1. *Data cleaning and transformation on “sales” table example.*
   Used tools: Power Query

```
let
  // Source
  Source = Excel.CurrentWorkbook(){[Name="sales"]}[Content],

  // Types
  #"Changed Type" =
    Table.TransformColumnTypes(
      Source,
      {
        {"order_id", Int64.Type},
        {"dt_order", type date},
        {"mrp_pln", Int64.Type},
        {"cost_per_unit_pln", type number},
        {"store_id", Int64.Type},
        {"product_id", Int64.Type},
        {"category", type text},
        {"quantity", Int64.Type},
        {"sales_pln", type number},
        {"cost_price_pln", type number},
        {"discount%", Percentage.Type}
      }
    ),

  // Ensure we don't duplicate existing flag columns
  Base1 =
    if List.Contains(Table.ColumnNames(#"Changed Type"), "HasNull")
    then Table.RemoveColumns(#"Changed Type", {"HasNull"})
    else #"Changed Type",
  Base2 =
    if List.Contains(Table.ColumnNames(Base1), "HasBlank")
    then Table.RemoveColumns(Base1, {"HasBlank"})
    else Base1,

  // Columns to check
  ColumnsToCheck = {
    "order_id", "dt_order", "mrp_pln", "cost_per_unit_pln", "store_id",
    "product_id", "category", "quantity", "sales_pln", "cost_price_pln", "discount%"
  },
  CheckedColumns = List.Intersect({ ColumnsToCheck, Table.ColumnNames(Base2) }),

  // Add flags
  AddHasNull =
    Table.AddColumn(
      Base2,
      "HasNull",
      (r) => List.AnyTrue( List.Transform(CheckedColumns, (c) => Record.Field(r, c) = null) ),
      type logical
    ),
  AddHasBlank =
    Table.AddColumn(
```

```
        AddHasNull,
        "HasBlank",
        (r) =>
          List.AnyTrue(
            List.Transform(
              CheckedColumns,
              (c) =>
                let v = Record.Field(r, c)
                in  Value.Is(v, type text) and Text.Trim(v) = ""
            )
          ),
        type logical
    ),

  // De-duplicate
  #"Removed Duplicates" = Table.Distinct(AddHasBlank),

  // Remove rows that are entirely blank/null
  #"Removed Blank Rows" =
    Table.SelectRows(
      #"Removed Duplicates",
      each not List.IsEmpty(List.RemoveMatchingItems(Record.FieldValues(_), {"", null}))
    ),

  #"Filtered Rows" = Table.SelectRows(#"Removed Blank Rows", each true),

  // --- Sales after discount (safe overwrite) ---
  Base_SalesWithDisc =
    if List.Contains(Table.ColumnNames(#"Filtered Rows"), "sales_with_discount")
    then Table.RemoveColumns(#"Filtered Rows", {"sales_with_discount"})
    else #"Filtered Rows",

  #"Added sales_with_discount" =
    Table.AddColumn(
      Base_SalesWithDisc,
      "sales_with_discount",
      each [sales_pln] * (1 - [#"discount%"]),
      type number
    ),

  // Final column order
  #"Reordered Columns" =
    Table.ReorderColumns(
      #"Added sales_with_discount",
      {
        "order_id","dt_order","mrp_pln","cost_per_unit_pln","store_id","product_id","category",
        "quantity","sales_pln","sales_with_discount","cost_price_pln","discount%","HasNull","HasBlank"
      }
    ),

  #"Filtered Rows1" = Table.SelectRows(#"Reordered Columns", each true)
in
  #"Filtered Rows1"
```

2. *Building a data model with fact & dimension tables.*
   Used tools: Power BI

// This step included creation of "CALENDAR" table, importing data from 2 MS Excel Workbooks.

```
CALENDAR =

--Start and End dates
ADDCOLUMNS(
   CALENDAR(DATE(2020,1,1), DATE(2025,12,31)),
   "year", YEAR ([Date]),
   "month_number", MONTH ([DATE]),
   "month_name", FORMAT([Date], "MMMM"),
   "year_month", FORMAT( [Date], "YYYY-MM"),
   "quarter", "Q" & FORMAT([Date], "Q"),
   "day", DAY([Date]),
   "weekday_number", WEEKDAY([Date],2), --Monday=1, Sunday=7
   "weekday_name", FORMAT([Date], "dddd")
)
```

