Project Title:Tastybites-Product Pricing and Profitability

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Role: Business Analyst/Data Analyst

Tools Used: Python, Pandas, Plotly,seaborn,matplotlib

Duration: 2-3Weeks

Executive Summary

Tastybyte is a mid-sized, a food delivery app operating in multiple cities.   The company has noticed that some products generate low profit despite high sales, while others contribute significantly to the bottom line.**.**

Using Python-based EDA, interactive Plotly visualizations and analysis reveals that:

- Average profit margin decreases with discount.

- Beverages has the highest profit.

Business Background & Problem Statement

Tastybyte management reports that some products are generating low profit margin.

Business Objectives

The project aims to support Boxify business goals through data-driven insights.

Primary Objectives

Optimize product pricing and promotions to maximise profit without losing customers.

KPIs Used

- Profit margin

- discounts

- Volume traps

Dataset Overview

Dataset File: Ecommerece_churn_analysis_Boxify.csv

Rows: 100000   Columns: 15

Assumptions

- Missing CustomerType = "Unknown".

Data Cleaning Process

Performed using Python (Pandas):

Step 1: Type Conversions

Convertedunit price,unit cost,qauntity into numeric formats.

Step 2: Missing Value Treatment

- CustomerType: Imputed with "Unknown"
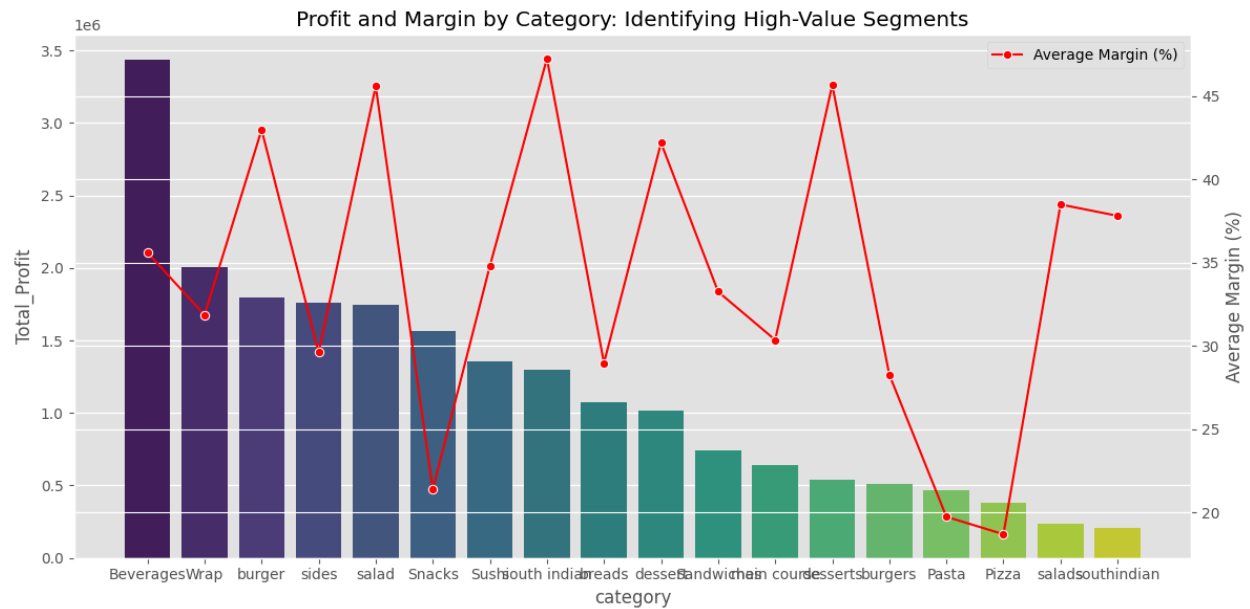
Step 3: Remove Invalid Records

