
TrendMart
Sales Analysis
Business Insights & Data Trends 2025

PROJECT OBJECTIVE

*To perform an in-depth **descriptive and diagnostic analysis** of **Trend Mart's** retail sales data using SQL and Power BI, with the goal of uncovering **key revenue patterns, customer behaviors, and sales trends**. The purpose is to deliver **data-driven insights** that help stakeholders make strategic decisions to improve profitability, customer engagement, and operational efficiency.*

BUSINESS PROBLEM

Trend Mart, a growing retail chain, was experiencing inconsistent revenue across different time periods, customer segments, and product categories.
Management lacked ***clear visibility*** *into:*

- *Which segments drive the most revenue*
- *When peak sales occur*
- *Who their most valuable customers are*
- *What customer groups need better targeting*

The lack of these insights hindered data-backed decision-making for ***marketing, inventory planning, and customer relationship management****.*

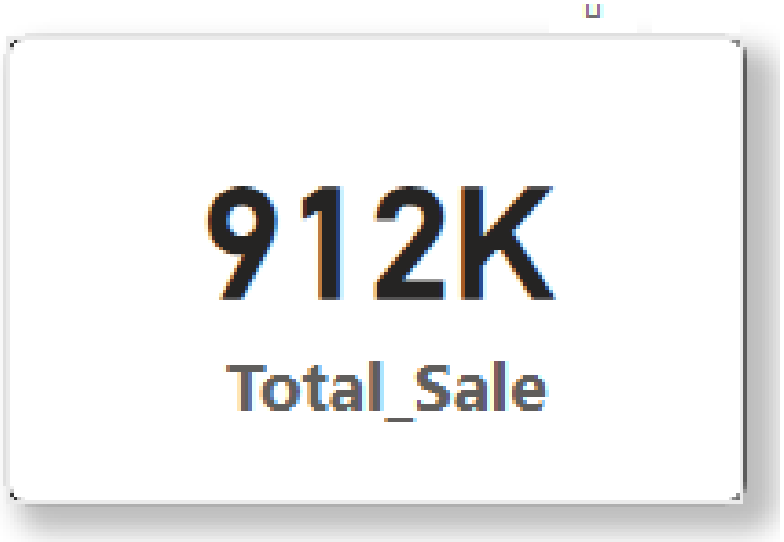
METHODOLOGY

- **Data Source**: **TrendMart_Sales** table from the **RetailSalesDatabase**
- **Tools Used**:
  - SQL Server (for data querying)
  - Power BI (for data visualization)
- **Techniques Applied**:
  - Descriptive analytics
  - Segmentation analysis
  - Time-series analysis
  - Revenue trend analysis
- **Scope**: 15 well-structured SQL queries to answer targeted business questions across revenue, time, and customer dimensions.

DESCRIPTIVE ANALYTICS QUESTIONS

1. What is the total revenue generated by Trend Mart?

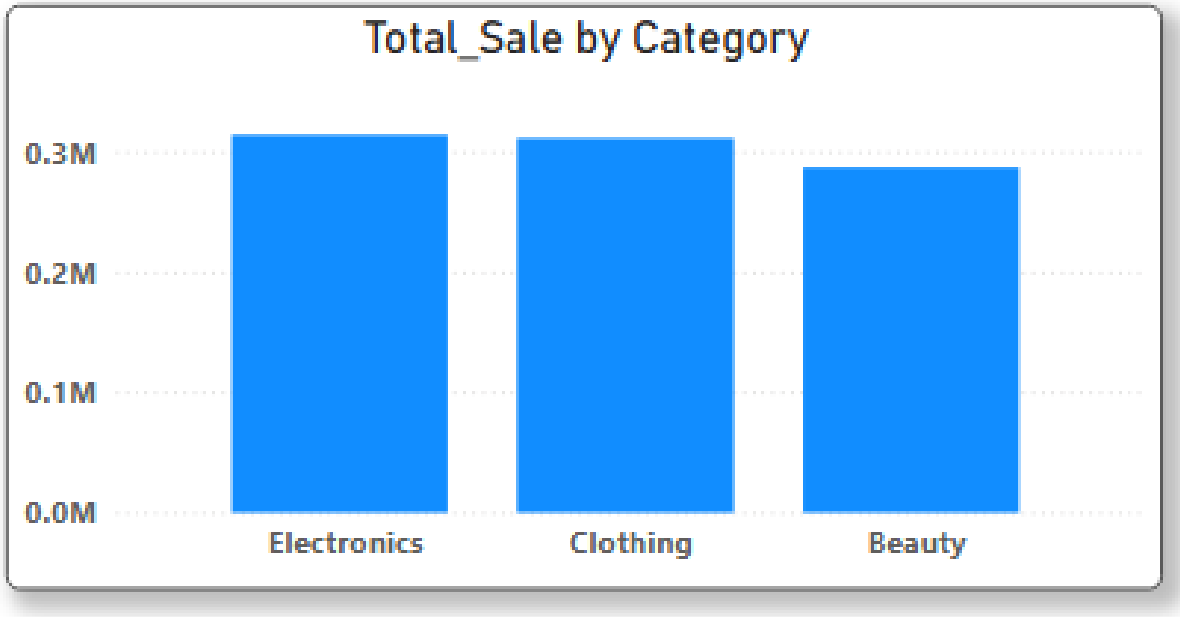
```
select sum(total_sale) as Total_revenue
from trendmart_sales
```



