Business Intelligence and CRM Strategy for Unilever India's Personal Care Division

Part 1: Project Specification Report

1. Background & Business Goals

Description of the FMCG Company

Unilever India is an subsidiary of multinational consumer goods manufacturer Unilever that is popular worldwide for manufacturing scores of products available in households, food segments, and in the personal care segments. Through business, its Personal Care Division has been an early lead division in its long past that distributes soaps, shampoos, deodorants, and skin care items as popular brands of the house like Dove, Lux, and Pears. This Personal Care Division occupies prime position among revenues generated through markets covered within vast consumer arena in India.

Market Overview

India's FMCG industry is among the most populous and fastest-growing globally, especially in the personal care segment. With increasing disposable incomes, urbanization, and an emphasis on personal cleanliness, sales of these products went through the roof. The industry is also highly competitive, with Hindustan Unilever, Procter & Gamble, ITC (Yippee, Savlon), and Godrej vying to control the market.

Furthermore, consumer demand is moving towards natural, sustainable, and value-driven products, further putting pressure on traditional brands to innovate and remain relevant. Rural markets are exhibiting slower growth, whereas urban areas are experiencing market saturation.

Problem Statement

Unilever India's Personal Care Division is **experiencing stagnating growth**, especially in rural regions. Despite promotional campaigns and a wide product range, certain products have shown inconsistent sales volumes, and stock inefficiencies have led to **supply-demand mismatches**. Furthermore, there is a lack of centralized visibility into how promotions affect different regions and whether inventory lead times are optimized.

Research Question

How can Business Intelligence (BI) and Business Analytics (BA) tools be used to identify sales and supply chain inefficiencies in Unilever India's Personal Care Division, and how can a CRM solution be integrated to improve customer engagement and operational performance?

Business Goals

- Identify trends in product sales across different regions
- Measure the impact of promotions on sales performance
- Analyze stock levels in relation to replenishment efficiency
- Segment store locations based on performance

- Implement CRM features to track campaigns, complaints, and retention

- Visualize business insights using Power BI dashboards

EDA Summary

Exploratory Data Analysis (EDA) was conducted on a dataset representing **Personal Care sales** across urban, rural, and suburban stores. Four key visualizations were produced:


Sales Volume Trend Over Time (Personal Care)
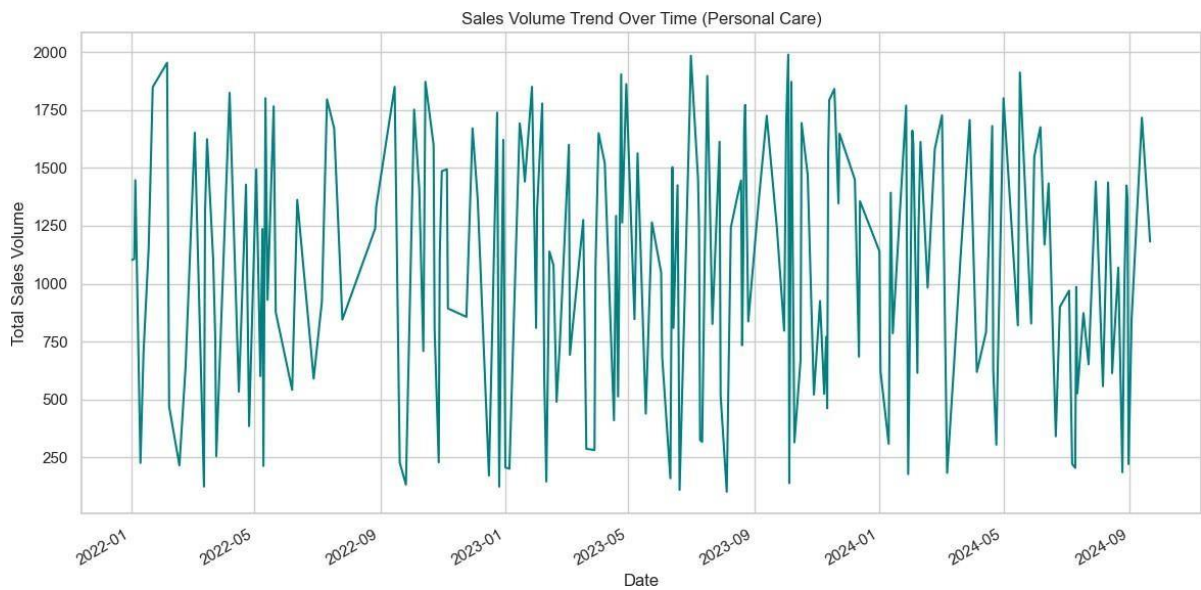
1. **Sales Trend Over Time (Line Plot)**: Showed erratic sales fluctuations, indicating inconsistent consumer demand or supply chain issues.

Sales Volume Distribution by Store Location
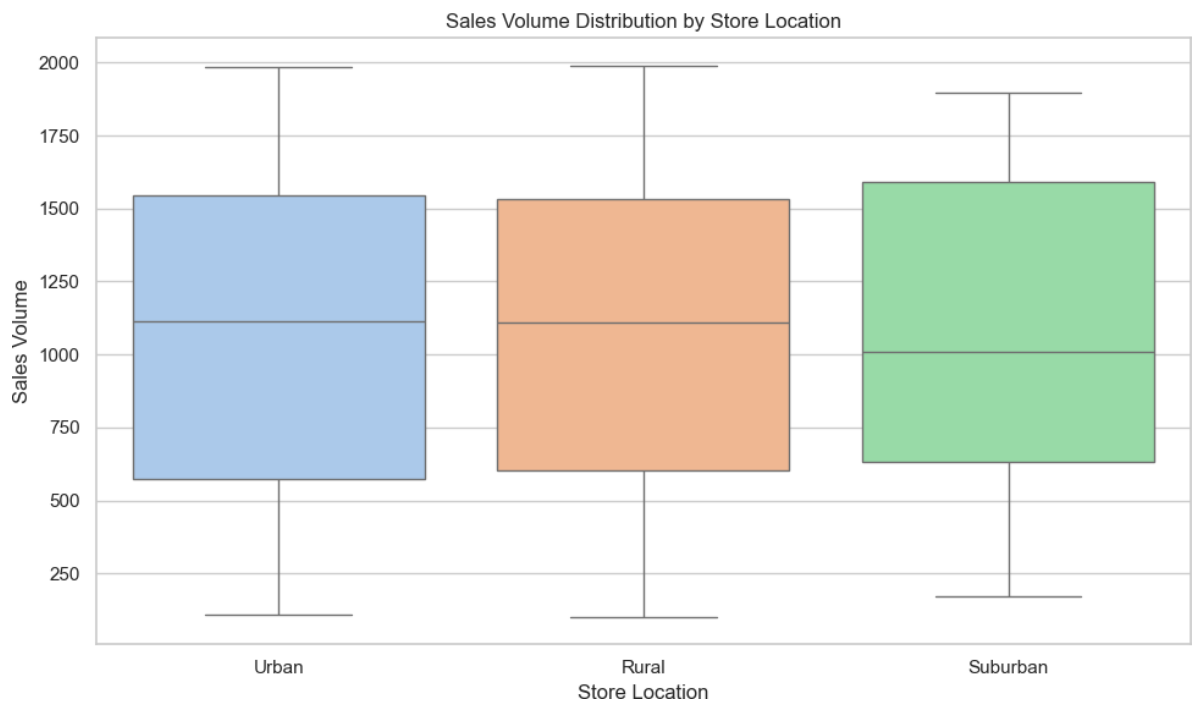
2. **Average Sales by Store Location (Bar Plot)**: Urban and suburban stores slightly outperform rural ones, but the differences suggest regional potential.

