Analysis Report on Myntra Dataset

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Course: MBA - IT Specialization

INTRODUCTION

- The objective of this report is to analyse the Myntra dataset using Power BI to derive meaningful insights for decision-making.
- The dataset underwent a thorough cleaning and transformation process to ensure accuracy and reliability in visualization and reporting.
- The key steps in data preparation included handling missing values, standardizing formats, and creating calculated fields for better analysis.
- This report presents the methodology, business relevance, schema design, dashboard visualizations, and insights that support strategic decision-making for Myntra.

BACKGROUND

Myntra is one of India's leading e-commerce platforms specializing in fashion and lifestyle products. As a subsidiary of Flipkart, Myntra has grown significantly, leveraging technology and data analytics to enhance customer experience and business operations. With millions of customers and an extensive product catalog, Myntra's business model relies heavily on data-driven decision-making to optimize inventory management, marketing strategies, and customer engagement.

Data analytics plays a crucial role in understanding consumer behaviour, tracking sales trends, and predicting future demands. By implementing a robust data visualization and reporting solution using Power BI, Myntra can gain deeper insights into its business performance and market trends, thereby improving efficiency and driving growth.

SYSTEM AND MARKET LIMITATIONS

System Limitations:

- **Data Volume:** Large datasets may slow down Power BI performance, requiring optimized queries.
- **Real-Time Processing:** The system currently does not support real-time data updates.
- **Data Integrity:** Inconsistencies in raw data may affect the accuracy of insights.
- **Storage Constraints:** Handling large transactional data may require cloud integration.

Market Limitations:

- **Customer Preferences:** Rapidly changing fashion trends require constant data updates.
- **Competitive Pressure:** Myntra competes with other e-commerce platforms like Amazon and Flipkart.
- **Seasonal Demand:** Sales fluctuate based on festivals, discounts, and trends.
- **Logistics Challenges:** Managing timely delivery across diverse geographic locations.

BUSINESS AND MARKET NEED

Business Needs:

- **Data-Driven Decision Making:** Myntra needs an advanced analytics system to track key business metrics such as sales performance, customer behaviour, and product demand.

- **Inventory Optimization:** Understanding stock levels and predicting demand trends help in reducing overstocking and understocking issues.

- **Customer Retention & Engagement:** Analysing customer feedback, ratings, and purchase history enables Myntra to improve customer experience and personalize marketing campaigns.

- **Marketing Effectiveness:** Evaluating campaign performance and ROI helps in optimizing advertising strategies and budget allocation.

Market Needs:

- **Competitive Advantage:** The Indian e-commerce market is highly competitive, and leveraging data analytics helps Myntra stay ahead of its competitors.

- **Consumer Preferences & Trends:** With changing fashion trends, Myntra needs insights into what products are trending to meet customer expectations.

- **Seasonal Demand Planning:** Understanding demand fluctuations during festive seasons and sales events allows for better planning and resource allocation.

- **Multi-Channel Integration:** Analysing data from different sources such as website traffic, mobile apps, and social media platforms enhances customer engagement strategies.

NEED FOR A DATA WAREHOUSE

To overcome these limitations, a **Data Warehouse (DWH)** is essential for Myntra's business intelligence strategy. Key benefits include:

- **Centralized Data Storage:** Integrating data from multiple sources like sales, customers, inventory, and marketing.

- **Enhanced Query Performance:** Optimized reporting by storing historical and transactional data in structured formats.

- **Scalability:** Supporting large datasets and future expansion.

- **Improved Decision Making:** Enabling better forecasting and trend analysis.

FACT AND DIMENSION TABLES

1. Common Column: **Product id** is present in both files, making it a suitable primary key for linking.

2. Fact Table Candidate: The first dataset (Myntra Fashion Clothing) contains pricing, discounts, ratings, and reviews—metrics that can be used for analysis.

