Strategic Analysis of Grocery Retail Performance

Introduction

The grocery retail industry is facing complex challenges in harmonizing customer data across various touchpoints, including physical stores, e-commerce platforms, and loyalty programs. These challenges hinder the optimization of operations and the delivery of a personalized shopping experience. Fragmented customer data, seasonal demand fluctuations, and intense competition often result in missed sales opportunities, inefficient marketing efforts, inventory imbalances, and higher customer churn. This case study focuses on addressing these issues by developing a unified data pipeline and analytics solution for a mid-sized grocery chain. By consolidating data into a centralized model, the goal is to enhance operational efficiency, improve customer engagement, optimize marketing strategies, and drive revenue growth through informed decision-making.

Objectives

- Improve customer lifetime value (CLV) by targeting high-value customers and reducing churn through personalized engagements.
- Streamline inventory management by refining demand forecasting and tracking fulfillment rates, while optimizing stock levels and turnover ratios.
- Assess the ROI of marketing campaigns and identify the most profitable channels and promotions to maximize marketing spend.
- Understand sales trends across seasons and adjust marketing spend and inventory levels accordingly to drive higher sales.
- Utilize actionable insights to support growth strategies, including effective cross-selling and upselling opportunities, along with tailored promotions.

Key Analysis Questions

1. Which customer segments contribute the most to revenue, and how can they be targeted to improve customer retention?
2. How effective is the current inventory management system across stores, and where can improvements be made in stock management and demand forecasting?
3. Which marketing campaigns and channels provide the highest return on investment, and how can marketing strategies be optimized for better engagement?
4. What are the key drivers of seasonal sales trends, and how can marketing and inventory strategies be adjusted to capitalize on these patterns?
5. Which product categories generate the highest revenue, and how can inventory levels be optimized to meet customer demand more effectively?

6. How can high-value customers be identified and engaged to maximize their lifetime value and increase overall business profitability?