Sales Volume Distribution by Promotion Status
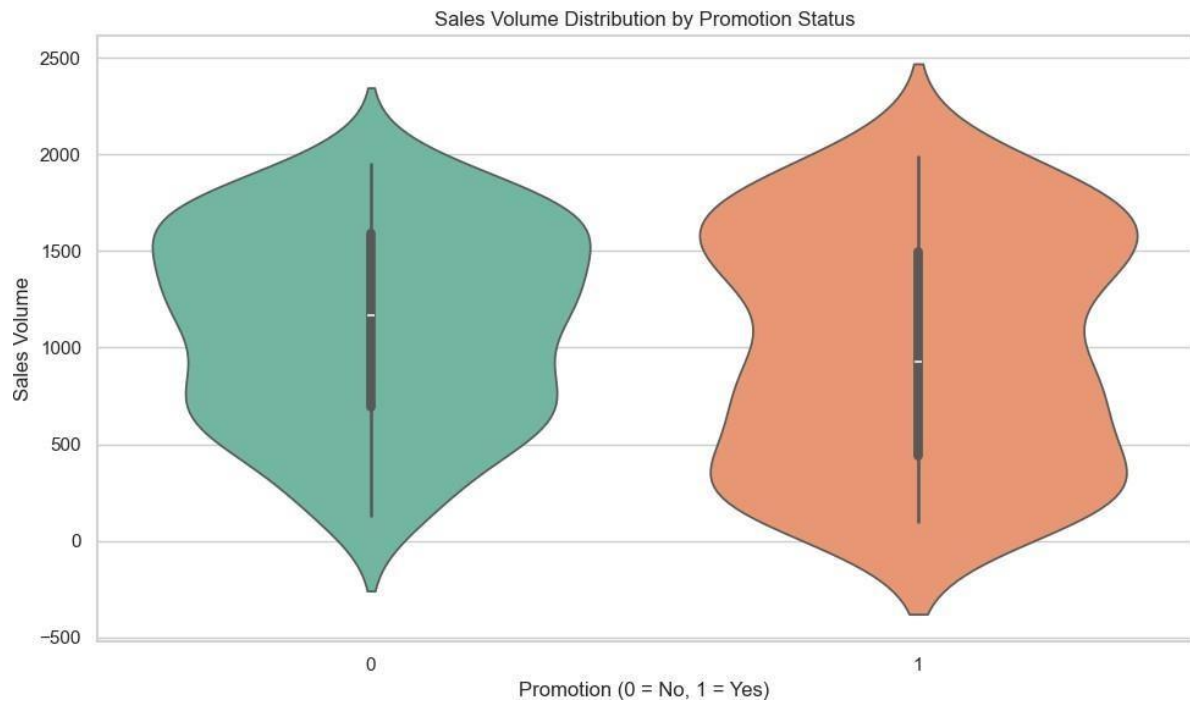
3. **Sales Distribution by Promotions (Violin Plot)**: Promotions had a **positive influence on sales**, but their effectiveness varied widely — suggesting poorly targeted campaigns.

Replenishment Lead Time vs Stock Level
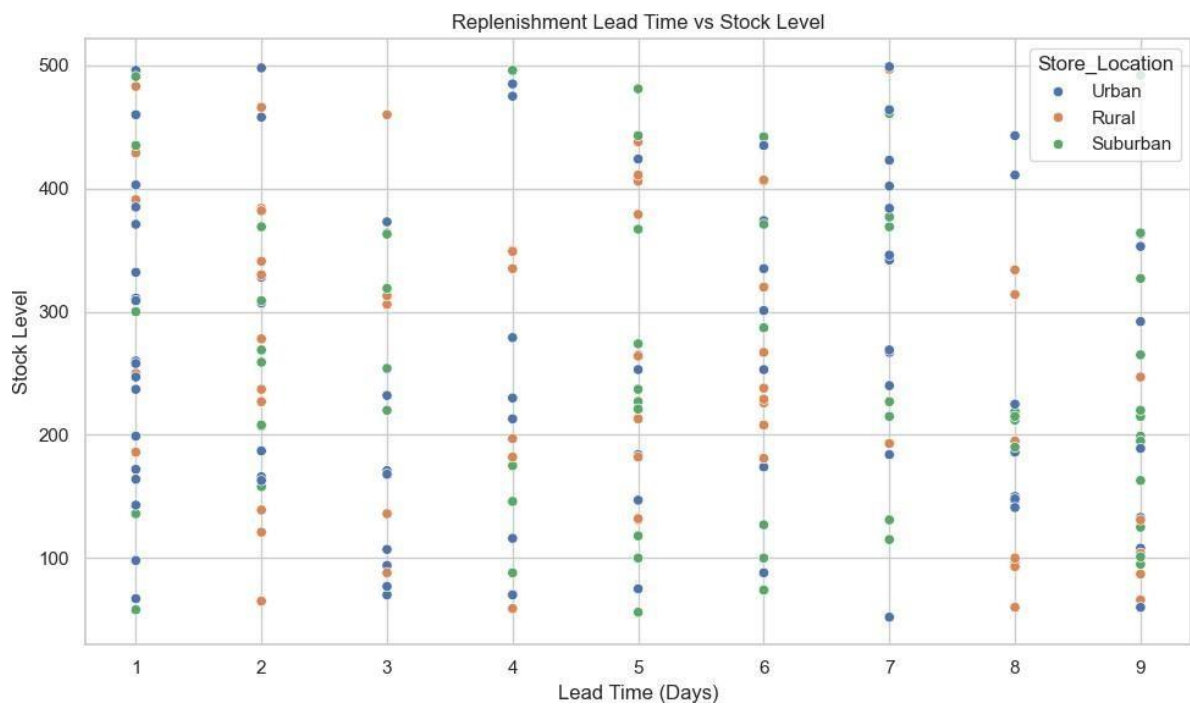
4. **Lead Time vs Stock Level (Scatter Plot)**: No strong correlation, implying **inefficient replenishment strategies** across store locations.

Gap Analysis

Current State	Desired State

Fragmented understanding of demand trends	Unified view through Power BI dashboards
Rural stores underperforming	Optimized regional strategies via analytics
Promotions are not consistently effective	Targeted and personalized CRM campaigns
Weak insight into supply chain delays	Predictive lead-time optimization

SWOT Analysis

Strengths	Weaknesses
Strong brand equity and distribution	Lack of real-time BI insights
Wide product portfolio	Inconsistent promotional performance
Loyal urban customer base	Supply chain inefficiencies in rural regions
Opportunities	**Threats**
Leverage CRM for customer loyalty	Competitor pricing and innovation
Use BI tools to optimize inventory	Market saturation in urban zones
Rural market growth	Shifting to natural/organic trends

2. System Design

BI + CRM System Design for Unilever India - Personal Care
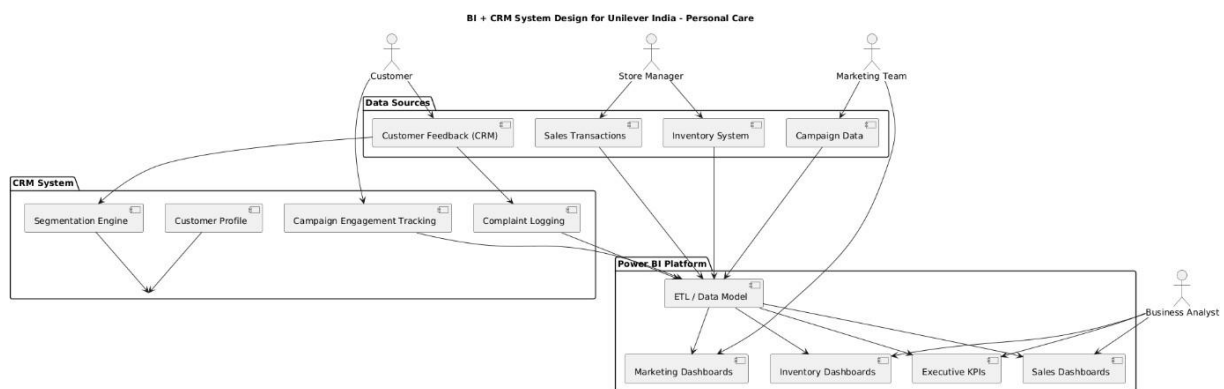
System Design Overview

To support Unilever India's Personal Care Division in making informed, data-driven decisions, we propose a robust **Business Intelligence (BI) system powered by Power BI** integrated with a **Customer Relationship Management (CRM) solution** (Salesforce). This system design guarantees that both operational and patron-centric statistics are captured, processed, and visualized in meaningful ways.

