Retail HH analysis

This dataset contains household-level transactions over two years from a group of 2,500 households who are frequent shoppers at a retailer. It contains all of each household's purchases, not just those from a limited number of categories. For households, demographic information as well as direct marketing contact history are included.

1. **hh_demographic**: This table likely contains demographic information about households. It may include columns such as household_key (a unique identifier for each household), AGE_DESC (age range or category of the household), MARITAL_STATUS_CODE (marital status of the household), INCOME_DESC (income level or range of the household), HOMEOWNER_DESC (homeownership status of the household), HOUSEHOLD_SIZE_DESC (size of the household), KID_CATEGORY_DESC (number of children in the household), and more. This table provides a comprehensive view of the demographic characteristics of each household.

2. **campaign_desc**: This table likely contains descriptions or details of marketing campaigns. It may include columns such as campaign_id (a unique identifier for each campaign), campaign_start_date, campaign_end_date, campaign_type, and other relevant information.

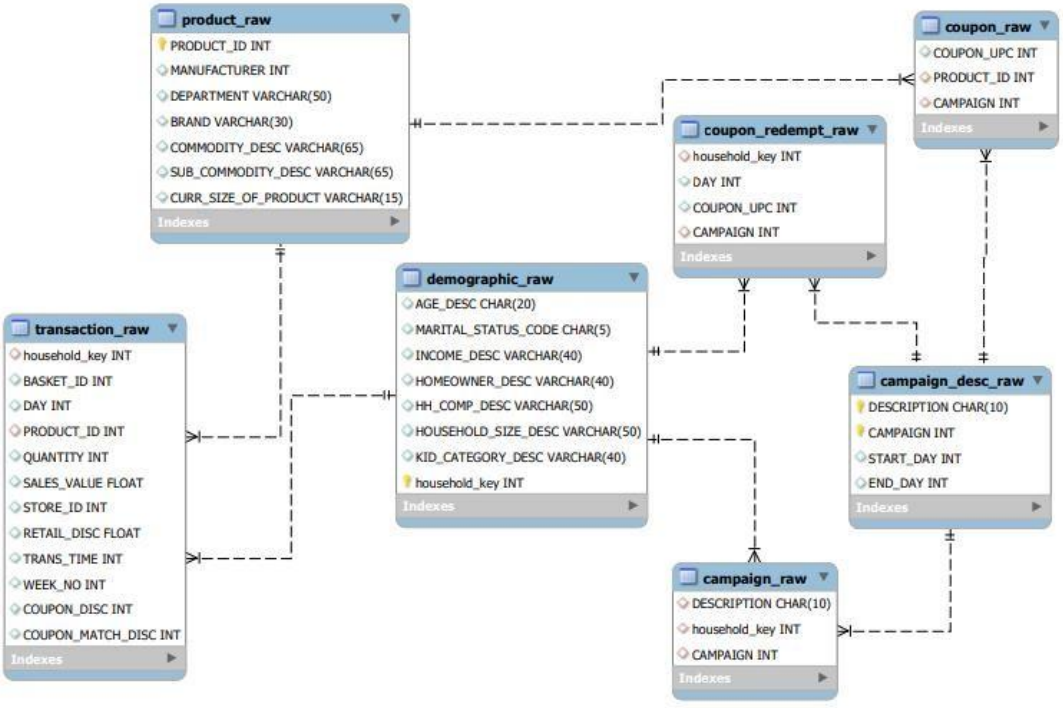
3. **campaign_table**: This table provides information about the different marketing campaign Types that have been conducted.

4. **coupon**: This table likely contains information about coupons or discounts offered to customers. It may include columns such as coupon_id (a unique identifier for each coupon), PRODUCT_ID,CAMPAIGN and other relevant details. This table provides information about the available coupons on different Product.

5. **coupon_redempt**: This table likely contains data about coupon redemptions. It may include columns such as household_key, coupon_id, redemption_date, and other relevant information. This table helps track and analyze the usage and effectiveness of coupons.

