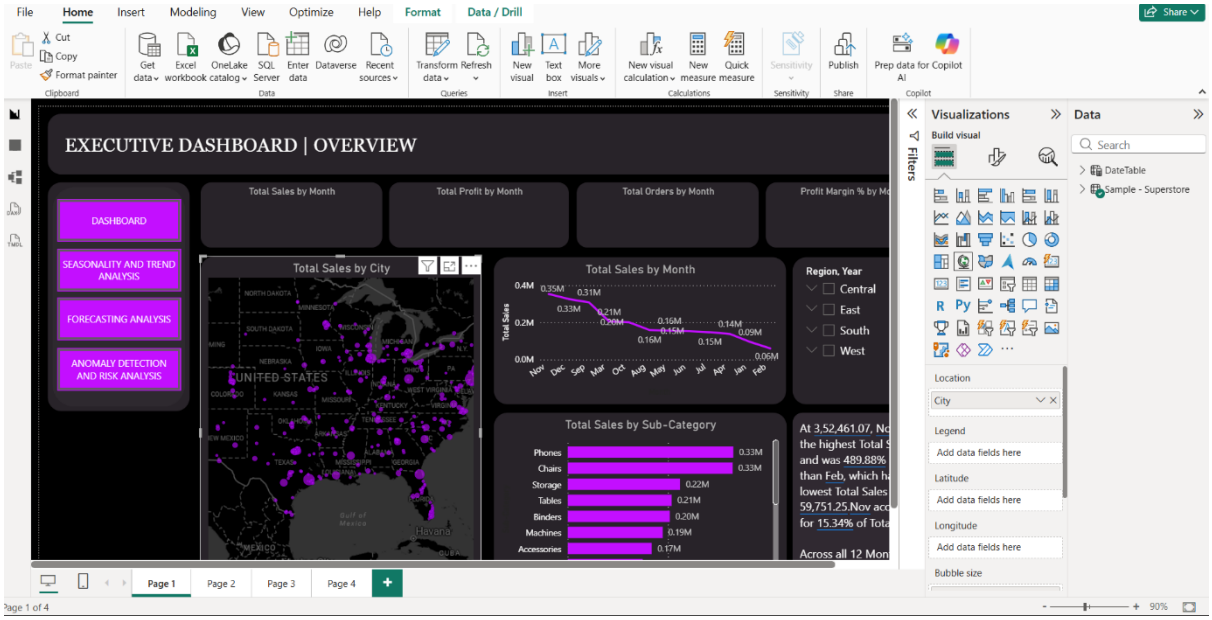
PowerBI_Sales Forecasting & Anomaly Detection(AI Project)

Page 1 :



