1

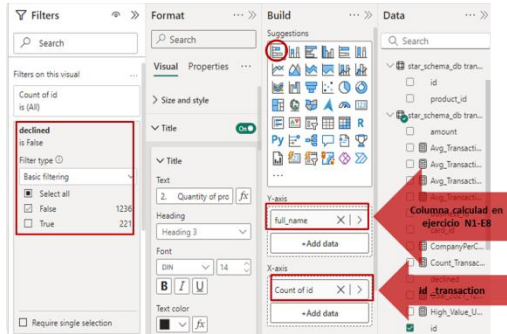
The marketing section wants to delve deeper into the transactions carried out by users. Consequently, you are asked to create several visualizations that include:

1. The key statistical measures of the variables that you consider relevant to understanding the transactions carried out by users.

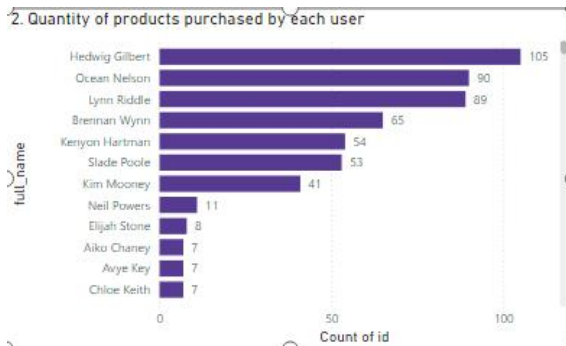


2. Quantity of products purchased by each user.

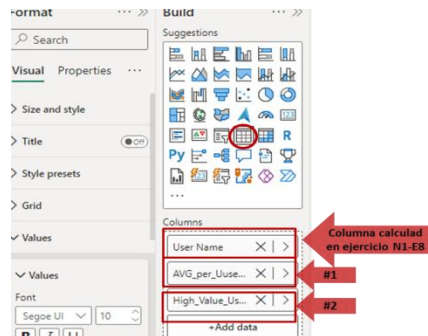
#Explicacion:



#Resultado:



3. Average purchases made per user, displays which users have an average of purchases greater than 150 and which do not.



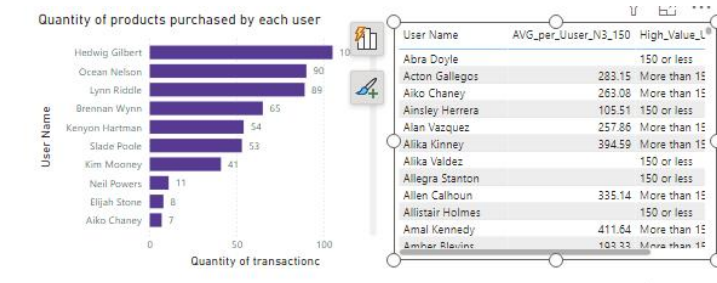
#1:

```
1 AVG_per_User_N3_150 =
2 CALCULATE(
3     AVERAGE('star_schema_db transactions'[amount]), 'star_schema_db users'[id])
4
```

#2:

```
High_Value_User_N3_150 =
IF(
    [AVG_per_User_N3_150] >= 150,
    "More than 150",
    "150 or less"
)
```

#Resultado:

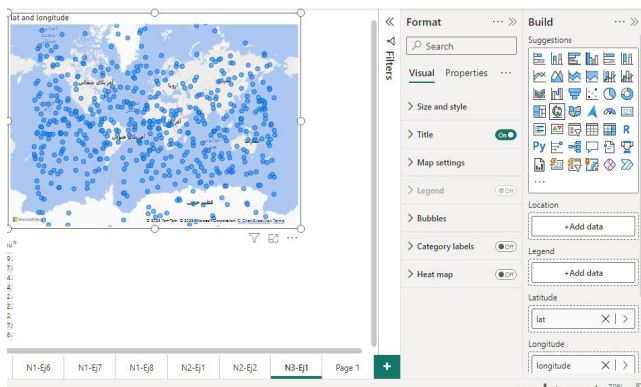


- Shows the price of the most expensive product purchased by each user.

#añadir otra columna en la table para MAX_amount de cada usuario:

| User Name | AVG_per_User_N3_150 | High_Value_User_N3_150 | Max of amount |
|--------------------|---------------------|------------------------|---------------|
| Linus Willis | 407.85 | More than 150 | 499.23 |
| Theodore Barry | 416.12 | More than 150 | 497.84 |
| Sacha Compton | 494.82 | More than 150 | 494.82 |
| Lewis Melendez | 452.91 | More than 150 | 494.17 |
| Ocean Nelson | 247.53 | More than 150 | 492.42 |
| Xandra Spencer | 265.03 | More than 150 | 492.25 |
| Lynn Riddle | 299.35 | More than 150 | 492.19 |
| Shellie Valenzuela | 370.81 | More than 150 | 487.64 |
| Kenyon Hartman | 223.63 | More than 150 | 486.83 |
| Andrew Strong | 308.84 | More than 150 | 486.54 |

- View the geographic distribution of users.



In this activity, you will need to make the necessary adjustments to each graph to improve readability and understanding. In completing this task, you are expected to carefully evaluate which variables are relevant to effectively convey the required information.