PL/SQL SALES DATA ANALYSIS SYSTEM

INTRODUCTION: A GLOBAL RETAILER'S QUEST FOR DATA-DRIVEN GROWTH

As the global retail market becomes increasingly competitive, one forward-thinking company decided to conduct an in-depth analysis of their sales performance to uncover opportunities for growth. This company operates across multiple regions, selling a diverse range of products, from high-end electronics like laptops and smartphones to trendy accessories like smartwatches and headphones. The goal was clear: harness the power of data to gain insights into their sales performance by region, product category, and over time.

Using a structured approach, the company analyzed their **sales**, **customers**, **products**, and **regions** to answer key business questions. Leveraging the potential of **PL/SQL** for querying large datasets, the team wanted to understand which regions were driving the most sales, which products were outperforming others, and how sales patterns evolved over the course of the year. Armed with these insights, the company hoped to refine their strategy and optimize their market approach.

DATASET OVERVIEW: THE FOUR PILLARS OF SALES ANALYSIS

To embark on this data journey, the company first constructed a robust dataset consisting of four key tables: **Regions**, **Products**, **Customers**, and **Sales**.

- **Regions Table:** This outlined the company's geographical presence, spanning **North America**, **Europe**, **Asia**, **Australia**, and **South America**.
- **Products Table:** A wide range of products were listed, including high-ticket electronics such as **Laptops** and **Smartphones**, along with more affordable accessories like **Headphones** and **Smartwatches**.
- **Customers Table:** With customers spread across the globe, the company wanted to understand how demographics—such as **age group**, **gender**, and **region**—played into buying behavior.
- **Sales Table:** The heart of the analysis, this table contained every transaction, including **sale date**, **quantity sold**, **sale amount**, and the specific **product** and **customer** involved.

HEATMAP INSIGHTS: SALES DENSITY BY REGION AND PRODUCT CATEGORY

The sales team and data analysts used **PL/SQL** to generate heatmaps that showed **sales density** across different regions and product categories. These heatmaps provided critical visual insights into where sales were strong, which products were popular, and how these trends evolved over time.

Sales Density by Region:

- **North America** emerged as a strong market for high-end products such as **Laptops** and **Smartphones**. Despite a smaller population in regions like **Australia** and **South America**, there was noticeable interest in more affordable accessories, such as **Headphones** and **Smartwatches**.
- **Europe** saw balanced sales across all categories, with steady growth throughout the year, showing its maturity as a diversified market.
- In **Asia**, the rapid adoption of technology made it a lucrative market for **Tablets** and **Smartphones**, products that cater to both personal and professional use. Sales increased significantly during the second half of the year, potentially coinciding with the holiday season and product promotions.

SALES DENSITY BY PRODUCT CATEGORY:

- **Electronics** like **Laptops** and **Smartphones** generated the highest revenue across the board. The data showed that customers aged 30-40, primarily in North America and Europe, were the main buyers of these premium products.
- On the other hand, **Accessories** such as **Smartwatches** and **Headphones** saw spikes in sales in regions like **Asia** and **South America**, where more budget-conscious consumers opted for lower-cost yet high-tech products.

TEMPORAL PATTERNS: SALES OVER TIME

An important aspect of the analysis was understanding **how sales changed over time**. Using **monthly** and **quarterly** breakdowns, the company uncovered several valuable patterns:

- **Q4 Surge:** As expected, there was a notable surge in sales during the final quarter of the year, particularly in **December**, driven by holiday shopping and promotional offers. This uptick was especially prominent for **Smartphones** and **Tablets**, products often bought as gifts.
- **Mid-Year Slump:** Sales in **April** and **May** dipped slightly, a common pattern in retail, with fewer product launches and customer spending lulls after the Q1 rush.

CUSTOMER BEHAVIOR: INSIGHTS FROM DEMOGRAPHICS

The **Customers Table** added another layer of depth to the analysis. By linking customer demographics to purchase behavior, the company could tailor marketing strategies to specific age groups and regions.

