CUSTOMER DATA ANALYSIS
PRDA – 05

TEAM ID: PTID – CDA – NOV – 25 – 825

BY:

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PROJECT OVERVIEW / INTRODUCTION

- The project aimed to analyze customer purchasing behavior and uncover insights related to gender, age, and payment preferences to help improve sales strategies and customer segmentation."

- This dataset contains shopping information from 10 different shopping malls between 2021 and 2023.We have gathered data from various age groups and genders to provide a comprehensive view of shopping habits in Istanbul.

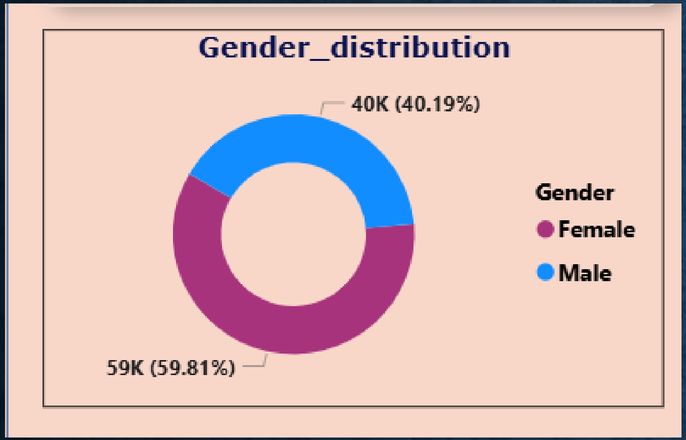
- The dataset includes essential information such as:
  invoice numbers,
  customer IDs,
  age,
  gender,
  payment methods,
  product categories,
  quantity, price,
  order dates &
  shopping mall locations.

PROBLEM STATEMENTS

- How is the shopping distribution according to gender?
- Which gender did we sell more products to?
- Which gender generated more revenue?
- How is the shopping distribution according to age?
- Which age category did we sell more products to?
- Which age category generated more revenue?
- Distribution of purchase categories relative to other columns?
- Does the payment method have a relation with other columns?
- How is the distribution of the payment method?
- Visualize the data using Tableau /PowerBI and derive insights and give your inputs/suggestions to the company.

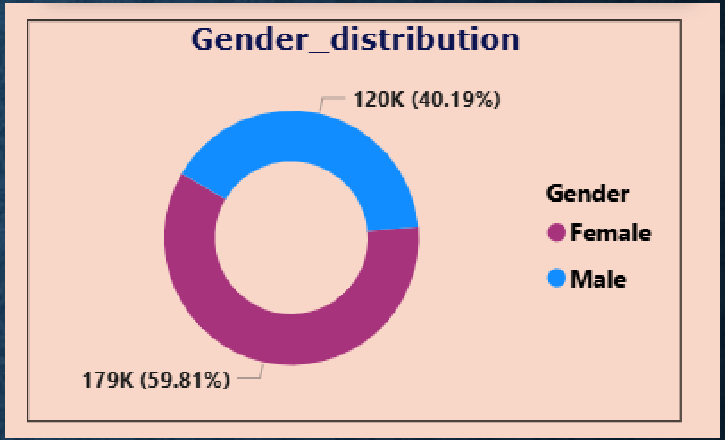
VISUALIZATIONS & INSIGHTS - 1

1. How is the shopping distribution according to gender?



1. Shopping Distribution by Gender
2. Females contributed 59.8% of total transactions vs 40.2% from males.
3. Insight: Female shoppers form the core customer base, showing higher store engagement and visit frequency.
4. Recommendation: Allocate more marketing budget to female-focused campaigns and loyalty programs.

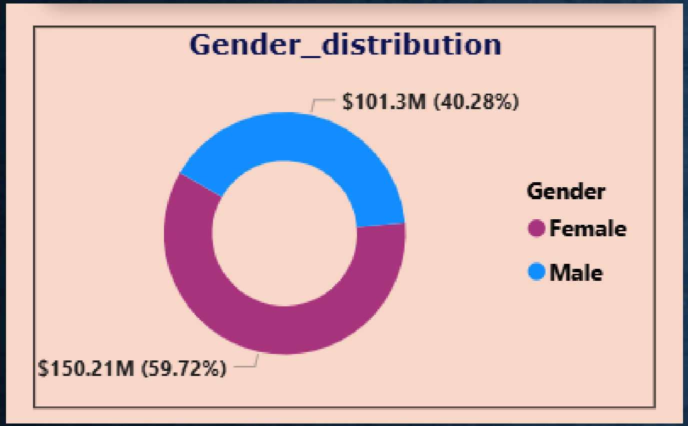
2. Which gender did we sell more products to?



