E-Commerce SQL Analysis

Problem Statement:

Analyzing the sales, product, and customer data for an e-commerce company. getting various insights and calculating various KPI and data with SQL in Big Query.

Dataset:

- **hh_demographic**

Variable	Description
HOUSEHOLD_KEY	Uniquely identifies each household
AGE_DESC	Estimated age range
MARITAL_STATUS_CODE	Marital Status (A - Married, B- Single, U - Unknown)
INCOME_DESC	Household income
HOMEOWNER_DESC	Homeowner, renter, etc.
HH_COMP_DESC	Household composition
HOUSEHOLD_SIZE_DESC	Size of household up to 5+
KID_CATEGORY_DESC	Number of children present up to 3+

- **transaction_data**

Variable	Description
HOUSEHOLD_KEY	Uniquely identifies each household
BASKET_ID	Uniquely identifies a purchase occasion
DAY	Day when transaction occurred
PRODUCT_ID	Uniquely identifies each product
QUANTITY	Number of the products purchased during the trip
SALES_VALUE	Amount of dollars retailer receives from sale
STORE_ID	Identifies unique stores
COUPON_MATCH_DISC	Discount applied due to retailer's match of manufacturer coupon
COUPON_DISC	Discount applied due to manufacturer coupon
RETAIL_DISC	Discount applied due to retailer's loyalty card program
TRANS_TIME	Time of day when the transaction occurred
WEEK_NO	Week of the transaction. Ranges 1 - 102

- **product**

Variable	Description
PRODUCT_ID	Number that uniquely identifies each product
DEPARTMENT	Groups similar products together
COMMODITY_DESC	Groups similar products together at a lower level
SUB_COMMODITY_DESC	Groups similar products together at the lowest level
MANUFACTURER	Code that links products with same manufacturer together
BRAND	Indicates Private or National label brand
CURR_SIZE_OF_PRODUCT	Indicates package size (not available for all products)

KPIs:

- **Total Revenue**

```
SELECT ROUND(SUM(SALES_VALUE),2) AS total_revenue
FROM `ecommerce.transaction_data`
```

Row	total_revenue
1	4029338.41

Insight: The total revenue is $4.03M

- **Total Transactions**

```
SELECT COUNT(DISTINCT BASKET_ID) AS total_transactions
FROM `ecommerce.transaction_data`
```

Row	total_transactions
1	233356

Insight: The total number of transactions done is 233,356

- **Average Order Value**

```
SELECT ROUND(SUM(SALES_VALUE)/COUNT(DISTINCT BASKET_ID),2)
AS avg_order_value
FROM `ecommerce.transaction_data`
```

Row	avg_order_value
1	17.27

Insight: The average order value is $17.27

- **Number of households**

```
SELECT COUNT(DISTINCT household_key) AS total_households
FROM `ecommerce.transaction_data`
```

Row	total_households
1	2500

Insight: The total number of households is 2500

- **Total Discount**

```
SELECT
ROUND(ABS(SUM(RETAIL_DISC+COUPON_DISC+COUPON_MATCH_DISC)),2
) AS total_discount
FROM `ecommerce.transaction_data`
```

Row	total_discount
1	724362.85

Insight: The total discount offered is $724.36K

Question 1:

Find the number of orders that have small, medium or large order value (small:0-10 dollars, medium:10-20 dollars, large:20+)

```
WITH cte AS (
  SELECT
   BASKET_ID,
   CASE
    WHEN SUM(SALES_VALUE)<=10 THEN "Small"
    WHEN SUM(SALES_VALUE)<=20 THEN "Medium"
    ELSE "Large"
   END AS category
  FROM `ecommerce.transaction_data`
  GROUP BY BASKET_ID
)
SELECT category,COUNT(DISTINCT BASKET_ID) AS no_of_orders
FROM cte
GROUP BY category
ORDER BY no_of_orders DESC
```

Row	category	no_of_orders
1	Small	116415
2	Large	67311
3	Medium	49630

Insight: 116,415 orders have small order value ($0 to $10), 67,311 orders have large order value (>$20) and 49,630 orders have medium order value ($10 to $20).