// Complete data model has 3 active relationships:

From: table (column)	Relationship	To: table (column)	Status
sales (dt_order)	* — 1	CALENDAR (Date)	Active
sales (product_id)	* — 1	products (product_id)	Active
sales (store_id)	* — 1	locations (store_id)	Active

3. *Creating KPI measures.*
   Used tools: DAX Power BI

```
total_sales_pln =
SUM ( sales[sales_pln] )

total_sales_after_discount =
SUMX ( sales, sales[sales_pln] * ( 1 - sales[discount%] ) )

total_quantity_sold =
sum(sales[quantity])

total_gross_profit_pln =
SUMX(sales, (sales[sales_pln]-sales[cost_price_pln]))

total_gross_profit_after_discount =
SUMX (sales,
   ( sales[sales_pln] * ( 1 - sales[discount%] ) ) - sales[cost_price_pln])
```

sales_YTD =
TOTALYTD([total_sales_pln],'CALENDAR'[Date])

profit_YTD =
TOTALYTD([total_gross_profit_pln],'CALENDAR'[Date])

profit_margin_% =
DIVIDE([total_gross_profit_pln], [total_sales_pln],0)

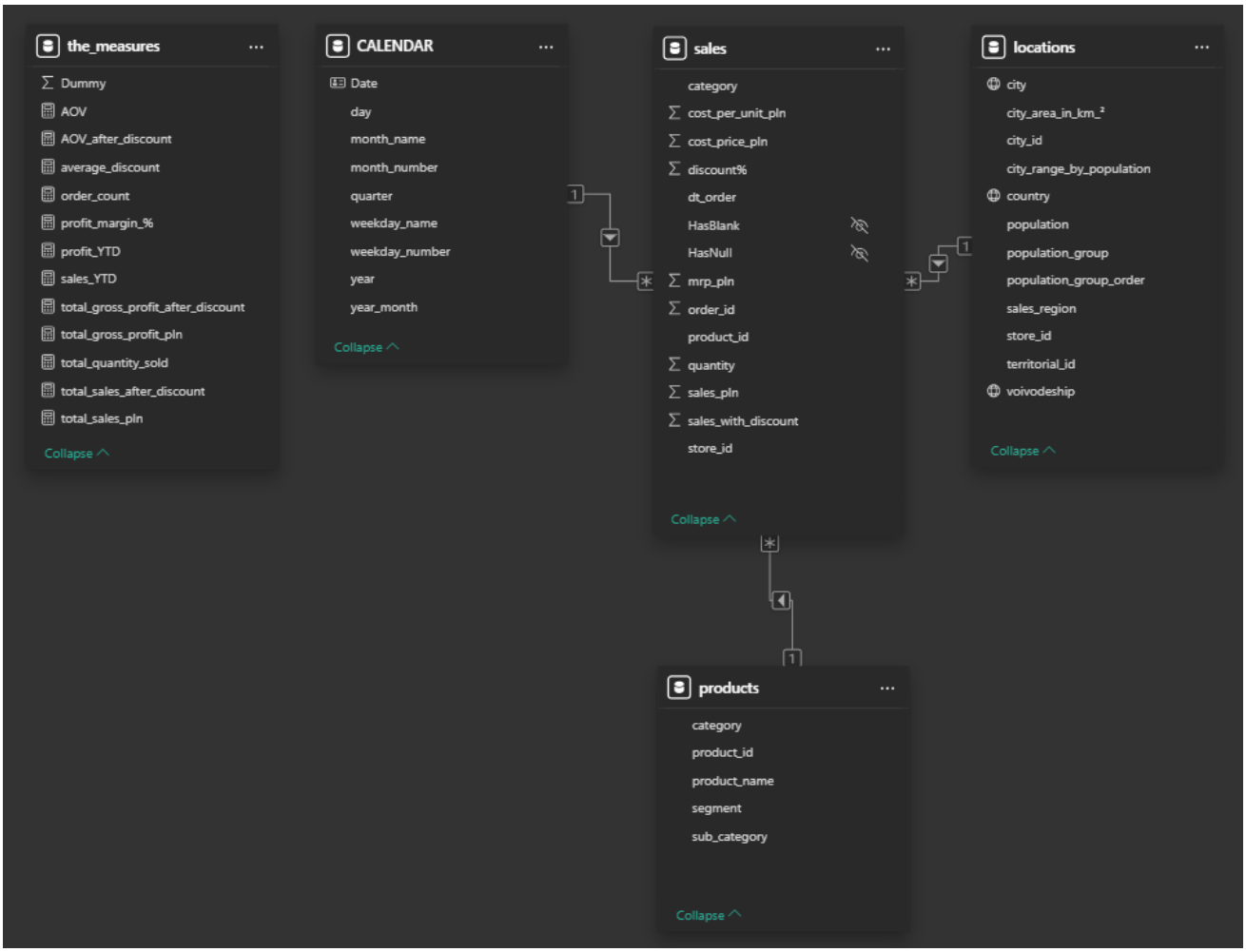
order_count =
DISTINCTCOUNT(sales[order_id])