Data Transformation

```
---removing text part from rating column
UPDATE customer_feedback
SET RATING = REGEXP_REPLACE(RATING, '[^0-9]', '');



/*
ALTER TABLE INVENTORY_TRACKING
ADD (
   REORDER_STATUS VARCHAR(20),
   STOCK_DIFF INTEGER,
   REORDER_QUANTITY INTEGER
);
*/



---added columns and extracted data for further analysis
UPDATE INVENTORY_TRACKING
SET
   REORDER_STATUS = CASE
      WHEN STOCK_LEVEL < REORDER_LEVEL THEN 'Reorder Needed'
      ELSE 'Stock Sufficient'
   END,
   STOCK_DIFF = STOCK_LEVEL - REORDER_LEVEL,
   REORDER_QUANTITY = CASE
      WHEN STOCK_LEVEL < REORDER_LEVEL THEN REORDER_LEVEL - STOCK_LEVEL
```

```
      ELSE 0
   END


---update state name based on the city data
UPDATE CUSTOMERS
SET State = CASE
   WHEN City = 'Mumbai' THEN 'Maharashtra'
   WHEN City = 'Visakhapatnam' THEN 'Andhra Pradesh'
   WHEN City = 'Lucknow' THEN 'Uttar Pradesh'
   WHEN City = 'Indore' THEN 'Madhya Pradesh'
   WHEN City = 'Madurai' THEN 'Tamil Nadu'
   WHEN City = 'Surat' THEN 'Gujarat'
   WHEN City = 'New Delhi' THEN 'Delhi'
   WHEN City = 'Hyderabad' THEN 'Telangana'
   WHEN City = 'Kolkata' THEN 'West Bengal'
   WHEN City = 'Patna' THEN 'Bihar'
   WHEN City = 'Bangalore' THEN 'Karnataka'
   WHEN City = 'Chennai' THEN 'Tamil Nadu'
   WHEN City = 'Ahemdabad' THEN 'Gujarat'
   WHEN City = 'Pune' THEN 'Maharashtra'
   WHEN City = 'Vijayawada' THEN 'Andhra Pradesh'
   WHEN City = 'Chandigarh' THEN 'Chandigarh'
   WHEN City = 'Jaipur' THEN 'Rajasthan'
   WHEN City = 'Nashik' THEN 'Maharashtra'
   WHEN City = 'Coimbatore' THEN 'Tamil Nadu'
   WHEN City = 'Goa' THEN 'Goa'
   ELSE 'Unknown'
END;
```

```
---calculate percentage_change and forecast_accuracy using actual and forecasted values
UPDATE HISTORICAL_FORECASTS
SET
   PERCENTAGE_CHANGE = ROUND(
      ((ACTUAL_SALES_QUANTITY - FORECASTED_SALES_QUANTITY)::NUMERIC / FORECASTED_SALES_QUANTITY) * 100, 2
   ),
   FORECAST_ACCURACY = ROUND(
      100 - ABS(
         ((ACTUAL_SALES_QUANTITY - FORECASTED_SALES_QUANTITY)::NUMERIC / FORECASTED_SALES_QUANTITY) * 100
      ), 2
   );


---update state name based on the city data
UPDATE STORES
SET STATE = CASE
   WHEN CITY = 'Thane' THEN 'Maharashtra'
   WHEN CITY = 'Pune' THEN 'Maharashtra'
   WHEN CITY = 'Noida' THEN 'Uttar Pradesh'
   WHEN CITY = 'Nashik' THEN 'Maharashtra'
   WHEN CITY = 'Mumbai' THEN 'Maharashtra'
   WHEN CITY = 'Lucknow' THEN 'Uttar Pradesh'
   WHEN CITY = 'Kolkata' THEN 'West Bengal'
   WHEN CITY = 'Kanpur' THEN 'Uttar Pradesh'
   WHEN CITY = 'Indore' THEN 'Madhya Pradesh'
   WHEN CITY = 'Gwalior' THEN 'Madhya Pradesh'
   WHEN CITY = 'Bengaluru' THEN 'Karnataka'
   WHEN CITY = 'Ajmer' THEN 'Rajasthan'
```

```
    ELSE 'Unknown'
END;
```