The goal is to streamline the flow of sales, inventory, and patron interaction facts, allowing real-time analytics and helping personalized customer engagement.

1. Data Flow Overview

The system design revolves around four core stages of data flow:

a) Data Capture Points

Data is gathered from key sources:

- **Sales Transactions**: Captured at each store (urban, rural, suburban), including product name, category, volume, unit price, promotion flag, and date.

- **Inventory Systems**: Tracks real-time stock levels and replenishment lead time from regional warehouses.

- **CRM Platform**: Collects customer data, including purchase history, satisfaction feedback, complaints, and campaign engagement.

- **Promotions**: Includes campaign details such as target region, product line, discount rates, and duration.

This raw facts is periodically exported and saved in a centralized statistics version inside Power BI the use of built-in connectors or scheduled ETL jobs.

b) Data Processing

Data from various sources is cleaned and joined using Power BI's data modeling layer. Relationships are defined between:

- **Fact Tables**: Sales, Inventory, Campaigns, Feedback

- **Dimension Tables**: Products, Stores, Dates, Customers

Calculated columns and measures are used to generate KPIs such as Sales Uplift, Promotion ROI, and Stock Turnover Rate.

2. Customer Integration & Feedback Loops

The CRM system plays a key role in integrating customer feedback into the BI loop. Customers are not just passive endpoints but become part of a **closed feedback system**, enabling continuous improvement and personalization.

- **Complaint Tracking**: Customers can register feedback via CRM forms or emails, which is logged and categorized.

- **Campaign Engagement**: The CRM tracks how customers interact with offers, coupons, and emails (open/click rates, redemptions).

- **Customer Segmentation**: Based on engagement, behavior, and location, customers are segmented (e.g., loyal, inactive, high-churn risk).

- **Actionable BI Loops**: Power BI dashboards ingest CRM data, highlighting low-engagement zones or complaint hotspots. The CRM then triggers automated re-engagement or support workflows.

This integration ensures customer behavior directly informs marketing, sales, and operational decisions.

3. Key Analytics Required

The system supports role-specific dashboards and insights that align with organizational goals:

a) Sales Dashboards

- Sales volume by product category, store type, and region
- Trend analysis (weekly/monthly/yearly)
- Promotion vs. Non-promotion comparisons

b) Inventory Dashboards

- Real-time stock levels and turnover rate
- Stock Level by Store Location
- Stock Level by Product Category

c) Marketing & CRM Dashboards

- Campaign effectiveness (clicks, conversions)
- Loyalty program participation by demographic

d) Executive KPIs

- High-level view of overall performance
- Variance vs. targets
- Operational bottlenecks

3. Database Design

Entity Relationship Diagram
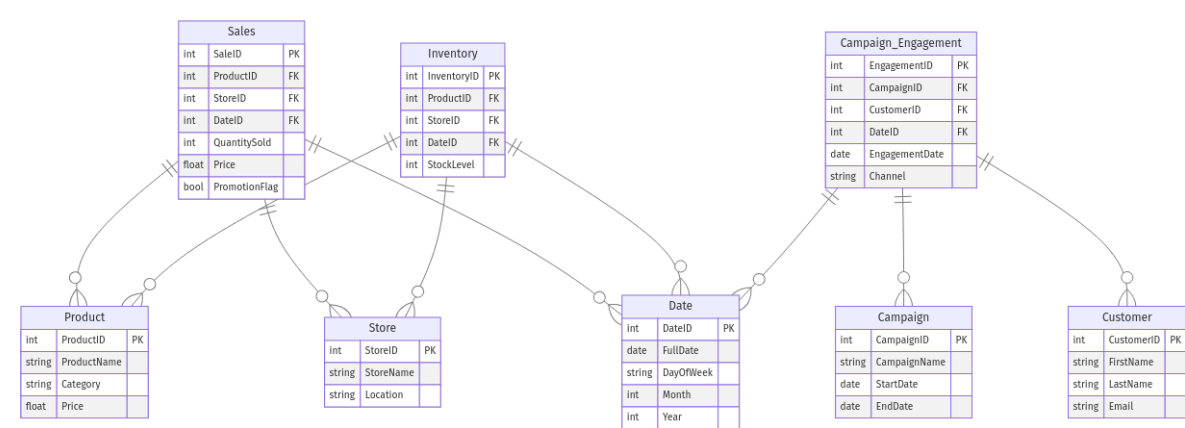
Data Dictionary

Entity: Product

- **product_id** (INT, PK): Unique identifier for each product.

- **product_name** (VARCHAR): Name of the product.

- **category** (VARCHAR): Product category (e.g., Shampoo, Soap).

- **price** (FLOAT): Unit price of the product.

Entity: Store

- **store_id** (INT, PK): Unique identifier for each store.

- **store_name** (VARCHAR): Name of the retail store.

- **location** (VARCHAR): Type of location (Urban, Rural, Suburban).

Entity: Customer

- **customer_id** (INT, PK): Unique identifier for each customer.

- **first_name** (VARCHAR): Customer's first name.

- **last_name** (VARCHAR): Customer's last name.

- **email** (VARCHAR): Customer's contact email.

Entity: Date

- **date_id** (DATE, PK): Full calendar date.

- **full_date** (DATE): Complete date including day/month/year.

- **day_of_week** (VARCHAR): Day name (e.g., Monday, Tuesday).

- **month** (INT): Month number (1–12).

- **year** (INT): Calendar year (e.g., 2024).

Entity: Sales

- **sale_id** (INT, PK): Unique sales record ID.

- **product_id** (INT, FK): References the product sold.

- **store_id** (INT, FK): References the store where the sale occurred.

- **date_id** (DATE, FK): References the sale date.

- **quantity_sold** (INT): Number of units sold in the transaction.

- **price** (FLOAT): Unit price during the sale.

- **promotion_flag** (BOOLEAN): Indicates if the sale was part of a promotion.

Entity: Inventory

- **inventory_id** (INT, PK): Unique identifier for each inventory record.

- **product_id** (INT, FK): References the product in stock.

- **store_id** (INT, FK): References the store holding the inventory.

- **date_id** (DATE, FK): Date of inventory check.

- **stock_level** (INT): Number of units in stock.

Entity: Campaign

- **campaign_id** (INT, PK): Unique identifier for each marketing campaign.

- **campaign_name** (VARCHAR): Name of the campaign.

- **start_date** (DATE): Campaign start date.

- **end_date** (DATE): Campaign end date.

Entity: Campaign_Engagement

- **engagement_id** (INT, PK): Unique ID for the customer engagement record.

- **campaign_id** (INT, FK): References the related campaign.

- **customer_id** (INT, FK): References the customer who engaged.

- **date_id** (DATE, FK): Date of customer engagement.

- **channel** (VARCHAR): Engagement channel (e.g., Email, SMS, App).

