



Walmart Sales Analysis

This analysis of Walmart's sales data provides critical insights that can be leveraged to increase revenue. By identifying top-selling products, peak purchasing times, customer preferences, and more, Walmart can implement targeted strategies to maximize sales and profitability.

- First, we created a database name Walmart sales data.
- Then we created a table to insert data from the excel sheet.

```
create database walmart_sales_data;
2
3 ● Greate table if not exists sales(
           invoice id varchar(30) not null primary key,
4
           branch varchar(5) not null,
5
           city varchar(30) not null,
           customer type varchar(10) not null,
7
           gender varchar(10) not null,
8
           product_line varchar(100) not null,
9
           unit price decimal(10, 2) not null,
10
           quantitiy int not null,
11
           VAT float(6, 4) not null,
12
13
           total decimal(12, 4) not null,
           date datetime not null,
14
15
           time time not null,
           payment_method varchar(15) not null,
16
           cogs decimal(10, 2) not null,
17
18
           gross_margin_percentage float(11, 9),
           gross_income decimal(12, 4) not null,
19
20
           rating float(2, 1)
21
22
       );
```

Added a new column to give insights into the data

- The first column was about the time of the Morning, Afternoon and evening

```
-- ------feature engineering-----
      -- ----- Time of the day
27
28
      -- 1. Adding a new column "time_of_day" to give insights of sales in the Morning, Afternoon and
      -- Evening. This will help answer the question on which part of the day most sales are made.
30
31
32 • SELECT time,
33 ⊝
          CASE
                WHEN time BETWEEN '00:00:00' AND '11:59:59' THEN 'Morning'
35
                WHEN time BETWEEN '12:00:00' AND '15:59:59' THEN 'Afternoon'
               ELSE 'Evening'
36
37
            END AS time_of_day
   FROM sales;
38
39
40
      alter table sales add column time_of_day varchar(20);
41 •
42
43 •
      UPDATE sales
      SET time_of_day =
44
45 ⊝ CASE
46
             WHEN time BETWEEN '00:00:00' AND '11:59:59' THEN 'Morning'
47
             WHEN time BETWEEN '12:00:00' AND '15:59:59' THEN 'Afternoon'
            ELSE 'Evening'
49
        END;
```

- The second column was about day name of the week

```
-- Day name --
-- 2. Add a new column "day_name" that contains the extracted days of the week on which
-- the given transaction took place (Mon, Tue, Thur, Fri). This will help answer the question
-- on which week of the day each branch is busiest.

select date,
dayname(date) as day_name
from sales;

alter table sales add column day_name varchar(10);

update sales
set day_name = dayname(date);
```

- The third column was about month name of the extracted year.

```
-- 3. Add a new column named month_name that contains the extracted months of the year
-- on which the given transaction took place (Jan, Feb, Mar). Help determine which
-- month of the year has the most sales and profit

select date,
monthname(date)
from sales;

alter table sales add column month_name varchar(10);

update sales
set month_name = monthname(date);
```

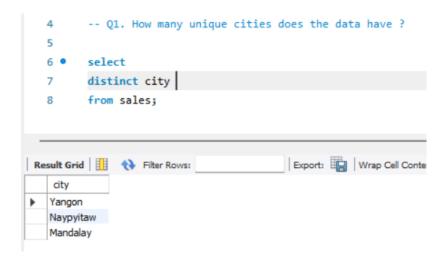
Objective: The primary objective of this analysis is to identify key operational insights that can drive revenue growth and improve customer satisfaction for Walmart. By examining sales data across various cities, product lines, payment methods, and customer demographics, the analysis aims to determine the most profitable cities, product lines, and customer segments. Additionally, understanding sales trends by time, day, and month, along with customer ratings and VAT contributions, will allow Walmart to optimize store operations, inventory management, and marketing strategies for maximum efficiency and profitability.