3. Dimension Tables: The second dataset (products.csv) provides brand-related information, product tags, and categories.
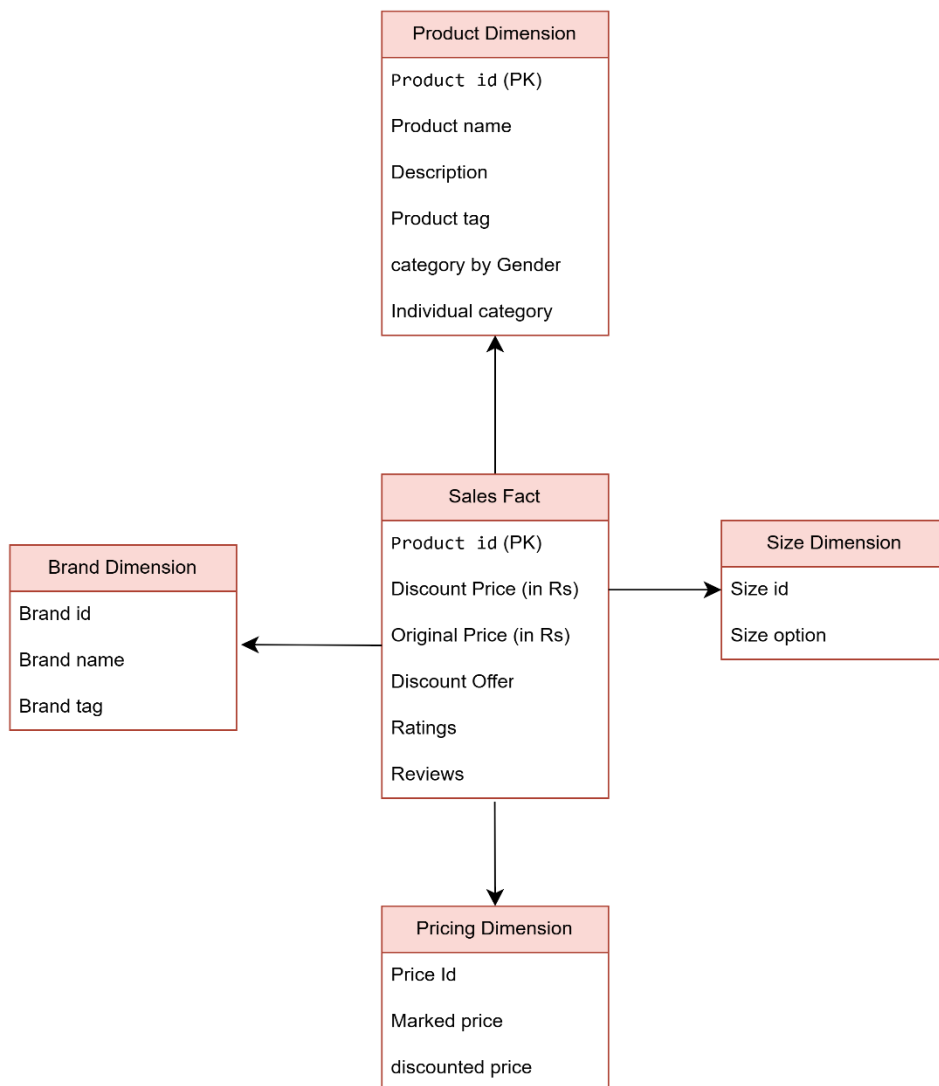
Proposed Star Schema

- Fact Table: Sales Fact

  o Product id (Primary Key)

  o Discount Price (in Rs)

  o Original Price (in Rs)

  o Discount Offer

  o Ratings

  o Reviews

- **Dimension Tables:**

1. Product Dimension

  - Product id (Primary Key)

  - Product name

  - Description

  - Product tag

  - category by Gender

  - Individual category

2. Brand Dimension

  - Brand id

  - Brand name

  - brand tag

3. Size Dimension

  - Size id

  - Size Option

4. Pricing Dimension

    - Price id

    - Marked price

   - discounted price

Schema Diagram:

Product Dimension

Product id (PK)

Product name

Description

Product tag

category by Gender

Individual category

Sales Fact

Product id (PK)

Discount Price (in Rs)

Original Price (in Rs)

Discount Offer

Ratings

Reviews

Size Dimension

Size id

Size option

Brand Dimension

Brand id

Brand name

Brand tag

Pricing Dimension

Price Id

Marked price

discounted price

PROPOSED DATA WAREHOUSE

- It pulls out information from the data warehouse.
- The data is neatly organized using something called a Star Schema which can be seen below.
- It makes use of Fact and Dimensional Tables to help with this organization.

6. DASHBOARDS AND DATA VISUALIZATIONS

The Power BI dashboard presents a series of visualizations that facilitate data-driven decision-making. Key components include:

Dashboard:
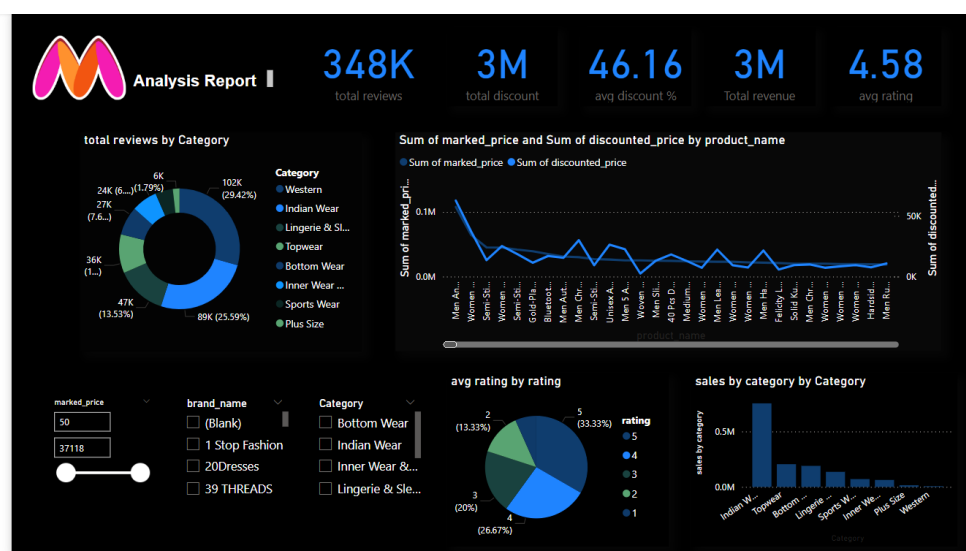
KPIs (key performance indicators)

This section provides a summary of essential business metrics:

- **Total Reviews:** 348K, indicating the volume of customer feedback.

- **Total Discount:** 3M, representing the total discount amount given.

- **Average Discount %:** 46.16%, showing the overall discount rate applied.

- **Total Revenue:** 3M, reflecting the total earnings.

- **Average Rating:** 4.58, highlighting customer satisfaction levels.
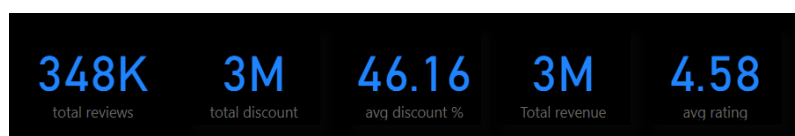
This line chart compares the **Sum of Marked Price** and **Sum of Discounted Price** across different products. It shows:

- The original price (marked price) vs. the selling price after discounts.

