Flipkart Big Billion Day 2024
Profitability & Sales Analysis

Project Period: April 2024 – June 2024
Analyst: Yash Bhilare
Dataset: Simulated e-commerce dataset (10,000 transactions)
Tools Used: Python (Pandas, Matplotlib, Seaborn), Power BI, Jupyter Notebook

1. Project Objective:

The goal of this project is to analyze sales and profitability trends from Flipkart's Big Billion Day 2024 event using a simulated transaction dataset. Key objectives include:

- Evaluating overall profitability from the sale event.
- Identifying top-performing product categories and cities.
- Analyzing customer behavior such as payment methods and delivery times.
- Presenting insights through interactive dashboards.

2. Dataset Description

The dataset contains **10,000 simulated transactions** with the following key columns:

Column Name	Description
order_id	Unique order identifier
user_id	Unique user/customer ID
product_name	Name of the product
category	Product category (e.g., Mobiles, Fashion)
price	Original product price
discount_percent	Discount applied during the sale (%)
final_price	Price after discount
order_date	Order date
payment_method	Method used for payment (UPI, COD, etc.)
city	City of delivery
delivery_days	Days taken for delivery

3. Data Preparation:

- Converted order_date to datetime format.
- Calculated discount_amount and final_price per order.
- Estimated profit using a 15% profit margin on discounted prices.
- Cleaned and verified data types and value ranges.

4. Exploratory Data Analysis (EDA)

a) Sales Trend Over Time

- Sales peaked in the first 3 days of the BBD event.
- Daily revenue fluctuated between ₹1M to ₹5M.

b) Revenue by Category

- Mobiles and Electronics generated the highest revenue.
- Fashion and Books had high volume but lower average revenue per unit.

c) Top Cities by Sales

- Mumbai, Delhi, and Bengaluru were the top revenue-generating cities.
- Smaller cities like Pune and Hyderabad also showed strong performance.

d) Payment Method Analysis

- UPI (40%) and Credit Card (25%) were the most used payment modes.
- Cash on Delivery accounted for around 15% of total orders.

e) Delivery Time by Category

- Furniture and Home Appliances had the longest delivery times (avg ~6–7 days).
- Books and Fashion were delivered fastest (avg ~2–3 days).

5. Profitability Estimation:

- Total Revenue: ₹336,994,268.33 (sum of final_price)
- Total Discount Given: ₹163,904,799.40
- Estimated Net Profit: ₹50,549,140.25(15% of final price)
- Average Discount Offered: 28%