Questions:

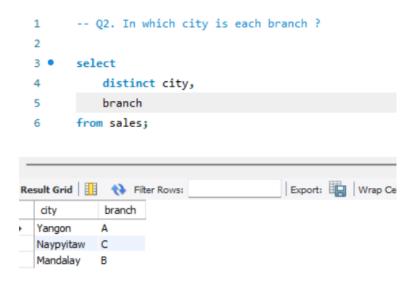
- Q1. How many unique cities does the data have?
- Q2. In which city is each branch?
- Q3. How many unique products line does the data have?
- Q4. What is the most common payment method?
- Q5. What is the most selling product line?
- Q6. What is the total revenue by month?
- Q7. What month had the largest COGS (cost of goods sold)?
- Q8. What product line had the largest revenue?
- Q9. What is the city with the largest revenue?
- Q10. What product line has the largest VAT?
- Q12. What is the most common product line by gender?
- Q13. What is the average rating of each product line?
- Q14. Number of sales made in each time of the day per week. for ex. "Sunday"
- Q15. Which of the customer types brings the most revenue?
- Q16. Which city has the largest tax percent / Value added tax (VAT)?
- Q17. Which customer type pays the most VAT?
- Q18. Which customer type buys the most?
- Q19. What is the gender of the most customers?
- Q20. Which time of the day customers give more ratings?
- Q21. Which day of the week has the best average rating

Solutions:

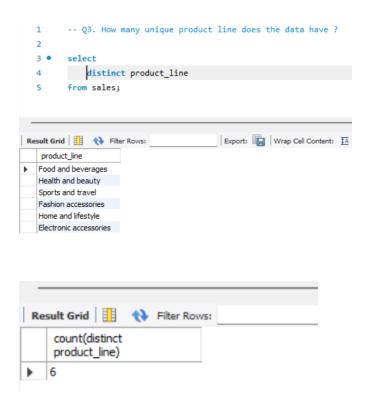
Q1. How many unique cities does the data have?



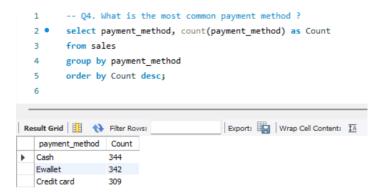
Q2. In which city is each branch?



Q3. How many unique products line does the data have?



Q4. What is the most common payment method?



Q5. What is the most selling product line?

```
-- Q5. What is the most selling product line ?
  2
  3 •
         select product_line,
  4
         count(product_line) as Count
         from sales
  5
  6
         group by product_line
  7
         order by Count desc;
Result Grid
              Filter Rows:
                                              Export: Wrap Cell C
   product_line
 Fashion accessories
                       178
  Food and beverages
                      174
  Electronic accessories
  Sports and travel
                      163
  Home and lifestyle
                      160
  Health and beauty
                      151
```

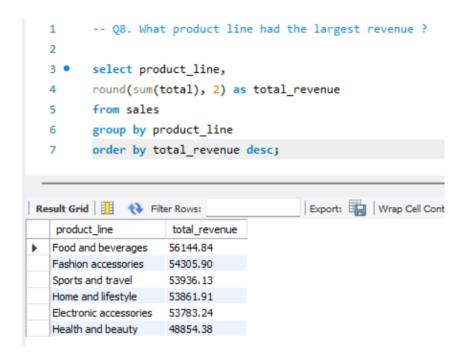
Q6. What is the total revenue by month?

```
-- Q6. What is the total revenue by month ?
  1
  2
  3 •
        select month_name as month, round(sum(total), 2) as total_revenue
  4
        from sales
        group by month
  5
        order by total_revenue;
                                       Export: Wrap Cell Content: IA
month
            total_revenue
           95727.38
  February
   March
           108867.15
   January
           116291.87
```

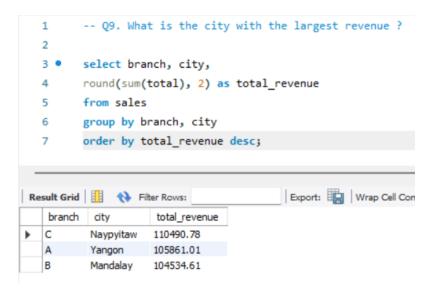
Q7. What month had the largest COGS (cost of goods sold)?

```
-- Q7. What month had the largest COGS (cost of goods sold) ?
  1
 2
       select month_name as month,
 3 •
        sum(cogs) as cogs
       from sales
  6
       group by month
       order by cogs desc;
                                     Export: Wrap Cell Content: IA
month
  January
          110754.16
  March
          103683.00
  February 91168.93
```

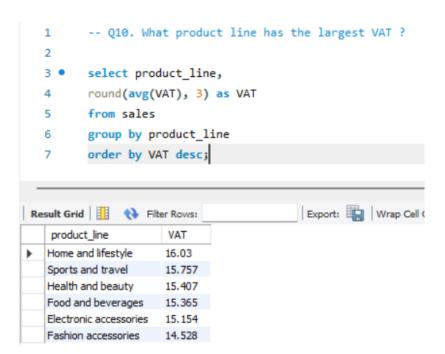
Q8. What product line had the largest revenue?



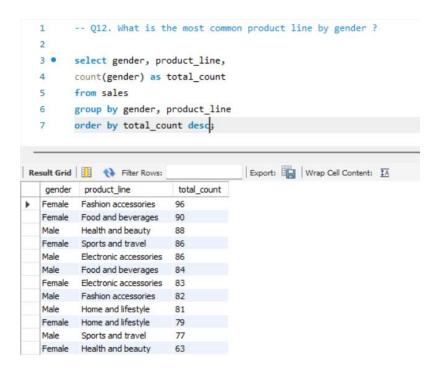
Q9. What is the city with the largest revenue?



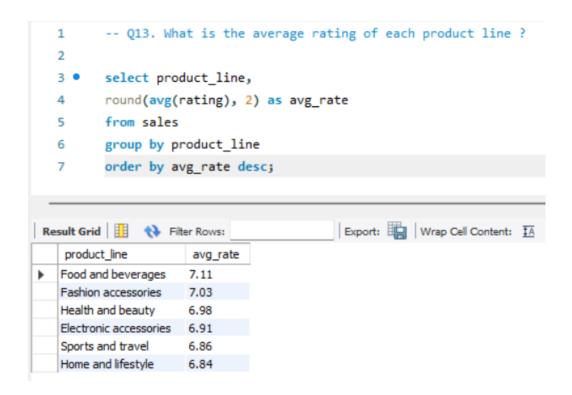
Q10. What product line has the largest VAT?



Q12. What is the most common product line by gender?



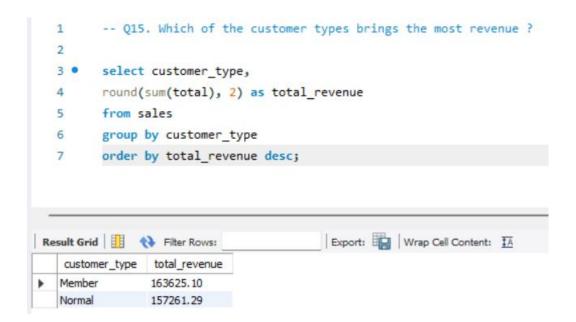
Q13. What is the average rating of each product line?



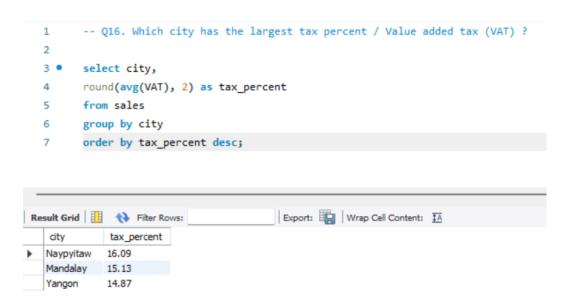
Q14. Number of sales made in each time of the day per week. for ex. "Sunday"

```
-- Q14. Number of sale made in each time of the day per week. for ex. "Sunday"
  2
  3 •
        select time_of_day,
        count(time_of_day) as total_sale
  4
  5
        from sales
        where day_name = "Sunday"
        group by time_of_day
        order by total_sale desc;
                                      Export: Wrap Cell Content: IA
time_of_day total_sale
Evening
             58
  Afternoon
             52
  Morning
```

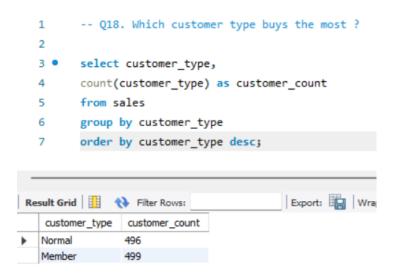
Q15. Which of the customer types brings the most revenue?



Q16. Which city has the largest tax percent / Value added tax (VAT)?



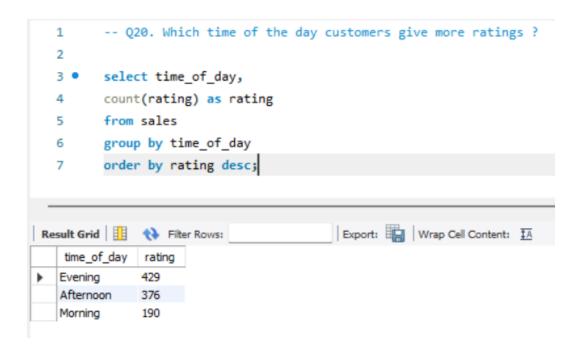
Q18. Which customer type buys the most?



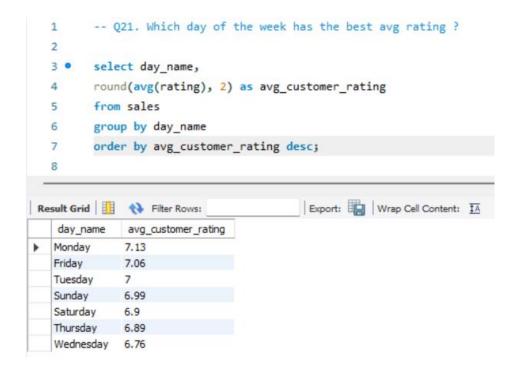
Q19. What is the gender of the most customers?

```
-- Q19. What is the gender of the most customers ?
  2
  3 •
        select gender,
        count(customer_type) as customers
 4
        from sales
  5
        group by gender
  6
        order by customers desc;
                                     Export: Wrap Cell Co
customers
  gender
  Male
         498
  Female
         497
```

Q20. Which time of the day customers give more ratings?



Q21. Which day of the week has the best average rating?



Walmart Revenue Enhancement Strategy Based on Data Insights:

1. Focus on Best-Selling Product Lines:

Based on the data, the product line with the largest revenue should be prioritized in promotions and stock availability. By ensuring adequate supply of this product line and promoting it through marketing campaigns, Walmart can capitalize on customer demand, leading to higher sales. Additionally, the most selling product line across different categories can be cross promoted with complementary products to encourage bulk buying.

2. Optimize Payment Methods:

The most common payment method should be streamlined for ease and convenience, with loyalty programs or rewards associated with that method. By promoting preferred payment options through discounts or reward points, Walmart can enhance customer satisfaction, potentially increasing repeat business.

3. City-Based Revenue Strategy:

The city with the largest revenue should receive special attention. Walmart can expand its store presence or offer city-specific promotions in this location to capture an even larger market share. Moreover, understanding the preferences of customers in this city, such as popular product lines or payment methods, can help in customizing the product offerings.

4. Maximize Sales by Time of Day:

The data indicates varying sales volumes at different times of the day. Walmart should tailor staffing, stock levels, and marketing campaigns to coincide with these peak times (e.g., mornings or evenings). By aligning store operations and promotions with the highest traffic periods, Walmart can increase sales efficiency and improve customer service.

5. Monthly and Seasonal Trends:

Walmart should analyze the total revenue generated by each month and focus on the month with the largest COGS (cost of goods sold). This could signify a high-demand period, which Walmart can capitalize on through promotions, bulk purchasing discounts, or targeted advertisements. By understanding these trends, Walmart can prepare in advance, ensuring stock levels are adequate to meet demand.

6. Gender and Customer Type Targeting:

Walmart can leverage insights about customer demographics, such as the most common gender of customers and which customer type brings in the most revenue. Tailored promotions and advertising campaigns focusing on this segment will likely increase conversion rates. Additionally, loyalty programs aimed at this customer type can incentivize repeat purchases.

7. Leverage Customer Reviews and Ratings:

Identifying the time of day when customers provide more ratings can help Walmart encourage reviews during these periods by offering small incentives (like discount coupons). Higher ratings can improve the store's reputation and attract new customers.

8. Tax and VAT Strategy:

Cities with the highest VAT percentages offer an opportunity for Walmart to explore partnerships or special VAT-inclusive pricing strategies to reduce the impact on customers. This can increase foot traffic and conversion rates in those regions.