average_discount =
AVERAGE(sales[discount%])

AOV_after_discount =
DIVIDE([total_sales_after_discount],[order_count],0)

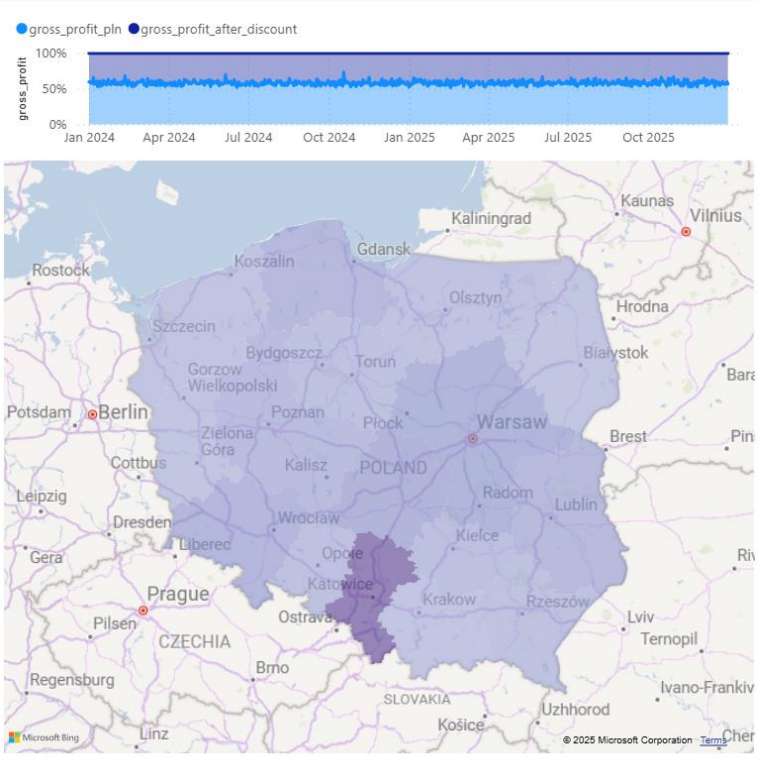
AOV =
DIVIDE([total_sales_pln],[order_count],0)