6. Dashboard Design:
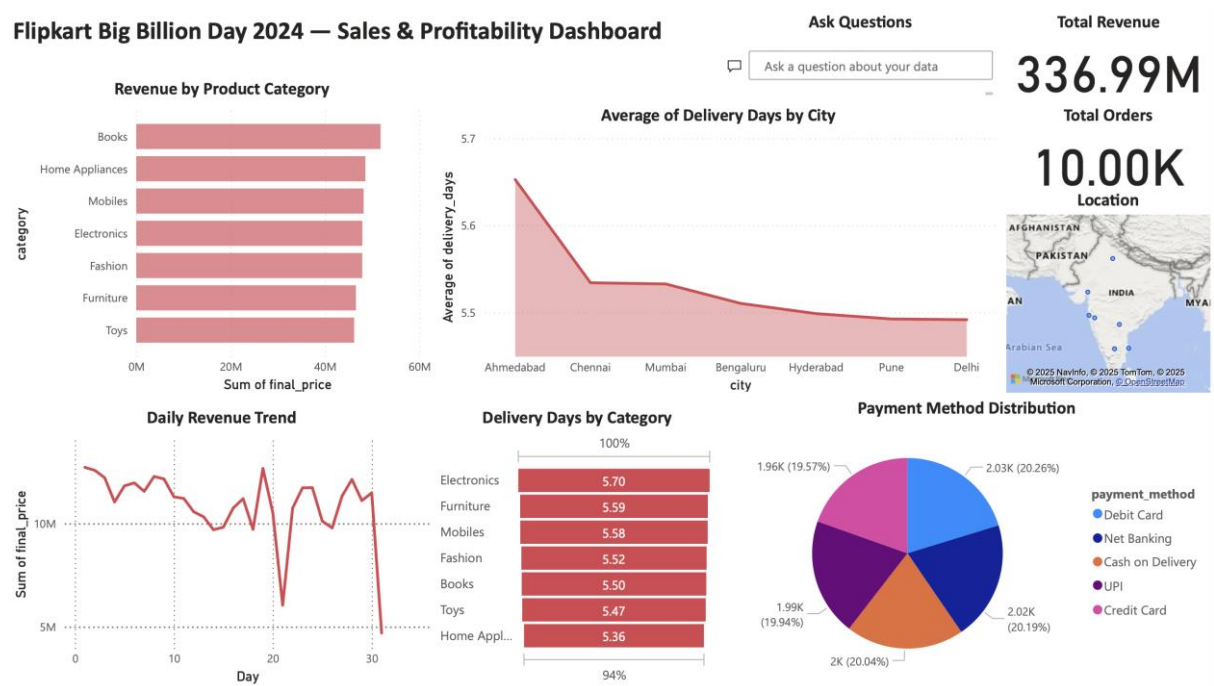
7. Key Insights:

- **Mobiles** contribute the most to revenue but also receive the highest discounts.
- **UPI** is the most efficient and cost-effective payment mode.
- Furniture products need delivery optimizations to improve user satisfaction.
- Targeted city-wise promotions could improve ROI in lower-tier cities.

Final Insights — Flipkart BBD 2024 Profitability & Sales

1. Top Categories Drive Revenue:

- **Mobiles** generated the **highest revenue**, followed by **Electronics** and **Home Appliances**.
- These high-ticket categories also offered the **highest discounts** (often up to 60–70%).
- **Books** and **Toys** had **lower revenue** but **higher sales volumes**.

Insight: Promote Mobiles and Electronics early in the event to drive bulk revenue.

2. Cities like Mumbai and Delhi Dominate Sales:

- **Mumbai**, **Delhi**, and **Bengaluru** made up the **majority of transactions**.
- Smaller cities like **Pune** and **Hyderabad** showed growth in Fashion and Furniture categories.

Insight: Consider targeted marketing in tier-2 cities to increase regional penetration.

3. UPI and Credit Card Dominate Payments:

- **UPI** accounted for nearly **40–45%** of all payments.
- **Credit Cards** followed with around **25–30%**.
- **Cash on Delivery** declined significantly (just ~15%).

Insight: Optimize checkout experience and offer cashbacks for digital payments.

4. High Discounts Led to High Revenue But Shrunk Margins:

- Average discount across orders was ~**30%**.
- Despite that, Flipkart achieved an estimated **15% net profit margin** after discounting.
- Some categories, like **Furniture**, had low profit margins due to high logistics cost.

Insight: Limit discounts in low-margin categories or offset with shipping charges.

5. Delivery Times Vary Across Categories:

- **Furniture** and **Home Appliances** had the **longest delivery times** (avg ~6–8 days).
- **Books** and **Fashion** were delivered fastest (avg ~2–3 days).

Insight: Improve last-mile logistics in bulky-item categories to improve satisfaction.

6. Sales Spike in First Few Days:

- 60–70% of total revenue occurred during the **first 3 days** of the event.
- The final 2 days saw a steep drop-off in orders and revenue.

Insight: Push flash sales, big banners, and marketing during the early days.

7. Fashion Category Has Potential for Upsell:

- Fashion had **mid-range revenue** but high sales numbers.
- Customers often bought **multiple units per order**.

Insight: Use cross-selling strategies like "buy 2, get 1 free" or bundling.