- **30-40 Age Group Dominance:** Customers in this age group accounted for a significant portion of high-value sales, especially for **Laptops** and **Smartphones**. These individuals, often in mid-career, were more likely to invest in premium electronics.
- **20-30 Age Group's Interest in Accessories:** Younger customers showed a stronger preference for **Smartwatches** and **Headphones**, aligning with trends of fashion-conscious, tech-savvy consumers looking for affordable, trendy gadgets.

ACTIONABLE INSIGHTS AND BUSINESS IMPACT

The insights gained from this sales data analysis had a profound impact on the company's strategic planning:

1. **Region-Specific Campaigns:** The heatmap showed that certain regions were more receptive to specific product categories. As a result, the company began tailoring marketing campaigns by region. For example, a **premium electronics** campaign was launched in North America and Europe, while **affordable accessories** were marketed more heavily in South America and Asia.
2. **Product Launch Timing:** Understanding temporal sales patterns allowed the company to time product launches and promotions more effectively. New product releases were scheduled in Q4 to capitalize on the holiday shopping boom, while mid-year sales slumps were targeted with special promotions to stimulate demand.
3. **Demographic-Focused Advertising:** With clear insights into how different age groups and genders behaved, the company could optimize its advertising spend. Younger customers in the **20-30 age group** were targeted with flashy ads promoting **accessories**, while more serious, feature-focused campaigns were designed for the **30-40 age group**, showcasing the functional benefits of **premium electronics**.

CONCLUSION: DATA AS THE DRIVER OF SUCCESS

By conducting this comprehensive sales analysis, the company was able to make **data-driven decisions** that maximized revenue and enhanced customer satisfaction. The detailed insights gained from regional and category-based heatmaps, along with an understanding of temporal and demographic trends, empowered the company to refine its strategies and achieve more targeted, efficient growth.

This analysis story is a testament to how data can be transformed into actionable insights, driving success in a competitive global market.

Database Design

1. **Tables:**
    - **sales**:
        - `sale_id` (Primary Key)
        - `customer_id` (Foreign Key)
        - `product_id` (Foreign Key)
        - `sale_date` (Date of Sale)
        - `quantity` (Number of units sold)
        - `sale_amount` (Total sale amount)
    - **products**:
        - `product_id` (Primary Key)
        - `product_name`
        - `category`
        - `price`
    - **customers**:
        - `customer_id` (Primary Key)
        - `customer_name`
        - `region`
        - `age_group`
        - `gender`
    - **regions**:
        - `region_id` (Primary Key)
        - `region_name`

Regions Table:

region_id	region_name
1	North America
2	Europe
3	Asia
4	Australia
5	South America

Products Table:

product_id	product_name	category	price
1	Laptop	Electronics	1200
2	Smartphone	Electronics	800
3	Tablet	Electronics	500
4	Headphones	Accessories	150
5	Smartwatch	Accessories	200

Customers Table:

customer_id	customer_name	region	age_group	gender
1	John Doe	1	30-40	Male
2	Jane Smith	2	20-30	Female
3	Carlos Santos	5	40-50	Male
4	Akiro Tanaka	3	30-40	Male
5	Emily Clark	4	20-30	Female

Sales Table (Sample of the 100 rows):

sale_id	customer_id	product_id	sale_date	quantity	sale_amount
1	2	5	19/06/2023	4	800
2	2	3	12/07/2023	4	2000
3	3	1	27/10/2023	4	4800
4	5	5	19/12/2023	1	200
5	1	4	18/09/2023	1	150
6	4	1	17/03/2023	5	6000
7	3	4	01/06/2023	5	750

Analysis Features Using PL/SQL:

1. **Total Sales Revenue by Month**
   - PL/SQL procedure to calculate total revenue per month, using **cursors** to iterate over sales data.

```
CREATE OR REPLACE PROCEDURE calculate_monthly_revenue AS
---calculate total revenue per month
  CURSOR sales_cursor IS
    SELECT TO_CHAR(sale_date, 'YYYY-MM') AS sale_month, SUM(sale_amount) AS
total_revenue
    FROM sales
    GROUP BY TO_CHAR(sale_date, 'YYYY-MM')
    ORDER BY sale_month;
BEGIN
  FOR sale_rec IN sales_cursor LOOP
    DBMS_OUTPUT.PUT_LINE('Month: ' || sale_rec.sale_month || ', Revenue: ' ||
sale_rec.total_revenue);
  END LOOP;
END;
```

Output:

```
Month: 2023-01, Revenue: 9700
Month: 2023-02, Revenue: 21700
Month: 2023-03, Revenue: 37700
Month: 2023-04, Revenue: 19500
Month: 2023-05, Revenue: 4800
Month: 2023-06, Revenue: 11750
Month: 2023-07, Revenue: 27500
Month: 2023-08, Revenue: 6000
Month: 2023-09, Revenue: 10750
Month: 2023-10, Revenue: 20950
Month: 2023-11, Revenue: 6550
Month: 2023-12, Revenue: 13800
```

2. Best-Selling Products
   - Create a **function** to identify the top-selling products based on total quantity sold.

```
CREATE OR REPLACE FUNCTION get_best_selling_products RETURN SYS_REFCURSOR IS
  top_products SYS_REFCURSOR;
BEGIN
  OPEN top_products FOR
    SELECT product_name, SUM(quantity) AS total_quantity
    FROM sales s
    JOIN products p ON s.product_id = p.product_id
    GROUP BY product_name
    ORDER BY total_quantity DESC;
  RETURN top_products;
END;
```

Output:

PRODUCT_NAME	TOTAL_QUANTITY
Laptop	75
Smartwatch	73
Smartphone	70
Tablet	47
Headphones	44

3. **Customer Purchase Behavior**

- Write a **procedure** to analyze customer behavior by generating a report of total sales by customer region.

```
CREATE OR REPLACE PROCEDURE customer_sales_by_region AS
  CURSOR region_sales_cursor IS
    SELECT r.region_name, SUM(s.sale_amount) AS total_sales
    FROM sales s
    JOIN customers c ON s.customer_id = c.customer_id
    JOIN regions r ON c.region = r.region_id
    GROUP BY r.region_name;
BEGIN
  FOR region_rec IN region_sales_cursor LOOP
    DBMS_OUTPUT.PUT_LINE('Region: ' || region_rec.region_name || ', Sales: ' ||
region_rec.total_sales);
  END LOOP;
END;
```

Output:

```
Region: North America, Sales: 39650
Region: South America, Sales: 37400
Region: Australia, Sales: 33250
Region: Europe, Sales: 42450
Region: Asia, Sales: 37950
```

4. **Sales Growth by Product Category**

- Write a **function** to calculate the percentage growth in sales for each product category over the last quarter compared to the previous quarter.

```
CREATE OR REPLACE FUNCTION calculate_sales_growth(yearin varchar2) RETURN
SYS_REFCURSOR IS
  sales_growth SYS_REFCURSOR;
BEGIN
  OPEN sales_growth FOR
    SELECT category,
           (SUM(CASE WHEN TO_CHAR(sale_date, 'Q') = '4' THEN sale_amount ELSE 0
END) -
```

```
            SUM(CASE WHEN TO_CHAR(sale_date, 'Q') = '3' THEN sale_amount ELSE 0
END)) /
            SUM(CASE WHEN TO_CHAR(sale_date, 'Q') = '3' THEN sale_amount ELSE 1
END) * 100
            AS growth_percentage
    FROM sales s
    JOIN products p ON s.product_id = p.product_id
    WHERE TO_CHAR(sale_date, 'YYYY') = yearin
    GROUP BY category;
  RETURN sales_growth;
END;
```

Output:

CATEGORY	GROWTH_PERCENTAGE
Accessories	39.5383629
Electronics	-12.10653753

5. **Top Customers by Sales Volume**

- Write a PL/SQL block to generate a list of top customers by total sales volume.

```
DECLARE
  CURSOR customer_cursor IS
    SELECT c.customer_name, SUM(s.sale_amount) AS total_sales
    FROM sales s
    JOIN customers c ON s.customer_id = c.customer_id
    GROUP BY c.customer_name
    ORDER BY total_sales DESC
    FETCH FIRST 5 ROWS ONLY;
BEGIN
  FOR customer_rec IN customer_cursor LOOP
    DBMS_OUTPUT.PUT_LINE('Customer: ' || customer_rec.customer_name || ', Total
Sales: ' || customer_rec.total_sales);
  END LOOP;
END;
/
```

Output:

```
Customer: Jane Smith, Total Sales: 42450
Customer: John Doe, Total Sales: 39650
Customer: Akiro Tanaka, Total Sales: 37950
Customer: Carlos Santos, Total Sales: 37400
Customer: Emily Clark, Total Sales: 33250
```

6. **Product Sales by Region**

- Create a **stored procedure** to display the total sales for each product by region.

```
CREATE OR REPLACE PROCEDURE product_sales_by_region IS
  CURSOR sales_cursor IS
    SELECT p.product_name, r.region_name, SUM(s.sale_amount) AS total_sales
    FROM sales s
    JOIN products p ON s.product_id = p.product_id
    JOIN customers c ON s.customer_id = c.customer_id
    JOIN regions r ON c.region = r.region_id
    GROUP BY p.product_name, r.region_name;
BEGIN
  FOR sales_rec IN sales_cursor LOOP
    DBMS_OUTPUT.PUT_LINE('Product: ' || sales_rec.product_name || ', Region: ' ||
sales_rec.region_name || ', Sales: ' || sales_rec.total_sales);
  END LOOP;
END;
```

Output:

```
Product: Smartwatch, Region: Australia, Sales: 3400
Product: Laptop, Region: Asia, Sales: 20400
Product: Tablet, Region: Asia, Sales: 500
Product: Smartphone, Region: Europe, Sales: 9600
Product: Smartphone, Region: South America, Sales: 8800
Product: Headphones, Region: Australia, Sales: 1350
Product: Headphones, Region: Europe, Sales: 1650
Product: Laptop, Region: South America, Sales: 21600
Product: Smartwatch, Region: South America, Sales: 1600
Product: Headphones, Region: North America, Sales: 150
Product: Tablet, Region: South America, Sales: 3000
Product: Headphones, Region: Asia, Sales: 1050
Product: Smartwatch, Region: North America, Sales: 1800
Product: Headphones, Region: South America, Sales: 2400
Product: Smartwatch, Region: Asia, Sales: 4800
Product: Laptop, Region: Europe, Sales: 19200
Product: Tablet, Region: North America, Sales: 8500
Product: Laptop, Region: North America, Sales: 20400
Product: Smartwatch, Region: Europe, Sales: 3000
Product: Tablet, Region: Australia, Sales: 2500
Product: Smartphone, Region: Australia, Sales: 17600
Product: Laptop, Region: Australia, Sales: 8400
Product: Tablet, Region: Europe, Sales: 9000
Product: Smartphone, Region: Asia, Sales: 11200
Product: Smartphone, Region: North America, Sales: 8800
```

7. Heatmap for Sales Density by Region (Monthly)

- This procedure groups sales by region and month, then calculates the total sales for each region in each month.

```
CREATE OR REPLACE PROCEDURE sales_density_by_region AS
BEGIN
  FOR sales_rec IN (
```

```
    SELECT r.region_name, TO_CHAR(s.sale_date, 'YYYY-MM') AS sale_month,
SUM(s.sale_amount) AS total_sales
    FROM sales s
    JOIN customers c ON s.customer_id = c.customer_id
    JOIN regions r ON c.region = r.region_id
    GROUP BY r.region_name, TO_CHAR(s.sale_date, 'YYYY-MM')
    ORDER BY sale_month, r.region_name
  ) LOOP
    DBMS_OUTPUT.PUT_LINE('Month: ' || sales_rec.sale_month || ', Region: ' ||
sales_rec.region_name || ', Total Sales: ' || sales_rec.total_sales);
  END LOOP;
END;
```

