

PRODUCT ANALYSIS PROJECT

Python(pandas) , SQL , Power bi

Product Analysis Dashboard

sale_price

2.45

12,500.00

category

☐ Baby Care

☐ Bakery, Cakes & Dairy

Total Product

27.6K

Total Sale

8.89M

Total Brand

2313

%No Rating

31.3%

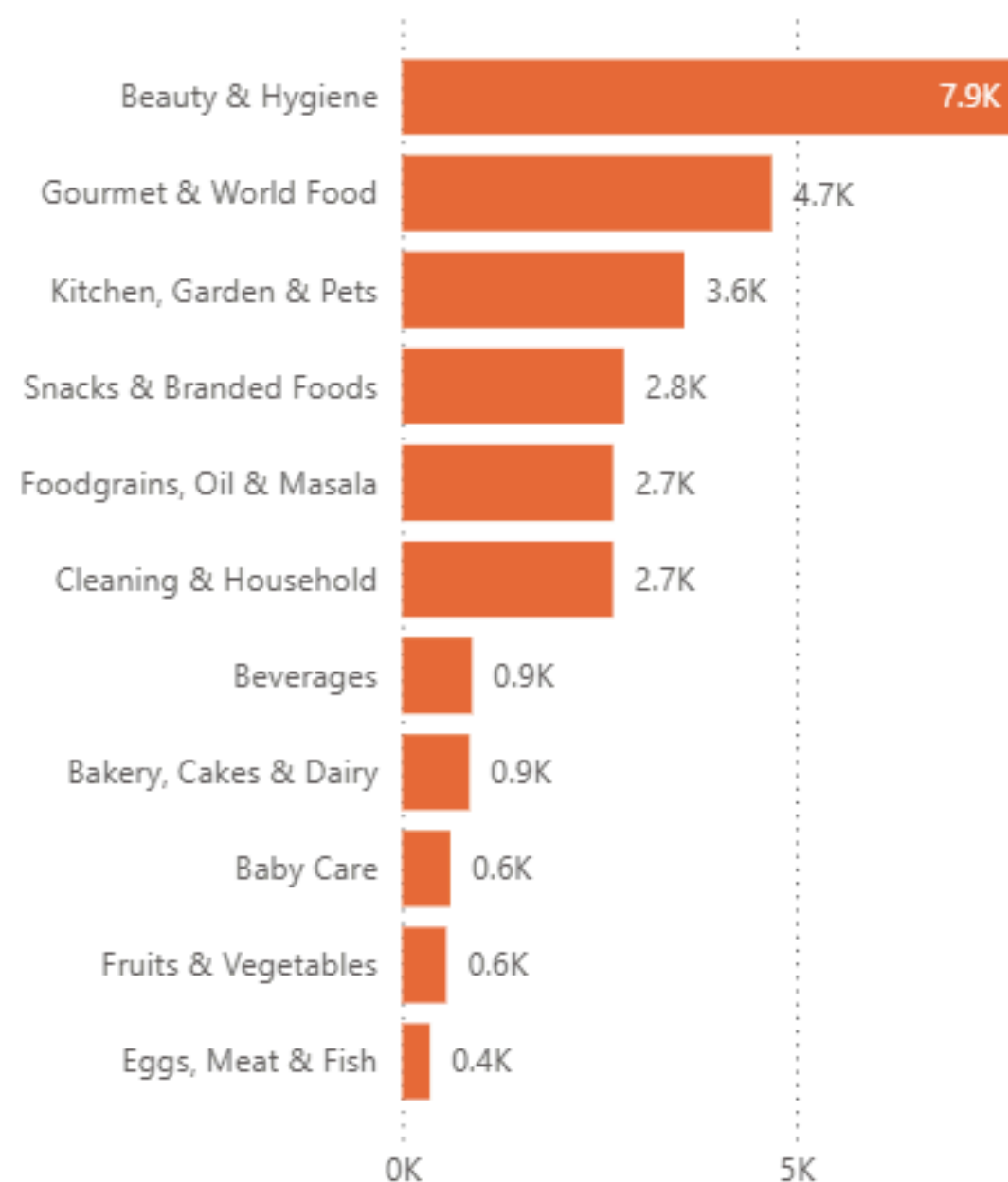
%product Discounted

55.3%

Avg Discount

59.54

Total Products by category