6. **product**: This table likely contains information about different products. It may include columns such as product_id, product_name, category, brand, price, and other relevant attributes. This table provides details about the available products.

7. **transaction_data**: This table likely contains data related to customer transactions. It may include columns such as household_key, BASKET_ID,date, product_id, quantity, price, and other relevant information. This table helps track and analyze customer purchases, including the products bought, quantities, prices, and transaction details.



KPIS

1. Customer Demographics KPIs:
    - Count of unique households: Measure the total number of unique households in the Demographic table. o Household composition distribution: Analyze the distribution of household compositions (HH_COMP_DESC) to understand the composition of households.
    - Age distribution: Calculate the percentage or count of customers in different age groups (AGE_DESC).
    - Marital status distribution: Analyze the proportion of customers in different marital status categories (MARITAL_STATUS_CODE).
    - Income distribution: Determine the distribution of customers across income levels

(INCOME_DESC).

    - Homeownership distribution: Calculate the percentage or count of customers who own or rent their homes (HOMEOWNER_DESC).
2. Campaign KPIs:
    - Number of campaigns: Count the total number of campaigns in the Campaign table.
    - Campaign duration: Calculate the duration of each campaign by subtracting the start day from the end day (in the Campaign_desc table). o Campaign effectiveness: Analyze the number of households associated with each campaign (in the Campaign table) to measure campaign reach.
3. Coupon KPIs:
    - Coupon redemption rate: Calculate the percentage of coupons redeemed (from the coupon_redempt table) compared to the total number of coupons distributed (from the Coupon table).
    - Coupon usage by campaign: Measure the number of coupon redemptions (from the coupon_redempt table) for each campaign (in the Coupon table).

4. Product KPIs:
    - Sales value: Calculate the total sales value for each product (in the Transaction_data table) to identify top-selling products.
    - Manufacturer distribution: Analyze the distribution of products across different manufacturers (in the Product table).
    - Department-wise sales: Measure the sales value by department (in the Product table) to understand which departments contribute most to revenue.
    - Brand-wise sales: Calculate the sales value for each brand (in the Product table) to identify top-selling brands.
5. Transaction KPIs:
    - Total sales value: Calculate the sum of sales values (in the Transaction_data table) to measure overall revenue.
    - Average transaction value: Calculate the average sales value per transaction to understand customer spending patterns.
    - Quantity sold: Measure the total quantity sold (in the Transaction_data table) to understand product demand. o Discounts: Analyze the amount and impact of discounts (RETAIL_DISC, COUPON_DISC, COUPON_MATCH_DISC) on sales value.

POWER BI

1. Descriptive Analysis:
    - Explore demographic characteristics such as age distribution, marital status, income levels, homeownership, household composition, household size, and kid categories.
    - Analyze campaign descriptions and duration. o Examine product details including manufacturer, department, brand, commodity description, sub-commodity description, and size.
2. Customer Segmentation:
    - Segment customers based on demographic attributes such as age, marital status, income, and household composition.
    - Analyze customer behavior and preferences using transaction data. o Group customers based on their response to campaigns and coupon redemption.
3. Campaign Performance Analysis:
    - Measure the effectiveness of campaigns by analyzing their descriptions, start and end days.
    - Determine the number of households associated with each campaign.
    - Evaluate the impact of campaigns on coupon redemption and sales.
4. Sales and Revenue Analysis:
    - Analyze transaction data to understand sales patterns, quantities, and sales values.
    - Identify the top-selling products, brands, and departments. o Explore the correlation between sales and discounts (retail discount, coupon discount, coupon match discount).
5. Market Basket Analysis:

- Discover associations and relationships between products frequently purchased together using transaction data.
- Identify cross-selling and upselling opportunities. o Generate product recommendations based on customer purchase history.

6. Time Series Analysis:
   - Analyze sales and coupon redemption trends over time. o Explore seasonality, cyclic patterns, and changes in customer behavior. o Forecast future sales and coupon redemption based on historical data.