Question 2:

Find the number of orders that have small, medium or large order value (small:0-5 dollars, medium:5-10 dollars, large:10+)

```
WITH cte AS (
  SELECT
   BASKET_ID,
   CASE
    WHEN SUM(SALES_VALUE)<=5 THEN "Small"
    WHEN SUM(SALES_VALUE)<=10 THEN "Medium"
    ELSE "Large"
   END AS category
  FROM `ecommerce.transaction_data`
  GROUP BY BASKET_ID
)

SELECT category,COUNT(DISTINCT BASKET_ID) AS no_of_orders
FROM cte
GROUP BY category
ORDER BY no_of_orders DESC
```

Row	category	no_of_orders
1	Large	116941
2	Small	70842
3	Medium	45573

<u>Insight</u>: 116,941 orders have an order value greater than $10 (large), 70,842 orders have an order value between $0 to $5 (small) and 45,573 orders have an order value between $5 to $10 (medium).

Question 3:

Find top 3 stores with highest foot traffic for each week (Foot traffic: number of customers transacting)

```
WITH cte1 AS (
  SELECT
   WEEK_NO,
   STORE_ID,
   COUNT(household_key) AS foot_traffic
  FROM `ecommerce.transaction_data`
  GROUP BY WEEK_NO,STORE_ID
),   cte2 AS (
  SELECT
   STORE_ID,
   WEEK_NO,
   foot_traffic,
   DENSE_RANK() OVER (PARTITION BY WEEK_NO ORDER BY foot_traffic
DESC) AS rnk
  FROM cte1
```

```
)

SELECT WEEK_NO,STORE_ID,foot_traffic
FROM cte2
WHERE rnk<=3
ORDER BY WEEK_NO
```

Row	WEEK_NO	STORE_ID	foot_traffic
1	1	324	80
2	1	321	68
3	1	32004	67
4	2	375	99
5	2	292	86
6	2	315	74
7	3	367	169
8	3	375	158
9	3	356	96
10	4	367	249

Insight: The above table represents the top 3 stores with highest foot traffic for each week

Question 4:

Create a basic customer profiling with first, last visit, number of visits, average money spent per visit and total money spent order by highest avg money

```sql
SELECT
  household_key,
  MIN(DAY) AS first_visit_day,
  MAX(DAY) AS last_visit_day,
  MIN(WEEK_NO) AS first_visit_week,
  MAX(WEEK_NO) AS last_visit_week,
  COUNT(DISTINCT BASKET_ID) AS no_of_visits,
  ROUND(SUM(SALES_VALUE),2) AS total_money_spent,
  ROUND(SUM(SALES_VALUE)/COUNT(DISTINCT DAY),2) AS
avg_money_spent
 FROM `ecommerce.transaction_data`
 GROUP BY household_key
 ORDER BY avg_money_spent DESC
```

Row	household_key	first_visit_day	last_visit_day	first_visit_week	last_visit_week	no_of_visits	total_money_spent	avg_money_spent
1	2042	52	683	8	98	26	2339.21	97.47
2	973	95	710	14	102	80	6875.89	95.5
3	1899	20	705	4	101	69	5789.59	87.72
4	948	52	372	8	54	4	167.48	83.74
5	1900	111	707	17	102	55	4227.72	76.87
6	1574	107	651	16	94	27	1843.3	76.8
7	931	94	668	14	96	40	2455.29	68.2
8	1864	103	710	15	102	148	8537.28	65.67
9	2479	111	706	17	102	111	6954.64	64.39
10	1315	60	624	9	90	5	317.39	63.48

Insights:

- **The above table represents the first visit, last visit, number of visits, total money spent and average money spent by each customer.**
- **The customer with a household key 2042 has spent the highest average money per visit ($97.47).**

Question 5:

Do a single customer analysis selecting most spending customer for whom we have demographic information(because not all customers in transaction data are present in demographic table)(show the demographic as well as total spent)

```
WITH most_spending AS (
  SELECT
   d.household_key,
   ROUND(SUM(t.SALES_VALUE),2) AS total_amnt,
   DENSE_RANK() OVER (ORDER BY SUM(t.SALES_VALUE) DESC) AS rnk
  FROM `ecommerce.transaction_data` t
  JOIN `ecommerce.hh_demographic` d
  ON t.household_key=d.household_key
  GROUP BY d.household_key
 )
```

```
 SELECT
  d.household_key,
  d.AGE_DESC AS age_grp,
  d.MARITAL_STATUS_CODE AS marital_status,
  d.HOMEOWNER_DESC AS owner_status,
  d.HH_COMP_DESC AS hh_composition,
  d.HOUSEHOLD_SIZE_DESC AS hh_size,
  d.KID_CATEGORY_DESC AS no_of_children,
```

```
 m.total_amnt
FROM `ecommerce.hh_demographic` d
JOIN most_spending m
ON d.household_key=m.household_key
WHERE m.rnk=1
```

