

Power B.I Dashboard & Report Creation

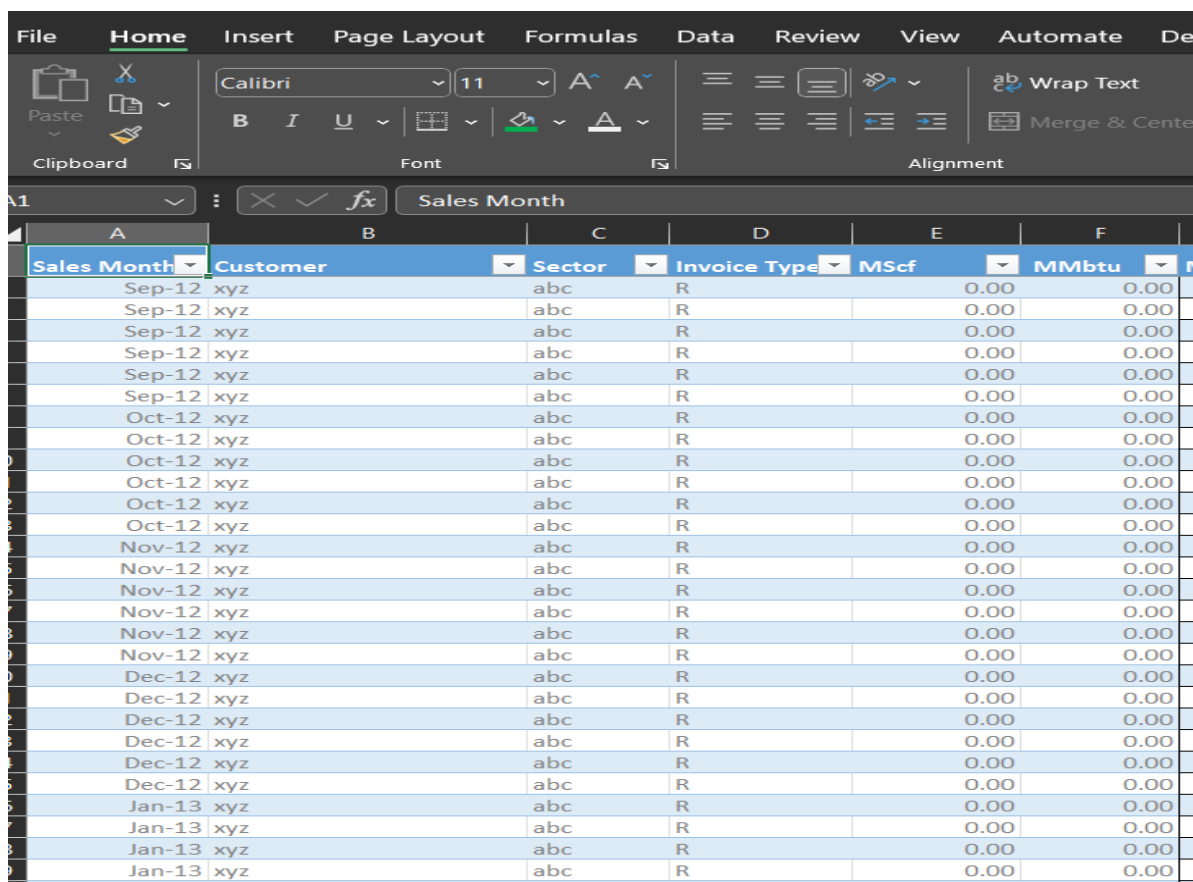
By Nathaniel Leke Agbajor

/ Note: Data used here has been modified to satisfy confidentiality*/*

➤ Data Inspection:

The data was first inspected and cleaned in excel to reduce the applied step. I then converted the flat file into a table as illustrated below in figure 1.