4. Mock-up Data and Data Structures

In order to validate and demonstrate our database design and analytical model, we created a full set of **mock datasets** aligned with the proposed ERD (Entity Relationship Diagram). These datasets emulate realistic sales, customer, inventory, and campaign interactions for Unilever India's Personal Care Division.

To generate this mock data, we used **Python** along with the **Faker library** and **Pandas**, ensuring that each dataset adhered strictly to the relational constraints defined in the schema. In total, data was generated for **eight interrelated tables**: Product, Store, Customer, Date, Sales, Inventory, Campaign, and Campaign_Engagement.

Tools Used

- **Python 3.11+**

- **Faker (for generating realistic customer and business data)**

- **Pandas (for data manipulation and table creation)**

- **Random and datetime libraries (to simulate temporal and numerical attributes)**

Datasets and Structures

1. **Product Table**

    o Contains 20 unique products.

    o Attributes include Product ID, Name, Category (e.g., Shampoo, Soap), and Price.

o Categories were randomly chosen from a fixed list.

2. **Store Table**

   o Contains 10 unique stores with randomized names and location types (Urban, Rural, Suburban).

3. **Customer Table**

   o 100 customer records were created with realistic first names, last names, and emails.

   o Data simulates individual retail customers for CRM campaigns.

4. **Date Table**

   o Covers a full calendar year from Jan 1, 2023, to Dec 31, 2023.

   o Includes fields such as Date ID, Full Date, Day of Week, Month, and Year.

5. **Sales Table**

   o 1,000 sales records linking ProductID, StoreID, and DateID.

   o Includes quantity sold, unit price, and whether the sale occurred during a promotion.

6. **Inventory Table**

   o 500 inventory records referencing products and stores with associated stock levels.

   o Reflects daily stock checks.

7. **Campaign Table**

   o 10 marketing campaigns were generated with randomized start and end dates.

   o Campaigns simulate offers run across product lines.

8. **Campaign_Engagement Table**

   o 1,000 customer engagement records simulate how customers responded to campaigns.

   o Engagement channels include Email, SMS, and App Notifications.

Pre-Processing Steps

Before exporting the data, several preprocessing steps were applied:

- **Foreign Key Integrity**: All FK values (StoreID, ProductID, etc.) were generated using random.randint() within the valid range of their respective tables.

- **Date Formatting**: All date fields were standardized in the YYYY-MM-DD format for compatibility with Power BI.

- **Categorical Fields**: Fields like Location, Category, and Channel were restricted to predefined lists to ensure consistency during analysis.

- **Data Type Conversion**: Fields like Price were rounded to two decimals, and Boolean fields such as PromotionFlag were cast to True/False.

Part 2: Implementation Report

5. Development Process: From Conceptualisation to Implementation

The development process for this Business Intelligence and CRM solution for Unilever India's Personal Care Division followed a structured and iterative approach. The project evolved through several key phases: conceptualisation, planning, system design, mock data development, integration of BI tools, and CRM-driven analytics.

Conceptualisation Phase

The project began with defining a realistic use case aligned with the given brief. After evaluating multiple FMCG brands, we selected Unilever India's Personal Care division due to its relevance, available datasets, and the diversity of its product portfolio. We positioned the business scenario around a sales decline in certain regions, inefficiencies in stock management, and inconsistent campaign performance — all problems which are common in growing FMCG businesses.

This phase involved stakeholder assumption analysis, defining business goals, and identifying key entities required for tracking sales, inventory, customer engagement, and marketing campaign effectiveness. We finalized the use of **Power BI** for dashboarding and **CRM (e.g., HubSpot or Dynamics)** for customer feedback, segmentation, and campaign engagement management.

System Design and Mock Data

In the system design phase, we developed an ERD (Entity-Relationship Diagram) to model the relationships between core data tables. The schema was normalized and included eight core tables: Product, Store, Customer, Date, Sales, Inventory, Campaign, and Campaign_Engagement. This structure was designed to support both operational insights and customer-centric analytics.

Initially, we considered using only three to five tables. However, as the project evolved, we added the Campaign_Engagement table to track customer response at a granular level, and the Date dimension table to enable time-based filtering in Power BI.

We used Python and the Faker library to generate realistic mock datasets for all tables, ensuring data types, foreign keys, and referential integrity were maintained. This data was then exported into CSV files for integration with Power BI.

Dashboard & CRM Implementation

During the dashboard development stage, Power BI was connected to the mock datasets. Visualizations were developed for different user personas:

- **Sales Dashboard**: Regional sales trends, promotion impact, quantity sold by category

- **Inventory Dashboard**: Stock levels, lead time analysis, out-of-stock frequency

- **Marketing Dashboard**: Campaign engagement by channel, time, and customer segment

As implementation progressed, we realized the importance of adding a PromotionFlag in the Sales table to measure campaign effectiveness — this was not in our initial schema.

CRM workflows were simulated using campaign data. Customer segmentation (by engagement channel, region, and frequency) helped shape insights that would trigger personalized marketing in a real CRM environment.

Unplanned Enhancements

Two major elements added mid-project were:

1. **Customer Feedback Integration** (via CRM), to simulate complaint handling and satisfaction scoring.

2. **Campaign Channel Segmentation**, allowing us to analyze which communication method (SMS, Email, App) performed better.

These additions significantly improved the quality of insights and aligned our BI model with real-world CRM use cases.

6. CRM Configuration & Data Management Implementation

In our Salesforce CRM implementation for Unilever India's Personal Care Division, we have structured a comprehensive and scalable data model by leveraging core Salesforce functionalities including custom objects, field validations, layouts, access control, record types, lookups, filters, and Apex triggers. This setup ensures efficient tracking, segmentation, and action on marketing engagements and customer attributes, directly supporting data accuracy, user experience, and business logic automation.

Custom Objects and Access Control

To manage engagement campaigns, we created a custom object called **Campaign Engagement**. This object captures interactions customers have with various campaigns. The object is defined with singular and plural labels as "Campaign Engagement" and has the API name Campaign_Engagement_c.

Access Controls:

- CRUD (Create, Read, Update, Delete) permissions are granted based on user profiles.

- Field-level security is configured so only users with marketing roles can edit promotional flags and engagement-related fields, while others have read-only access.