Row	household_key	age_grp	marital_status	owner_status	hh_composition	hh_size	no_of_children	total_amnt
1	1609	45-54	A	Homeowner	2 Adults Kids	5+	3+	13804.38

Insights:

- **The most spending customer is a homeowner having a household_key 1609**
- **The customer belongs to 45-54 age group and is married**
- **There are more than 5 members and more than 3 children in the house.**
- **Total Amount spent by the customer is $13,804.38**

Question 6:

Find products(product table : SUB_COMMODITY_DESC) which are most frequently bought together and the count of each combination bought together.

```
WITH cte AS (
  SELECT
   p.SUB_COMMODITY_DESC AS product,
   t.BASKET_ID
  FROM `ecommerce.transaction_data` t
  JOIN `ecommerce.product` p
```

```
  ON t.PRODUCT_ID=p.PRODUCT_ID
)


SELECT
 a.product AS product_1,
 b.product AS product_2,
 COUNT(DISTINCT a.BASKET_ID) AS no_of_orders
FROM cte a
JOIN cte b
ON a.BASKET_ID=b.BASKET_ID AND a.product<b.product
GROUP BY a.product,b.product
ORDER BY no_of_orders DESC
```

Row	product_1	product_2	no_of_orders
1	BANANAS	FLUID MILK WHITE ONLY	4131
2	FLUID MILK WHITE ONLY	MAINSTREAM WHITE BREAD	3753
3	FLUID MILK WHITE ONLY	SOFT DRINKS 12/18&15PK CAN CAR	3328
4	FLUID MILK WHITE ONLY	SHREDDED CHEESE	3155
5	FLUID MILK WHITE ONLY	YOGURT NOT MULTI-PACKS	2805
6	DAIRY CASE 100% PURE JUICE...	FLUID MILK WHITE ONLY	2682
7	FLUID MILK WHITE ONLY	SFT DRNK 2 LITER BTL CARB INCL	2579
8	FLUID MILK WHITE ONLY	KIDS CEREAL	2554
9	FLUID MILK WHITE ONLY	POTATO CHIPS	2200
10	EGGS - LARGE	FLUID MILK WHITE ONLY	1952

Insights:

- **Bananas and Fluid Milk White Only, Fluid Milk White Only and Mainstream White Bread,Fluid Milk White Only and Soft Drinks 12/18 & 15PK Can Car, Fluid Milk White Only and Shredded**

Cheese and Fluid Milk White Only and Yogurt Not Multi-Packs are the top5 products that are most frequently bought together

- **Bananas and Fluid Milk White Only are most frequently bought together (4131 times)**
- **Here, Fluid Milk White Only is very frequently bought as it is bought with almost every other item**

Question 7:

Find the weekly change in Revenue Per Account (RPA) (difference in spending by each customer compared to last week)

```
 WITH cte1 AS (
  SELECT
   household_key,
   WEEK_NO AS week_no,
   ROUND(SUM(SALES_VALUE),2) AS revenue
  FROM `ecommerce.transaction_data`
  GROUP BY household_key,WEEK_NO
),   cte2 AS (
  SELECT
   household_key,
   week_no,
   revenue,
   LAG(revenue,1) OVER (PARTITION BY household_key ORDER BY
week_no) AS prev_revenue
  FROM cte1
)

SELECT
 household_key,
```

```
 week_no,
 revenue,
 prev_revenue,
 ROUND(
  CASE
   WHEN prev_revenue=0
   THEN 0
   ELSE 100*(revenue-prev_revenue)/prev_revenue
  END,2) AS weekly_pct_revenue_change
FROM cte2
ORDER BY household_key,week_no
```

Row	household_key	week_no	revenue	prev_revenue	weekly_pct_revenue_change
1	1	8	42.58	*null*	*null*
2	1	10	14.01	42.58	-67.1
3	1	13	14.03	14.01	0.14
4	1	14	25.71	14.03	83.25
5	1	15	10.98	25.71	-57.29
6	1	16	9.09	10.98	-17.21
7	1	17	13.98	9.09	53.8
8	1	19	47.35	13.98	238.7
9	1	20	31.77	47.35	-32.9
10	1	22	38.98	31.77	22.69

<u>Insight</u>: The above table represents the first 10 rows of weekly change in revenue per customer.