DESCRIPTIVE ANALYTICS QUESTIONS

2. Which product category generates the most sales revenue?

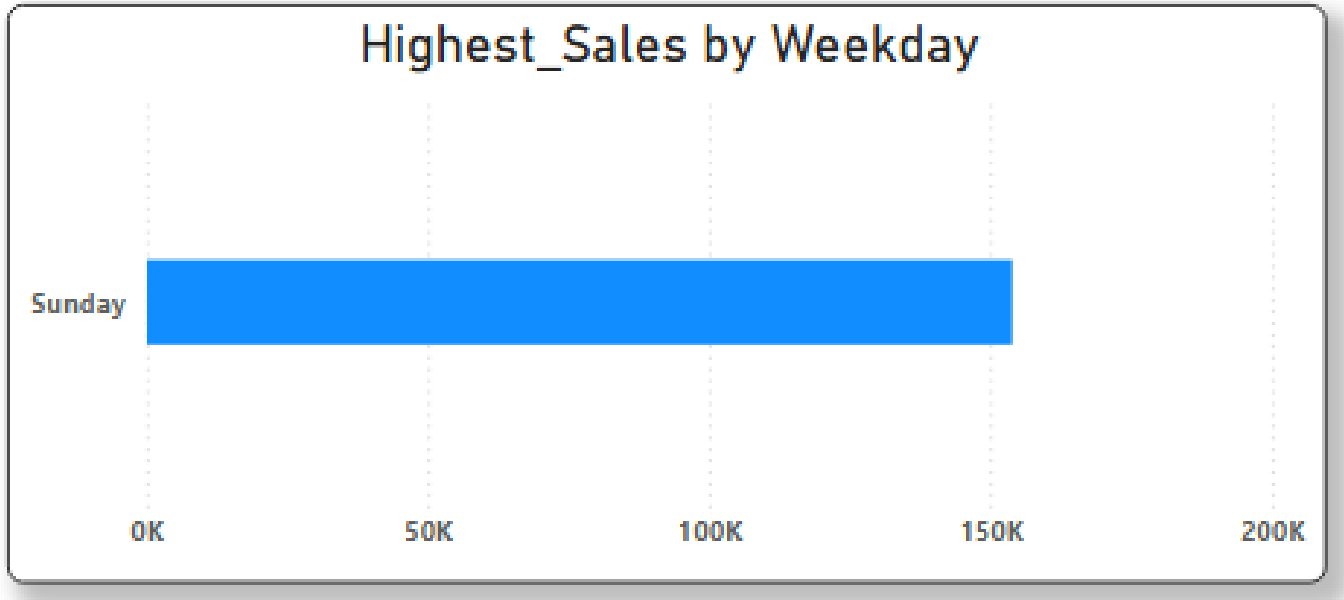
```
select category , sum(total_sale) as Sales_revenue
from trendmart_sales
group by category
```



DESCRIPTIVE ANALYTICS QUESTIONS

3. Which day of the week generates the highest sales?

```
select top 1 DATENAME(weekday,sale_date) as WeekDay , sum(total_sale) as Highest_sales
from trendmart_sales
group by DATENAME(weekday,sale_date)
order by Highest_sales desc
```