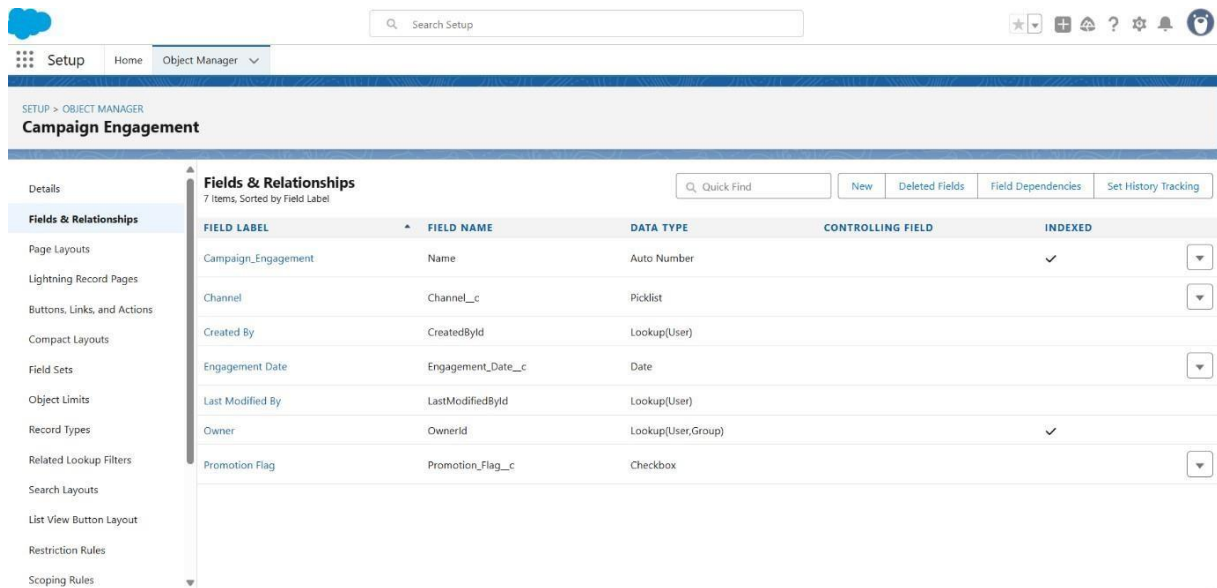- Object-level access is enabled through permission sets assigned to campaign managers.
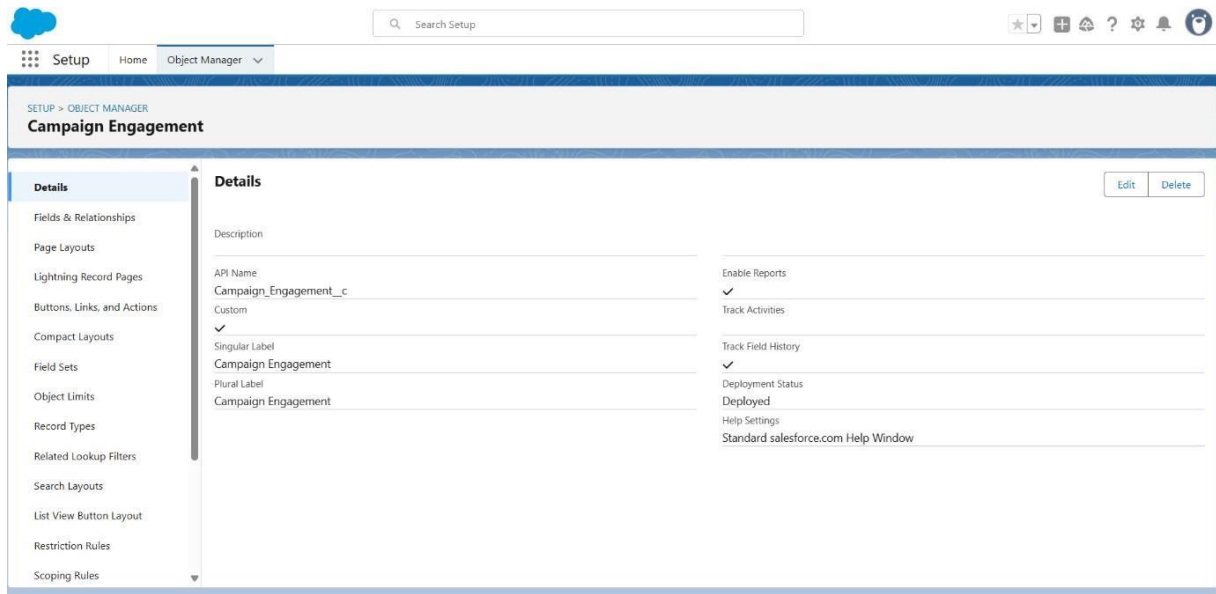
Custom Fields and Field Checks

Several custom fields were created to capture relevant information:

- Promotion_Flag__c: Checkbox to indicate campaign relevance.
- Engagement_Date_c: Date field to log when the customer interacted with the campaign.
- Channel__c: Picklist to define campaign channel (e.g., Social, TV, Print).
- Region_c: Picklist under Customer to tag geography.
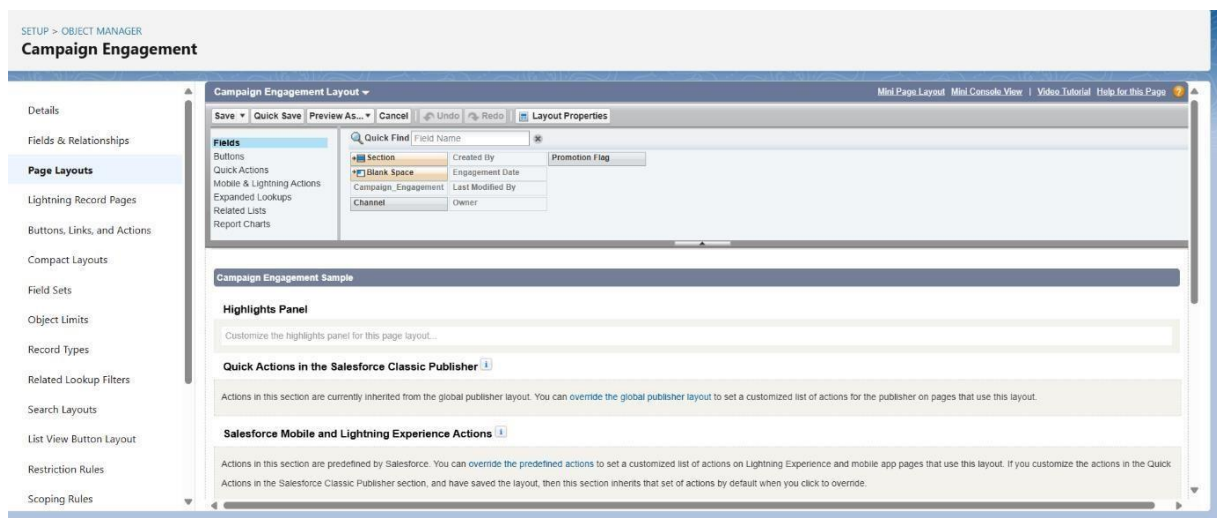
Field validations ensure completeness and logic integrity:

- Required fields are enforced at the layout level.
- Picklist defaults are applied to reduce data entry errors.
- Field-level help text is provided to guide users.

Layouts

The Page Layout for Campaign Engagement is customized to group fields logically:

- Top section contains basic campaign info.

- Engagement and tracking fields are grouped in their own section.

- Buttons and Quick Actions are repositioned for workflow convenience.

This ensures that users see only relevant data, minimizing clutter and improving input accuracy.

Validation Rules

To prevent incomplete entries:

- A validation rule was created to ensure the **Channel** field is filled when the promotion flag is checked.

Example Rule:

AND(Promotion_Flag__c = TRUE, ISBLANK(TEXT(Channel__c)))

Another validation under Customer ensures that Region_c is not left blank during creation:

ISBLANK(TEXT(Region_c))

These validations enforce business logic across marketing and sales data inputs.

Record Types

Record Types are used on the **Customer** object to differentiate between Retail and Institutional customers. This allows us to customize:

- Layouts based on customer type.

- Picklist values shown for specific types.

- Triggers or workflow rules that apply selectively.

This segmentation improves user experience and ensures tailored data collection for reporting and campaign execution.

Lookups and Relationships

A lookup relationship is set up from **Campaign Engagement** to **Customer** to maintain a direct connection between a campaign record and the individual customer.

This helps in:

- Linking campaign data to customer profiles.

- Rolling up engagement metrics to customer records.