Merging Tables

```
DROP TABLE IF EXISTS _sales_marketing_perforance;


---Sales and Marketing Performance Table
create table _sales_marketing_perforance as
select distinct
    st.TRANSACTION_ID, st.customer_id, st.product_id, st.store_id,  st.TRANSACTION_DATE, st.QUANTITY as SALES_QUANTITY,
    st.UNIT_PRICE AS SALES_UNIT_PRICE, st.TOTAL_AMOUNT AS SALES_TOTAL_AMOUNT,
    pp.start_date as Promotion_start_date, pp.end_date as Promotion_end_date, pp.regular_price, pp.promotional_price,
    pp.units_sold as promotion_units_sold, pp.revenue_generated as promotion_revenue_generated, pp.promotion_cost, pp.roi as promotion_roi,
    c.campaign_name, c.campaign_id,  c.start_date as campaign_start_date, c.end_date as campaign_end_date, c.budget as campaign_budget,
    c.target_audience as campaign_target_audience, c.success_metrics as campaign_success_metrics,
    mc.MARKETING_CHANNEL_ID, mc.CHANNEL_NAME as marketing_channel_name, mc.COST_PER_ENGAGEMENT,
    pt.promotion_type_id, pt.promotion_type_name, pt.description as promotion_description, pt.minimum_purchase_required,
    pt.maximum_discount_value,
    pm.payment_method_id, pm.payment_type,
    ct.channel_type_id, ct.channel_type_name,
    cpl.revenue_attributed as campaign_revenue_attributed,
from SALES_TRANSACTIONS st
```

```
join PROMOTION_PERFORMANCE pp
on  pp.product_id=st.product_id and pp.channel_type_id=st.channel_type_id
join CAMPAIGNS c
on c.campaign_id= pp.campaign_id
join MARKETING_CHANNELS mc
on mc.MARKETING_CHANNEL_ID=c.MARKETING_CHANNEL_ID
join PROMOTION_TYPES pt
on pt.promotion_type_id=c.promotion_type_id
join payment_methods pm
on pm.payment_method_id=st.payment_method_id
join channel_types ct
on ct.channel_type_id=st.channel_type_id and ct.channel_type_id=pp.channel_type_id
join CAMPAIGN_PRODUCT_LINK cpl
on cpl.campaign_id=c.campaign_id


DROP TABLE IF EXISTS _Customer_insights;


---Customer Insights Table
create table _Customer_insights as
select distinct
   c.customer_id, c.full_name as customer_name, c.email as customer_email, c.gender as customer_gender, c.date_of_birth as customer_dob,
   c.city as customer_city, c.state as customer_state, c.loyalty_program_member,
   ce.marketing_channel_id, ce.channel_type_id, ce.campaign_id, ce.engagement_type as customer_engagement_type, ce.time_spent,
   cf.product_id, cf.order_channel_id, cf.rating as feedback_ratings, cf.feedback_type,
   lt.store_id, lt.transaction_id,  lt.loyalty_points_earned, lt.loyalty_points_redeemed, lt.loyalty_balance,
   lp.loyalty_program_id, lp.program_name, lp.points_earning_rate, lp.POINTS_REDEEMING_RATE, lp.EXPIRY_PERIOD,
```

```
   dt.device_type_id, dt.device_name, dt.os_type,
    ft.FULFILLMENT_STATUS, ft.ORDER_TYPE,
    am.ENGAGEMENT_CHANNEL,
    wt.PAGE_VIEWED, wt.IN_MINITES, wt.SESSION_START_TIME, wt.SESSION_END_TIME,
from customers c
join CUSTOMER_ENGAGEMENT ce
on c.customer_id=ce.customer_id
join CUSTOMER_FEEDBACK cf
on cf.customer_id=ce.customer_id
join LOYALTY_TRANSACTIONS lt
on lt.store_id=cf.store_id
join LOYALTY_PROGRAMS lp
on lp.loyalty_program_id=lt.loyalty_program_id
join WEBSITE_TRAFFIC wt
on wt.customer_id= c.customer_id
join DEVICE_TYPES dt
on dt.device_type_id=wt.device_type_id
join FULFILLMENT_TRACKING ft
on ft.TRANSACTION_ID=lt.TRANSACTION_ID
join ATTRIBUTION_MODELS am
on am.CUSTOMER_ID=c.CUSTOMER_ID or am.transaction_id=cf.TRANSACTION_ID


DROP TABLE IF EXISTS _Inventory_demand_forecast;


---Inventory and Demand Forecast Table
create table _Inventory_demand_forecast as
select distinct
    it.supplier_id, it.stock_level, it.reorder_level, it.reorder_status, it.stock_diff,
it.reorder_quantity,
```

```
   hf.FORECASTED_SALES_QUANTITY, hf.ACTUAL_SALES_QUANTITY,
hf.PERCENTAGE_CHANGE,
   hf.FORECAST_ACCURACY,
---  it.product_id,hf.product_id,  pa.product_id,it.store_id,hf.store_id,  hf.category_id,
p.category_id,
   p.product_id, p.product_name, p.subcategory, p.brand, p.unit_price, p.online_exclusive,
   s.store_id, s.store_name, s.city, s.state, s.store_type,
   c.category_id, c.category_name, c.parent_category,
   supp."Supplier_ID", supp."Supplier_Name",
   pa.SUPPORT, pa.CONFIDENCE, pa.LIFT,
from INVENTORY_TRACKING it
join HISTORICAL_FORECASTS hf
on hf.product_id=it.product_id
join products p
on p.product_id=it.product_id
join stores s
on s.store_id=it.store_id
join suppliers supp
on supp."Supplier_ID"=it.supplier_id
join categories c
on c.category_id=p.category_id
join PRODUCT_ASSOCIATIONS pa
on pa.product_id=p.product_id
```