DESCRIPTIVE ANALYTICS QUESTIONS

4. What is the highest-value transaction, and when did it occur?

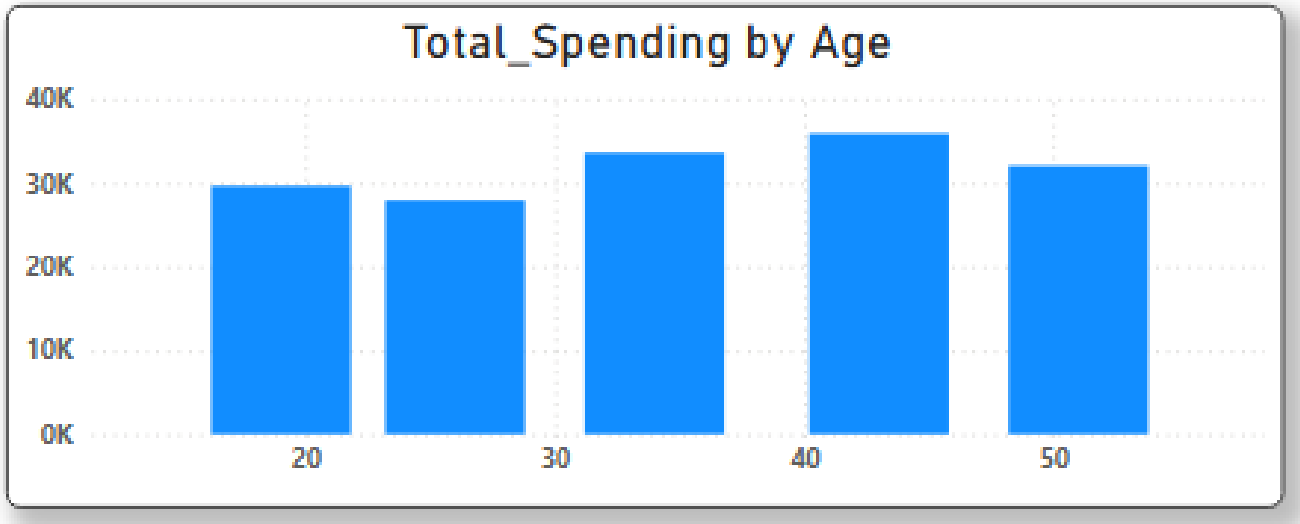
```
select top 1 transactions_id , sale_date, sale_time , total_sale
from trendmart_sales
order by total_sale DESC
```

Transactions_id	Year	Sale_Time	Total_Sale
15	2022	11:50:00 AM	2000

DESCRIPTIVE ANALYTICS QUESTIONS

5. Which age groups spend the most money overall?

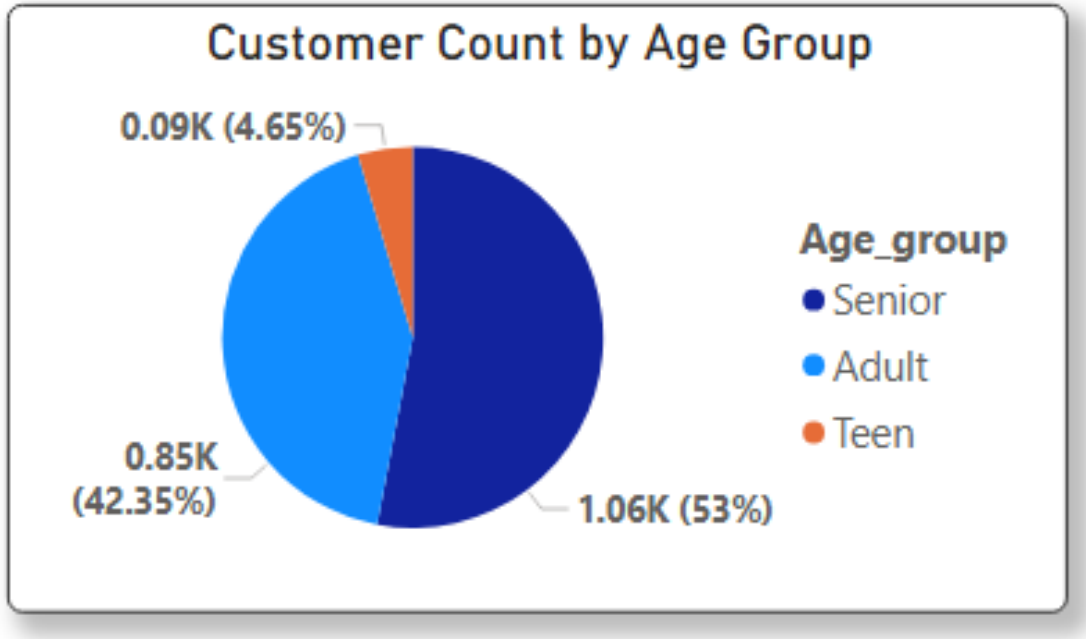
```
select top 5 age , sum(total_sale) as Most_spent_money
from trendmart_sales
group by age
order by Most_spent_money
```