1. Gender-wise Product Quantity Sold
2. Females purchased 178,659 items (59.8%), while males purchased 120,053 (40.2%).
3. Insight: Not only do women shop more often, they also buy larger volumes per visit, indicating stronger conversion rates and product interest.
4. Recommendation: Consider bundle or combo offers targeted at female customers.

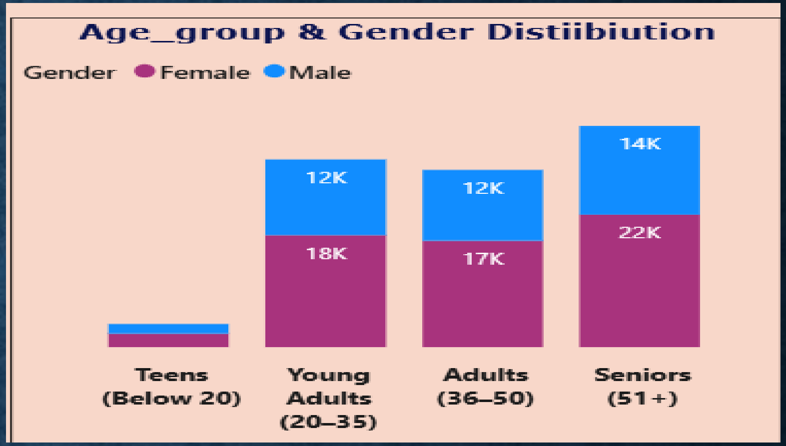
VISUALIZATIONS & INSIGHTS - 2

3. Which gender generated more revenue?



1. Gender-wise Revenue Contribution
2. Females generated ₹150.2M (59.7%), while males generated ₹101.3M (40.3%).
3. Insight: Revenue aligns with quantity trends — females are the primary revenue drivers across categories.
4. Recommendation: Maintain female-centric assortment in fashion and lifestyle segments.

4. How is the shopping distribution according to age?

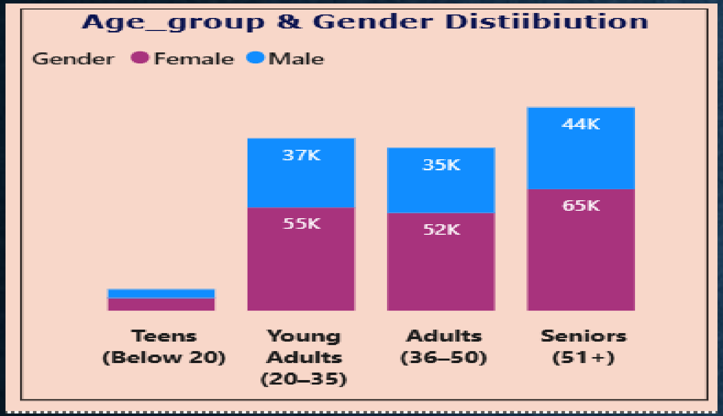


Shopping Distribution by Age Group

1. Seniors (51+) - 36.3%
2. Young Adults (20–35) - 30.8%
3. Adults (36–50) - 29.1%
4. Teens (<20) - 3.8%
5. *Insight:* **Seniors (51+)** are surprisingly the **most frequent shoppers**, indicating loyalty and stable income effect.
6. *Recommendation:* Maintain personalized engagement for senior customers; introduce comfort-oriented product lines.