Figure 1:



Sales Month	Customer	Sector	Invoice Type	MScf	MMbtu
Sep-12	xyz	abc	R	0.00	0.00
Sep-12	xyz	abc	R	0.00	0.00
Sep-12	xyz	abc	R	0.00	0.00
Sep-12	xyz	abc	R	0.00	0.00
Sep-12	xyz	abc	R	0.00	0.00
Sep-12	xyz	abc	R	0.00	0.00
Oct-12	xyz	abc	R	0.00	0.00
Oct-12	xyz	abc	R	0.00	0.00
Oct-12	xyz	abc	R	0.00	0.00
Oct-12	xyz	abc	R	0.00	0.00
Oct-12	xyz	abc	R	0.00	0.00
Oct-12	xyz	abc	R	0.00	0.00
Nov-12	xyz	abc	R	0.00	0.00
Nov-12	xyz	abc	R	0.00	0.00
Nov-12	xyz	abc	R	0.00	0.00
Nov-12	xyz	abc	R	0.00	0.00
Nov-12	xyz	abc	R	0.00	0.00
Dec-12	xyz	abc	R	0.00	0.00
Dec-12	xyz	abc	R	0.00	0.00
Dec-12	xyz	abc	R	0.00	0.00
Dec-12	xyz	abc	R	0.00	0.00
Dec-12	xyz	abc	R	0.00	0.00
Jan-13	xyz	abc	R	0.00	0.00
Jan-13	xyz	abc	R	0.00	0.00
Jan-13	xyz	abc	R	0.00	0.00

➤ Transformation Process:

After loading the data in "import query mode" using the excel connector for local file in the power query editor, I then went further to clean the data, created unique fields with primary key, and changed some data types to their correct orientation.

I also applied other steps to remove columns that are not needed in the model.

➤ Creating star schema model:

Next, I created a star schema data model to suit the dataset, this is to ensure optimal performance in the report load time.

I recreated primary and secondary key columns for "one to many relationship" between the dimension tables and their relevant facts tables.

I removed duplicates from the dimension tables - this will help increase the performance of the model.

➤ Creating The Calendar Table

After loading the model queries to power b.i, a dedicated data table was created using Dax.

Figure 2 shows the Dax code used:

```
Calendar =
--VAR Days = CALENDAR(DATE(2012, 9,1), DATE(2023, 8, 1))
--VAR Days = CALENDAR(AUTO())
var mindate = MIN(Database[Sales Month])
VAR maxdate = MAX(Database[Sales Month])
VAR Days = CALENDAR((mindate), (maxdate))
RETURN ADDCOLUMNS (
    Days,
    "Days", DAY([Date]),
    "Year", YEAR ( [Date] ),
    "Month Number", MONTH ( [Date] ),
    "Month", FORMAT ( [Date], "mmm" ),
    "Year Month Number", YEAR ( [Date] ) * 12 + MONTH ( [Date] ) - 1,
    "Year Month", FORMAT ( [Date], "mmm yy" ),
    "Week Number", WEEKNUM ( [Date] ),
    "Week Number and Year", "W" & WEEKNUM ( [Date] ) & " " & YEAR ( [Date] ),
    "WeekYearNumber", YEAR ( [Date] ) & 100 + WEEKNUM ( [Date] ),
    "Is Working Day",not WEEKDAY([Date]) in {1,7},
    "Quarter", FORMAT([Date], "\QQ")
)
```

Power BI View:

The screenshot shows the Power BI Desktop interface. The top ribbon includes tabs for File, Home, Help, and External tools. The Home tab is active, displaying various icons for data sources (Get data, Excel, OneLake data, SQL Server, Enter data, Dataverse, Recent sources), queries (Transform data, Refresh data), relationships (Manage relationships), calculations (New measure, New column, New table), security (Manage roles, View as), and Q&A (Q&A setup, Language, Linguistic schema, Sensitivity).

