**Data Mart Analysis**



**INTRODUCTION:**

Data Dart is my latest venture and I want your help to analyze the sales and performance of my venture. In June 2020 - large scale supply changes were made at Data Mart. All Data Mart products now use sustainable packaging methods in every single step from the farm all the way to the customer.

I need your help to quantify the impact of this change on the sales performance for Data Mart and its separate business areas.

**SCHEMA USED: WEEKLY\_SALES TABLE**

|  |  |
| --- | --- |
| Column name | Data type |
| week\_date | date |
| region | varchar(20) |
| platform | varchar(20) |
| segment | varchar(10) |
| customer | varchar(20) |
| transactions | int |
| sales | int |

**CASE STUDY QUESTIONS**

## Data Cleansing Steps

In a single query, perform the following operations and generate a new table in the data\_mart schema named clean\_weekly\_sales:

1. Add a week\_number as the second column for each week\_date value, for example any value from the 1st of January to 7th of January will be 1, 8th to 14th will be 2, etc.
2. Add a month\_number with the calendar month for each week\_date value as the 3rd column
3. Add a calendar\_year column as the 4th column containing either 2018, 2019 or 2020 values
4. Add a new column called age\_band after the original segment column using the following mapping on the number inside the segment value

|  |  |
| --- | --- |
| segment | age\_band |
| 1 | Young Adults |
| 2 | Middle Aged |
| 3 or 4 | Retirees |

1. Add a new demographic column using the following mapping for the first letter in the segment values:

segment | demographic |  
C | Couples |  
F | Families |

1. Ensure all null string values with an "unknown" string value in the original segment column as well as the new age\_band and demographic columns
2. Generate a new avg\_transaction column as the sales value divided by transactions rounded to 2 decimal places for each record

## B. Data Exploration

1. Which week numbers are missing from the dataset?
2. How many total transactions were there for each year in the dataset?
3. What are the total sales for each region for each month?
4. What is the total count of transactions for each platform?
5. What is the percentage of sales for Retail vs Shopify for each month?
6. What is the percentage of sales by demographic for each year in the dataset?
7. Which age\_band and demographic values contribute the most to Retail sales?

Table-

select \* from weekly\_sales;

## 

Solution

Data Cleansing

/\* Data Cleaning\*/

SELECT

week\_date,

DATEPART(WEEK, week\_date) AS week\_number,

DATEPART(MONTH, week\_date) AS month\_number,

DATEPART(YEAR, week\_date) AS calendar\_year,

region,

platform,

CASE

WHEN segment = 'null' THEN 'Unknown'

ELSE segment

END AS segment,

CASE

WHEN RIGHT(segment, 1) = '1' THEN 'Young Adults'

WHEN RIGHT(segment, 1) = '2' THEN 'Middle Aged'

WHEN RIGHT(segment, 1) IN ('3', '4') THEN 'Retirees'

ELSE 'Unknown'

END AS age\_band,

CASE

WHEN LEFT(segment, 1) = 'C' THEN 'Couples'

WHEN LEFT(segment, 1) = 'F' THEN 'Families'

ELSE 'Unknown'

END AS demographic,

customer\_type,

transactions,

sales,

ROUND(

sales / transactions,

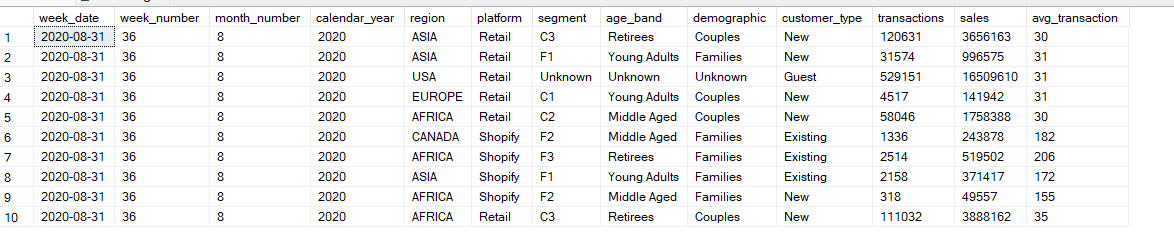
2

) AS avg\_transaction

INTO clean\_weekly\_sales

FROM weekly\_sales;

SELECT TOP 10 \* FROM clean\_weekly\_sales;



## Data Exploration

**Task 1 -** Which week numbers are missing from the dataset?

Solution-

CREATE TABLE #WeeksReference (WeekNumber INT);

INSERT INTO #WeeksReference (WeekNumber)