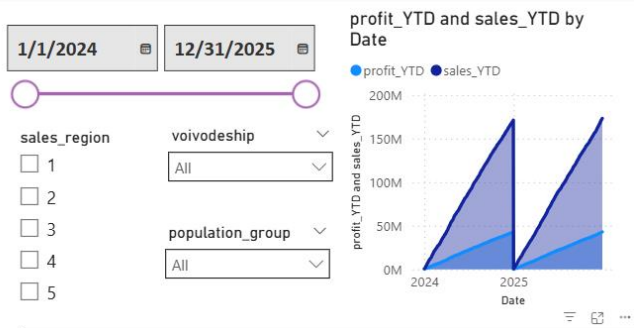
// Data model view



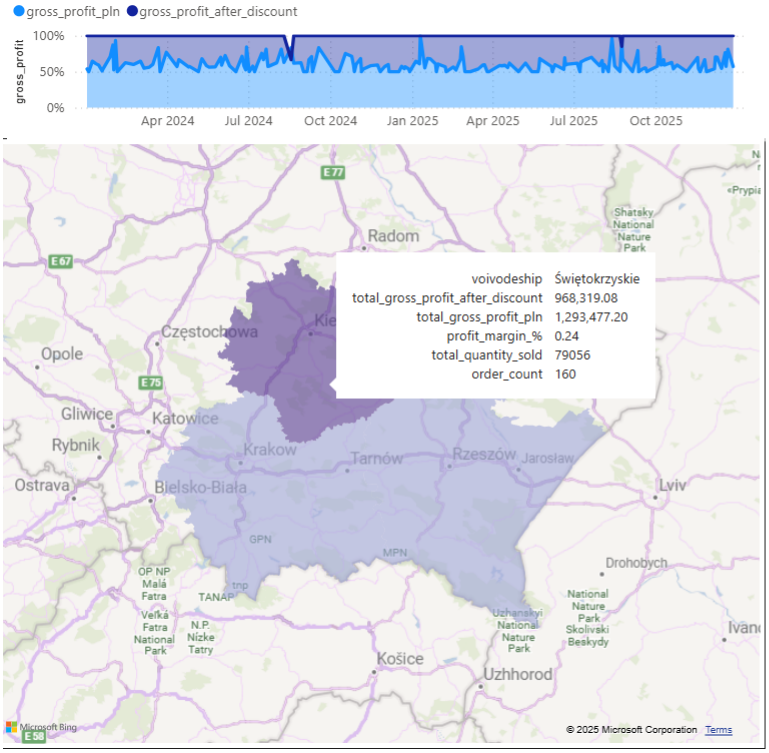
4. *Data visualization*
   Used tools: Power BI

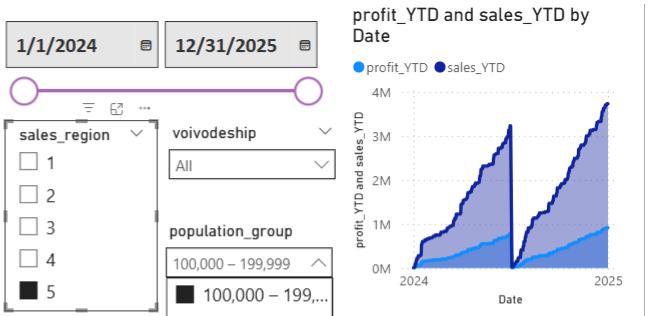
// The first Dashboard presents sales region, voivodeship, store performance during defined period.





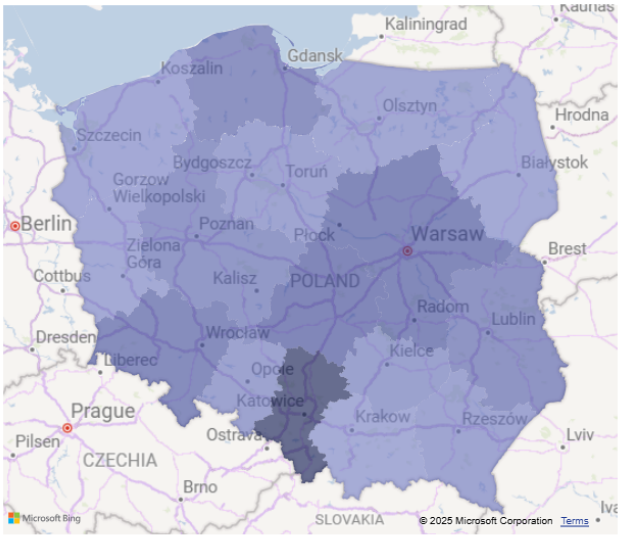
store_id	gross_profit_after_discount	Versus previous gross profit after discount	total_gross_profit_pln	AOV	order_count	t
357	381,056.28	228,730.48	496,579.60	44,284.95	42	
219	369,602.72	193,159.96	465,735.60	40,286.75	40	
374	359,860.80	139,356.64	475,233.60	42,679.48	42	
346	335,027.48	115,412.48	425,487.20	45,641.00	36	
208	322,643.92	127,296.84	424,953.20	32,628.85	47	
482	320,756.40	111,624.96	433,634.40	43,141.68	37	
465	318,600.16	137,001.92	410,140.40	36,483.07	43	
241	318,134.40	45,679.44	422,608.00	38,363.44	43	
317	317,862.20	114,129.88	392,358.00	33,368.52	42	
352	315,581.72	56,219.24	408,742.80	39,905.85	41	
201	315,482.48	315,482.48	395,240.00	41,766.42	33	
308	314,453.76	63,376.18	410,819.60	33,454.26	46	
318	312,480.08	-5,382.12	418,238.80	41,104.11	35	
347	304,914.72	-30,112.76	427,754.80	38,353.22	41	
217	301,043.74	4,266.42	401,908.80	38,780.81	37	
Total	**62,529,495.36**	**62,529,495.36**	**85,613,220.00**	**34,427.63**	**10000**	





