

Sales & Customer Behaviour Insights

Introduction

Green Cart Ltd., a UK-based e-commerce retailer for eco-friendly household products, is preparing for its Q2 review. This report analyses sales performance, customer behaviour, and delivery patterns across products and regions to guide future marketing and operational strategies.

Using data from Sales, Product, and Customer tables, the analysis covers:

- Revenue trends
- Discount effectiveness
- Loyalty tier impact
- Delivery performance
- Customer signup behaviour

Data Cleaning Summary

- Standardised categorical values for fields like region, loyalty_tier, and delivery_status
- Converted order_date, launch_date, and signup_date to datetime
- Replaced missing values (e.g., discount_applied = 0.0)
- Removed invalid/duplicate records and ensured numeric fields were non-negative
- Cleaned mislabelled categories (e.g. 'Delrd' ? 'Delayed')

Engineering Summary

New features created to enhance insight:

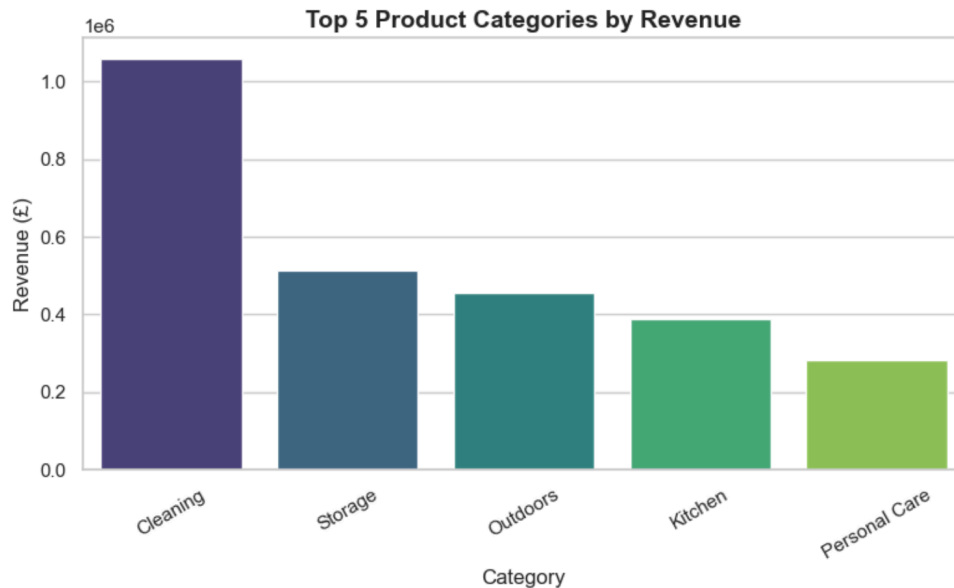
- $\text{revenue} = \text{quantity} \times \text{unit price} \times (1 - \text{discount})$
- order_week = ISO week of purchase
- price_band = Low / Medium / High
- days_to_order = Days from product launch to order
- email_domain = Email provider (e.g., gmail.com)

- `is_late` = True if delivery status is 'Delayed'

Key Findings & Visual Insights

Top 5 Revenue-Generating Categories

Cleaning, Storage, Outdoors, Kitchen, Personal Care



Cleaning alone generated over £1M, with strongest regional sales in North, East, and Central.

Loyalty Tier Contribution

Gold customers generated £1.53M across 1,677 orders, nearly triple Silver and Bronze users.

Discount Analysis

Weak correlation (0.01) between discount and quantity sold, indicating limited impact of discounting on sales volume.

Delivery Delays

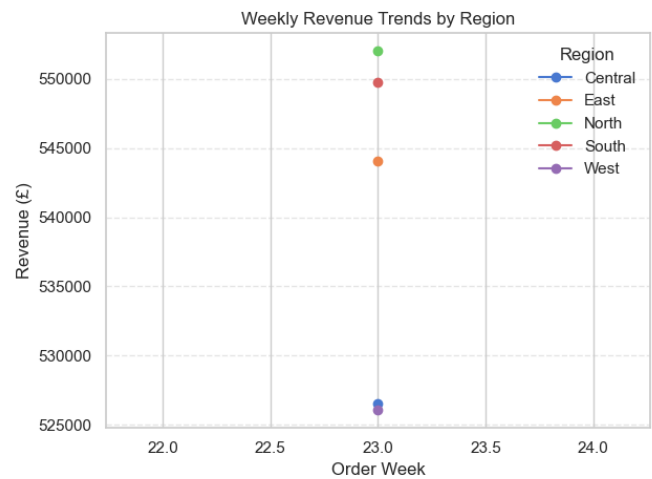
East had the highest delay rate (42%), suggesting fulfilment issues in that region.

Signup Patterns

Most revenue occurred within 1 or 2 months after signup, especially among Gold users.