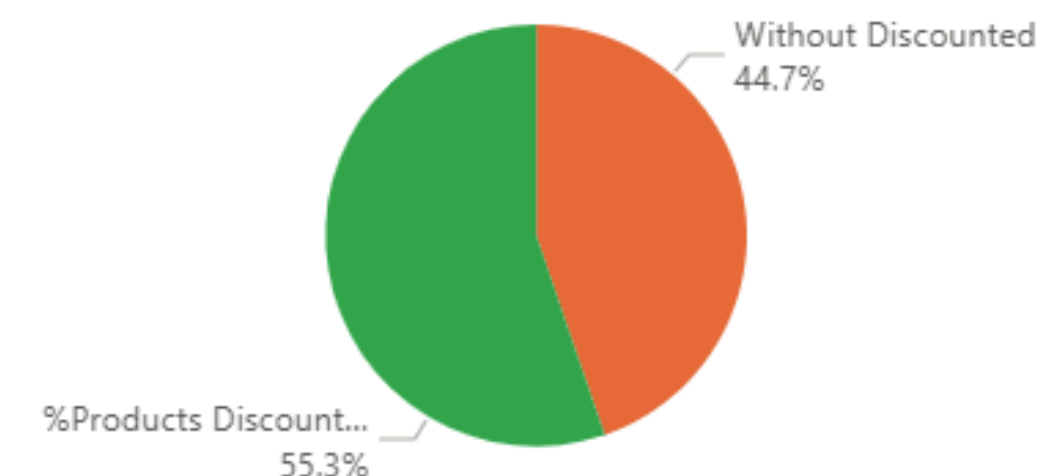


category

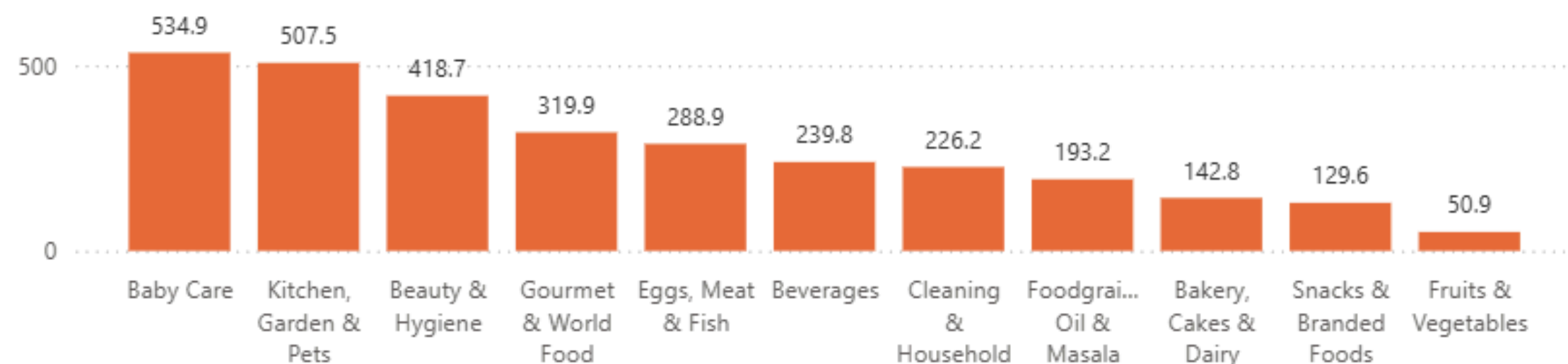
Avg Rating (Non-Blank)

Snacks & Branded Foods	3.98
Kitchen, Garden & Pets	3.73
Gourmet & World Food	3.98
Foodgrains, Oil & Masala	4.06
Cleaning & Household	3.96
Beverages	4.08
Bakery, Cakes & Dairy	3.83
Baby Care	3.83
Fruits & Vegetables	3.83
Eggs, Meat & Fish	3.83
Total	3.94