Question 8:

Find the brandwise percentage of sales

```
 SELECT
  DISTINCT
  p.BRAND,
```

```
   ROUND(100*SUM(t.SALES_VALUE) OVER (PARTITION BY
p.BRAND)/SUM(t.SALES_VALUE) OVER(),2)  AS pct_sales
  FROM `ecommerce.transaction_data` t
  JOIN `ecommerce.product` p
  ON t.PRODUCT_ID=p.PRODUCT_ID
  ORDER BY pct_sales DESC
```

Row	BRAND	pct_sales
1	National	72.21
2	Private	27.79

<u>Insight</u>: National label brand products contribute to about 72.21% of the total sales while private label brand products contribute to about 27.79% of the total sales

Question 9:

Find the top 5 departments by highest revenue

```
 SELECT
   p.DEPARTMENT,
   ROUND(SUM(t.SALES_VALUE),2) AS revenue
  FROM `ecommerce.transaction_data` t
  JOIN `ecommerce.product` p
  ON t.PRODUCT_ID=p.PRODUCT_ID
  GROUP BY p.DEPARTMENT
  ORDER BY revenue DESC
  LIMIT 5
```

Row	DEPARTMENT	revenue
1	GROCERY	2046695.13
2	DRUG GM	527588.65
3	PRODUCE	279720.39
4	MEAT	274036.32
5	KIOSK-GAS	269461.67

Insight: Grocery,Drug GM,Produce, Meat and Kiosk-Gas are the top 5 departments by highest revenue.

Question 10:

Find the total revenue by age group

```
SELECT
  d.AGE_DESC AS age_group,
  ROUND(SUM(t.SALES_VALUE),2) AS revenue
FROM `ecommerce.transaction_data` t
JOIN `ecommerce.hh_demographic` d
ON t.household_key=d.household_key
GROUP BY d.AGE_DESC
ORDER BY revenue DESC
```

Row	age_group	revenue
1	45-54	827984.9
2	35-44	622164.35
3	25-34	389545.17
4	65+	151606.81
5	55-64	150371.27
6	19-24	108404.35

Insights:

- **The age group 45-54 contributes the most to the overall revenue, with about $827.98K**
- **The age group 19-24 contributes the least to the overall revenue, with about $108.40K**

Question 11:

Find the total sales by marital status

```
SELECT
 d.MARITAL_STATUS_CODE AS marital_status,
 ROUND(SUM(t.SALES_VALUE),2) AS revenue
FROM `ecommerce.transaction_data` t
JOIN `ecommerce.hh_demographic` d
ON t.household_key=d.household_key
GROUP BY d.MARITAL_STATUS_CODE
ORDER BY revenue DESC
```

Row	marital_status	revenue
1	A	1045561.93
2	U	904703.93
3	B	299810.99

Insights:

- **Married people account for about $1.05M in revenue**
- **Unmarried people account for about $299.81K**
- **Customers with unknown marital status contribute about $904.7K**

Question 12:

Find the top 5 commodities by highest revenue and the most number of orders

```
SELECT
  p.COMMODITY_DESC AS commodity,
  ROUND(SUM(SALES_VALUE),2) AS revenue
FROM `ecommerce.transaction_data` t
JOIN `ecommerce.product` p
ON t.PRODUCT_ID=p.PRODUCT_ID
GROUP BY p.COMMODITY_DESC
ORDER BY revenue DESC
LIMIT 5
```

Row	commodity	revenue
1	COUPON/MISC ITEMS	319834.7
2	SOFT DRINKS	164139.6
3	BEEF	156390.78
4	FLUID MILK PRODUCTS	102343.29
5	CHEESE	95325.78

<u>Insight</u>: Coupon/Misc Items, Soft Drinks, Beef, Fluid Milk Products and Cheese are the top 5 commodities by highest revenue

```
SELECT
 p.COMMODITY_DESC AS commodity,
```

```
 COUNT(DISTINCT t.BASKET_ID) AS no_of_orders
FROM `ecommerce.transaction_data` t
JOIN `ecommerce.product` p
ON t.PRODUCT_ID=p.PRODUCT_ID
GROUP BY p.COMMODITY_DESC
ORDER BY no_of_orders DESC
LIMIT 5
```

