

# Retail Sales Performance Analysis

Uncovering operational efficiencies and revenue drivers from comprehensive transactional data to guide strategic decisions.





# Project Overview & Dataset Summary

## Project Goal

Analyze seasonal trends, peak hours, and high-value products for inventory and staffing strategies.

## Total Revenue

\$8,911,425.90 from 18,536 unique invoices.

## Avg. Transaction Value

\$480.76 per order.

# Exploratory Data Analysis (Python)

Data preparation and cleaning were performed in VS Code before transitioning to SQL and Power BI.

- **Data Loading:** 18,536 rows of sales data imported using pandas.
- **Initial Exploration:** Used `df.info()` and `df.describe()` for feature structure.
- **Missing Data Handling:** Verified null values in product descriptions and revenue columns.
- **Column Standardization:** Converted all column names to snake\_case for PostgreSQL compatibility.



# Python Summary Statistics

Output of df.describe() for the retail dataset.

count	18536	18536	18536
mean	279.54	480.76	12.72
std	852.12	1245.90	2.45
min	1.00	0.00	6.00
50% (Median)	120.00	250.40	12.00
max	80995.00	168469.60	20.00

Feature Engineering included hour extraction, revenue calculation, and database integration into PostgreSQL.

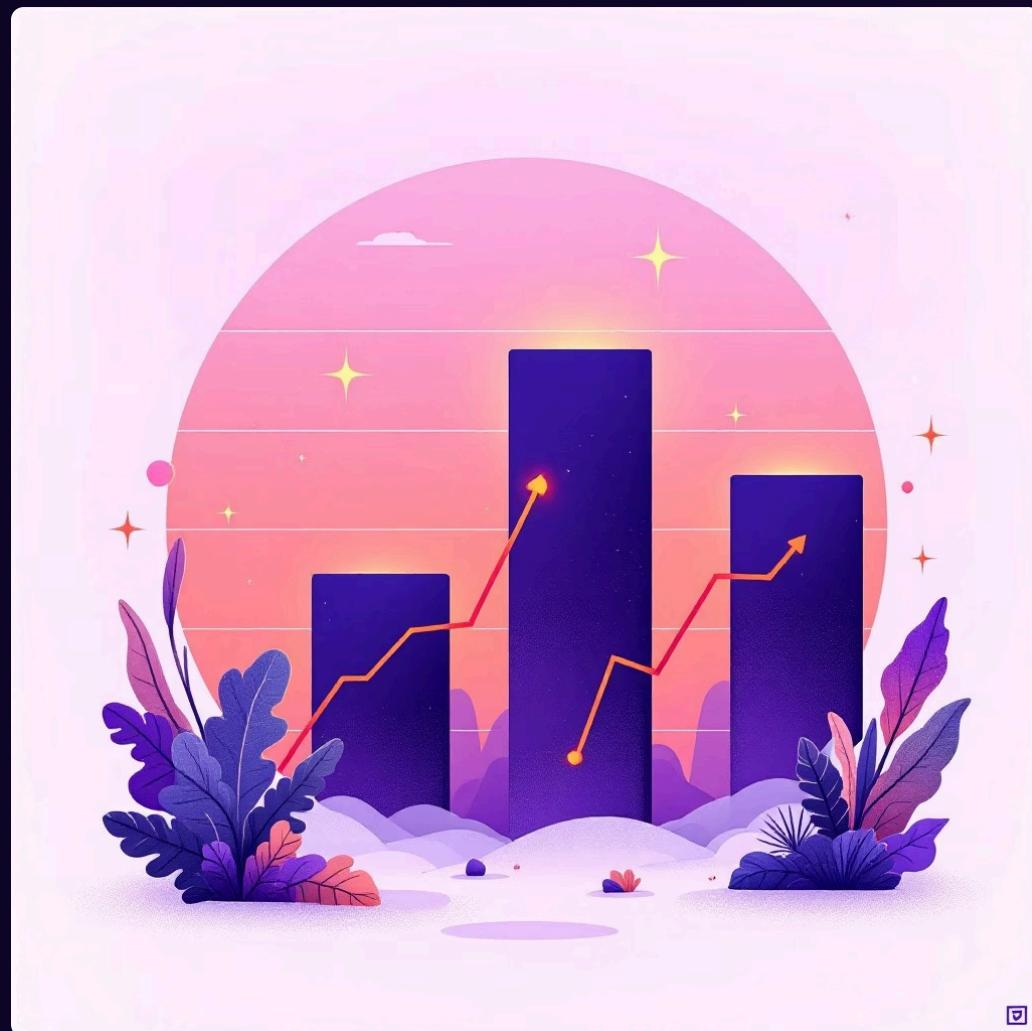
# SQL Data Analysis: Key Business Metrics

