

Power BI Coding challenge Documentation

Perfume Brand Analysis

1. Project Overview and Objective

This project focuses on analyzing a perfume dataset using Microsoft Power BI to uncover key business insights related to sales, pricing, stock levels, and brand performance. The dataset consists of various perfume attributes such as Type, Brand, Price, Stock Availability, Last Updated Date, and other product-level information.

Using Power BI, the data was cleaned, transformed, modeled, and visualized to build an interactive dashboard that highlights important KPIs and trends. The goal was to understand how different categories and brands perform, identify stock inconsistencies, observe pricing patterns, and evaluate product performance over time.

2. Data Cleaning

1. Removed null and inconsistent values.
2. Converted data types (Price → Decimal, Date → Date type).
3. Replaced null dates with 'Not Updated' text for visualization.
4. Created new calculated columns where needed.
5. Ensured brand/type fields had consistent formatting.

Perfume Data - CC PBI

File Home Transform Add Column View Tools Help

Close & Apply New Source Recent Sources Enter Data Data source settings Manage Parameters Refresh Advanced Editor Properties Choose Columns Remove Columns Keep Rows Remove Rows Split Column Group By Replace Values Data Type: Text Use First Row as Headers Merge Queries Append Queries Combine Files Combine

Queries [5]

Mens perfume

Womens perfume

Perfume Master

Dim Type

Dim Brand

= Table.SelectRows(#"Replaced Value11", each true)

	Brand	Type	Price	Available	Sold	Last Update
1	Dior	Eau De Perfume	8499	10	116	
2	As Show	Eau De Perfume	10999	8	48	
3	Unbranded	Eau De Toilette	10000	10	27	
4	Giorgio Armani	Eau De Toilette	4499	2	159	
5	Lattafa	Fragrances	1691	1	156	
6	Multiple Brands	Perfume	1499	10	79	
7	Maison Alhambra	Eau De Perfume	3099	9	39	
8	Unbranded	Eau De Perfume	8500	1	6	
9	Unbranded	Does Not Apply	1589	10	17	
10	Gucci	Eau De Perfume	4999	8	68	
11	Ralph Lauren	Eau De Toilette	3499	10	615	
12	Dolce&Gabbana	Eau De Toilette	2995	7	458	
13	Secretmu	Perfume	1599	10	889	
14	As Show	Eau De Perfume	5999	9	63	
15	Versace	Eau De Toilette	3499	7	136	
16	Paco Rabanne	Perfume	6899	2	20	
17	Grandeur	Eau De Perfume	3799	10	44	
18	Armaf	Eau De Toilette	2999	5	384	
19	Carolina Herrera	Eau De Toilette	3999	10	236	
20	Dior	Eau De Toilette	8395	4	22	
21	Dolce & Gabbana	Eau De Toilette	2994	1	9208	
22	Clinique	Eau De Toilette	2199	4	86	
23	Dumont	Fragrances	4999	3	187	
24	Afnan	Eau De Perfume	3370	10	131	
25	Versace	Eau De Toilette	3599	2	43	
26						

10 COLUMNS, 999+ ROWS Column profiling based on top 1000 rows

PREVIEW DOWNLOADED ON SUNDAY

3. Data Model

The data model includes a single fact table (Perfume Master) supported by dimensional fields such as Type, and Brand.

The screenshot shows the 'Manage relationships' dialog box in Microsoft Power BI. It lists two existing relationships:

From: table (column)	Relationship	To: table (column)	Status
Perfume Master (Brand)	$* \longleftarrow \square \rightarrow 1$	Dim Brand (Brand)	Active
Perfume Master (Type)	$* \longleftarrow \square \rightarrow 1$	Dim Type (Type)	Active

The Power BI interface also displays various data sources and visualizations on the left and right sides of the main canvas area.