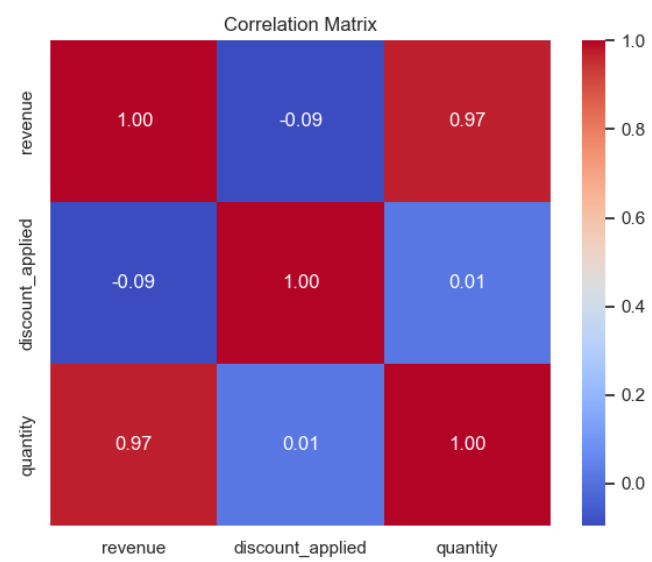
Business Question & Answers

Which categories and regions drive revenue?



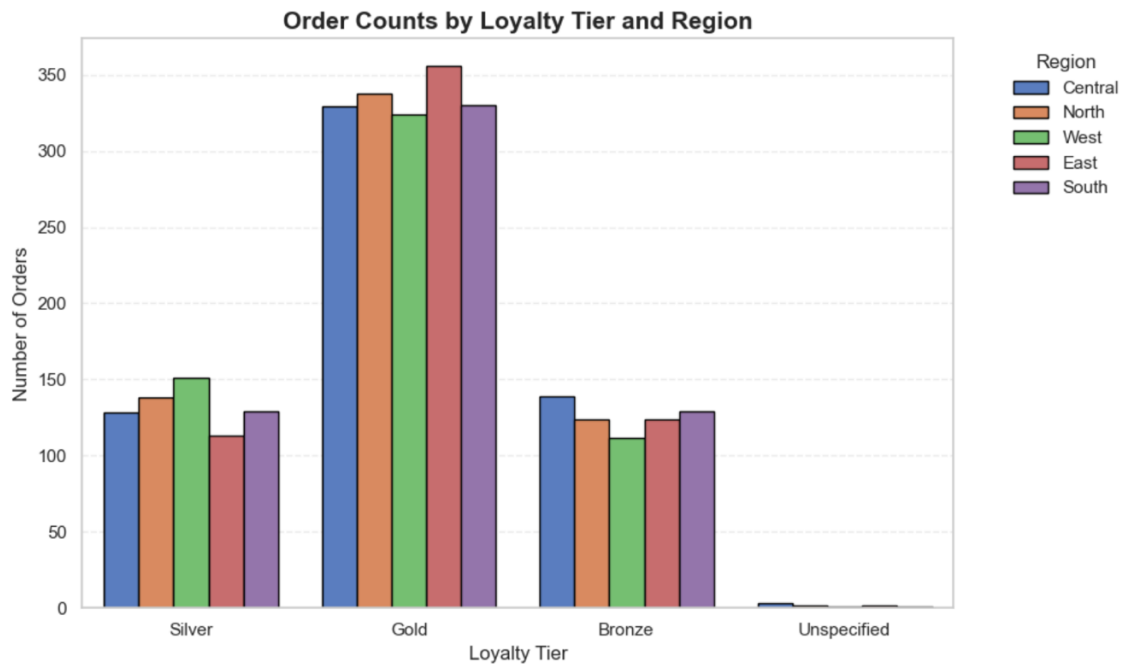
Cleaning is the top performer across all regions, especially North and East.

Do discounts boost sales?



No significant effect; quantity and discount correlation = 0.01.

Which loyalty tier is most valuable?



Gold customers generate the most revenue and orders.

Are certain regions facing delays?

- East has the highest late delivery rate (42%).

Do signup patterns influence behaviour?

- Yes, early post-signup months show highest purchase activity.

Recommendations

1. Focus on Cleaning category in high-performing regions (North, East, Central).
2. Reward Gold-tier users with retention campaigns.
3. Refocus discounts into targeted, non-blanket strategies.
4. Address delays in East region via ops or logistics review.
5. Improve onboarding to capture value early in customer lifecycle.

Data Issues & Risks

- Inconsistent labels (e.g. 'Delrd', 'Sliver') required standardisation.

Fix: Enforce dropdowns or controlled vocabularies in forms

- Missing loyalty tiers labelled 'Unknown'

Fix: Apply default or mandatory tier assignment

- Missing discounts assumed as 0

Fix: Ensure 0% discounts are explicitly recorded