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Indian Ecommerce Order Analysis Dashboard

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Abstract: *This paper presents the design and implementation of a Power BI-based data analytics system for analyzing Indian e-commerce order data. The system integrates multiple datasets containing order information, product categories, sales, profit, customer locations, and payment modes. A structured approach involving data collection, cleaning, transformation, and visualization is adopted to convert raw transactional data into meaningful insights. The architecture includes layered processing such as data preprocessing, data modeling, and visualization. Key performance indicators such as total sales, profit, order quantity, and customer preferences are analyzed through interactive dashboards. The system enables effective comparison across categories, regions, and payment methods. The proposed framework demonstrates how business intelligence tools can enhance decision-making, improve business understanding, and support strategic planning in the e-commerce domain.*

Keywords: Data Analytics, Power BI, E-commerce, Data Visualization, Business Intelligence, Sales Analysis, Dashboard

I. INTRODUCTION

The rapid growth of e-commerce platforms has led to the generation of massive amounts of transactional data, including customer orders, product sales, and payment details. This data holds significant value for understanding customer behavior and business performance. However, raw data is often complex and difficult to interpret without proper analytical tools. This paper focuses on developing a unified analytical framework using Microsoft Power BI to analyze Indian e-commerce order data. The system integrates multiple datasets and transforms them into meaningful visual insights. The dashboard provides key performance indicators such as total sales, profit, order quantity, and payment preferences. By visualizing these metrics in an interactive format, the system helps stakeholders identify trends, compare performance across categories and regions, and make informed decisions. The approach highlights the importance of data visualization in converting complex datasets into actionable insights..

II. SYSTEM DESIGN

The system is designed using a layered architecture to ensure efficient data processing and analysis:

• Data Collection Layer:

Collects e-commerce datasets containing order and transaction details stored in CSV format.

• Data Cleaning Layer:

Handles missing values, removes duplicates, and ensures consistency in data formatting.

• Data Transformation Layer:

Converts raw data into structured formats and creates calculated measures such as total sales, profit, and quantity.

• Computation Layer:

Processes transformed data to compute key performance indicators like revenue, profit, and order count.

• Visualization Layer:

Displays interactive dashboards using Power BI, including charts, maps, and KPI indicators for analysis.

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III. METHODOLOGY

The methodology follows a structured workflow for data analysis and visualization. Excel/DAX tools were used for data preprocessing, including cleaning and formatting. The dataset, consisting of order-level and transaction-level data, was merged using Order ID. The processed data was imported into Power BI, where relationships and data models were created to calculate key metrics such as total sales, profit, and order volume. Interactive dashboards were developed using charts, maps, and KPI indicators, with filters and slicers to enable detailed analysis across categories, regions, and payment modes

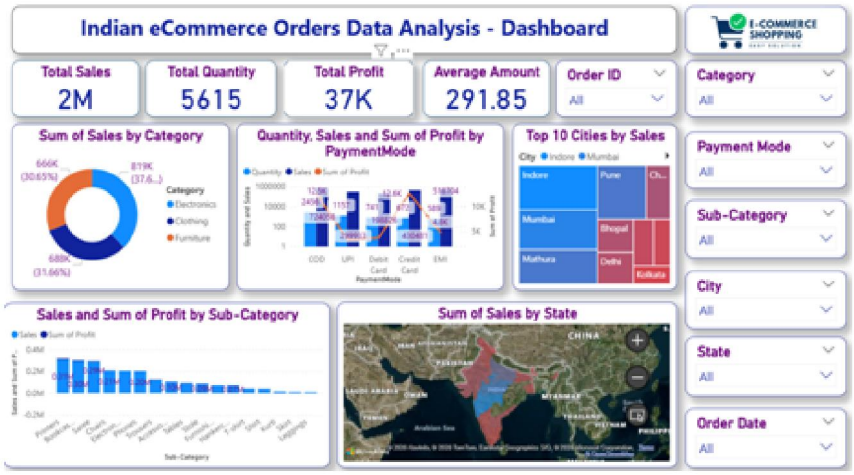

Fig.1. System Architecture for Indian Ecommerce Order Analysis

IV. RESULT AND DISCUSSION

The Power BI dashboard provided key insights into e-commerce performance by identifying high-performing categories based on sales and profit. It enabled analysis of customer behavior through payment modes and highlighted regional variations across states and cities. Time-based filtering revealed sales trends and peak periods. The interactive dashboard simplified complex data and supported effective, data-driven decision-making.

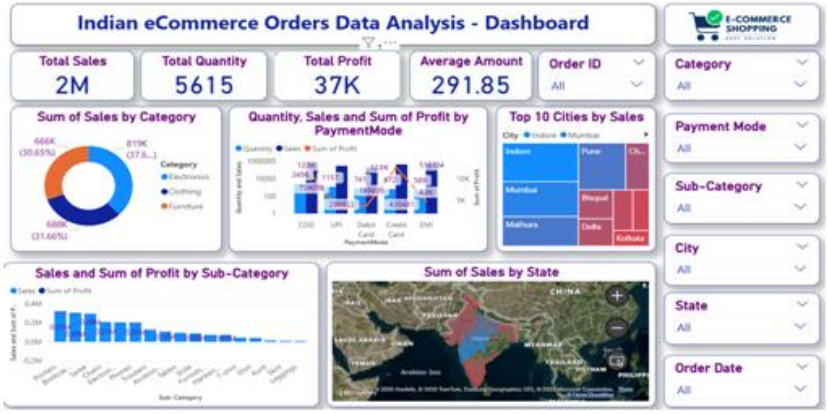

Fig.2. Power BI Dashboard Displaying Indian Ecommerce Order Analysis Performance

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V. CONCLUSION

This paper demonstrates the effective use of Power BI for analyzing and visualizing Indian e-commerce data. The system transforms raw data into meaningful insights through interactive dashboards, improving visibility of key metrics like sales, profit, and customer behavior. Future work may include machine learning integration, real-time analysis, and advanced recommendation systems.

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