4. DAX Measures Created

Below are the key measures created:

- Total Sales = SUM(Perfume[Price])
- Average Price = AVERAGE(Perfume[Price])
- Total Stock = SUM(Perfume[Stock])
- Max Price = MAX(Perfume[Price])
- Brand Count = DISTINCTCOUNT(Perfume[Brand])

The screenshot shows the Microsoft Power BI desktop interface. The main area displays a dashboard with eight cards showing measures: Total Price (9M), Total Available Stock (37K), Brand Count (372), Minimum Price (66), Average Price (4.31K), Total Sale (1M), Average Sale (632.73), and Maximum Price (30K). The ribbon at the top is set to the 'Modeling' tab. On the right side, there is a 'Visualizations' pane listing various chart types like Bar, Line, and Map, and a 'Data' pane listing fields such as Perfume Master, Available, Average Price, Brand, Country, Gender, Last Updated, Date Hierarchies, and various price and stock measures. The bottom navigation bar shows tabs for 'Basics DAX Measures' (selected), 'Advanced DAX Measures', 'Clustered Bar Chart', 'Stacked Column Chart', 'Pie Chart', and 'Table'. The status bar at the bottom indicates 'Page 1 of 9'.

Advanced Measures:

1. Calculated **Previous Month Sales** to compare current performance with past trends.
2. Created **Overall Perfume Rank** to rank products based on total sales.
3. Built **Stock-to-Sales Efficiency** to measure how effectively stock is converted into sales.
4. Implemented **Month-over-Month (MoM) Growth Percentage** to track monthly sales growth.
5. Developed **YTD Total Sales** to monitor cumulative yearly performance.

The screenshot shows the Microsoft Power BI desktop application interface. The ribbon at the top is set to the 'Modeling' tab. The main workspace displays five cards representing different DAX measures:

- Previous Month Sales:** Shows a value of **1.40K**.
- Overall Perfume Rank:** Shows a value of **1**.
- Stock to Sales Efficiency:** Shows a value of **33.88**.
- MoM Growth Percentage:** Shows a value of **0.01**.
- YTD Total Sales:** Shows a value of **12.95K**.

On the right side, the 'Data' pane is open, showing various data fields categorized under 'Type', 'Last Updated ...', and 'Values'. The 'Values' section includes fields like 'Add data fields here', 'Drill through', 'Cross-report', 'Keep all filters', and 'Add drill-through fields here'.

At the bottom, there are tabs for 'Basics DAX Measures', 'Advanced DAX Measures' (which is selected), 'Clustered Bar Chart', 'Stacked Column Chart', 'Pie Chart', and 'Tab'. The status bar at the bottom indicates 'Page 2 of 9' and 'Update available (click to download)'.