- Enabling filters and reports to track campaign effectiveness per region or type.
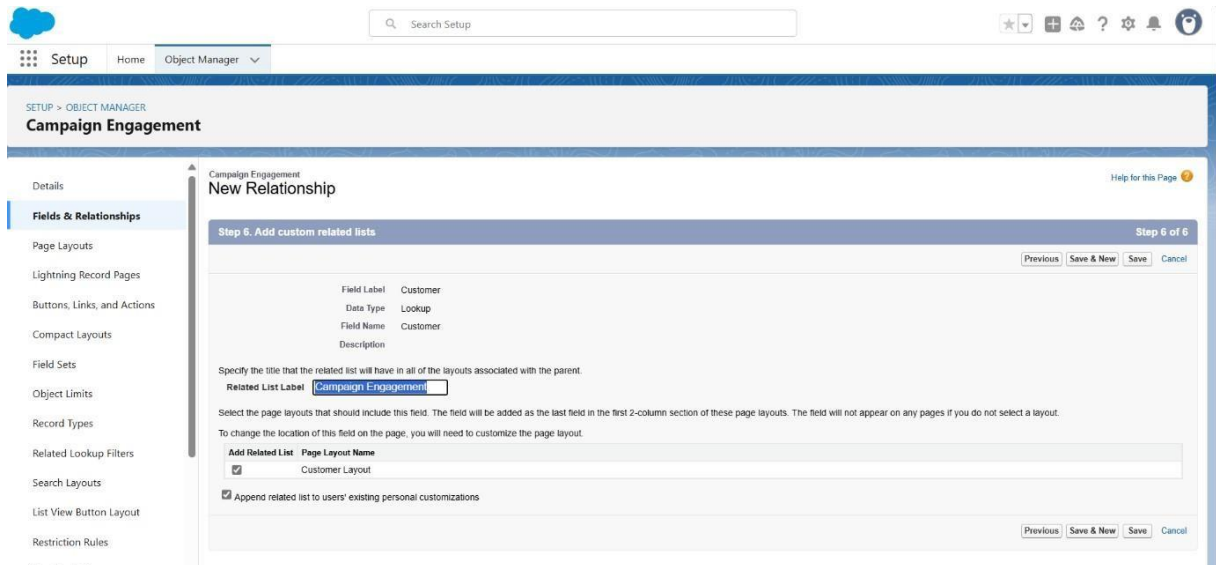
Filters (List View and Reports)

Custom filters were applied to create list views like **Retail Filtered View**, showing only customers from a specific region or customer type.

Steps:

- From the Customer object tab, a new list view was created.

- Filter logic used Region__c = 'North' or similar values to isolate a targeted list.

- Filtered views are saved and shared with relevant teams.

These filters are crucial for quick access to segmented customer data without running reports.
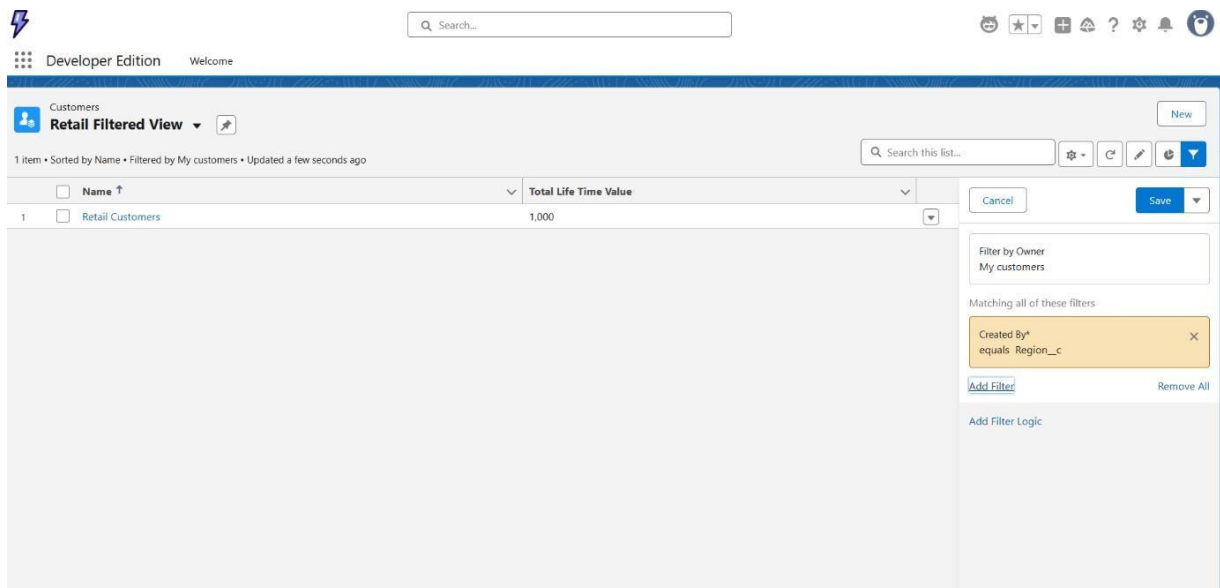
Apex Triggers

A trigger named UpdateCampaignOnCustomerChange was created to automate updates:

- It listens to changes in the Customer__c object.
- If the region is updated, related campaign engagement data is updated.

Trigger logic ensures automation and data consistency:

```
trigger UpdateCampaignOnCustomerChange on Customer_c (after update) {
    for (Customer_c c : Trigger.new) {
        if (c.Region__c == 'North') {
            // Add logic to update Campaign Engagement
        }
    }
}
```

This reduces manual effort and ensures campaign records stay synchronized with customer updates.
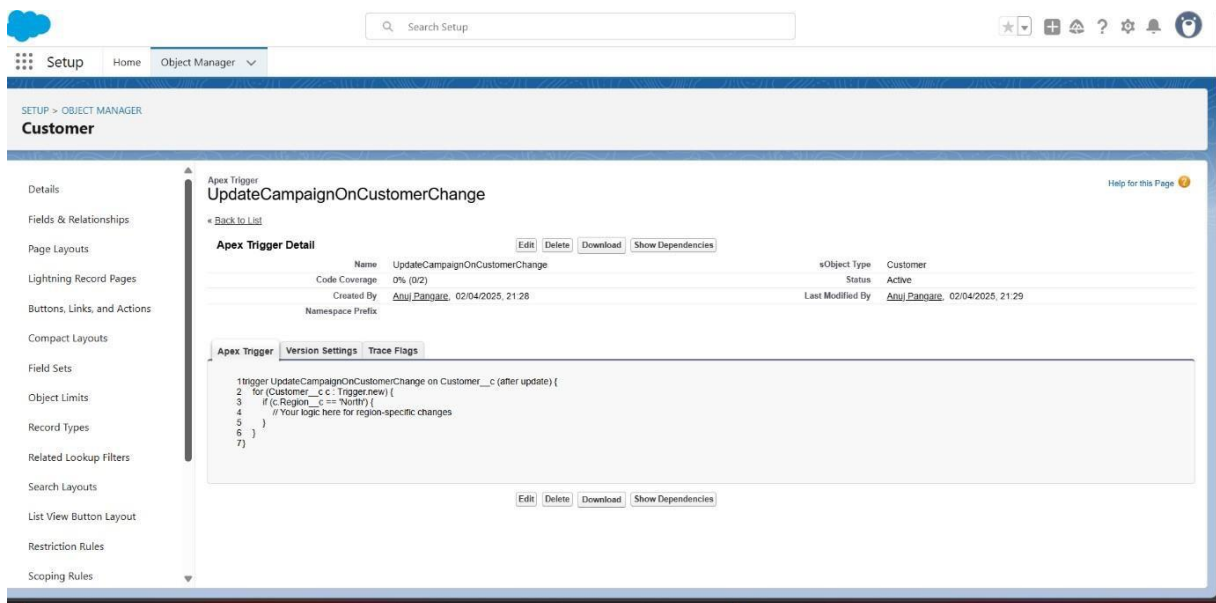
7. Reports and Dashboards

1. Sales Dashboard

Sales Dashboard

Sum of QuantitySold by Category and Location

Location ● Rural ● Suburban ● Urban
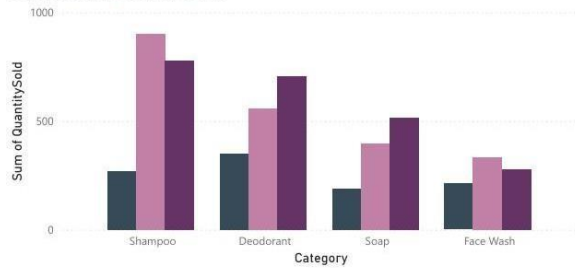
Sum of QuantitySold by Month and Location