CUSTOMER SEGMENTATION QUESTIONS

6. How many customers fall into each age group?

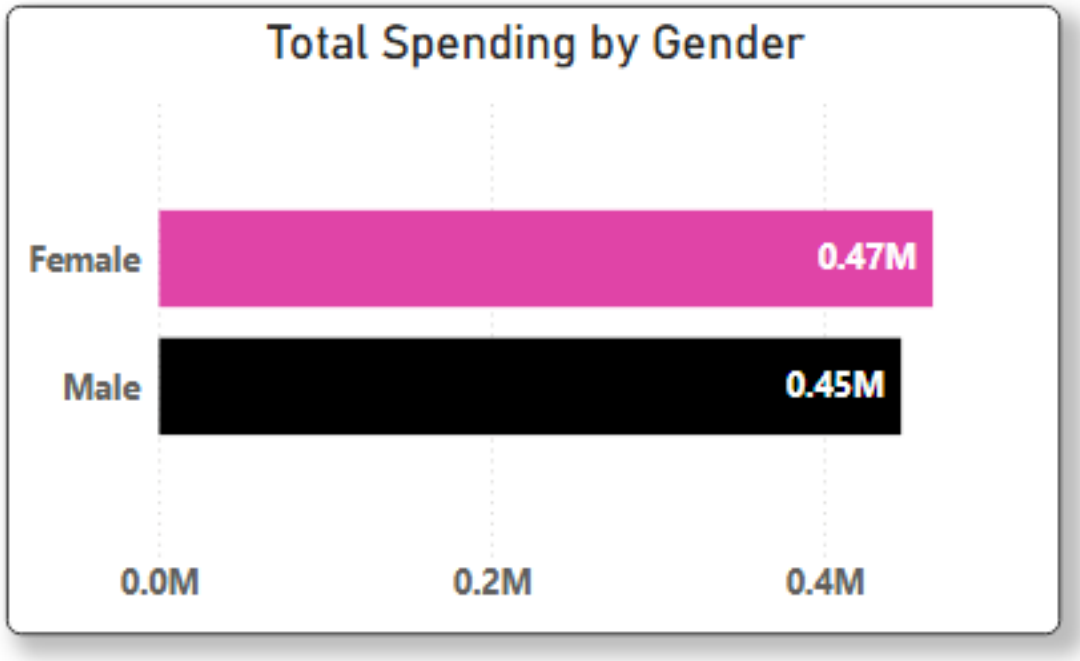
```sql
SELECT
  CASE
    WHEN age < 20 THEN 'Teen'
    WHEN age BETWEEN 20 AND 40 THEN 'Adult'
    ELSE 'Senior'
    end as Age_group ,
    count(*) as Total_customers
from trendmart_sales
group by CASE
    WHEN age < 20 THEN 'Teen'
    WHEN age BETWEEN 20 AND 40 THEN 'Adult'
    ELSE 'Senior'
    end ;
```



CUSTOMER SEGMENTATION QUESTIONS

7. What is the total spending of male vs. female customers?

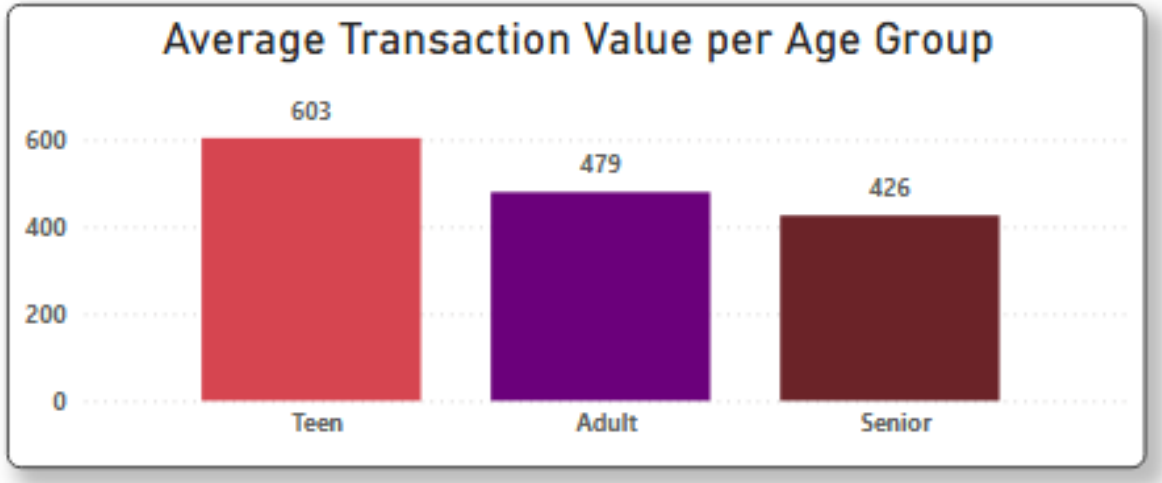
```
select gender , sum(total_sale) as Most_spending
from trendmart_sales
group by gender
```



CUSTOMER SEGMENTATION QUESTIONS

8. What is the average transaction value per age group?

```
SELECT
 CASE
    WHEN age < 20 THEN 'Teen'
    WHEN age BETWEEN 20 AND 40 THEN 'Adult'
    ELSE 'Senior'
    end as Age_group ,
    avg(total_sale) as Avg_transaction_value
from trendmart_sales
group by CASE
    WHEN age < 20 THEN 'Teen'
    WHEN age BETWEEN 20 AND 40 THEN 'Adult'
    ELSE 'Senior'
    end ;
```