% of Products With vs Without Discount

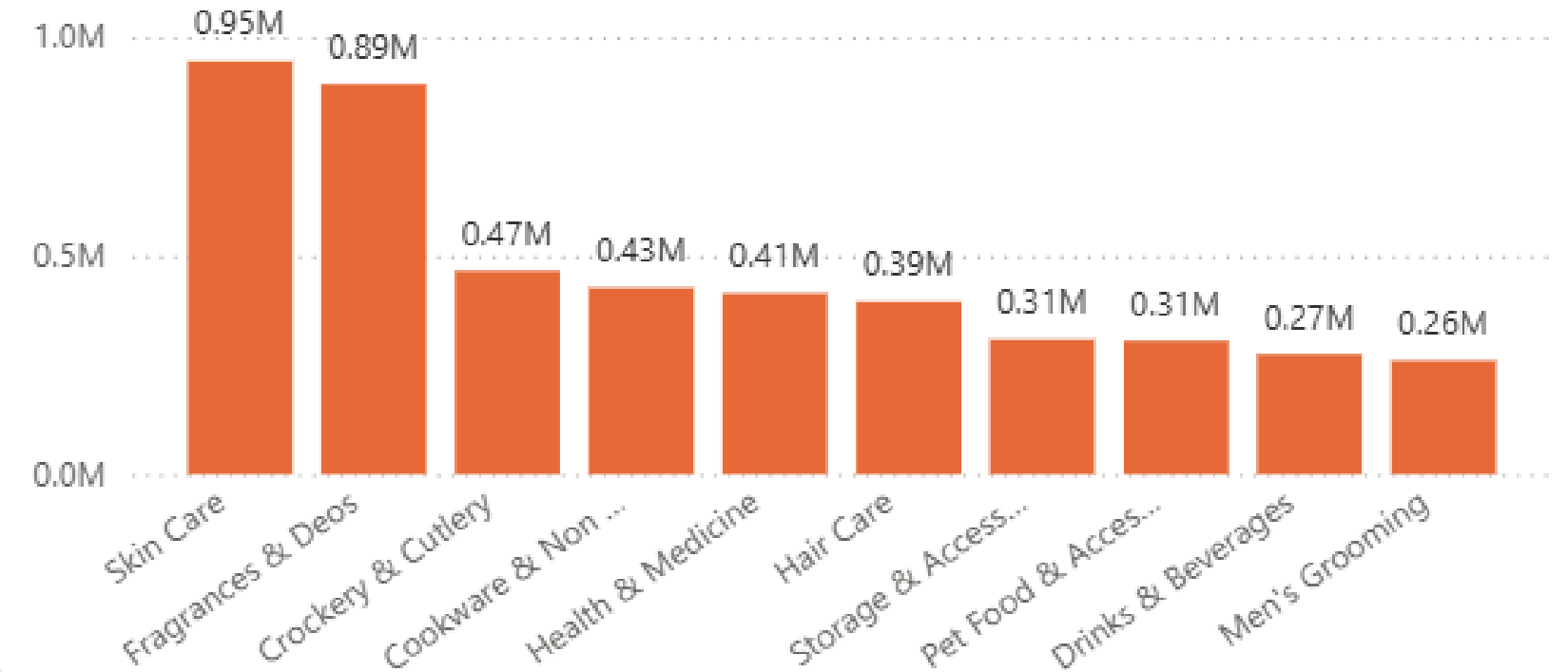


Avg Sale Price by category

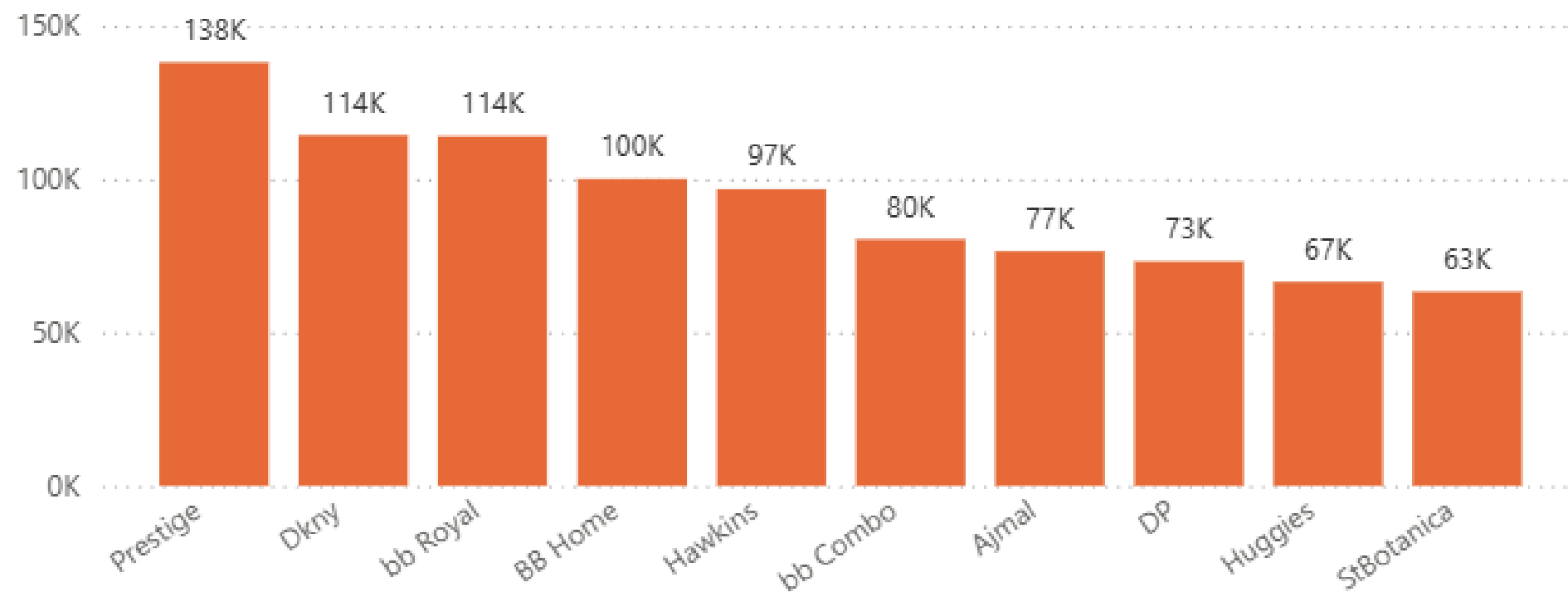


category	Avg Discount %	Avg Rating (Non-Blank)	Avg Sale Price	Total brand
Baby Care	5.85	4.02	534.9	65
Bakery, Cakes & Dairy	7.66	3.91	142.8	85
Beauty & Hygiene	12.34	3.93	418.7	644
Beverages	9.57	4.08	239.8	171
Cleaning & Household	10.79	3.96	226.2	392
Eggs, Meat & Fish	8.06		288.9	44
Foodgrains, Oil & Masala	11.84	4.06	193.2	235
Fruits & Vegetables	21.25		50.9	5
Gourmet & World Food	7.86	3.98	319.9	545
Kitchen, Garden & Pets	22.18	3.73	507.5	240
Snacks & Branded Foods	6.64	3.98	129.6	354
Total	11.82	3.94	322.5	2313