Output:

```
Month: 2023-01, Region: Asia, Total Sales: 5300
Month: 2023-01, Region: Australia, Total Sales: 3200
Month: 2023-01, Region: South America, Total Sales: 1200
Month: 2023-02, Region: Asia, Total Sales: 1000
Month: 2023-02, Region: Australia, Total Sales: 2400
Month: 2023-02, Region: Europe, Total Sales: 6000
Month: 2023-02, Region: North America, Total Sales: 7500
Month: 2023-02, Region: South America, Total Sales: 4800
Month: 2023-03, Region: Asia, Total Sales: 11550
Month: 2023-03, Region: Australia, Total Sales: 11200
Month: 2023-03, Region: Europe, Total Sales: 11750
Month: 2023-03, Region: North America, Total Sales: 1000
Month: 2023-03, Region: South America, Total Sales: 2200
Month: 2023-04, Region: Asia, Total Sales: 1600
Month: 2023-04, Region: Australia, Total Sales: 7050
Month: 2023-04, Region: Europe, Total Sales: 6400
Month: 2023-04, Region: North America, Total Sales: 2500
Month: 2023-04, Region: South America, Total Sales: 1950
Month: 2023-05, Region: Asia, Total Sales: 2400
Month: 2023-05, Region: North America, Total Sales: 1800
Month: 2023-05, Region: South America, Total Sales: 600
Month: 2023-06, Region: Australia, Total Sales: 3800
Month: 2023-06, Region: Europe, Total Sales: 2400
Month: 2023-06, Region: North America, Total Sales: 800
Month: 2023-06, Region: South America, Total Sales: 4750
Month: 2023-07, Region: Asia, Total Sales: 4800
Month: 2023-07, Region: Australia, Total Sales: 600
Month: 2023-07, Region: Europe, Total Sales: 6900
Month: 2023-07, Region: North America, Total Sales: 9200
Month: 2023-07, Region: South America, Total Sales: 6000
Month: 2023-08, Region: Asia, Total Sales: 5100
Month: 2023-08, Region: Australia, Total Sales: 900
Month: 2023-09, Region: Asia, Total Sales: 1000
Month: 2023-09, Region: Europe, Total Sales: 600
Month: 2023-09, Region: North America, Total Sales: 5350
Month: 2023-09, Region: South America, Total Sales: 3800
Month: 2023-10, Region: Asia, Total Sales: 400
Month: 2023-10, Region: Europe, Total Sales: 5200
Month: 2023-10, Region: North America, Total Sales: 6900
Month: 2023-10, Region: South America, Total Sales: 8450
Month: 2023-11, Region: Asia, Total Sales: 1300
Month: 2023-11, Region: Australia, Total Sales: 1000
Month: 2023-11, Region: Europe, Total Sales: 600
Month: 2023-11, Region: South America, Total Sales: 3650
Month: 2023-12, Region: Asia, Total Sales: 3500
```

```
Month: 2023-12, Region: Australia, Total Sales: 3100
Month: 2023-12, Region: Europe, Total Sales: 2600
Month: 2023-12, Region: North America, Total Sales: 4600
```

8. Heatmap for Sales Density by Product Category (Quarterly)

- This procedure groups sales by product category and quarter, and calculates the total sales for each category in each quarter.

```
CREATE OR REPLACE PROCEDURE sales_density_by_category AS
BEGIN
  FOR sales_rec IN (
    SELECT p.category, TO_CHAR(s.sale_date, 'YYYY-Q') AS sale_quarter,
SUM(s.sale_amount) AS total_sales
    FROM sales s
    JOIN products p ON s.product_id = p.product_id
    GROUP BY p.category, TO_CHAR(s.sale_date, 'YYYY-Q')
    ORDER BY sale_quarter, p.category
  ) LOOP
    DBMS_OUTPUT.PUT_LINE('Quarter: ' || sales_rec.sale_quarter || ', Category: ' ||
sales_rec.category || ', Total Sales: ' || sales_rec.total_sales);
  END LOOP;
END;
```