- A trend where some products have a significant discount, indicating pricing strategies.
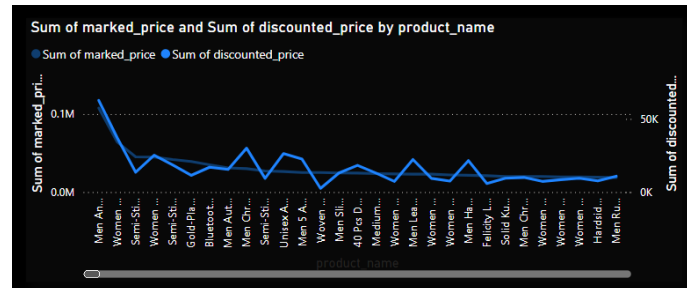

This bar chart illustrates sales distribution across different product categories:

- **Topwear** is the highest-selling category.

- Other categories, such as **Indian Wear, Bottoms, Lingerie, and Sports Wear**, contribute to sales but at lower levels.

- Western and Plus Size categories have relatively lower sales.
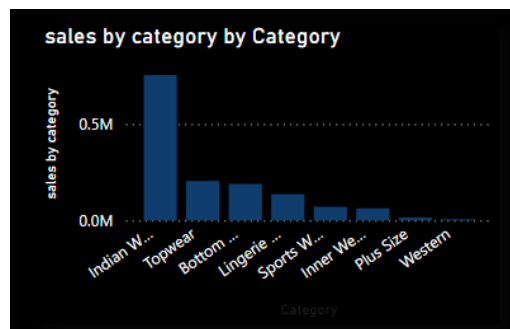
Average Rating by Rating (Pie Chart)

- This chart displays the distribution of average ratings given by customers.

- The segmentation helps in identifying the percentage of high (5-star) and low (2-star) ratings.

- Helps in customer satisfaction analysis and identifying improvement areas.
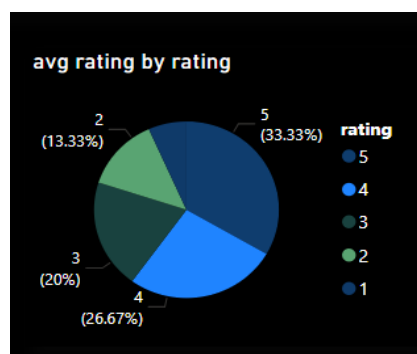
Total Reviews by Category (Donut Chart)

- The donut chart visualizes the total number of reviews for different product categories.

- Categories with the highest and lowest engagement are easily identifiable.

- This insight is crucial for inventory planning and marketing strategies.
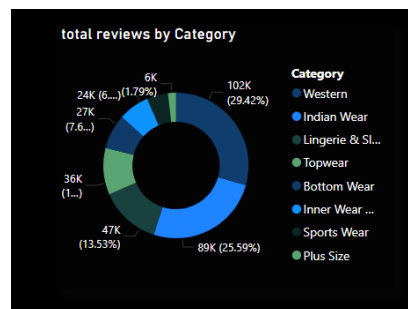
Data Exploration Filters (Slicers)

- **Marked Price Filter:** Enables users to adjust price range dynamically.

- **Brand Name Filter:** Allows filtering of data based on selected brands.

- **Category Filter:** Helps analyze specific product categories individually.

- These slicers improve interactivity and provide deeper insights into customer preferences.
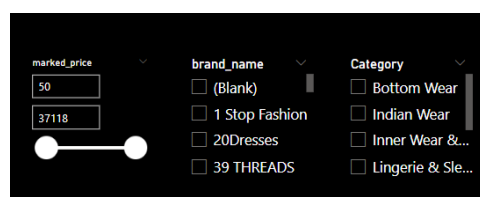
CONCLUSION

This Power BI project provides valuable insights into Myntra's sales performance, customer behaviour, and inventory trends. The data warehouse structure enables efficient reporting and supports strategic decision-making in areas such as marketing optimization, demand forecasting, and customer segmentation. By leveraging these insights, Myntra can improve operational efficiency, increase sales, and enhance customer satisfaction.

Future Enhancements:

- **Real-Time Data Integration:** Implementing live dashboards with real-time updates.

- **Advanced Customer Insights:** Building recommendation engines based on purchase behaviour.

By adopting these enhancements, Myntra can further strengthen its data-driven decision-making approach.

End of Report