store_id	gross_profit_r_discount	oss ht	total_gross_profit_pln	AOV	order_count	to _s
241	318,1	4.40	422,608.00	38,363.44	43	
248	197,0	0.56	250,847.20	30,304.56	32	
389	189,5	1.40	259,210.00	41,134.13	30	
350	182,9	7.76	241,903.20	31,610.80	30	
372	149,8	8.96	201,882.00	22,105.58	33	
269	113,788.84	-83,225.00	158,930.00	31,715.18	22	
385	112,372.96	-37,494.68	163,254.00	22,255.94	33	
Total	**1,263,658.64**	**1,263,658.64**	**1,698,634.40**	**31,225.95**	**223**	

// The second Dashboard presents product categories and single products performance in defined areas (region, voivodeship) during defined period.

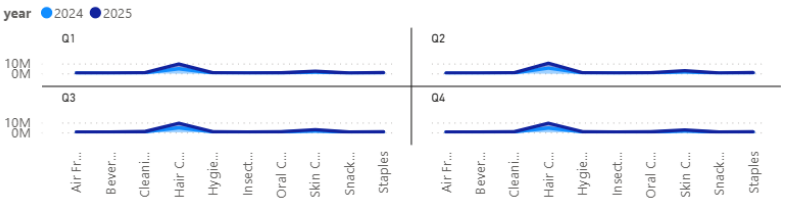


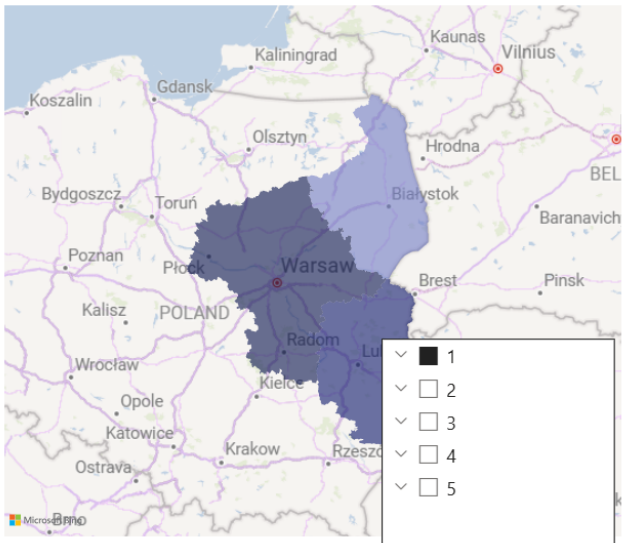
product_name	tal_gross_profit after_discount	total_gross_profit_pln	order_count	total_quantity_sold	AOV	average_disc
Aashirvaad Chana Dal	115125	183872	57	27040	17078	0.07
Aashirvaad Masala Range	259364	315670	67	34312	12291	0.07
Aashirvaad Rajma	183042	240542	45	21477	15273	0.08
Aashirvaad Select Sharbati Atta	153730	196812	58	27335	13196	0.06
Aashirvaad Spice Mixes	37482	69434	41	21698	10584	0.07
Aashirvaad Tur Dal	99628	194269	54	28569	21162	0.08
Aashirvaad Whole Spices	74596	114682	69	35838	8310	0.07
Aashirvaad Whole Wheat Atta	76900	113506	45	20269	10810	0.08
Adore Semi-Permanent Hair Color	323240	479710	43	21805	56794	0.06
Ambi Pur Car Aqua Air Freshener	59288	137486	51	28643	20219	0.07
Ambi Pur Lavender Air Freshener	323061	397936	51	26180	24640	0.06
Ambi Pur Rose Air Freshener	370530	491650	62	31516	26433	0.07
Arctic Fox Semi-Permanent Hair Color	692557	953299	59	29064	59113	0.08
Arctic Fox Vegan and Cruelty-Free Semi-Permanent Hair Color Dye	459550	654060	41	21802	65938	0.07
BBLUNT Salon Secret High Shine CrÃ¨me Hair Color	889199	1091677	49	28136	75795	0.06
Total	**62529495**	**85613220**	**10000**	**5026262**	**34428**	