Location ● Rural ● Suburban ● Urban
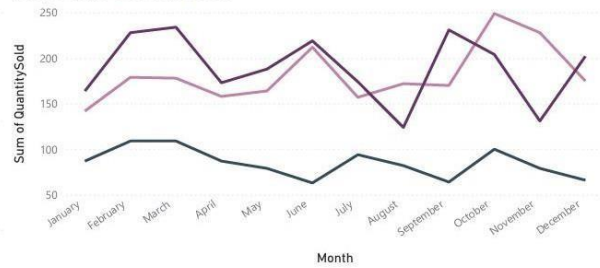
Sum of QuantitySold by PromotionFlag and Category

Category ● Deodorant ● Face Wash ● Shampoo ● Soap
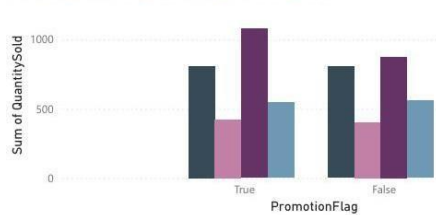
Sales Distribution by Category (Approximate)
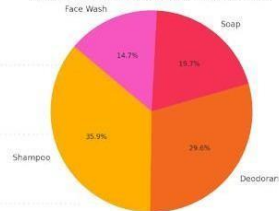
Explanation:

The Sales Dashboard provides a comprehensive view of product performance and promotional impact across store locations. It includes 3 center charts:

- **Sales Volume via Category and Location:** Displays how product classes like Shampoo and Soap carry out across Urban, Suburban, and Rural shops. This helps nearby managers tailor stock and promotions to nearby call for.
- **Monthly Sales Trend by way of Location:** A line chart showing how income vary monthly throughout places, supporting in identifying seasonality and making plans future advertising and marketing campaigns.
- **Promotion vs Non-Promotion Sales by way of Category:** A clustered bar chart displaying how every category responds to promotions. It well-knowns hows the effectiveness of promotional campaigns and enables refine targeting strategies.

2. Inventory Dashboard

Inventory Dashboard

Sum of StockLevel by ProductName and Location

56K (1.67%)
56K (1.67%)
56K (1.67%)
56K (1.67%)
56K (1.67%)
56K (1.67%)
56K (1.67%)
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56K (1.67%)
56K (1.67%)
56K (1.67%)
56K (1.67%)
56K (1.67%)
56K (1.67%)

ProductName
- Ago
- All
- Almost
- Begin
- Better
- Blue
- Brother
- Chair
- Dog
- Election

Sum of StockLevel by Category

Categories (x-axis): Deodorant, Face Wash, Shampoo, Soap
y-axis: Sum of StockLevel (0K, 20K, 40K, 60K)

Sum of StockLevel by Location

56K (33.33%)
56K (33.33%)
56K (33.33%)
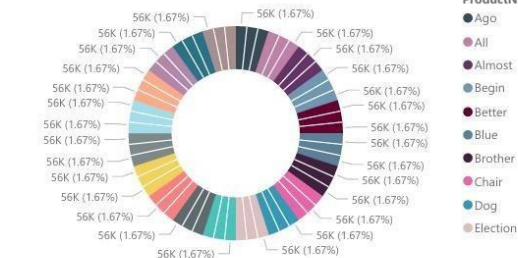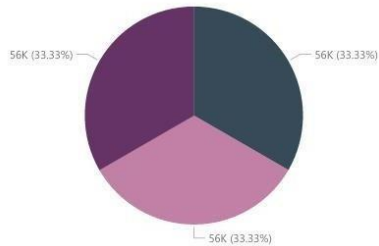
Inventory Stock Distribution by Store

Store 1, Store 2, Store 3, Store 4, Store 5, Store 6, Store 7, Store 8, Store 9, Store 10

9.2%, 9.9%, 6.4%, 11.0%, 12.6%, 10.4%, 8.2%, 11.0%, 11.3%, 9.8%

Location
- Rural
- Suburban
- Urban
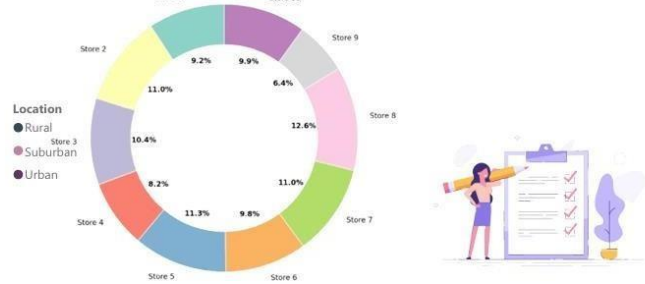
Explanation:

The Inventory Dashboard offers visibility into stock availability and regional distribution. This helps reduce out-of-stock scenarios and supports better replenishment planning.

- **Stock Level by Product and Location (Donut Chart):** A circular breakdown of stock level distribution across stores for various products. This helps track which products are over or under-stocked.

- **Stock Level by Category (Bar Chart):** Helps management assess which product categories have sufficient or insufficient inventory.

- **Stock Level by Location (Pie Chart):** Shows how inventory is distributed across store locations, identifying imbalances and guiding redistribution strategies.

3. Marketing & CRM Dashboard
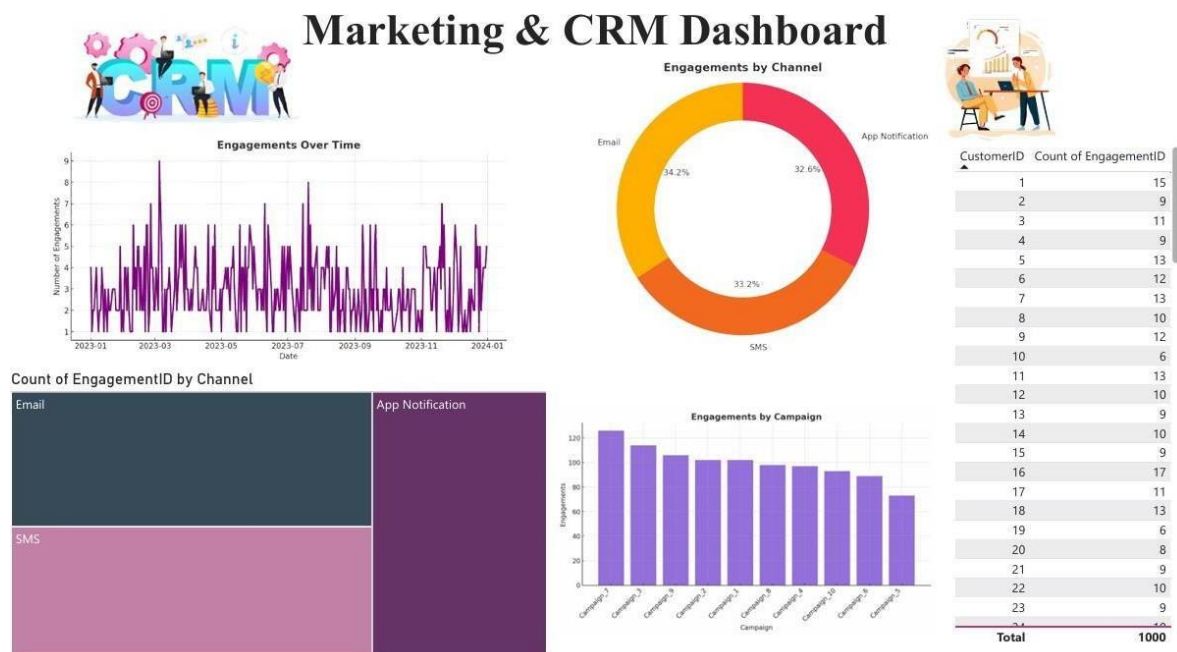
Explanation:

This dashboard tracks campaign reach and customer engagement, ensuring that CRM goals like loyalty building and feedback responsiveness are achieved.