The main area displays the DAX editor with the following code:

```
1 Calendar =
2 --VAR Days = CALENDAR(DATE(2012, 9,1), DATE(2023, 8, 1))
3 --VAR Days = CALENDAR(AUTO())
4 var mindate = MIN(Database[Sales Month])
5 VAR maxdate = MAX(Database[Sales Month])
6 VAR Days = CALENDAR((mindate), (maxdate))
7 RETURN ADDCOLUMNS (
8     Days,
9     "Days", DAY([Date]),
10    "Year", YEAR ( [Date] ),
11    "Month Number", MONTH ( [Date] ),
12    "Month", FORMAT ( [Date], "mmm" ),
13    "Year Month Number", YEAR ( [Date] ) * 12 + MONTH ( [Date] ) - 1,
14    "Year Month", FORMAT ( [Date], "mmm yy" ),
15    "Week Number", WEEKNUM ( [Date] ),
16    "Week Number and Year", "W" & WEEKNUM ( [Date] ) & " " & YEAR ( [Date] ),
17    "WeekYearNumber", YEAR ( [Date] ) & 100 + WEEKNUM ( [Date] ),
18    "Is Working Day",not WEEKDAY([Date]) in {1,7},
19    "Quater", FORMAT([Date], "\QQ")
20 )
21
22
```

The Properties pane on the right shows the following fields:

- General
- Name: Calendar
- Description: Enter a description
- Synonyms: calendar
- Row label: Select a row label
- Key column

Results:

Illustration 1:

The screenshot shows the Power BI Desktop interface with the Data model view. The ribbon is the same as in the previous screenshot. The main area displays a data model with two tables: Calendar and DomCustomers. The Calendar table has columns: Date, Days, Is Working Day, Month, and Month Number. The DomCustomers table has a column: Customer. The tables are connected by a relationship line, with a '1' on the Calendar side and a '1' on the DomCustomers side, indicating a one-to-one relationship.

Illustration 2:

The screenshot shows the Microsoft Power BI Desktop interface. The 'Table tools' ribbon is active, displaying options like 'Mark as date table', 'Manage relationships', 'New measure', 'Quick measure', 'New column', and 'New table'. Below the ribbon, a data table is visible with columns for Date, Year, Month Number, Month, Year Month Number, Year Month, Week Number, Week Number and Year, WeekYearNumber, Is Working Day, Quarter, and Days. The table contains data for the period from 10/1/2012 to 10/4/2013.