1/1/2024 — 12/31/2025

sales_region, voivodeship: All

category: Air Fresheners | Cleaning | Hygiene | Oral Care | Snacks & Confectionery | Beverages | Hair Care | Insecticides | Skin Care | Staples

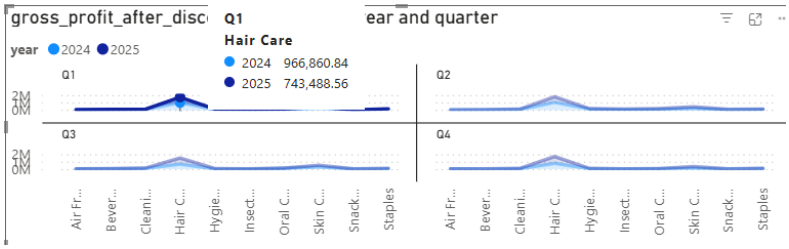




1/1/2024 — 12/31/2025

category: Air Fresheners | Cleaning | Hygiene | Oral Care | Snacks & Confectionery | Beverages | Hair Care | Insecticides | Skin Care | Staples

product_name	total_gross_profit_after_discount	total_gross_profit_pln	order_count	total_quantity_sold	AOV	AOV
Garnier Olia Bold Ammonia Free Permanent Hair Color	61,121.60	76,272.00	2	1589	108,052.00	108,052.00
L'OrÃ©al Paris Feria Hair Color	53,256.80	65,570.40	2	1301	83,264.00	83,264.00
Revlon Colorsilk Beautiful Color	46,699.20	58,852.80	4	2196	65,880.00	65,880.00
Schwarzkopf Got2b Metallics Permanent Hair Color	42,009.20	56,734.40	3	1202	48,080.00	48,080.00
Garnier Nutrisse Ultra Color Nourishing Hair Color Creme	45,865.20	54,894.00	2	1307	86,262.00	86,262.00
Ion Color Brilliance Semi-Permanent Hair Color	49,898.40	49,898.40	2	1223	68,488.00	68,488.00
L'OrÃ©al Paris Superior Preference Fade-Defying + Shine Permanent Hair Color	39,991.00	46,098.00	1	985	122,140.00	122,140.00
Clairol Textures & Tones Permanent Hair Color	39,124.80	45,478.40	2	1672	63,536.00	63,536.00
L'OrÃ©al Paris Superior Preference Permanent Hair Color	31,246.00	43,009.20	1	919	117,632.00	117,632.00
Manic Panic Amplified Hair Color	38,544.00	38,544.00	1	876	101,616.00	101,616.00
Garnier Olia Oil Permanent Hair Color	24,161.60	35,068.00	3	1594	42,506.67	42,506.67
Total	**743,488.56**	**1,086,012.00**	**76**	**41375**	**57,261.32**	**57,261.32**



5. *Key Business insights:*

5.1. Regional Profitability

- *The Śląskie voivodeship shows the highest gross profit. Profit margin in this region is 24%, which is below top-performing regions, indicating possible pricing or cost challenges.*
- *Highest profitability concentrations are visible in specific voivodeships despite lower order counts, suggesting high-value transactions.*
- *Top 5 voivodeship according to profitability: Śląskie, Dolnośląskie, Łódzkie , Mazowieckie, Pomorskie.*

5.2. Discount Impact

- *Across regions, gross profit after discount consistently lags behind gross profit before discount.*
- *In certain areas, discounting reduced margins by up to 8 percentage points, with minimal evidence of increased sales volumes to offset the loss.*
- *Indicates a need for tighter discount policy control and targeted promotions.*

5.3 Sales & Order Distribution

- *Regions with smaller population groups (100K–200K) still contribute significantly to profits, proving that smaller markets can be profitable if targeted effectively.*
- *High AOV (Average Order Value) in some regions suggests opportunities to upsell in underperforming areas.*

5.4 Time-Based Trends

- *YTD sales and profit trends show clear seasonal patterns with peaks in Q2 and Q4.*
- *The drop between years is linked to calendar reset, but underlying growth trends remain positive.*
- *Seasonal spikes can guide inventory and staffing strategies.*

5.5. Product Category Performance

- *Top 2 product categories: Hair Care and Skin Care dominate total revenue share.*
- *Some categories deliver high sales but low margins after discounts, indicating potential for repricing or product mix adjustments.*