Row	commodity	no_of_orders
1	SOFT DRINKS	44681
2	FLUID MILK PRODUCTS	38437
3	BAKED BREAD/BUNS/ROLLS	35128
4	CHEESE	28904
5	BAG SNACKS	26113

Insight: Soft Drinks, Fluid Milk Products, Baked Bread/Buns/Rolls, Cheese and Bag Snacks are the top 5 most ordered commodities

Question 13:

Find the top 5 sub-commodities by highest revenue and the most number of orders

```
 SELECT
  p.SUB_COMMODITY_DESC AS sub_commodity,
  ROUND(SUM(SALES_VALUE),2) AS revenue
 FROM `ecommerce.transaction_data` t
 JOIN `ecommerce.product` p
 ON t.PRODUCT_ID=p.PRODUCT_ID
 GROUP BY p.SUB_COMMODITY_DESC
 ORDER BY revenue DESC
 LIMIT 5
```

Row	sub_commodity	revenue
1	GASOLINE-REG UNLEADED	315997.09
2	FLUID MILK WHITE ONLY	80754.44
3	SOFT DRINKS 12/18&15PK CAN CAR	79214.44
4	BEERALEMALT LIQUORS	75036.18
5	CIGARETTES	48179.15

Insight: Gasoline-Reg Unleaded, Fluid Milk White Only, Soft Drinks 12/18 & 15PK Can Car, Beeralemalt Liquors and Cigarettes are the top 5 sub-commodities by highest revenue

```
SELECT
 p.SUB_COMMODITY_DESC AS sub_commodity,
 COUNT(DISTINCT t.BASKET_ID) AS no_of_orders
FROM `ecommerce.transaction_data` t
JOIN `ecommerce.product` p
ON t.PRODUCT_ID=p.PRODUCT_ID
GROUP BY p.SUB_COMMODITY_DESC
ORDER BY no_of_orders DESC
LIMIT 5
```

Row	sub_commodity	no_of_orders
1	FLUID MILK WHITE ONLY	31724
2	SOFT DRINKS 12/18&15PK CAN CAR	15561
3	BANANAS	15247
4	SFT DRNK 2 LITER BTL CARB INCL	14551
5	MAINSTREAM WHITE BREAD	13667

Insight: Fluid Milk White Only, Soft Drinks 12/18 & 15PK Can Car, Bananas, SFT Drink 2 liter Bottle CARB INCL and Mainstream White Bread are the top 5 most ordered sub-commodities

Question 14:

Hourly trend for sales

```
SELECT
 FLOOR(TRANS_TIME/100) AS hour,
 ROUND(SUM(SALES_VALUE),2) AS revenue
FROM `ecommerce.transaction_data`
GROUP BY hour
ORDER BY revenue DESC
```

Row	hour	revenue
1	17.0	413181.65
2	18.0	381367.2
3	16.0	374040.08
4	15.0	336488.32
5	19.0	321471.08
6	14.0	319910.44
7	13.0	315762.43
8	12.0	295302.94
9	11.0	250375.01
10	20.0	247677.19

Insight: We can clearly see that there is a huge amount of sales happening from 4 PM to 6 PM and the maximum revenue of $413,181 is generated at 5 PM

Question 15:

Weekly trend for sales

```
SELECT
  WEEK_NO AS week_no,
  ROUND(SUM(SALES_VALUE),2) AS revenue
FROM `ecommerce.transaction_data`
GROUP BY WEEK_NO
ORDER BY WEEK_NO
```

Row	week_no	revenue
1	1	2453.52
2	2	5854.47
3	3	6822.98
4	4	7915.42
5	5	10038.67
6	6	12566.74
7	7	14041.61
8	8	15679.87
9	9	15653.89
10	10	21458.3

```
WITH cte AS (
  SELECT
   WEEK_NO AS week_no,
   ROUND(SUM(SALES_VALUE),2) AS revenue
```

```
    FROM `ecommerce.transaction_data`
    GROUP BY WEEK_NO
)
  SELECT week_no,revenue AS max_revenue
  FROM cte
  WHERE revenue=(SELECT MAX(revenue) FROM cte)
```

Row	week_no	max_revenue
1	92	57721.9

```
SELECT week_no,revenue AS min_revenue
FROM cte
WHERE revenue=(SELECT MIN(revenue) FROM cte)
```