Date	Year	Month Number	Month	Year Month Number	Year Month	Week Number	Week Number and Year	WeekYearNumber	Is Working Day	Quarter	Days
10/1/2012 12:00:00 AM	2012	10	Oct	24153	Oct 12	40	W40 2012	2012140	True	Q4	
10/2/2012 12:00:00 AM	2012	10	Oct	24153	Oct 12	40	W40 2012	2012140	True	Q4	
10/3/2012 12:00:00 AM	2012	10	Oct	24153	Oct 12	40	W40 2012	2012140	True	Q4	
10/4/2012 12:00:00 AM	2012	10	Oct	24153	Oct 12	40	W40 2012	2012140	True	Q4	
10/5/2012 12:00:00 AM	2012	10	Oct	24153	Oct 12	40	W40 2012	2012140	True	Q4	
10/8/2012 12:00:00 AM	2012	10	Oct	24153	Oct 12	41	W41 2012	2012141	True	Q4	
10/9/2012 12:00:00 AM	2012	10	Oct	24153	Oct 12	41	W41 2012	2012141	True	Q4	
10/10/2012 12:00:00 AM	2012	10	Oct	24153	Oct 12	41	W41 2012	2012141	True	Q4	
10/11/2012 12:00:00 AM	2012	10	Oct	24153	Oct 12	41	W41 2012	2012141	True	Q4	
10/12/2012 12:00:00 AM	2012	10	Oct	24153	Oct 12	41	W41 2012	2012141	True	Q4	
10/15/2012 12:00:00 AM	2012	10	Oct	24153	Oct 12	42	W42 2012	2012142	True	Q4	
10/16/2012 12:00:00 AM	2012	10	Oct	24153	Oct 12	42	W42 2012	2012142	True	Q4	
10/17/2012 12:00:00 AM	2012	10	Oct	24153	Oct 12	42	W42 2012	2012142	True	Q4	
10/18/2012 12:00:00 AM	2012	10	Oct	24153	Oct 12	42	W42 2012	2012142	True	Q4	
10/19/2012 12:00:00 AM	2012	10	Oct	24153	Oct 12	42	W42 2012	2012142	True	Q4	
10/22/2012 12:00:00 AM	2012	10	Oct	24153	Oct 12	43	W43 2012	2012143	True	Q4	
10/23/2012 12:00:00 AM	2012	10	Oct	24153	Oct 12	43	W43 2012	2012143	True	Q4	
10/24/2012 12:00:00 AM	2012	10	Oct	24153	Oct 12	43	W43 2012	2012143	True	Q4	
10/25/2012 12:00:00 AM	2012	10	Oct	24153	Oct 12	43	W43 2012	2012143	True	Q4	
10/26/2012 12:00:00 AM	2012	10	Oct	24153	Oct 12	43	W43 2012	2012143	True	Q4	
10/29/2012 12:00:00 AM	2012	10	Oct	24153	Oct 12	44	W44 2012	2012144	True	Q4	
10/30/2012 12:00:00 AM	2012	10	Oct	24153	Oct 12	44	W44 2012	2012144	True	Q4	
10/31/2012 12:00:00 AM	2012	10	Oct	24153	Oct 12	44	W44 2012	2012144	True	Q4	
10/1/2013 12:00:00 AM	2013	10	Oct	24165	Oct 13	40	W40 2013	2013140	True	Q4	
10/2/2013 12:00:00 AM	2013	10	Oct	24165	Oct 13	40	W40 2013	2013140	True	Q4	
10/3/2013 12:00:00 AM	2013	10	Oct	24165	Oct 13	40	W40 2013	2013140	True	Q4	
10/4/2013 12:00:00 AM	2013	10	Oct	24165	Oct 13	40	W40 2013	2013140	True	Q4	

NOTE: you can access the source code used for this project in the same GitHub repository as this document.

-Other relevant measures were also created using Dax.

➤ Background & Styling:

The Background finish was done in Microsoft PowerPoint and saved as a scalar vector file to ensure that the quality remains the same when stretched.

See Result below:

Figure 3:

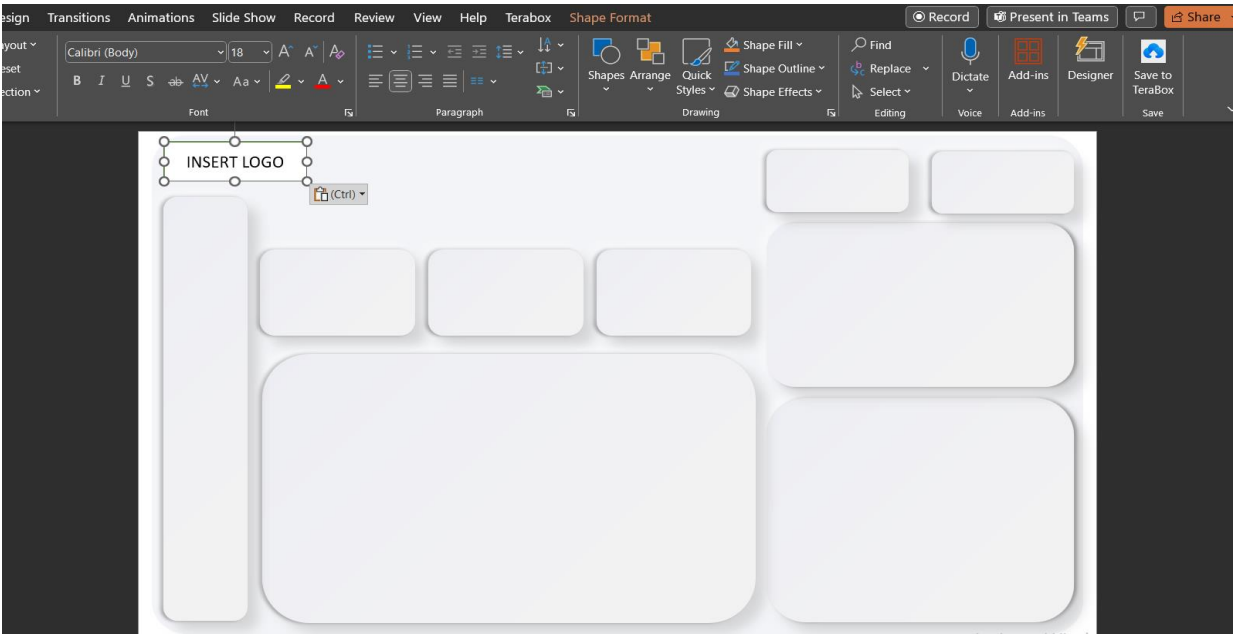


Figure 4:

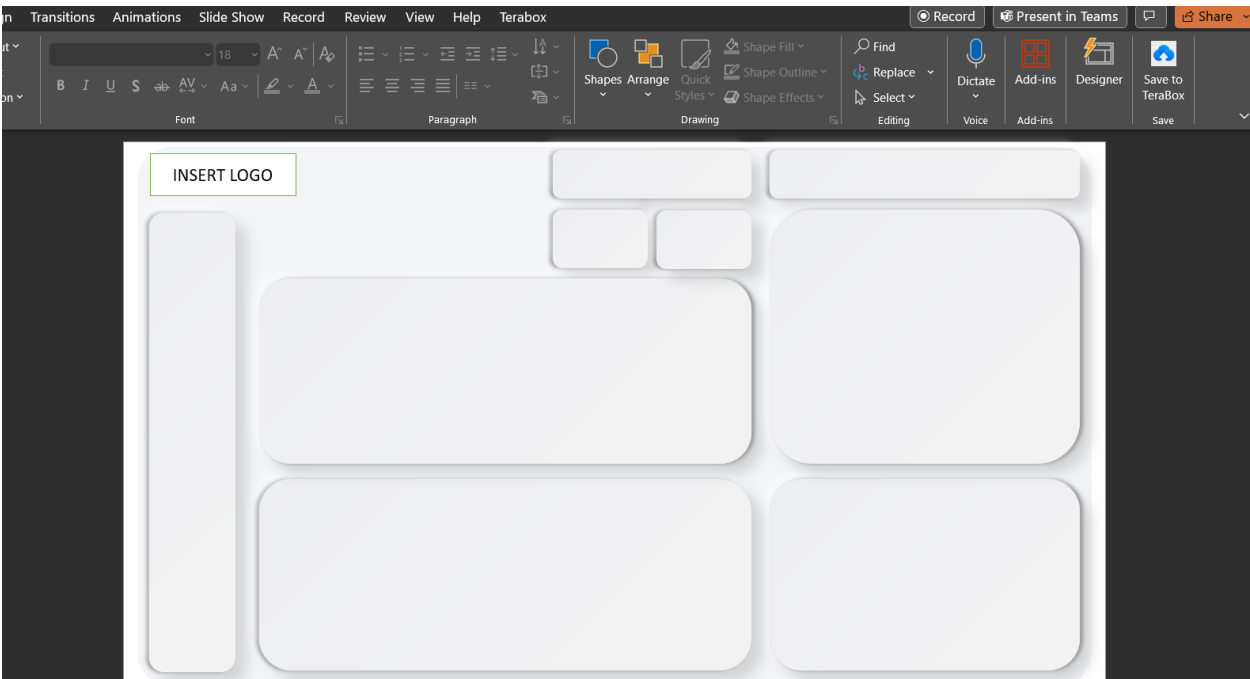
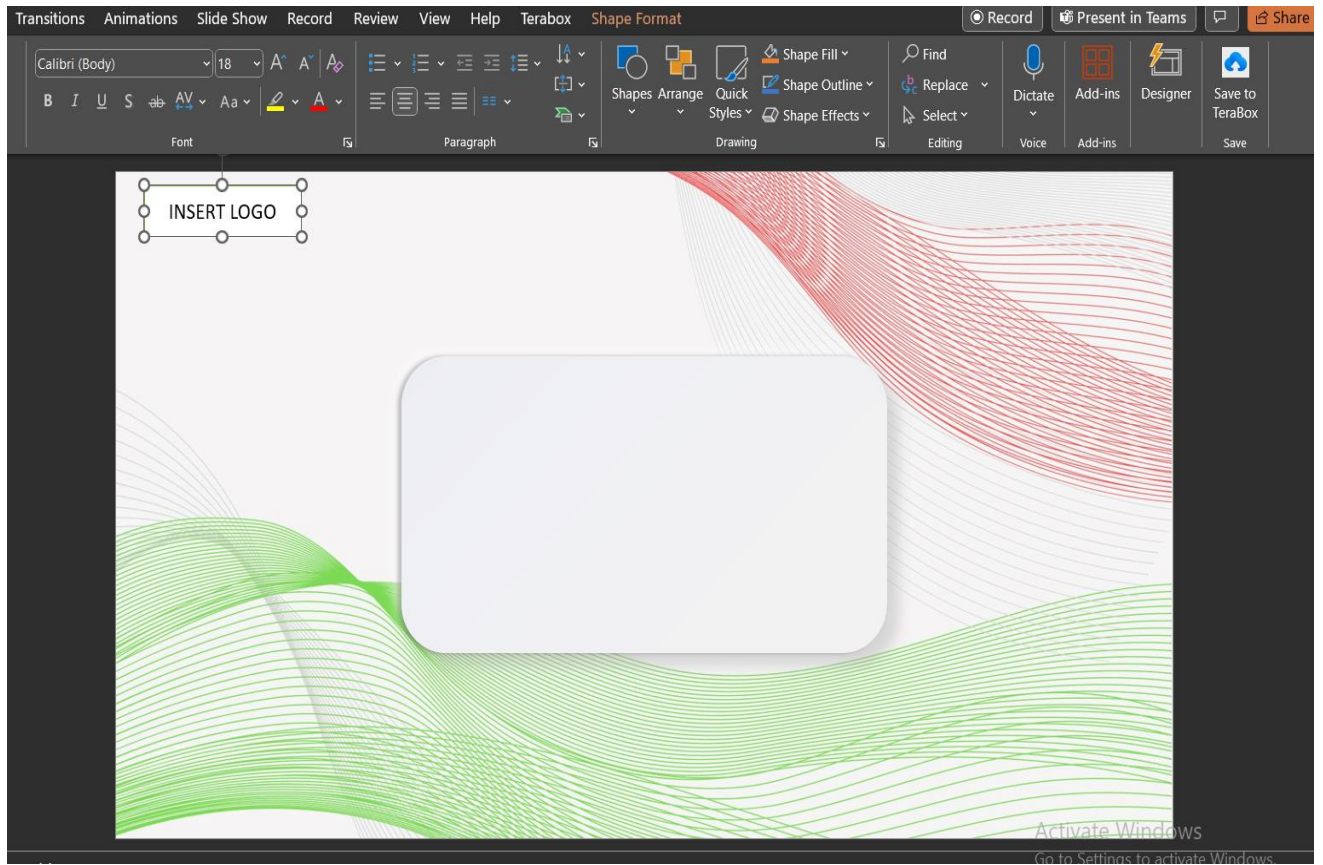


Figure 5:



➤ **Building Visuals:**

Different visuals were used, including Bar and Column charts, Donut charts, and Stacked column charts, cards, and Matrix among others.

Visual Output 1:



Visual Output 2:

