

# Business Proposal: Insights from Chocolate Sales Data

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## I. Introduction

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This proposal outlines a business analysis of chocolate sales performance based on a structured dataset capturing 14,000 sales transactions across six international markets. The primary goal is to extract actionable insights that support strategic decisions in marketing, product management, and sales operations. Through this analysis, we aim to identify top-performing markets, evaluate product profitability, assess individual salesperson performance, and uncover temporal trends that could inform promotional planning and resource allocation.

## I. Business Questions

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- What are the most profitable countries and chocolate products?
- Which salespeople generate the most revenue and shipment volume?
- Are there notable trends in sales over time (seasonality, monthly)?
- Is there a strong correlation between the quantity of product shipped and the total revenue?

## I. Detailed Data Overview

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Data source: <https://www.kaggle.com/>

The dataset includes 14,000 records and contains the following 6 key columns:

- **Sales Person:** The employee responsible for the transaction (25 unique names).
- **Country:** The market where the sale took place (6 countries).
- **Product:** The chocolate item sold (22 unique product names).
- **Date:** The date the transaction occurred, originally formatted as "dd-MMM-yy" (e.g., 04-Jan-22) / January 3, 2022 to August 31, 2022, with 168 unique sales dates.
- **Amount:** The total revenue from the transaction, cleaned and converted from currency string format to numerical.
- **Boxes Shipped:** The number of chocolate boxes sent per transaction.

From the `date` field, we derived several time-based columns for trend analysis:

- **Year:** All transactions occurred in 2022.
- **Month:** Numerical month (1–12) for grouping by monthly trends.
- **Month Name:** Full month name for readability in visualizations.
- **Day name:** Name of the day, used to identify patterns in day-specific sales behavior.
- **Season:** season names for readability in visualizations.

## I. Project process

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1. domain Knowledge
2. data cleaning
3. Feature engineering
4. Data analysis
5. Data visualization
6. handle outliers
7. handle categorical data
8. determine input and output
9. split into train and test
10. apply scaling

## I. Objectives and Solutions

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Based on the data insights, the following strategies and conclusions are proposed:

### 1. Seasonal Promotions Based on Sales Peaks

**What to do:**

Use seasonal trends to plan promotions. For example:

- Increase inventory and ads in **seasons**, where sales are stronger.
- Push **gift-friendly products** like “Peanut Butter Cubes” and “Mint Chip Choco” during holidays.

**Why it matters:**

Customers buy more chocolate in colder seasons. Targeting those times boosts revenue and clears stock faster.

## 2. Focus on High-Performing Products

### What to do:

Identify top-selling products by revenue and give them more visibility:

- Feature them in online banners, ads, and bundles.
- Offer bulk purchase deals for corporate or event buyers.

### Why it matters:

Promoting bestsellers improves sales with less risk. You're giving people more of what already works.

## 3. Reward and Train Top Salespeople

### What to do:

Analyze which sales reps consistently perform well and reward them. Offer training for lower-performing reps using real data examples.

### Why it matters:

Motivated teams sell more. Sharing what works can improve the performance of the whole team.

## 4. Country-Based Strategy Customization

### What to do:

Adjust your approach by country:

- In countries like **India and the UK**, focus on flavors that sell well there.
- Offer local discounts or festivals-based bundles.

### Why it matters:

Different places have different preferences. Localizing your strategy improves conversion and loyalty.

## 5. Smarter Product Bundling

### What to do:

Combine popular items with slower-selling ones into value packs.

### Why it matters:

This helps move unsold stock while increasing the average sale size.

## 6. Use Day and Month Data for Timing

### What to do:

Run campaigns or email promos on the **days or months** with historically higher sales.

### Why it matters:

Timing promotions right increases your chances of making a sale.