VISUALIZATIONS & INSIGHTS - 3

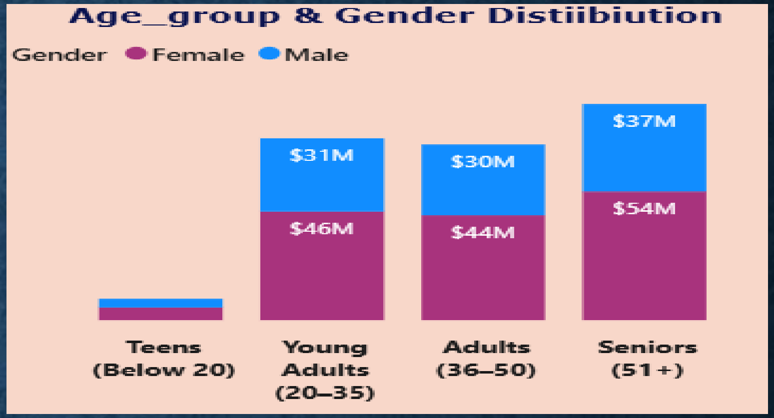
5. Which age category did we sell more products to?



Quantity Sold by Age Group

1. Seniors: **108,534 units (36.3%)**
2. Young Adults: **91,997 units (30.8%)**
3. Adults: **86,885 units (29.1%)**
4. *Insight:* Older age segments (36+) account for nearly **65% of items sold**, showing mature customers drive volume.
5. *Recommendation:* Offer discounts or memberships targeted at 35+ demographic groups.