Row	week_no	min_revenue
1	1	2453.52

Insights:

- **There is an increasing trend generally in weekly sales**
- **The lowest revenue of $2,453 is generated on week 1**
- **The highest revenue of $57,721 is generated on week 92**

Overall Insights:

1. **Total Revenue: The total revenue generated is $4.03 million.**

2. **Number of orders: A total of 233,356 transactions were completed.**

3. **Average Order Value: The average order value is $17.27.**

4. **Households: The total number of households involved is 2,500.**

5. **Total Discount: A total discount of $724.36K was offered to customers.**

6. **Order Value Distribution:**

- **116,415 orders have a small order value ($0 to $10).**
- **49,630 orders have a medium order value ($10 to $20).**
- **67,311 orders have a large order value (over $20).**

7. **Top-Spending Customer:**

- **The most spending customer is a homeowner with a household key 1609.**
- **This customer belongs to the 45-54 age group, is married, and has a household with more than 5 members and more than 3 children.**
- **The total amount spent by this customer is $13,804.38.**

8. **Frequently Bought Together Products:**

- **The top 5 product combinations frequently bought together are:**

  Bananas and Fluid Milk White Only

  Fluid Milk White Only and Mainstream White Bread

Fluid Milk White Only and Soft Drinks (12/18 & 15PK Can Car)

Fluid Milk White Only and Shredded Cheese

Fluid Milk White Only and Yogurt Not Multi-Packs

- **Bananas and Fluid Milk White Only are bought together most frequently (4,131 times).**
- **Fluid Milk White Only is a highly popular product, frequently purchased with various other items.**

9. Brand Contribution:

- **National label brand products contribute 72.21% of total sales.**
- **Private label brand products contribute 27.79% of total sales.**

10. Top Departments by Revenue: The top 5 departments by revenue are: Grocery, Drug GM, Produce, Meat and Kiosk-Gas

11. Revenue by Age Group:

- **The 45-54 age group contributes the most to overall revenue, generating about $827.98K.**
- **The 19-24 age group contributes the least to overall revenue, with about $108.40K.**

12. Revenue by Marital Status:

- **Married customers account for about $1.05 million in revenue.**
- **Unmarried customers contribute about $299.81K.**
- **Customers with unknown marital status contribute about $904.7K.**

13. Top Commodities by Revenue: The top 5 commodities by revenue are: Coupon/Misc Items, Soft Drinks, Beef, Fluid Milk Products and Cheese

14. Top Commodities by Orders: The top 5 most ordered commodities are: Soft Drinks, Fluid Milk Products, Baked Bread/Buns/Rolls, Cheese and Bag Snacks

15. Top Sub-Commodities by Revenue: The top 5 sub-commodities by revenue are:Gasoline-Reg Unleaded, Fluid Milk White Only, Soft Drinks (12/18 & 15PK Can Car), Beer/Ale/Malt Liquors and Cigarettes

16. Top Sub-Commodities by Orders: The top 5 most ordered sub-commodities are: Fluid Milk White Only, Soft Drinks (12/18 & 15PK Can Car), Bananas, Soft Drink 2 Liter Bottle CARB INCL and Mainstream White Bread

17. Peak Sales Hours: There is a significant amount of sales occurring from 4 PM to 6 PM, with the highest revenue of $413,181 generated at 5 PM.

18. Weekly Sales Trend:

- **There is a general increasing trend in weekly sales.**
- **The lowest revenue of $2,453 was generated in week 1.**
- **The highest revenue of $57,721 was generated in week 92.**

Recommendations:

- **Expand Household Reach: Develop campaigns to increase participation beyond the current 2,500 households.**

- **Promote High-Value Orders: Provide incentives for customers to move from small and medium orders to larger orders above $20.**

- **Bundle Frequently Bought Items: Create special bundles featuring popular combinations like ‘Fluid Milk White Only’ and ‘Bananas’ to boost sales.**
- **Promote Private Label Brands: Increase marketing efforts for private label brands to grow their 27.79% contribution to total sales.**

- **Target Younger Customers: Develop marketing campaigns specifically for the 19-24 age group to increase their contribution to overall revenue.**

- **Engage Married Customers: Design loyalty programs and special offers for married customers, who significantly contribute to revenue.**

- **Optimize Peak Hour Operations: Ensure sufficient stock and staff during peak sales hours, particularly from 4 PM to 6 PM.**