Data Analysis

Key Performance Indicator (KPIs)

- Total Sales Revenue
- Average Feedback Rating

- Overall Inventory Stock Level
- Average Time Spent per Customer

```
---Total Sales Revenue
SELECT
   SUM(SALES_TOTAL_AMOUNT) AS total_sales_revenue
FROM _SALES_MARKETING_PERFORANCE;


---Average Feedback Rating
SELECT
   round(AVG(FEEDBACK_RATINGS),2) AS average_feedback_rating
FROM _CUSTOMER_INSIGHTS;


---Overall Inventory Stock Level
SELECT
   SUM(STOCK_LEVEL) AS total_stock_level
FROM _INVENTORY_DEMAND_FORECAST;


---Average Time Spent per Customer
SELECT
   round(AVG(TIME_SPENT),2) AS average_time_spent_per_customer
FROM _CUSTOMER_INSIGHTS;
```

Customer Lifetime Value (CLV) Calculation

Objective: Identify the top 10 customers with the highest cumulative sales to evaluate customer lifetime value (CLV) and prioritize key customer segments.

```
---Customer Lifetime Value (CLV) Calculation
SELECT
   ci.CUSTOMER_NAME,
   SUM(sm.SALES_TOTAL_AMOUNT) AS LIFETIME_VALUE
FROM
   _CUSTOMER_INSIGHTS ci
JOIN
   _SALES_MARKETING_PERFORANCE sm ON ci.CUSTOMER_ID = sm.CUSTOMER_ID
GROUP BY
   ci.CUSTOMER_NAME
ORDER BY
   LIFETIME_VALUE DESC
LIMIT 10;
```

Customer Engagement by Channel

Objective: Analyzae customer engagement across channels by measuring the number of engaged customers and their average time spent to identify the most effective channels.

```
---Customer Engagement by Channel
SELECT
   ci.ENGAGEMENT_CHANNEL,
   COUNT(DISTINCT ci.CUSTOMER_ID) AS ENGAGED_CUSTOMERS,
   AVG(ci.TIME_SPENT) AS AVG_TIME_SPENT
FROM
   _CUSTOMER_INSIGHTS ci
GROUP BY
```

```
    ci.ENGAGEMENT_CHANNEL
ORDER BY
    AVG_TIME_SPENT DESC;
```

Top 10 Customers by Loyalty Points Balance

Objective: Identify the top 10 customers with the highest loyalty points balance to assess customer loyalty and reward program effectiveness.

```
---Top 10 Customers by Loyalty Points Balance
SELECT
    CUSTOMER_NAME,
    MAX(LOYALTY_BALANCE) AS LOYALTY_BALANCE
FROM _CUSTOMER_INSIGHTS
GROUP BY CUSTOMER_NAME
ORDER BY LOYALTY_BALANCE DESC
LIMIT 10;
```

Campaign ROI Analysis

Objective: Evaluate the return on investment (ROI) of marketing campaigns by analyzing revenue generated, costs incurred, and net ROI to identify the most profitable campaigns.

```
---Campaign ROI Analysis
SELECT
    CAMPAIGN_NAME,
    SUM(PROMOTION_REVENUE_GENERATED) AS REVENUE,
    SUM(PROMOTION_COST) AS COST,
    SUM(PROMOTION_REVENUE_GENERATED) - SUM(PROMOTION_COST) AS NET_ROI
FROM _SALES_MARKETING_PERFORANCE
```

```
GROUP BY CAMPAIGN_NAME
ORDER BY NET_ROI DESC;
```

