E-Commerce Analytics

Using MySQL & Power BI

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Business Problem & Scope

Key Questions

- Customer behavior over time?
- Top products/categories by revenue?
- Order performance (delivery, cancellation, returns)?
- Preferred payment methods?
- Most valuable customers?
- Revenue from repeat customers?

Project Goal

Improve revenue, retention, and operational efficiency through data-driven insights.

Scope

Customer, Order, Revenue, Product, Category, and Payment analysis.

Dataset & Database Design

Dataset Description

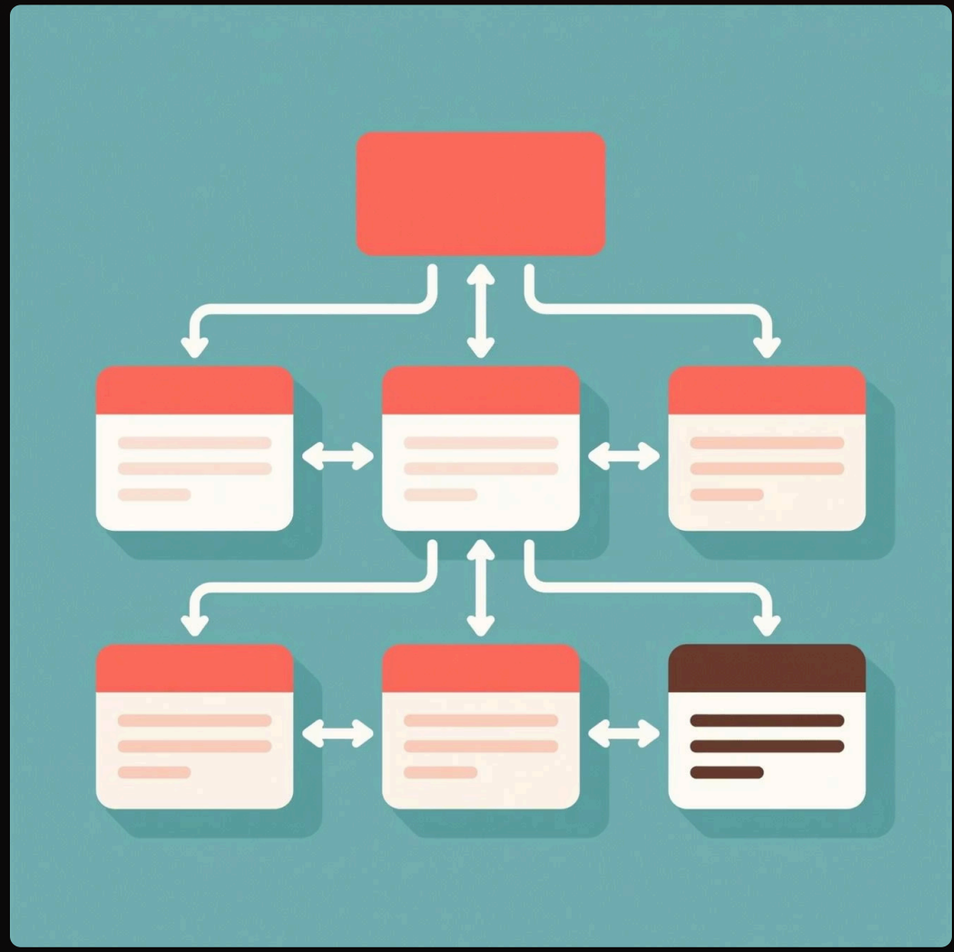
Custom-designed e-commerce dataset with:

- **Customers:** ID, name, city, signup date
- **Products:** ID, name, category, price
- **Orders:** ID, date, status, customer
- **Order Items:** product mapping, quantity
- **Payments:** method, status, amount

Database Design

Relational model with primary and foreign keys for:

- Data integrity
- No duplication
- Easy table joining



SQL-Based Data Analysis

Over 30 analytical SQL queries were written to answer key business questions across various domains.

Customer Analysis

Total, new, returning customers, average orders, top customers.

Order Analysis

Monthly trends, status distribution, cancelled percentage.

Revenue Analysis

Total, monthly trends, AOV, revenue by customer type.

Product & Category

Top-selling, category revenue, unsold products.

Payment Analysis

Most used methods, average payment, revenue contribution.

Data Workflow: MySQL to Power BI

A real-world data analyst workflow was followed to transform raw data into actionable insights.

MySQL

Database design & SQL analysis.

SQL Queries

Extracting business answers.

CSV Export

From MySQL Workbench.