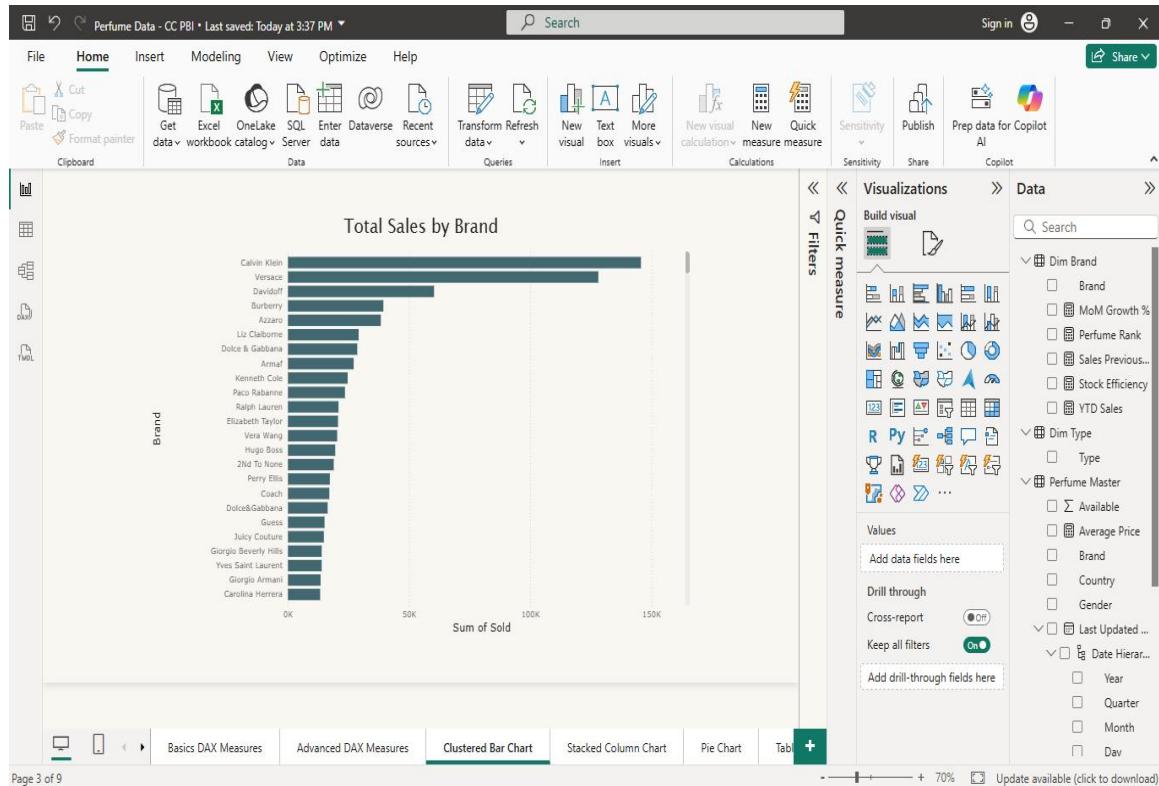
5.Key Visual Charts

1. Clustered Bar Chart – Total Sales by Brand

Displays sales performance of all perfume brands.

Helps identify top-selling brands such as Calvin Klein and Versace.

Useful for brand comparison and ranking.

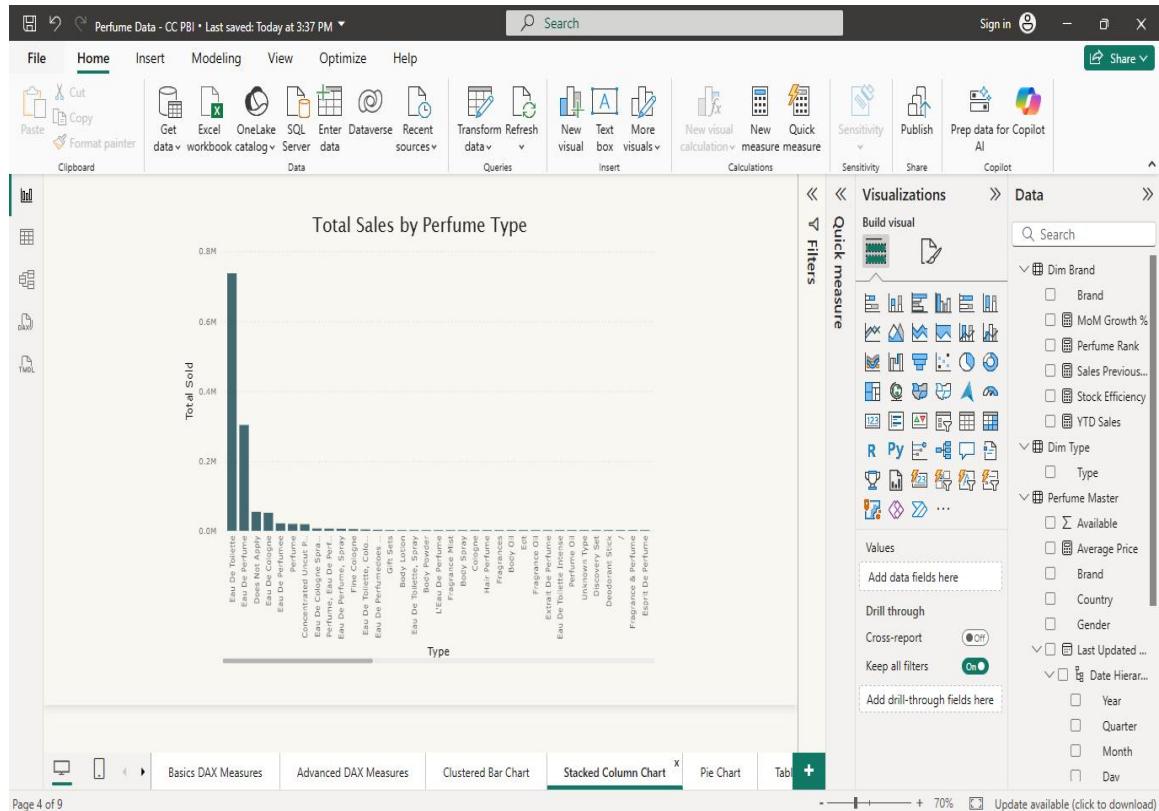


2. Stacked Column Chart – Total Sales by Perfume Type

Shows total sales across different perfume types.