Loyalty Program Effectiveness

Objective: Assess the performance of loyalty programs by analyzing membership count, points earned, and points redeemed to determine their impact on customer engagement and retention.

```
---Loyalty Program Effectiveness
SELECT
   PROGRAM_NAME,
   COUNT(DISTINCT CUSTOMER_ID) AS TOTAL_MEMBERS,
   SUM(LOYALTY_POINTS_EARNED) AS TOTAL_POINTS_EARNED,
   SUM(LOYALTY_POINTS_REDEEMED) AS TOTAL_POINTS_REDEEMED
FROM _CUSTOMER_INSIGHTS
GROUP BY PROGRAM_NAME
ORDER BY TOTAL_POINTS_EARNED DESC;
```

Most Popular Marketing Channels

Objective: Identify the most effective marketing channels by analyzing customer reach and engagement to optimize channel strategies.

```
---Most Popular Marketing Channels
SELECT
   MARKETING_CHANNEL_NAME,
   COUNT(DISTINCT CUSTOMER_ID) AS CUSTOMER_COUNT
FROM _SALES_MARKETING_PERFORANCE
GROUP BY MARKETING_CHANNEL_NAME
```

```
ORDER BY CUSTOMER_COUNT DESC;
```

Customer Feedback Distribution

Objective: Analyze the distribution of customer feedback types to understand customer sentiments and prioritize areas for improvement.

```
---Customer Feedback Distribution
SELECT
    FEEDBACK_TYPE,
    COUNT(*) AS FEEDBACK_COUNT
FROM _CUSTOMER_INSIGHTS
GROUP BY FEEDBACK_TYPE
ORDER BY FEEDBACK_COUNT DESC;
```

Most Popular Products

Objective: Identify the top 10 products with the highest sales volumes to understand customer preferences and optimize inventory management.

```
---Most Popular Products
SELECT
    P.PRODUCT_NAME,
    SUM(S.SALES_QUANTITY) AS TOTAL_SALES
FROM _SALES_MARKETING_PERFORANCE S
JOIN _INVENTORY_DEMAND_FORECAST P ON S.PRODUCT_ID = P.PRODUCT_ID
GROUP BY P.PRODUCT_NAME
ORDER BY TOTAL_SALES DESC
LIMIT 10;
```

City-Wise Sales Performance

Objective: Analyze sales revenue across cities to identify top-performing locations and guide regional sales strategies.

```
---City-Wise Sales Performance
SELECT
   I.CITY,
   SUM(S.SALES_TOTAL_AMOUNT) AS TOTAL_REVENUE
FROM _SALES_MARKETING_PERFORANCE S
JOIN _INVENTORY_DEMAND_FORECAST I ON S.STORE_ID = I.STORE_ID
GROUP BY I.CITY
ORDER BY TOTAL_REVENUE DESC;
```

Product Category-Wise Sales Analysis

Objective: Evaluate sales performance across product categories to identify revenue-driving categories and refine product strategies.

```
---Product Category-Wise Sales Analysis
SELECT
   C.CATEGORY_NAME,
   SUM(S.SALES_TOTAL_AMOUNT) AS TOTAL_REVENUE
FROM _SALES_MARKETING_PERFORANCE S
JOIN _INVENTORY_DEMAND_FORECAST C ON S.PRODUCT_ID = C.PRODUCT_ID
GROUP BY C.CATEGORY_NAME
ORDER BY TOTAL_REVENUE DESC;
```

Gender-Wise Loyalty Program Participation

Objective: Analyze loyalty program participation by gender to understand demographic engagement and tailor marketing strategies accordingly.

```
---Gender-Wise Loyalty Program Participation
SELECT
   CUSTOMER_GENDER,
   COUNT(DISTINCT CUSTOMER_ID) AS LOYALTY_MEMBERS
FROM _CUSTOMER_INSIGHTS
WHERE LOYALTY_PROGRAM_MEMBER = 'Yes'
GROUP BY CUSTOMER_GENDER
ORDER BY LOYALTY_MEMBERS DESC;
```