## Overall Business Health

Total Revenue: \$8.91M

Total Orders: 18,536

Total Items Sold: 5.18M



## Top 10 Whales (High-Value Customers)

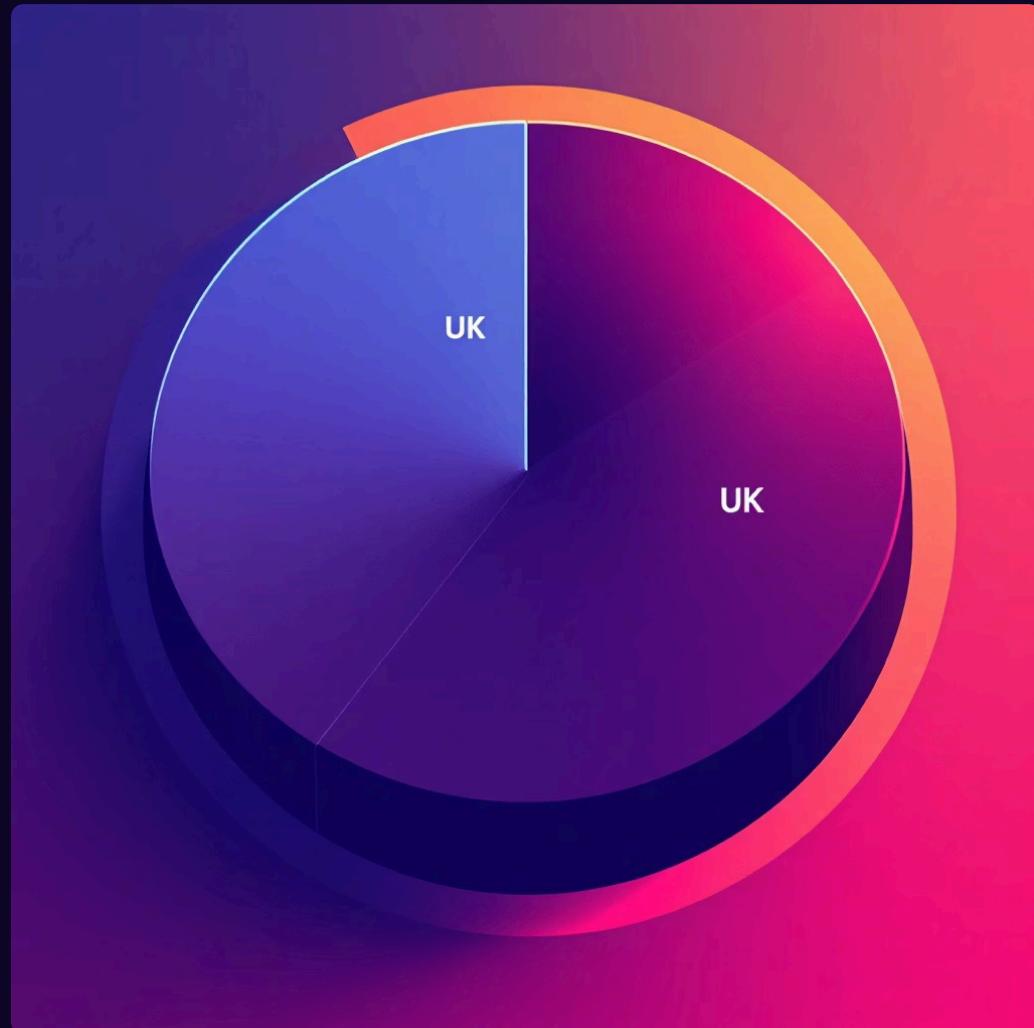
Identified for loyalty programs based on lifetime value and order frequency.