Power BI

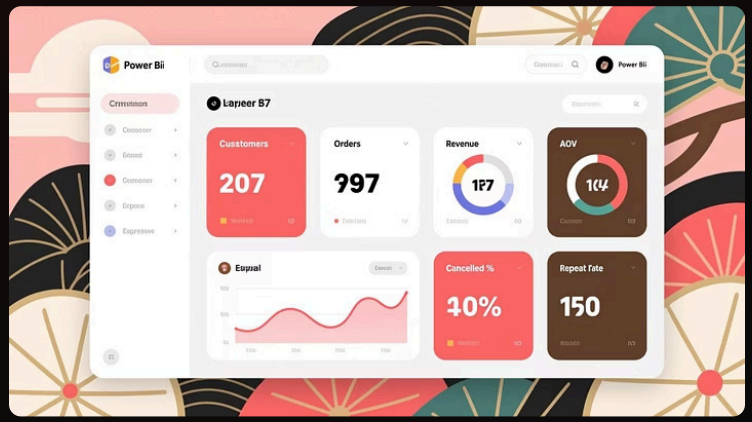
Dashboard & visualization.

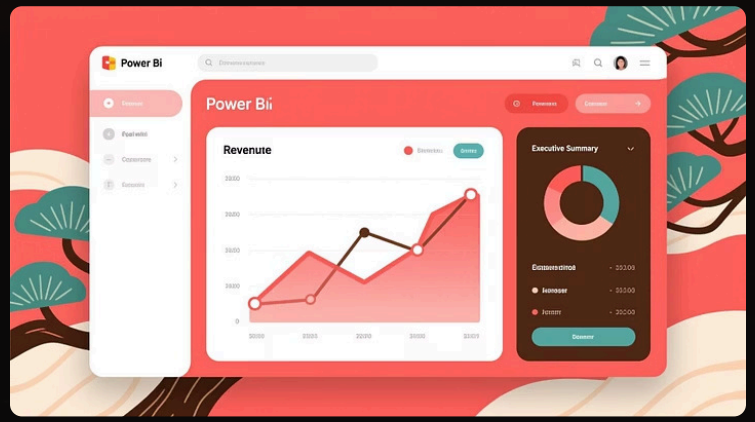
Insights

Actionable business intelligence.

Executive Overview Dashboard

The Power BI dashboard provides a professional, business-focused layout, starting with an executive overview.





Key Performance Indicators

Total Customers, Orders, Revenue, AOV, Cancelled %, Repeat Rate.

Revenue Trend

Line chart visualizing monthly revenue performance.

Customer & Order Insights

Customer Analysis

- New customer acquisition trends.
- City-wise customer distribution.
- Returning vs. new customer segments.
- Identification of top customers by order volume.

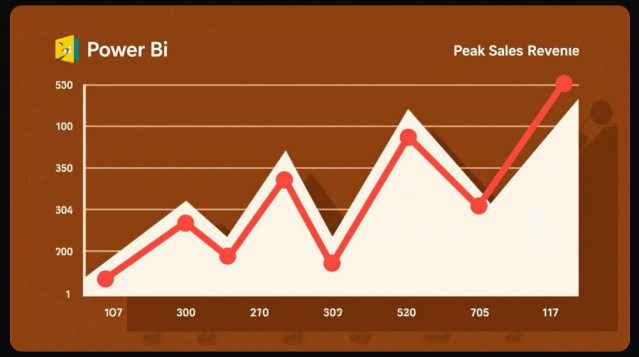
Order Analysis

- Monthly order trends and patterns.
- Distribution of order statuses.
- Analysis of high-item orders.
- Average items per order metrics.

Revenue, Product & Payment Performance

Revenue & Performance

Monthly revenue trends, top customers by revenue, repeat vs. new customer revenue.

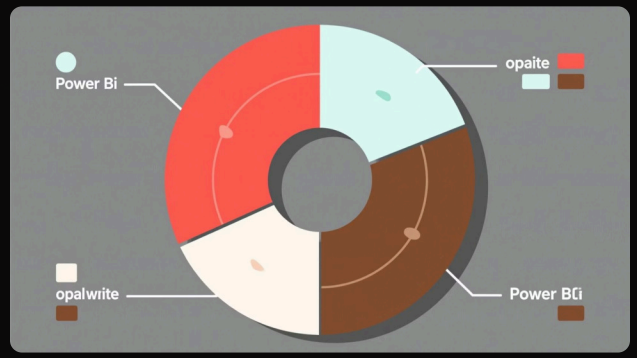


Product & Category

Top-selling products, category-wise revenue, unsold product analysis.

Payment Analysis

Payment method usage, revenue share by method, average payment amount.



Key Business Insights

Derived from comprehensive data analysis, these insights highlight critical areas for business growth.

Customer Value

Repeat customers drive a significant portion of total revenue.

Top Categories

Electronics generate the highest revenue.

Payment Preferences

UPI and Credit Card are the most preferred payment methods.

Operational Impact

Order cancellations, though limited, affect monthly growth.

Growth Opportunities

AOV is stable; cross-selling can increase it. Top 5 customers are crucial.

Conclusion & Future Enhancements

Project Conclusion

This project demonstrates an end-to-end data analytics pipeline, showcasing strong skills in:

- SQL querying & data analysis
- Business thinking & dashboard design
- Storytelling with data

A portfolio-ready project for Data Analyst roles.

Future Enhancements

- Integrate larger real-world datasets.
- Implement advanced customer segmentation.
- Conduct detailed profit analysis.
- Direct Power BI-MySQL connection.
- Automate report refresh processes.