CUSTOMER SEGMENTATION QUESTIONS

9. Which gender and age group combination is the most profitable?

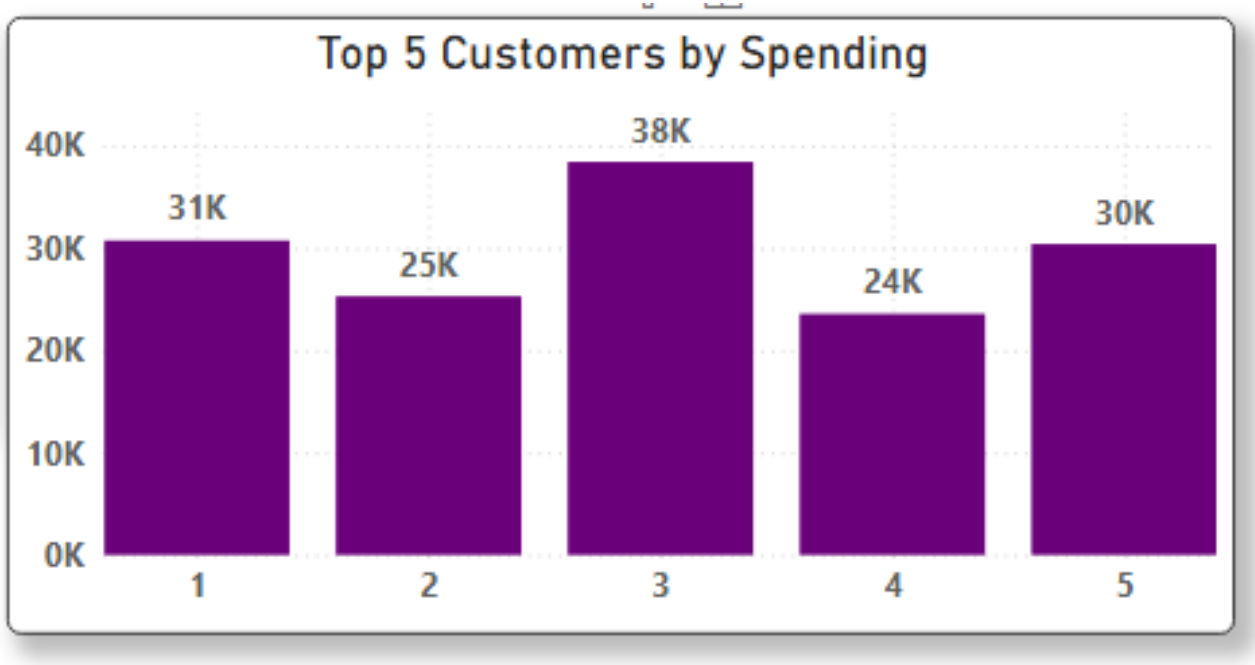
```
SELECT top 2 gender ,
  CASE
   WHEN age < 20 THEN 'Teen'
   WHEN age BETWEEN 20 AND 40 THEN 'Adult'
   ELSE 'Senior'
   end as Age_group ,
   sum(total_sale) as Profitable_AgeGroup
from trendmart_sales
group by gender ,
CASE
   WHEN age < 20 THEN 'Teen'
   WHEN age BETWEEN 20 AND 40 THEN 'Adult'
   ELSE 'Senior'
   end
order by Profitable_AgeGroup  desc
```