6. Which age category generated more revenue?

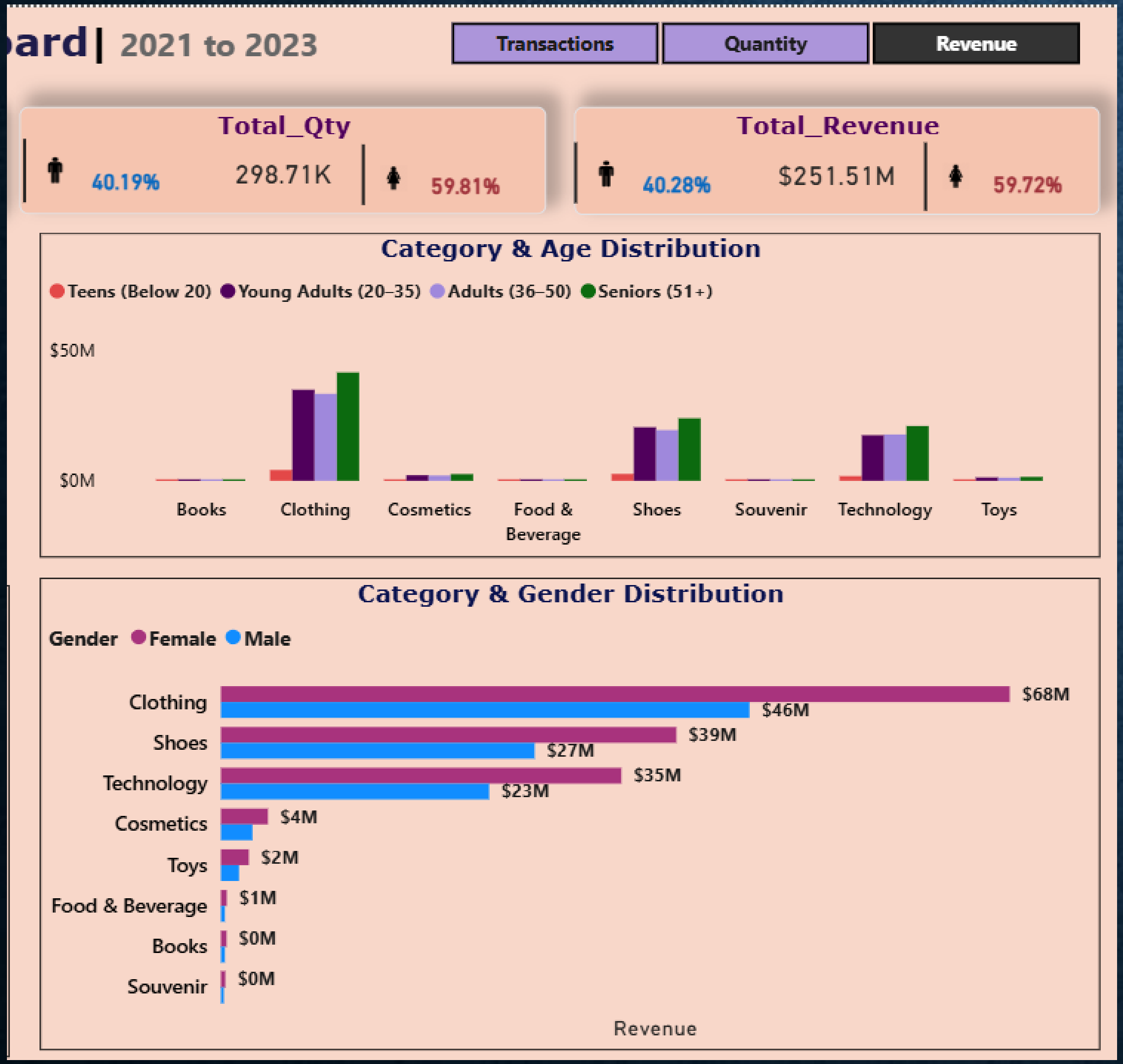


Revenue by Age Group

1. Seniors (51+) - ₹91.3M 36.3%
2. Young Adults (20–35) - ₹76.9M 30.6%
3. Adults (36–50) - ₹74.2M 29.5%
4. Teens (<20) - ₹9.05M 3.6%
5. *Insight:* Seniors generate the **highest revenue**, followed closely by younger working professionals highlighting both loyalty and spending power.
6. *Recommendation*Focus marketing on **Seniors (retention)** and **Young Adults (acquisition)**.

VISUALIZATIONS & INSIGHTS - 4

7 . Distribution of purchase categories relative to other columns?



1. Clothing, Shoes, and Technology together account for nearly 90% of total revenue, making them the top-performing categories.
2. Across all categories, female customers lead sales (~60%), especially in Clothing, Shoes, and Cosmetics, indicating stronger interest in lifestyle and fashion
3. products.Seniors (51+) and Young Adults (20–35) are the two most active age segments, jointly contributing over two-thirds of total category sales.
4. Teens (<20) show the lowest participation (~4%), revealing potential for youth-oriented product promotions.
5. The sales pattern remains consistent across gender and age, showing a balanced but predictable consumer behavior across core product lines.

VISUALIZATIONS & INSIGHTS - 5

8. Does the payment method have a relation with other columns?

1. **Cash** dominates across all gender and age groups, especially among **Seniors and Adults**.
2. **Credit Card** usage is higher among **Young Adults**, indicating financial independence and digital preference.
3. **Debit Card** use is moderate and balanced across demographics.
4. *Insight:* Payment preference varies by age — cash for older shoppers, cards for younger ones.
5. *Recommendation:* Promote digital payment rewards and card offers for younger buyers, but retain cash facilities for older demographics.

9. How is the distribution of the payment method?

1. **Payment Method & Share of Transactions**
2. Cash - 44.7%
3. Credit Card - 35.1%
4. Debit Card - 20.2%
5. *Insight:* Cash remains the **most used mode (45%)**, though **digital payments (55%)** are collectively higher — showing a **shift toward cashless behavior**.
6. *Recommendation:* Strengthen digital infrastructure and run card-based loyalty schemes.

OVERVIEW OF COMPLETE DASHBOARD

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OVERALL BUSINESS INSIGHTS & STRATEGIC RECOMMENDATIONS

Overall Business Insights

1. **Female & Senior customers** drive the highest revenue and transaction volume.
2. **Clothing, Shoes, and Technology** are the top-earning categories.
3. **Cash still leads**, but digital adoption is accelerating.
4. **Seniors (51+)** show both high loyalty and purchasing power — a critical customer base.
5. **Young Adults (20–35)** are emerging digital buyers ideal for long-term customer retention programs.

Strategic Recommendations

1. Introduce **personalized marketing** for female and senior customers.
2. Launch **digital payment cashback** and card-based incentives.
3. Promote **category-wise offers** (Fashion Fridays, Tech Tuesdays).
4. Build **loyalty program tiers** by age and spend level.
5. Expand **data tracking** to understand seasonal and mall-level patterns.

THANK YOU