# Market Share & Product Performance

## Fixed Market Share Analysis

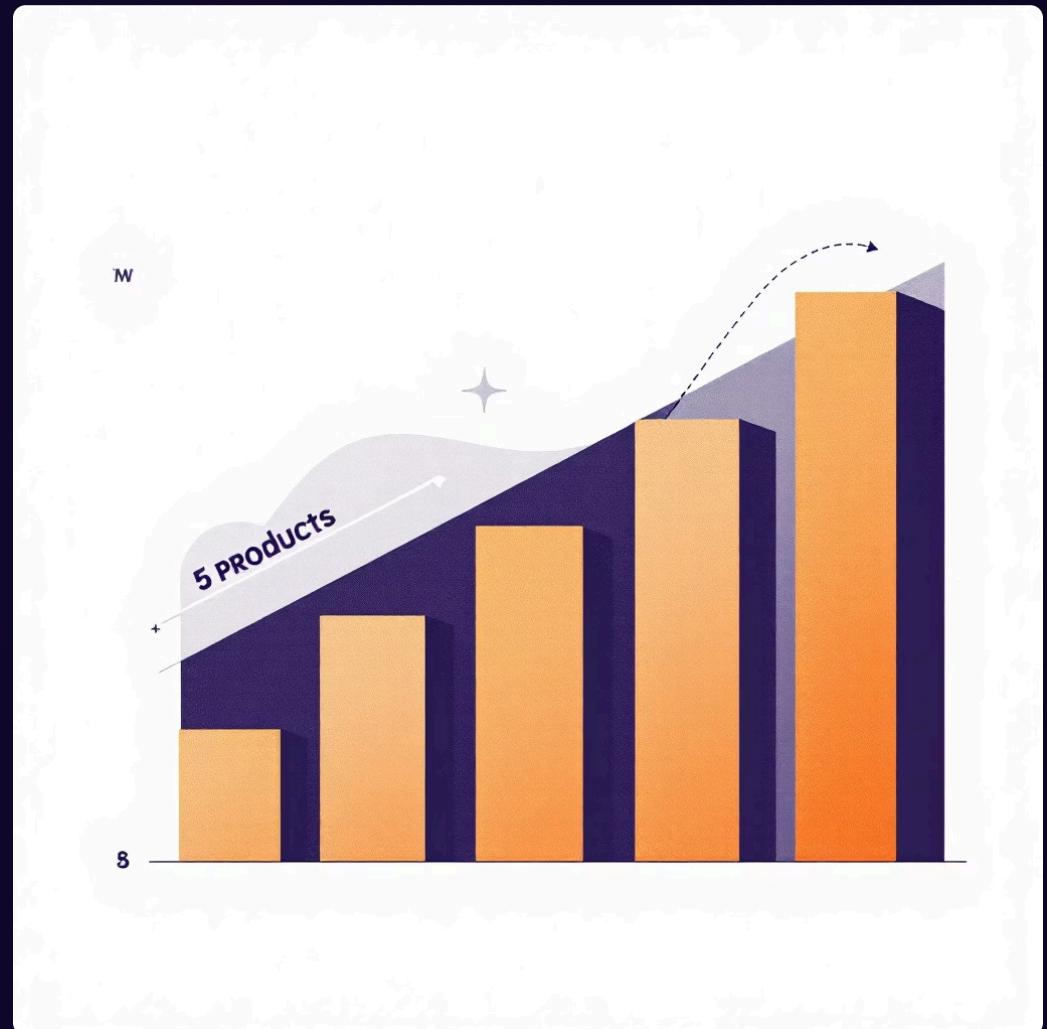
Revenue percentage by country, with the UK and Australia leading.



## Top 5 Volume Drivers

Products with highest quantity sold for warehouse optimization.