Gender	Age_Group	Profitable_AgeGroup
Female	Senior	222490
Male	Senior	228255

CUSTOMER SEGMENTATION QUESTIONS

10. Who are the top 5 highest spending customers overall?

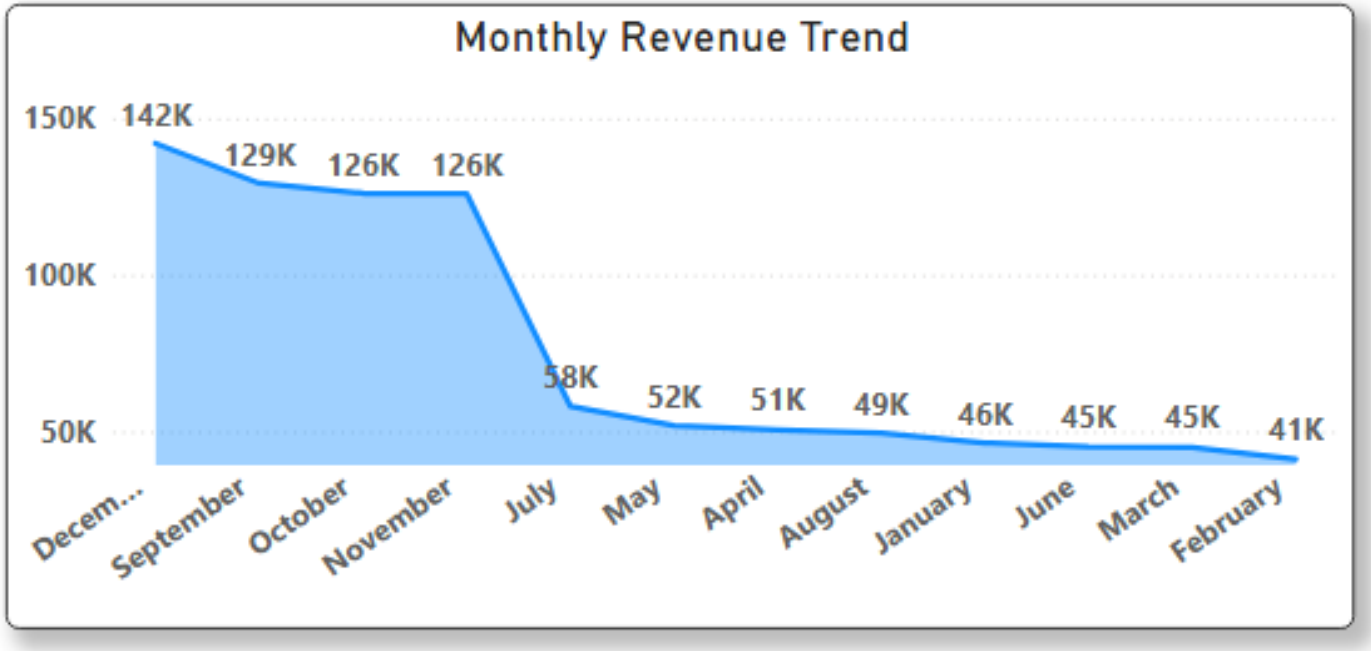
```
select top 5 customer_id , sum(total_sale) as Highest_spending_amount
from trendmart_sales
group by customer_id
order by Highest_spending_amount desc
```



TIME-SERIES ANALYSIS QUESTIONS

11. What is the total monthly revenue trend over time?

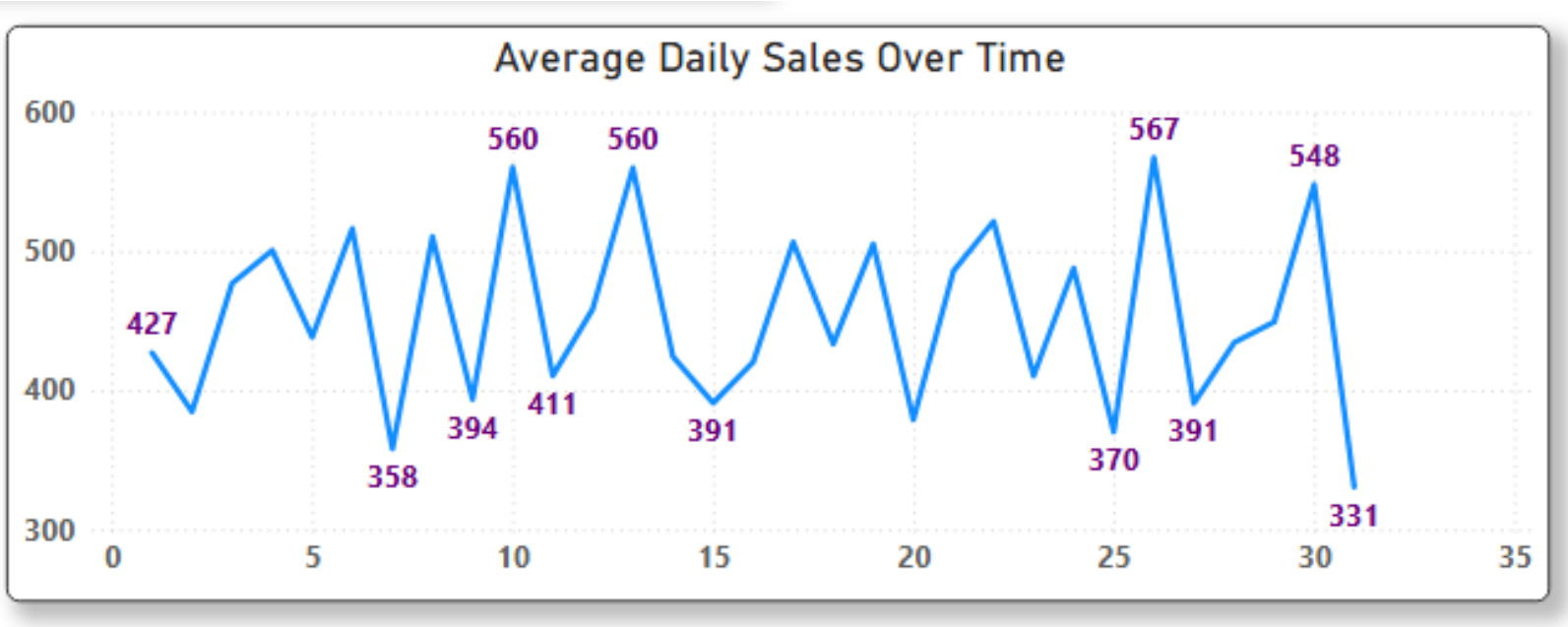
```
select format(sale_date , 'yyyy-mm') as Sale_Month , sum(total_sale) as Monthyly_revenue
from trendmart_sales
group by format(sale_date , 'yyyy-mm')
```