Store Fulfillment Status

Objective: Analyze order fulfillment status to evaluate operational efficiency and identify areas for improvement in the order processing workflow.

```
---Store Fulfillment Status
SELECT
   FULFILLMENT_STATUS,
   COUNT(*) AS ORDER_COUNT
FROM _CUSTOMER_INSIGHTS
GROUP BY FULFILLMENT_STATUS
ORDER BY ORDER_COUNT DESC;
```

Promotion Type Effectiveness

Objective: Evaluate the effectiveness of different promotion types by analyzing units sold and revenue generated to optimize future promotional strategies.

```
---Promotion Type Effectiveness
SELECT
   PROMOTION_TYPE_NAME,
   SUM(PROMOTION_UNITS_SOLD) AS UNITS_SOLD,
   SUM(PROMOTION_REVENUE_GENERATED) AS REVENUE_GENERATED
FROM _SALES_MARKETING_PERFORANCE
GROUP BY PROMOTION_TYPE_NAME
ORDER BY REVENUE_GENERATED DESC;
```

Customer Age Group Analysis

Objective: Segment customers by age group to understand demographic distribution and tailor marketing strategies for different age categories.

```
---Customer Age Group Analysis
SELECT
   CASE
      WHEN YEAR(CURRENT_DATE) - YEAR(TO_DATE(CUSTOMER_DOB, 'DD-MM-YYYY')) < 18 THEN 'Under 18'
      WHEN YEAR(CURRENT_DATE) - YEAR(TO_DATE(CUSTOMER_DOB, 'DD-MM-YYYY')) BETWEEN 18 AND 35 THEN '18-35'
      WHEN YEAR(CURRENT_DATE) - YEAR(TO_DATE(CUSTOMER_DOB, 'DD-MM-YYYY')) BETWEEN 36 AND 50 THEN '36-50'
      ELSE 'Above 50'
   END AS AGE_GROUP,
   COUNT(*) AS CUSTOMER_COUNT
FROM _CUSTOMER_INSIGHTS
GROUP BY AGE_GROUP
```

```
ORDER BY CUSTOMER_COUNT DESC;
```

Product Stock Health

Objective: Assess product stock levels by analyzing total stock, stock discrepancies, and reorder levels to ensure efficient inventory management and prevent stockouts.

```
---Product Stock Health
SELECT
   PRODUCT_NAME,
   SUM(STOCK_LEVEL) AS TOTAL_STOCK_LEVEL,
   SUM(STOCK_DIFF) AS TOTAL_STOCK_DIFF,
   sum(REORDER_LEVEL) as REORDER_LEVE
FROM _INVENTORY_DEMAND_FORECAST
GROUP BY PRODUCT_NAME
ORDER BY TOTAL_STOCK_LEVEL ASC
limit 10
```

Payment Methods Popularity

Objective: Analyze the popularity of different payment methods by counting the number of transactions to identify preferred payment options and optimize payment systems.

```
---Payment Methods Popularity
SELECT
   PAYMENT_TYPE,
   COUNT(TRANSACTION_ID) AS TRANSACTIONS
FROM _SALES_MARKETING_PERFORANCE
GROUP BY PAYMENT_TYPE
```

```
ORDER BY TRANSACTIONS DESC;
```

Identify High-Value Customers

Objective: Identify the top 10 high-value customers based on loyalty balance and total time spent, to focus on retention and personalized marketing strategies.

```
---Identify High-Value Customers
SELECT
   CUSTOMER_NAME,
   LOYALTY_BALANCE,
   SUM(TIME_SPENT) AS TOTAL_TIME_SPENT,
FROM _CUSTOMER_INSIGHTS
GROUP BY CUSTOMER_ID, CUSTOMER_NAME, LOYALTY_BALANCE
ORDER BY LOYALTY_BALANCE DESC
LIMIT 10;
```