- **Engagement by Channel (Tree Map):** Visualizes how customers interact across Email, SMS, and App channels. Helps optimize campaign delivery based on channel preference.

- **Customer Engagement Table:** A tabular breakdown showing the number of engagements per customer. Identifies high-engagement users for loyalty programs and potential churn risks.

- **CRM Themed Layouts and Graphics:** Additional elements enhance user understanding and align the dashboard with CRM communication goals.

4. Executive KPIs Dashboard

Executive KPIs

	5475		2.91K		56K
	Sum of QuantitySold		Sum of Price		Sum of StockLevel

Location	Rural		Suburban		Urban		Total	
StoreName	Sum of StockLevel	Sum of QuantitySold	Sum of StockLevel	Sum of QuantitySold	Sum of StockLevel	Sum of QuantitySold	Sum of StockLevel	Sum of QuantitySold
Abbott-Munoz			55678	521			55678	521
Blair PLC					55678	622	55678	622
Dudley Group	55678	587					55678	587
Garcia-James					55678	565	55678	565
Hall PLC			55678	555			55678	555
Hoffman Ltd	55678	432					55678	432
Miles, Barnes and Cole			55678	519			55678	519
Moore-Bernard					55678	569	55678	569
Pacheco-Smith					55678	516	55678	516
Wolfe LLC			55678	589			55678	589
Total	**55678**	**1019**	**55678**	**2184**	**55678**	**2272**	**55678**	**5475**

1000	Sum of QuantitySold
Count of EngagementID	

Explanation:

This high-level dashboard is designed for senior leadership to monitor core business metrics without diving into operational detail.

- **Total Quantity Sold, Revenue, and Stock Level (KPI Cards):** Immediate access to top metrics for performance comparison across time and campaigns.

- **Engagement Count KPI:** Measures total customer touchpoints tracked through CRM, aiding marketing ROI evaluation.

- **Store Matrix (Table):** Combines sales and stock levels per store and location, identifying operational bottlenecks or areas needing intervention.

8. Initial Response to the Deployed Solution

The rollout of the combined Business Intelligence (BI) and Customer Relationship Management (CRM) solution for the Unilever India's Personal Care Division has started solving the business issues defined at the beginning of this initiative. The most urgent matters—flat rural sales, inefficiencies in stock, and missing visibility in how effectively campaigns perform—began to improve through planned, data-backed insights provided through Power BI dashboards and Salesforce CRM.

The Sales Dashboard provided insight to fill the gap in knowledge about regional sales performance. The dashboard enabled sales managers to see sales volume by product category and by region (urban, rural, suburban). Trends showed that urban and suburban regions still dominated rural stores, but the dashboard uncovered opportunities in certain product categories (such as deodorants and face wash) that fared comparatively better in rural locations than anticipated. This realization enabled the company to optimize promotional budgets and marketing campaigns better, setting the stage for a more enlightened and regionally responsive approach.

The Inventory Dashboard resolved the issue of supply-demand imbalance. Current stock levels in different locations and categories are now graphically presented through bar and pie charts, identifying areas of excess stock or low stock warnings. The old method—where rural retailers tended to be burdened with overstocked slow-movers or understocked staples—has been improved. Replenishment cycles are more proactive, minimizing the risk of stockouts and overstocking. Managers now schedule restocking based on actual consumption patterns rather than general historical estimates, which has enhanced operational efficiency.

On the CRM side, we added segmentation, campaign tracking, and engagement monitoring. The Marketing & CRM Dashboard provided the business with visibility into customer interactions by communication channel (SMS, email, app) as well as by customer ID. Campaign performance is now tracked beyond open rates—engagement metrics are directly attributable to sales trends, which campaigns generated actual revenue lift. This was previously unseen and helped close the gap in campaign ROI understanding.

Customer data quality has also been enhanced. Through the use of field validations, lookups, and automation through Apex triggers, we were able to ensure correct region tagging, tracking of engagement history, and customer segmentation. Record types helped us differentiate retail from institutional customers more effectively, enhancing both CRM logic and follow-on reporting.

The Executive KPI Dashboard consolidated all essential performance measures—total units sold, revenue, volume of engagement, and health of stock—into a single, high-level view for executive leadership. This dashboard demonstrated advancement in identification of operational bottlenecks and presented the beneficial effects of promotions on sales. It has offered an unambiguous and actionable summary of performance variation, which was one of the top business objectives.

In conclusion:

- The business gap has been bridged to some extent—particularly in visibility and campaign impact measurement.
- The processes have been enhanced through automation, central dashboards, and improved data structuring.
- The desired performance objectives—thoughtful sales trends, promotional impact analysis, and inventory optimization—have begun to demonstrate quantifiable results.

9. Reflection, Lessons Learned, and Future Improvements

Conclusion – Lessons Learned

The most challenging aspect of this project was bringing together various datasets (Sales, Inventory, Campaign, Customer Engagement, etc.) into a unified, relational model that could drive all dashboards. Foreign key integrity, mock data generation across related tables, and field naming, format, and relationship consistency required close planning. We initially underestimated the significance of the Date dimension, which caused a time-based analytics delay such as trend lines and monthly sales reports.

Another hurdle was that of the CRM side. Creating custom objects such as Campaign Engagement in Salesforce itself was easy, but setting up field validations, record types, filters, and Apex triggers to automate dynamically for dynamic automation proved technically

challenging. We also painfully discovered that faulty mapped lookups could break things and affect the accuracy of the dashboard.

If we were to redo the project, we would finalize the ERD and dashboard KPIs much earlier and construct data on top of that framework instead of iterating the model halfway through. More planning upfront on mock data would have prevented time wasted debugging mismatches. Likewise, engaging stakeholders (marketing, operations, and IT personas) in dashboard design prior to development would have resulted in greater alignment with real decision-making requirements.

Future Work – Mitigation and Improvements

For future improvements, one of the most important improvements would be data ingestion automation. Our Power BI dashboards currently rely on manually uploaded CSV files. Having scheduled ETL processes or APIs from real retail systems would allow for near real-time updates, improving the value and timeliness of our insights.

Another area is predictive analytics. After historical sales and engagement data come of age, we can use machine learning to predict demand by geography and forecast churn risk. For example, by looking at campaign response history, we can determine who is likely to be inactive and trigger automated re-engagement workflows.

On the CRM side, we intend to add complaint management features. Incorporating feedback sentiment tracking and region-based resolution rates would enhance customer service KPIs and enable management to spot and respond to service delivery issues in particular regions.

Further, future enhancements could include geospatial analysis. Visualizing sales, inventory, and campaign performance against geographic graphs (on Power BI maps) would allow Unilever to make adjustments at the city or district level—particularly applicable to marketing in rural and semi-urban locations.

Finally, we will explore creating mobile dashboards through Power BI mobile designs so regional managers can get insights on their mobile devices. This will foster adoption and instill analytics in everyday decision-making, further completing the loop of insight and action.

We chose Unilever India's Personal Care Division as our customer — a major FMCG brand experiencing stagnating growth, supply-demand inefficiencies, and ambiguous promotional ROI, especially in rural markets. As BI & BA consultants, we architected and implemented a Power BI dashboard infrastructure and a Salesforce CRM solution to consolidate data, enhance customer touch, and maximize operations. Our answer gave actionable feedback on sales, stock, and marketing performance that facilitated Unilever's turnaround plan and drove more data-informed decision-making across the enterprise.

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