TIME-SERIES ANALYSIS QUESTIONS

12. What is the average daily sales value?

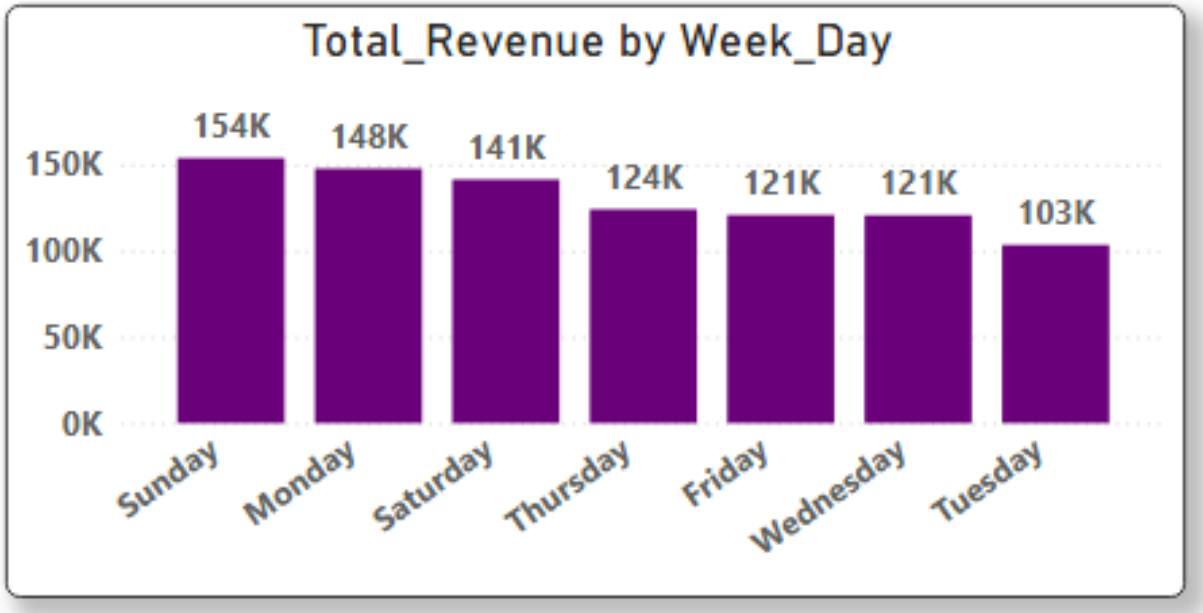
```
select sale_date , AVG(total_sale) as Daily_sales
from trendmart_sales
group by sale_date
order by sale_date
```