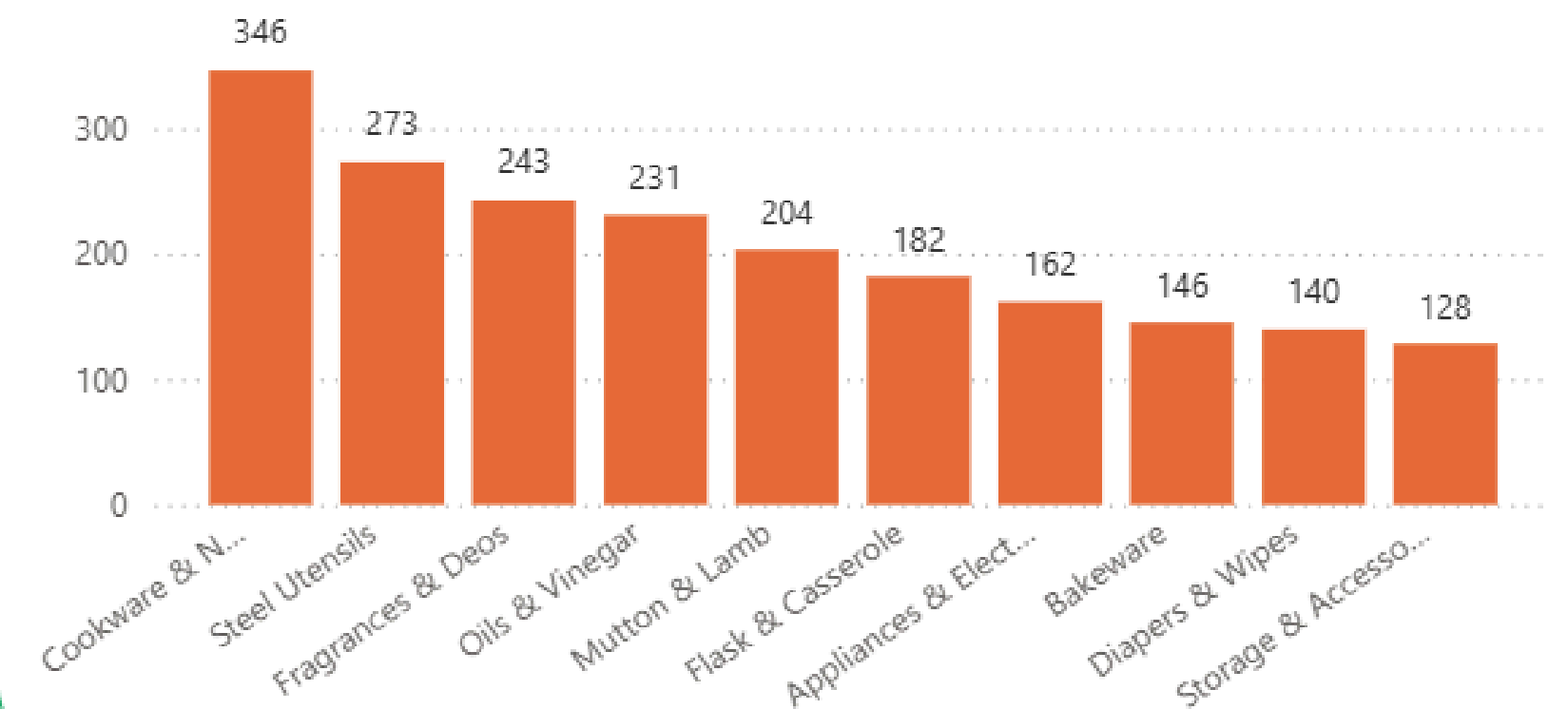
Top 10 sub_Category by sale



Top 10 Brand by Sale



Avg Discount by Top 10 sub_category



```
1  import pandas as pd
2
3  Product= pd.read_excel('Products_data.xlsx')
4
5  # Drop index column
6
7  ✓ if 'index' in Product.columns:
8      |     Product.drop(columns = ['index'] , inplace = True)
9
10
11  # Handle Missing Values
12
13  Product['product'] = Product['product'].fillna("Unknown Product")
14  Product['brand'] = Product['brand'].fillna("Unknown Brand")
15
16
17  # Create New Columns
18
19  Product['discount'] = Product['market_price']-Product['sale_price']
20  Product['discount%'] = (Product['discount']/Product['market_price'])*100
21
22  print(Product.head())
23
24  Product.to_csv('product_clean_data.csv', index= False)
25  print('Data saved')
26
```

```
1 • create database product_analysis ;
2 • use product_analysis;
3
4 • select * from products;
5
6      -- Total Products --
7
8
9 • CREATE VIEW Total_products AS
10      SELECT
11          COUNT(product) AS total_products
12      FROM
13          products;
14
15
16 • SELECT * FROM Total_products;
```

Result Grid



Filter Rows:

Export:



	total_products
▶	27555

```
19
20      -- Average Sale Price & Discount --
21
22 • CREATE VIEW avg_sales_and_discount AS
23     SELECT
24         ROUND(AVG(sale_price), 2) AS avg_sales,
25         ROUND(AVG(discount), 2) AS avg_discount
26     FROM
27         products;
28
29 • SELECT * FROM avg_sales_and_discount;
```

Result Grid



Filter Rows:

Export:



Wrap Cell Content:



	avg_sales	avg_discount
▶	322.51	59.54

```

33      -- % of Products with Discount --
34
35 •   CREATE VIEW percent_products_with_discount AS
36       SELECT
37           ROUND((COUNT(*) - SUM(CASE
38               WHEN discount = 0 THEN 1
39               ELSE 0
40           END)) * 100 / COUNT(*),
41           2) AS Percent_Products_with_Discount
42       FROM
43           products;
44 •   SELECT * FROM percent_products_with_discount;
45

```

Result Grid |   Filter Rows: | Export:  | Wrap Cell Content: 

	Percent_Products_with_Discount
	55.27

```
47      -- Missing Ratings % --
48
49 • CREATE VIEW percent_missing_rating AS
50     SELECT
51         ROUND(SUM(CASE
52             WHEN rating IS NULL THEN 1
53             ELSE 0
54         END) * 100 / COUNT(*),
55         2) AS percent_missing_rating
56     FROM
57         products;
58
59 • SELECT * FROM percent_missing_rating;
60
```