Highlights top-selling categories, with Eau De Toilette performing the best.

Useful for understanding consumer preference by product type.

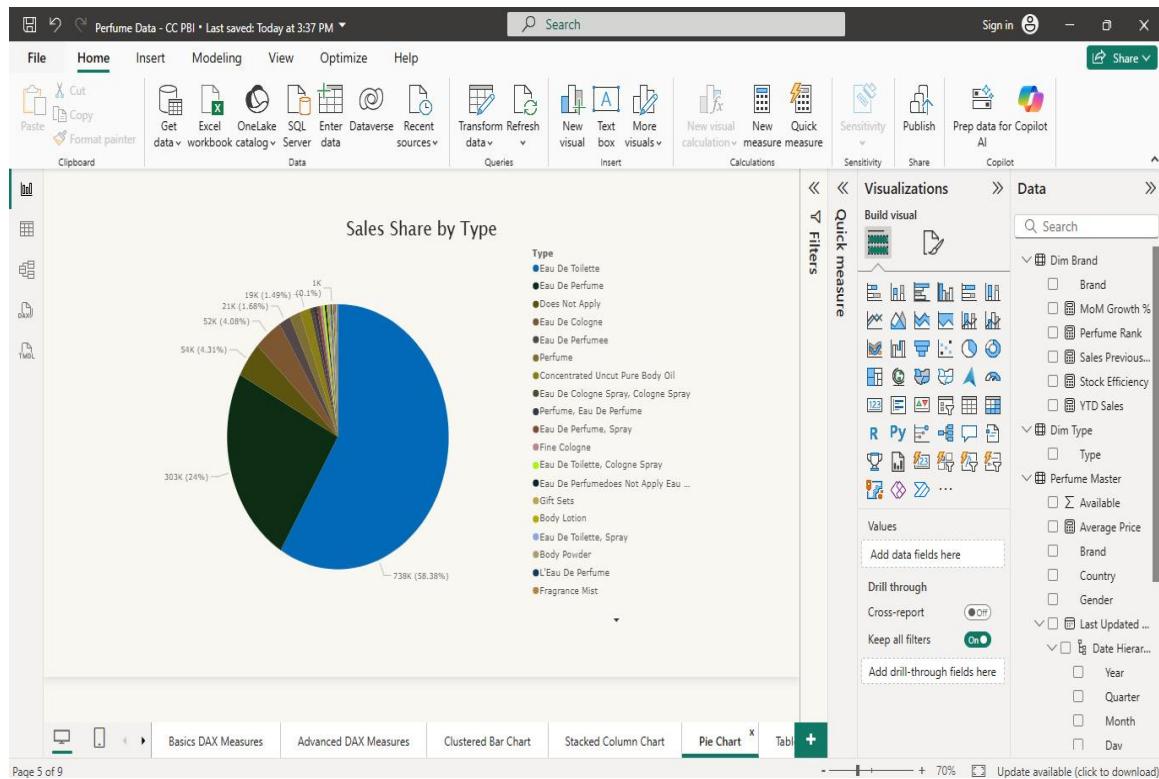


3. Pie Chart – Sales Share by Type

Represents each perfume type's share in total sales.

Allows quick visualization of dominant and low-performing categories.

Helps in identifying product mix distribution.



4. Table Visual – Perfume Sales Summary

Provides a structured summary listing each brand along with its perfume type.

Useful for detailed product-level analysis.

Helps users view brand-type combinations at a glance.

The screenshot shows the Microsoft Power BI interface with a 'Table' visual selected. The visual displays a summary of perfume sales data. The columns are Brand, Type, Total Price, Total Sold, Average Price, and Month. The data includes various brands like 2Nd To None, Abercrombie & Fitch, Acqua Di Gio, and Afnan, along with their respective perfume types, sales figures, and months. A total row at the bottom summarizes the data. The Power BI ribbon is visible at the top, and the right side features a 'Visualizations' pane with various chart options and a 'Filters' section.