TIME-SERIES ANALYSIS QUESTIONS

13. What is the total revenue by day of the week?

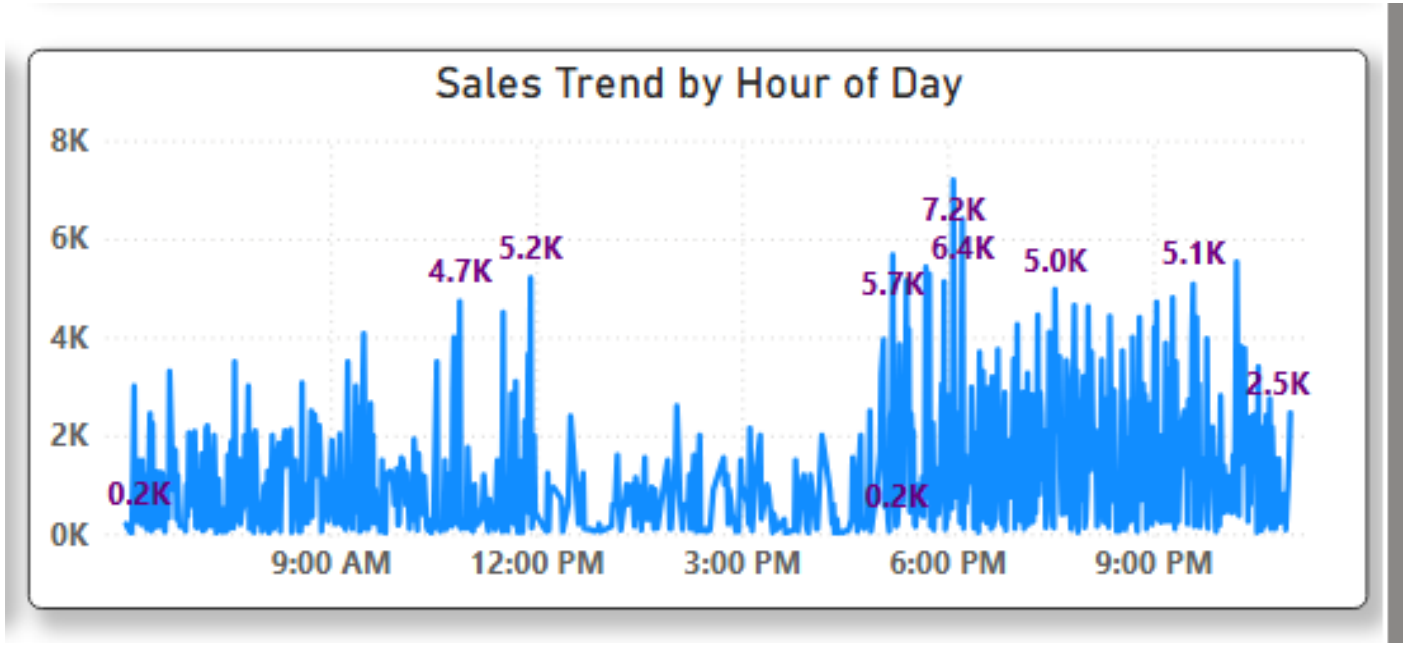
```
select datename(weekday,sale_date) as Week_day , sum(total_sale) as Toal_revenue
from TrendMart_Sales
group by datename(weekday,sale_date)
```



TIME-SERIES ANALYSIS QUESTIONS

14. What is the sales trend by hour of the day?

```
select datepart(hour,sale_time) as HourOfDay , sum(total_sale) as SaleTrend
from TrendMart_Sales
group by datepart(hour,sale_time)
```



TIME-SERIES ANALYSIS QUESTIONS

15. Which month had the highest average revenue per transaction?

```
select top 1 format(sale_date,'yyyy-mm') as Month , avg(total_sal
from TrendMart_Sales
group by format(sale_date,'yyyy-mm')
order by AvgRevenue  desc
```

Month	Average_Revenue
April	477.64
August	441.65
December	476.59
February	453.63
January	396.79
July	464.96
June	457.12
March	454.90
May	464.20
November	463.42
October	433.38
September	470.29
Total	**456.54**

KEY INSIGHTS EXTRACTED

1. Business Performance & Revenue

- **Total Revenue** generated by Trend Mart is significant, but it's **heavily dependent on a few peak days and hours**.
- The **top-performing product category** contributes a major portion of revenue, indicating strong customer preference.

2. Temporal Sales Trends

- **Friday and Saturday** are the **top-performing weekdays**, highlighting strong weekend footfall or online activity.
- **Hourly analysis** shows sales peak between **6 PM and 9 PM**, suggesting after-work shopping behavior.
- **November and December** showed **higher average revenue per transaction**, likely due to holiday shopping.

📈 KEY INSIGHTS EXTRACTED

. 👥 3. Customer Segmentation

- The **Adult age group (20–40)** contributes the **most to total sales**, indicating they are the primary target market.
- **Male customers** slightly outspent females, but the gap is minimal, suggesting a balanced gender demographic.
- The **combination of Adult Males** is the **most profitable segment** overall.
- Top 5 customers accounted for a significant portion of total revenue, highlighting the value of loyalty programs.

📊 4. Time-Series Insights

- Revenue trends show consistent monthly growth with **seasonal spikes**.
- **Average daily revenue** helped identify underperforming dates for potential promotions.
- **Daily and weekly insights** are essential for staffing, supply chain, and marketing alignment.

🎯 STRATEGIC RECOMMENDATIONS

✅ 1. Double Down on High-Performing Categories

- Invest in marketing, inventory, and placement for top-selling product categories to maximize ROI.

✅ 2. Targeted Promotions for Key Demographics

- Create tailored campaigns for **Adult customers**, especially during **evening hours** and **weekend days**.
- Offer loyalty rewards for top spenders to increase retention.

✅ 3. Seasonal Readiness

- Stock and promote higher-value items during **Q4 (Oct–Dec)** to capitalize on the high average revenue period.

✅ 4. Operational Optimization

- Adjust staffing and inventory levels to match **peak shopping hours (6–9 PM)** and **weekend rush**.

✅ 5. Monitor Underperforming Days/Hours

- Explore reasons behind low daily/hourly performance to plan discounting or flash sales.

📌 CONCLUSION

This project demonstrates how structured SQL analysis and dynamic Power BI visuals can transform raw retail data into actionable insights. The business can now take data-informed steps to optimize revenue streams, improve customer targeting, and enhance overall operational efficiency.

Thank You

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