

Perfume E-Commerce Sales Analysis Report

Introduction

This report presents an analysis of perfume sales data obtained from an e-commerce platform. Using Python, SQL, and Power BI, the data was processed, analyzed, and visualized to uncover sales trends, brand performance, and geographical distribution of perfume sales for men and women. The project aims to provide actionable insights to optimize inventory management and marketing strategies.

Dataset Overview

- **Source:** Kaggle (E-commerce perfume datasets for men and women).
- **Total Entries:** 2000 records (1000 each for men and women).
- **Attributes:** Brand, Sales Volume, Revenue, Stock Availability, and Geographical Sales Distribution.

Data Processing

1. **Python:**
 - Datasets were merged and cleaned.
 - Duplicate entries were removed.
 - Data types were corrected for consistency and analysis readiness.
 2. **SQL:**
 - Derived key metrics:
 - Total Revenue: \$39.70M
 - Total Units Sold: 1.25M
 - Available Stock: 36.44K
 - Identified best and poorly performing brands.
 3. **Power BI:**
 - Imported cleaned and aggregated data from SQL.
 - Designed an interactive dashboard to visualize key insights.
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Key Insights

1. **Revenue and Sales Trends:**
 - **Total Revenue:** \$39.70M, with \$13.89M from women's perfumes and \$25.81M from men's perfumes.

- **Total Sales:** 1.25M units sold, of which men's perfumes account for 761.67K units, and women's account for 489.36K units.
- **Stock Availability:** 36.44K units, with 86.9% of perfumes sold out.

2. Brand Analysis:

- **Top Brand by Sales:** Calvin Klein consistently leads in both men's and women's categories.
- **Men's Perfumes:** Highest sales for Calvin Klein and Versace.
- **Women's Perfumes:** Highest sales for Calvin Klein and Versace.
- **Poor Performing Brand:** Giardini Di Toscana for men's perfumes and Branded for women's perfumes.

3. Geographical Sales:

- Major sales regions include:
- Dallas, Texas: Highest sales concentration.
- Hackensack, New Jersey: Secondary significant sales hub.

Visualizations

- **Sales by Brand:** Bar charts depict brand-specific sales performance for both men's and women's perfumes.
- **Stock Status:** A pie chart shows the ratio of sold-out vs. available stock.
- **Geographical Sales:** Map visualization highlights top-selling locations.

Findings

- **Gender-Based Trends:**
 - Men's perfumes dominate revenue and sales volume, reflecting higher demand or pricing.
 - Women's perfumes have slightly lower average prices, potentially indicating greater competition or different marketing strategies.
- **Top Performers:**
 - Calvin Klein emerges as the best-seller in both categories, signifying strong brand recognition and popularity.
- **Stock Challenges:**
 - The high percentage of sold-out items indicates potential gaps in inventory planning.
- **Geographical Insights:**
 - Concentrated sales in Texas and New Jersey highlight key regions for targeted marketing.

Recommendations

- **Stock Management:**
 - Improve inventory forecasting to maintain stock availability for top-performing brands like Calvin Klein and Versace.
 - Address low-performing brands by reevaluating their pricing and marketing strategies.
- **Pricing Strategies:**
 - Reassess the pricing for men's perfumes to capitalize on their high demand while remaining competitive.
- **Geographical Marketing:**
 - Focus on Texas and New Jersey with targeted campaigns to boost sales further.
 - Explore underperforming regions to understand and address barriers to sales.
- **Brand Diversification:**
 - Expand the product portfolio for popular brands and introduce newer brands to create more options for customers.
- **Data-Driven Decision Making:**
 - Regularly update the dashboard with real-time data to monitor trends and adapt strategies dynamically.

Conclusion

The Perfume E-Commerce Dashboard provides a comprehensive view of the sales, stock, and brand performance for men's and women's perfumes. The findings highlight clear leaders in sales, geographical hot spots, and areas for improvement in stock management and pricing. These insights can guide businesses to make informed, data-driven decisions to optimize revenue and customer satisfaction.