- Negative Quantity

- Zero/negative Price
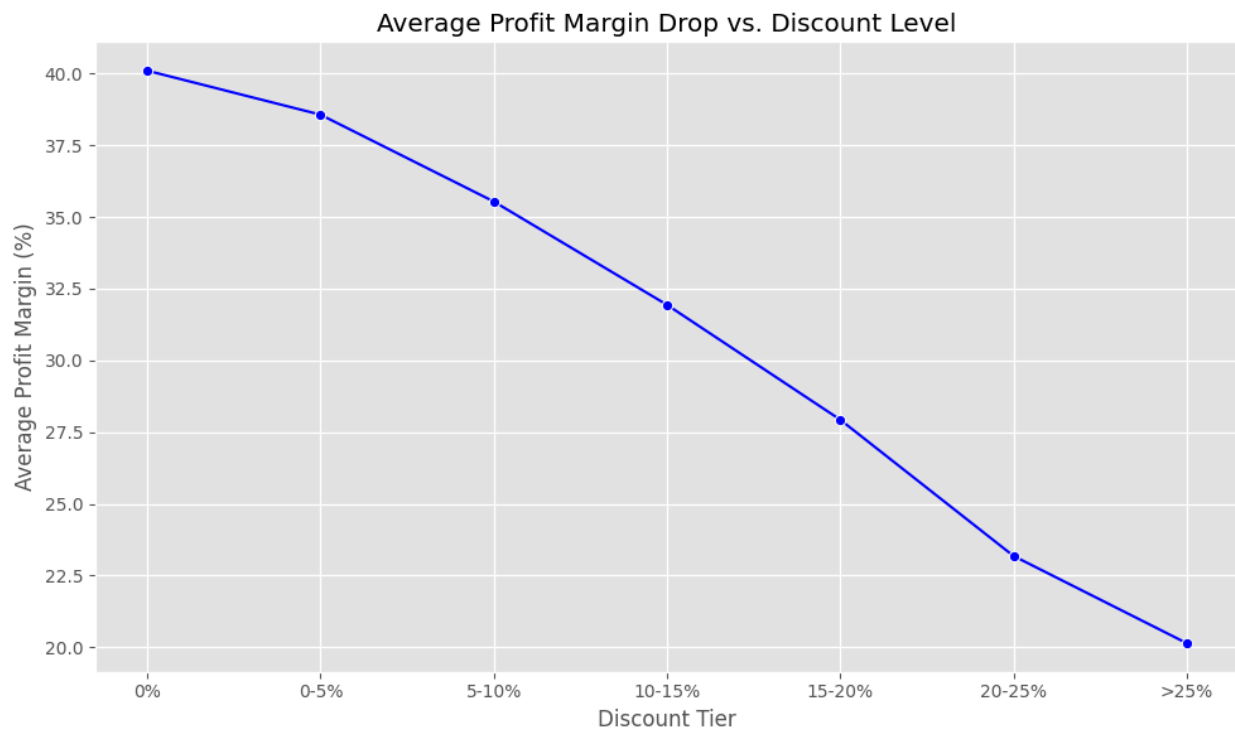
- Incorrect dates removed

Exploratory Data Analysis

Profit and margin by category

1. Beverages has the highest profit

Profit and Margin by Category: Identifying High-Value Segments

Discount Impact on Profitability

● As discount increases profitability decreases.

Average Profit Margin Drop vs. Discount Level

Product category and profitability analysis

Top 3 Profit Generating Products

product_name	Total_Profit	Avg_Margin
Veggie Burger	1.7976e+06	42.9794
Greek Salad	1.74932e+06	45.6001
Iced Tea	1.70494e+06	47.5829

Low Profit generating Product

product_name	Total_Profit	Avg_Margin
Margherita Pizza	166316	16.1458
Chocolate Shake	196305	44.8133
Idli 2pcs	206268	37.81

Volume Traps-Product that sells the most but generate less profit

product_name	Total_Quantity	Total_Profit	Avg_Margin
Margherita Pizza	8174	166316	16.1458
Idli 2pcs	8021	206268	37.81
Pasta Alfredo	8087	210264	22.3948
Caesar Salad	8259	234614	38.4927

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| Garlic Naan          |              8051 |         448827 |        15.6108 |
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Strategic Recommendations

1.Price increase(5%)-Immediately increase the price on top volume products(Magerita Pizza).Since it sells high volume a minor increase in price will adjust by customer.

2.Restrict discounts on higher margin category(beverages)

Long Term Strategies

1.Pair the top margin item with the low margin item to create a promotional bundle.This offloads the low margin stock while preserving the profitability.

2.Allocate promotional and ads budget to beverages category which demonstrates the best balance of profit and margin to maximize the return on marketing spend.

Conclusion

This analysis identifies strong opportunities to decrease churn and increase revenue and profitability for Boxify. Optimizing strategies, strengthening category assortment can drive substantial improvement.