- Paper Craft, Little Birdie
- Regency Cakestand
- White Hanging Heart T-Light Holder
- Jumbo Bag Red Retrospot
- Assorted Colour Bird Cage



# Sales Trends & Customer Insights

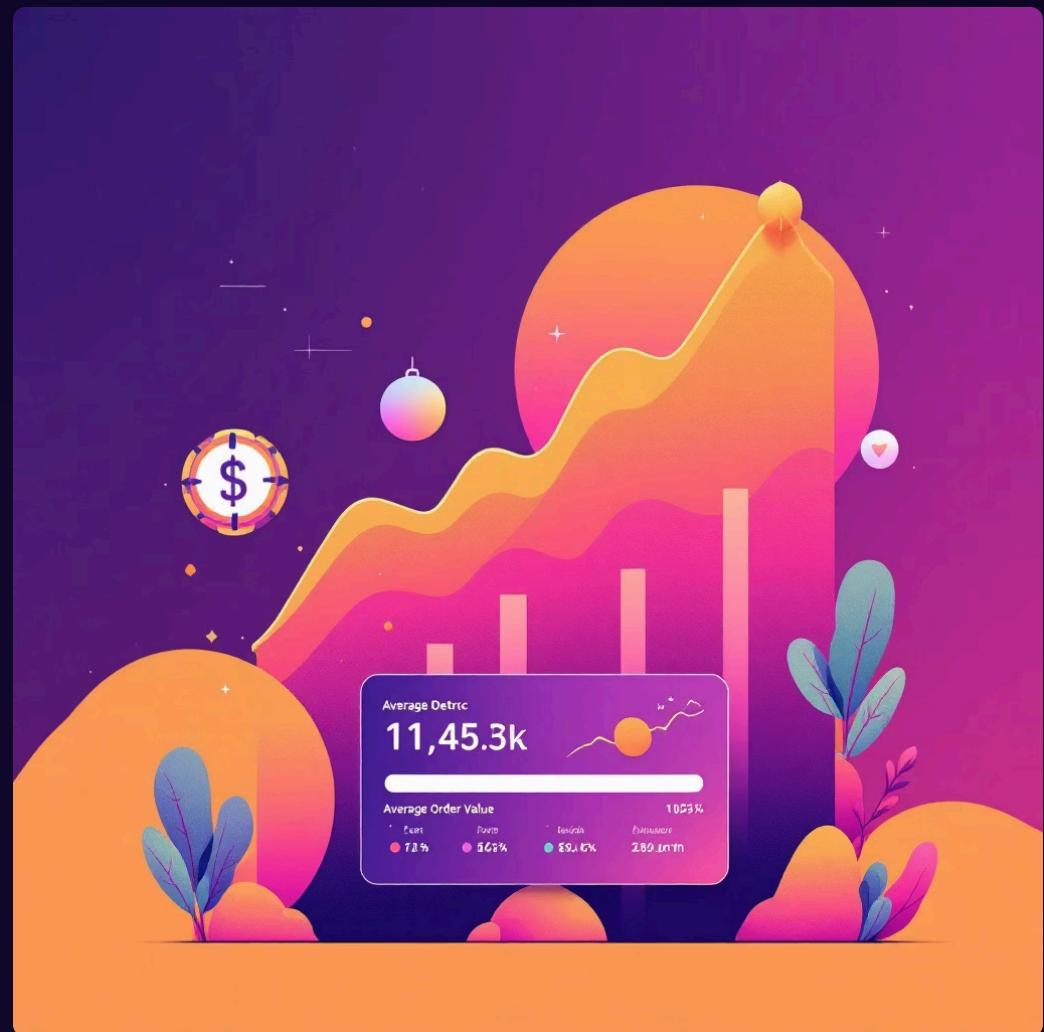
## Monthly Sales Trends

Identified peak seasonality for 2026 planning, with November showing the highest revenue.



## Average Order Value (AOV)

Current AOV is \$480.76, aligning with high-value buyers.



## One-Time Buyers

Identified 3,450 one-time buyers for targeted re-engagement strategies.