VALUES

(1), (2), (3),(4),(5),(6),(7),(8),(9),(10),

(11),(12),(13),(14),(15),(16),(17),(18),(19),

(20),(21),(22),(23),(24),(25),(26),(27),(28),(29),(30),

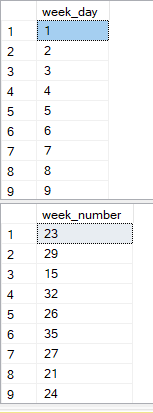
(31),(32),(33),(34),(35),(36),(37),(38),(39),(40),

(41),(42),(43),(44),(45),(46),(47),(48),(49),(50),(51),(52);

select distinct WeekNumber as week\_day from #WeeksReference

where WeekNumber not in(select distinct week\_number from clean\_weekly\_sales);

select distinct week\_number from clean\_weekly\_sales;

****

**Task 2-** How many total transactions were there for each year in the dataset?

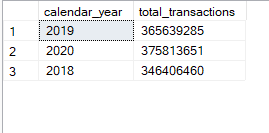
Solution-

SELECT

calendar\_year,

SUM(transactions) AS total\_transactions

FROM clean\_weekly\_sales group by calendar\_year;



Task 3-What are the total sales for each region for each month?

Solution-

ALTER TABLE clean\_weekly\_sales

ALTER COLUMN sales BIGINT;

SELECT

month\_number,

region,

SUM(sales) AS total\_sales

FROM clean\_weekly\_sales

GROUP BY month\_number, region

ORDER BY month\_number, region;



Task 4 - What is the total count of transactions for each platform?

Solution –

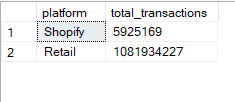
SELECT

platform,

SUM(transactions) AS total\_transactions

FROM clean\_weekly\_sales

GROUP BY platform;



Task 5-What is the percentage of sales for Retail vs Shopify for each month?

Solution –

WITH cte\_monthly\_platform\_sales AS (

SELECT

month\_number,calendar\_year,

platform,

SUM(sales) AS monthly\_sales

FROM clean\_weekly\_sales

GROUP BY month\_number,calendar\_year, platform

)

SELECT

month\_number,calendar\_year,

ROUND(

100 \* MAX(CASE WHEN platform = 'Retail' THEN monthly\_sales ELSE NULL END) /

SUM(monthly\_sales),

2

) AS retail\_percentage,

ROUND(

100 \* MAX(CASE WHEN platform = 'Shopify' THEN monthly\_sales ELSE NULL END) /

SUM(monthly\_sales),

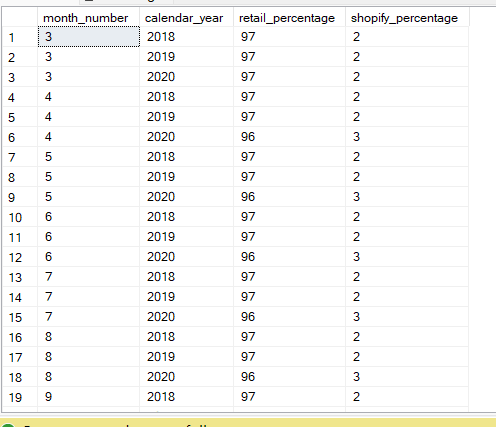
2

) AS shopify\_percentage

FROM cte\_monthly\_platform\_sales

GROUP BY month\_number,calendar\_year

ORDER BY month\_number,calendar\_year;



Task 6-What is the percentage of sales by demographic for each year in the dataset?

Solution-

SELECT

calendar\_year,

demographic,

SUM(SALES) AS yearly\_sales,

ROUND(

(

100 \* SUM(sales)/

SUM(SUM(SALES)) OVER (PARTITION BY demographic)

),

2

) AS percentage

FROM clean\_weekly\_sales

GROUP BY

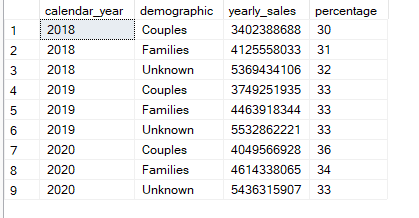
calendar\_year,

demographic

ORDER BY

calendar\_year,

demographic;



Task 7 -Which age\_band and demographic values contribute the most to Retail sales?

Solution –

SELECT

age\_band,

demographic,

SUM(sales) AS total\_sales

FROM clean\_weekly\_sales

WHERE platform = 'Retail'

GROUP BY age\_band, demographic

ORDER BY total\_sales DESC;