Result Grid |   Filter Rows: | Export:  | Wrap Cell Content:

	percent_missing_rating
▶	31.30


```

62      -- Category-Level Analysis --
63
64 • CREATE VIEW Category_Analysis AS
65     SELECT
66         category,
67         COUNT(*) AS total_Products,
68         ROUND(AVG(sale_price), 2) AS avg_sale_price,
69         ROUND(AVG(discount), 2) AS avg_discount,
70         ROUND(AVG(rating), 2) AS avg_rating
71     FROM
72         products
73     GROUP BY 1
74     ORDER BY 2 DESC;
75 • SELECT * FROM Category_Analysis;
76

```

Result Grid |   Filter Rows: | Export:  | Wrap Cell Content: 

	category	total_Products	avg_sale_price	avg_discount	avg_rating
►	Beauty & Hygiene	7867	418.68	74.86	3.93
	Gourmet & World Food	4690	319.85	38.57	3.98
	Kitchen, Garden & Pets	3580	507.52	152.13	3.73
	Snacks & Branded Foods	2814	129.59	11.18	3.98
	Food & Drink	6675	408.47	66.86	4.06

```

78      -- Sub-Category Level (Top 10) --
79
80 •   CREATE VIEW Sub_Category_analysis AS
81       SELECT
82           sub_category,
83           COUNT(*) AS total_Products,
84           ROUND(AVG(sale_price), 2) AS avg_sale_price,
85           ROUND(AVG(discount), 2) AS avg_discount
86       FROM
87           products
88       GROUP BY 1
89       ORDER BY 2 DESC
90       LIMIT 10;
91 •   SELECT * FROM Sub_Category_analysis;
92

```

Result Grid |   Filter Rows: | Export:  | Wrap Cell Content: 

	sub_category	total_Products	avg_sale_price	avg_discount
►	Skin Care	2294	412.12	70.76
	Health & Medicine	1133	365.7	17.07
	Hair Care	1028	383.55	47.15
	Storage & Accessories	1015	303.49	128.25
	Fragrances & Deo	1000	303.1	242.05

```

93
94      -- Top 10 Most Discounted Products --
95
96 •   CREATE VIEW Most_Discounted_Products AS
97       SELECT
98           product, brand, category, sale_price, market_price, discount
99       FROM
100          products
101       ORDER BY discount DESC
102       LIMIT 10;
103
104 •   select * from Most_Discounted_Products;
105

```



Result Grid |   Filter Rows: | Export:  | Wrap Cell Content: 

	product	brand	category	sale_price	market_price	discount
•	Premium Cloth Dryer/Drying Stand - Foldable, Si...	DP	Kitchen, Garden & Pets	4649	8969	4320
	Gas Stove-4 Burner Royale Plus Schott Glass, Bl...	Prestige	Kitchen, Garden & Pets	7999	12245	4246
	Gas Stove-3 Burner Royale Plus Schott Glass, Bl...	Prestige	Kitchen, Garden & Pets	6000	10605	3605

```

107      -- Top 10 Highest Rated Products --
108
109 •   CREATE VIEW Highest_Rated_Products AS
110       SELECT
111           product, category, rating
112       FROM
113           products
114       ORDER BY 3 DESC
115       LIMIT 10;
116
117 •   SELECT * FROM Highest_Rated_Products;
118

```

Result Grid |   Filter Rows: | Export:  | Wrap Cell Content:

	product	category	rating
▶	Organic Cumin Whole, USDA Certified	Gourmet & World Food	5
	Water/Juice/Glass - Emerald Yellow, Expression	Kitchen, Garden & Pets	5
	Premium Hygienic Large Period Cup - Reusable, ...	Beauty & Hygiene	5
	Dry Skin Gel	Beauty & Hygiene	5

```

120      -- Brand Performance (Top 10 by Count) --
121
122 •   CREATE VIEW Brand_Performance AS
123       SELECT
124           brand,
125           COUNT(*) AS total_product,
126           ROUND(AVG(sale_price), 2) AS avg_sale_price,
127           ROUND(AVG(rating), 2) AS avg_rating
128       FROM
129           products
130       GROUP BY 1
131       ORDER BY 2 DESC
132       LIMIT 10;
133 •   SELECT * FROM Brand_Performance;
134

```

Result Grid |   Filter Rows: | Export:  | Wrap Cell Content: 

	brand	total_product	avg_sale_price	avg_rating
►	Fresho	638	85.02	4.03
	bb Royal	539	211.61	4.05
	BB Home	428	233.74	4.11
	DP	250	292.78	4.2
	Fresho Signature	171	295.15	4.21

**Thank you
very much!**