# Value Leaders & Peak Transaction Hours

## Top 10 Value Leaders

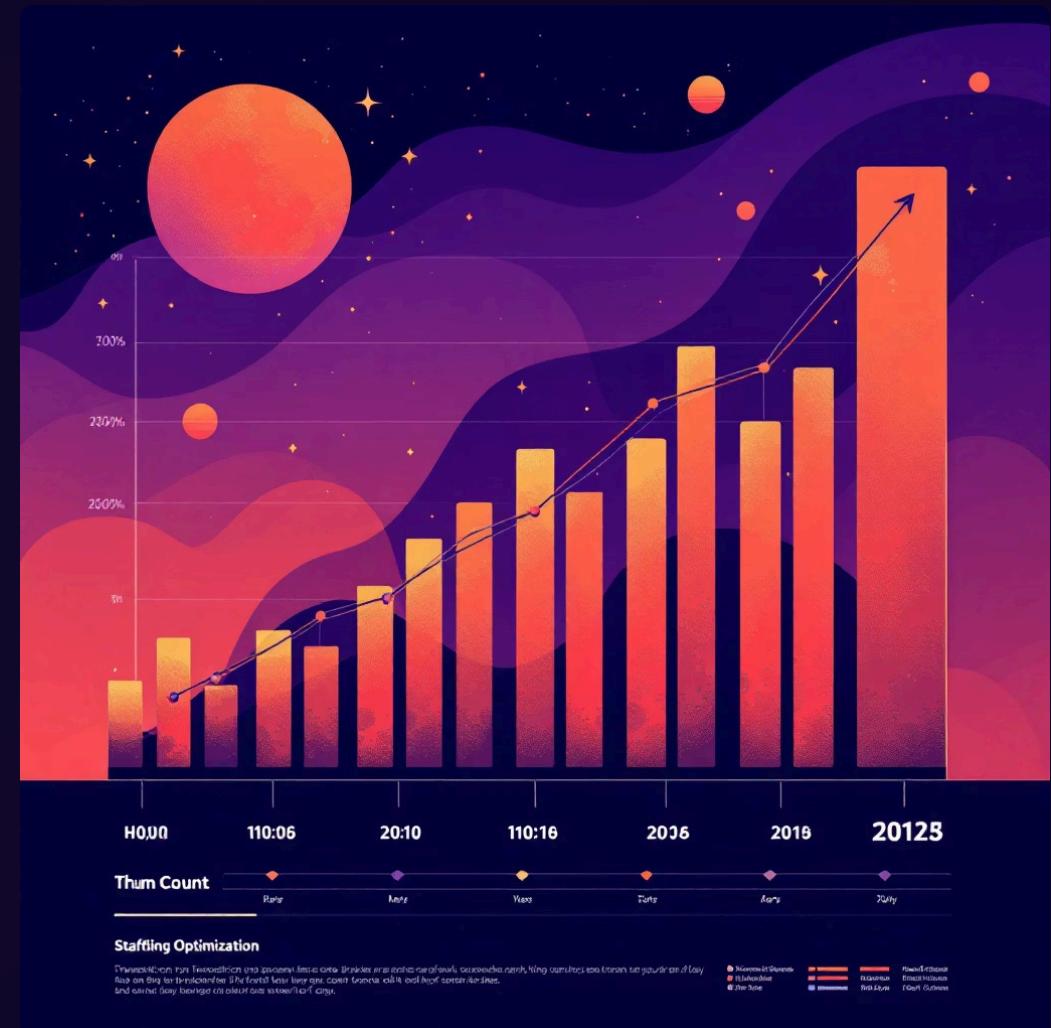
Products generating the highest total revenue.

- Paper Craft, Little Birdie: \$168K
- Regency Cakestand: \$143K
- White Hanging Heart T-Light Holder: \$105K
- Jumbo Bag Red Retrosport: \$89K
- Assorted Colour Bird Cage: \$78K



## Peak Transaction Hours

Most transactions occur around 12:00 PM and 3:00 PM, crucial for staffing.





# Monthly Customer Retention

Analyzing returning customers from the previous month to understand loyalty.

Understanding retention rates helps stabilize revenue during slower periods and informs loyalty program development.

# Business Recommendations

01

## Workforce Alignment

Schedule maximum staffing during daily peaks (12 PM & 3 PM) for optimal service.

03

## Product Protection

Classify high-revenue items (e.g., "Paper Craft, Little Birdie") as "Class A" inventory.

05

## Loyalty Programs

Implement tiered programs for high-value and returning customers.

02

## Inventory Stockpiling

Prioritize high-volume inventory by late September to prevent Q4 stockouts.

04

## Regional Marketing

Concentrate marketing budgets in strong markets like the UK and Australia.

06

## Shipping Optimization

Analyze shipping types to offer targeted discounts for higher order values.