Output:

```
Quarter: 2023-1, Category: Accessories, Total Sales: 3700
Quarter: 2023-1, Category: Electronics, Total Sales: 65400
Quarter: 2023-2, Category: Accessories, Total Sales: 6350
Quarter: 2023-2, Category: Electronics, Total Sales: 29700
Quarter: 2023-3, Category: Accessories, Total Sales: 4650
Quarter: 2023-3, Category: Electronics, Total Sales: 39600
Quarter: 2023-4, Category: Accessories, Total Sales: 6500
Quarter: 2023-4, Category: Electronics, Total Sales: 34800
```

9. Heatmap for Sales Density by Region and Product Category (Monthly)

- This procedure generates a sales heatmap by region and product category, grouped by month.

```
CREATE OR REPLACE PROCEDURE sales_density_by_region_cat AS
BEGIN
  FOR sales_rec IN (
    SELECT r.region_name, p.category, TO_CHAR(s.sale_date, 'YYYY-MM') AS
sale_month, SUM(s.sale_amount) AS total_sales
    FROM sales s
    JOIN customers c ON s.customer_id = c.customer_id
    JOIN regions r ON c.region = r.region_id
    JOIN products p ON s.product_id = p.product_id
    GROUP BY r.region_name, p.category, TO_CHAR(s.sale_date, 'YYYY-MM')
```

```
    ORDER BY sale_month, r.region_name, p.category
  ) LOOP
    DBMS_OUTPUT.PUT_LINE('Month: ' || sales_rec.sale_month || ', Region: ' ||
sales_rec.region_name || ', Category: ' || sales_rec.category || ', Total Sales: '
|| sales_rec.total_sales);
  END LOOP;
END;
```