Store-Wise Inventory Analysis

Objective: Analyze store-wise stock levels to assess inventory management across locations and identify potential stock optimization opportunities.

```
---Store-Wise Sales and Inventory Analysis
SELECT
   I.STORE_NAME,
   sum(I.STOCK_LEVEL) AS SUM_STOCK_LEVEL
FROM _SALES_MARKETING_PERFORANCE S
JOIN _INVENTORY_DEMAND_FORECAST I ON S.STORE_ID = I.STORE_ID
GROUP BY I.STORE_NAME
```

Insights

Overall Business Performance:

- Total sales revenue: $335.57M
- Average feedback rating: 3.44 (indicating room for improvement)
- Total stock level: 53,403 (ensuring supply stability)
- Average customer time spent: 71.36 minutes (strong in-store engagement)

Top Products, Markets & Engagement:

- Best-selling product: 'Libero' (75,240 units)
- Top market: Pune ($49.62M in sales)
- Leading feedback topics: 'Service' (324) and 'Product Quality' (267)
- Highest engagement channel: Text Messages (80.6 min avg. engagement time)

Marketing & Customer Value:

- Most profitable campaign: 'End of Season' ($179.47M ROI)
- Most engaging campaign: 'Search Engine Marketing' (71 engaged customers)
- Highest lifetime value customer: Ali Armstrong ($71.94M LTV)
- Highest loyalty balance: Floyd Lowery (949.91 points)

Category Revenue, Demographics & Inventory:

- Highest revenue-generating category: Mitzie Keller ($32.91M revenue)
- Dominant customer demographic: 18-35 age group (799 customers)
- Preferred payment method: Digital Wallets (2,779 transactions)
- Low-stock item: IKEA Wardrobes Comfort (15 units, -35 deficit)
- Best inventory management: Khalilah Neal (61,152 units in stock)

Loyalty, Promotions & Fulfillment:

- Customer with highest total time spent: Jonelle Jensen (1,320 min)
- Highest loyalty balance: Floyd Lowery (949.91 points)
- Best-performing promotion: Discount Promotion (481,358 units sold, $337.41M revenue)
- Top fulfillment status: 'Out for Delivery' (281 orders)

- Loyalty memberships: Evenly distributed across genders

Conclusion

This analysis of the grocery retail industry provides a comprehensive framework for addressing the key challenges faced by businesses in optimizing customer experience, operational efficiency, and marketing effectiveness. By integrating data from various sources, this project has successfully identified critical insights that will allow the grocery chain to streamline inventory management, enhance customer engagement, and improve the ROI of marketing campaigns.

The findings highlight the importance of understanding customer behavior, optimizing product offerings, and using targeted strategies to boost loyalty and retention. Additionally, by leveraging seasonal trends and regional sales data, the business can better align its inventory and promotional strategies to maximize sales and minimize stock imbalances.

Overall, the implementation of a unified data pipeline and advanced analytics solutions will empower the business to make data-driven decisions that drive growth, improve profitability, and ensure a personalized shopping experience for customers. This approach will ultimately contribute to long-term success and a competitive advantage in the rapidly evolving grocery retail market.

/*

ALTER TABLE public.actor

DROP COLUMN last_update; (deleting column)

DROP TABLE public.actor_details; (deleting table name)

SELECT viewname

FROM pg_views

WHERE definition LIKE '%actor%'; (to check view that are listed to the table)

SELECT *

FROM pg_depend

WHERE refobjid = 'actor'::regclass; (check all dependencies on the table)

DROP TABLE actor CASCADE; (delete table with all dependencies)

ALTER TABLE actors RENAME TO actor; (change table name)

ALTER TABLE actor ADD COLUMN actor_name VARCHAR(255); (used to add new column in table)

update merged_actor_film

set zzzz=concat(category_name, ' ' , actor_name)

*/