Brand	Type	Total Price	Total Sold	Average Price	Month
2Nd To None	Concentrated Uncut Pure Body Oil	665	18882	665.00	May
Abercrombie & Fitch	Aftershave	4400	24	4,400.00	May
Abercrombie & Fitch	Eau De Cologne	4999	381	4,999.00	April
Abercrombie & Fitch	Eau De Cologne	45085	3688	4,098.64	May
Acqua Di Gio	Eau De Toilette	1599	78	1,599.00	May
Acqua Di Parma	Eau De Cologne	9392	322	4,696.00	May
Acqua Di Parma	Eau De Toilette	8499	22	4,249.50	May
Adam Levine	Eau De Perfume	999	44	999.00	April
Adidas	Eau De Toilette	1158	17	1,158.00	November
Aerin	Eau De Perfume	800	34	800.00	March
Aerin	Eau De Perfume	1189	16	1,189.00	May
Aeropostale	Eau De Perfume	2640	1338	2,640.00	May
Afnan	Eau De Perfume	39207	3063	3,015.92	May
Total		8606817	1263568	4,309.87	

5. Matrix Visual – Performance Matrix

Allows cross-analysis of multiple fields (e.g., brand, type, monthly sales).

Supports drill-down and comparison across categories.

Useful for multi-dimensional analysis.

The screenshot shows a Microsoft Power BI interface with a "Performance Matrix" visual. The matrix displays sales data for various brands across gender categories (Men, Women, Total). The columns represent Gender (Men, Women, Total) and the rows represent Brand names. The data includes Total Sold and Average Price for each category.

Gender	Men	Women	Total			
Brand	Total Sold	Average Price	Total Sold	Average Price	Total Sold	Average Price
Total	76265	4,633.02	497303	3,985.76	1263568	4,309.87
2Nd To None	18882	663.00			18882	665.00
Abercrombie & Fitch	4093	4,191.08			4093	4,191.08
Acqua Di Gio	78	1,599.00			78	1,599.00
Acqua Di Parma	322	4,696.00	22	4,249.50	344	4,472.75
Adam Levine			44	999.00	44	999.00
Adidas	17	1,158.00			17	1,158.00
Aerin			50	994.50	50	994.50
Aeropostale			1338	2,640.00	1338	2,640.00
Afnan	3022	2,737.69	65	3,711.33	3087	2,920.25
Alnash Perfums			3	5,850.00	3	5,850.00
Al Hamra			12	2,599.00	12	2,599.00
Al Haramein	1022	3,381.33	32	3,520.00	1054	3,436.80
Al Rehab	76	899.00	295	1,207.50	371	1,104.67
Al Wataniah	55	1,783.00	95	3,747.00	150	2,765.00
Aladdin	3	2,899.00			3	2,899.00
Alexandria Fragrances	4	300.00			4	300.00
Alfred Sung			11451	1,836.40	11451	1,836.40
Allsaints	13	4,799.00			13	4,799.00
Alt-Rehab			30	925.00	30	925.00
Alt Fragrances			686	5,449.50	686	5,449.50
Amouage	78	16,618.00			78	16,618.00
Anna Sui			28	5,114.00	28	5,114.00
Aquolina			1237	1,604.50	1237	1,604.50
Arabian Oud	13	9,963.00			13	9,963.00
Aramis	2494	2,050.00			2494	2,050.00