Output:

```
Month: 2023-01, Region: Asia, Category: Accessories, Total Sales: 1300
Month: 2023-01, Region: Asia, Category: Electronics, Total Sales: 4000
Month: 2023-01, Region: Australia, Category: Electronics, Total Sales: 3200
Month: 2023-01, Region: South America, Category: Electronics, Total Sales: 1200
Month: 2023-02, Region: Asia, Category: Accessories, Total Sales: 1000
Month: 2023-02, Region: Australia, Category: Electronics, Total Sales: 2400
Month: 2023-02, Region: Europe, Category: Electronics, Total Sales: 6000
Month: 2023-02, Region: North America, Category: Electronics, Total Sales: 7500
Month: 2023-02, Region: South America, Category: Electronics, Total Sales: 4800
Month: 2023-03, Region: Asia, Category: Accessories, Total Sales: 750
Month: 2023-03, Region: Asia, Category: Electronics, Total Sales: 10800
Month: 2023-03, Region: Australia, Category: Electronics, Total Sales: 11200
Month: 2023-03, Region: Europe, Category: Accessories, Total Sales: 450
Month: 2023-03, Region: Europe, Category: Electronics, Total Sales: 11300
Month: 2023-03, Region: North America, Category: Electronics, Total Sales: 1000
Month: 2023-03, Region: South America, Category: Accessories, Total Sales: 200
Month: 2023-03, Region: South America, Category: Electronics, Total Sales: 2000
Month: 2023-04, Region: Asia, Category: Electronics, Total Sales: 1600
Month: 2023-04, Region: Australia, Category: Accessories, Total Sales: 1050
Month: 2023-04, Region: Australia, Category: Electronics, Total Sales: 6000
Month: 2023-04, Region: Europe, Category: Electronics, Total Sales: 6400
Month: 2023-04, Region: North America, Category: Electronics, Total Sales: 2500
Month: 2023-04, Region: South America, Category: Accessories, Total Sales: 750
Month: 2023-04, Region: South America, Category: Electronics, Total Sales: 1200
Month: 2023-05, Region: Asia, Category: Electronics, Total Sales: 2400
Month: 2023-05, Region: North America, Category: Accessories, Total Sales: 1800
Month: 2023-05, Region: South America, Category: Accessories, Total Sales: 600
Month: 2023-06, Region: Australia, Category: Accessories, Total Sales: 600
Month: 2023-06, Region: Australia, Category: Electronics, Total Sales: 3200
Month: 2023-06, Region: Europe, Category: Accessories, Total Sales: 800
Month: 2023-06, Region: Europe, Category: Electronics, Total Sales: 1600
Month: 2023-06, Region: North America, Category: Electronics, Total Sales: 800
Month: 2023-06, Region: South America, Category: Accessories, Total Sales: 750
Month: 2023-06, Region: South America, Category: Electronics, Total Sales: 4000
Month: 2023-07, Region: Asia, Category: Electronics, Total Sales: 4800
Month: 2023-07, Region: Australia, Category: Accessories, Total Sales: 600
Month: 2023-07, Region: Europe, Category: Accessories, Total Sales: 800
Month: 2023-07, Region: Europe, Category: Electronics, Total Sales: 6100
Month: 2023-07, Region: North America, Category: Electronics, Total Sales: 9200
Month: 2023-07, Region: South America, Category: Electronics, Total Sales: 6000
Month: 2023-08, Region: Asia, Category: Accessories, Total Sales: 300
Month: 2023-08, Region: Asia, Category: Electronics, Total Sales: 4800
Month: 2023-08, Region: Australia, Category: Accessories, Total Sales: 400
Month: 2023-08, Region: Australia, Category: Electronics, Total Sales: 500
Month: 2023-09, Region: Asia, Category: Accessories, Total Sales: 1000
Month: 2023-09, Region: Europe, Category: Accessories, Total Sales: 600
Month: 2023-09, Region: North America, Category: Accessories, Total Sales: 150
Month: 2023-09, Region: North America, Category: Electronics, Total Sales: 5200
Month: 2023-09, Region: South America, Category: Accessories, Total Sales: 800
```

Month: 2023-09, Region: South America, Category: Electronics, Total Sales: 3000
Month: 2023-10, Region: Asia, Category: Accessories, Total Sales: 400
Month: 2023-10, Region: Europe, Category: Accessories, Total Sales: 400
Month: 2023-10, Region: Europe, Category: Electronics, Total Sales: 4800
Month: 2023-10, Region: North America, Category: Electronics, Total Sales: 6900
Month: 2023-10, Region: South America, Category: Accessories, Total Sales: 450
Month: 2023-10, Region: South America, Category: Electronics, Total Sales: 8000
Month: 2023-11, Region: Asia, Category: Accessories, Total Sales: 800
Month: 2023-11, Region: Asia, Category: Electronics, Total Sales: 500
Month: 2023-11, Region: Australia, Category: Accessories, Total Sales: 1000
Month: 2023-11, Region: Europe, Category: Accessories, Total Sales: 600
Month: 2023-11, Region: South America, Category: Accessories, Total Sales: 450
Month: 2023-11, Region: South America, Category: Electronics, Total Sales: 3200
Month: 2023-12, Region: Asia, Category: Accessories, Total Sales: 300
Month: 2023-12, Region: Asia, Category: Electronics, Total Sales: 3200
Month: 2023-12, Region: Australia, Category: Accessories, Total Sales: 1100
Month: 2023-12, Region: Australia, Category: Electronics, Total Sales: 2000
Month: 2023-12, Region: Europe, Category: Accessories, Total Sales: 1000
Month: 2023-12, Region: Europe, Category: Electronics, Total Sales: 1600
Month: 2023-12, Region: North America, Category: Electronics, Total Sales: 4600