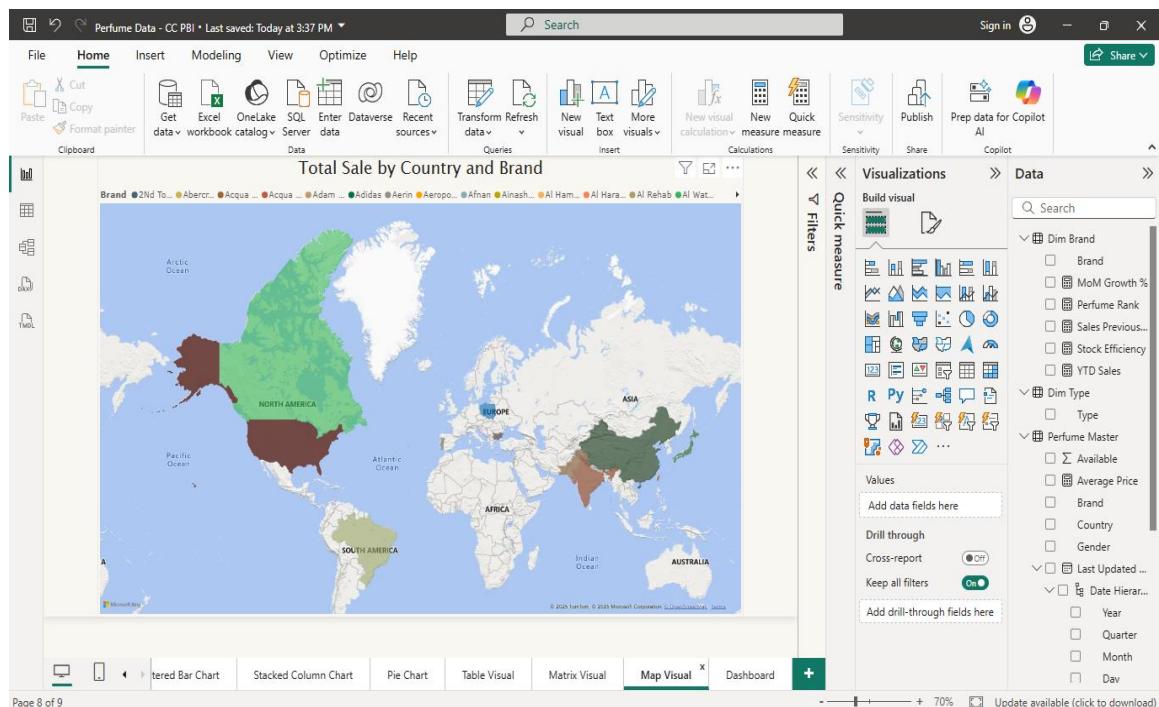
The Power BI interface includes a ribbon with Home, Insert, Modeling, View, Optimize, Help tabs. The Insert tab is selected, showing options for Transform Refresh data, New visual, Text box, More visuals, Insert, Calculations, Sensitivity, Share, Publish, Prep data for Copilot AI, and Copilot. The right side features a Visualizations pane with a Build visual button, a Filters section, a Quick measure section with a grid of icons, and a Values section with an "Add data fields here" button. Below these are Drill through, Cross-report, Keep all filters, and Add drill-through fields here buttons. The bottom navigation bar includes Stacked Column Chart, Pie Chart, Table Visual, Matrix Visual (selected), Map Visual, Dashboard, and a plus sign for new visual. The status bar at the bottom shows "Page 7 of 9" and "70%".

6. Map Visual – Total Sales by Country and Brand

Shows geographical distribution of sales across countries.

Highlights regional performance and brand presence globally.

Helps identify strong and emerging markets.



Dashboard Visualization

The *Perfume Brand Analysis Dashboard* presents a comprehensive view of sales performance using interactive visuals and filters. This dashboard helps users quickly understand key trends, top-performing brands, and regional sales distribution.

- Key Visual Components
- Previous Month Sales Card
- YTD Total Sales Gauge
- Perfume Sales Summary (Table Visual)
- Total Sales by Brand (Bar Chart)
- Total Sales by Perfume Type (Column Chart)
- Total Sales by Country and Brand (Map Visual)

Slicers / Filters Used

Brand Filter – Allows selection and comparison of specific perfume brands.

Month Filter – Supports month-wise analysis of sales trends.

Gender Filter – Enables segmentation of products targeted toward different genders.

Perfume Brand Analysis Dashboard

Previous Month Sales: 1.40K

YTD Total Sales: 12.95K

Perfume Sales Summary

Brand	Type
2Nd To None	Concentrated Uncut Pure Body Oil
Abercrombie & Fitch	Aftershave
Abercrombie & Fitch	Eau De Cologne
Abercrombie & Fitch	Eau De Cologne
Total	

Total Sales by Brand

Total Sales by Perfume Type

Insight: Sales are growing steadily, with Calvin Klein and Eau De Toilette driving most revenue, and strong demand visible across key global regions.

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