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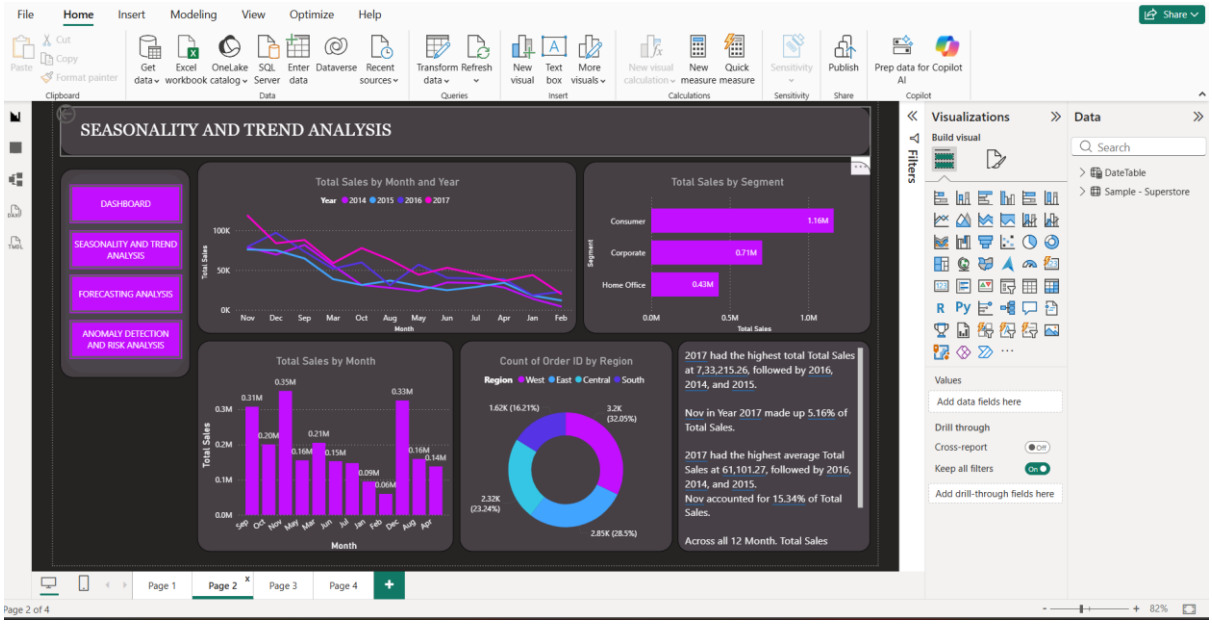

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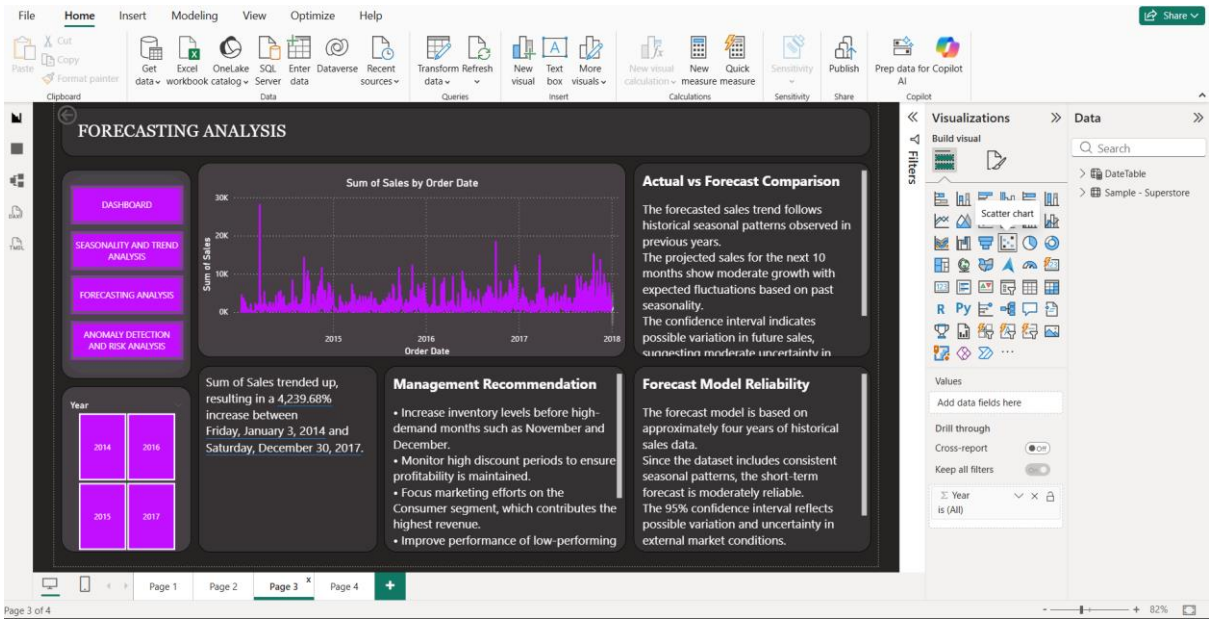
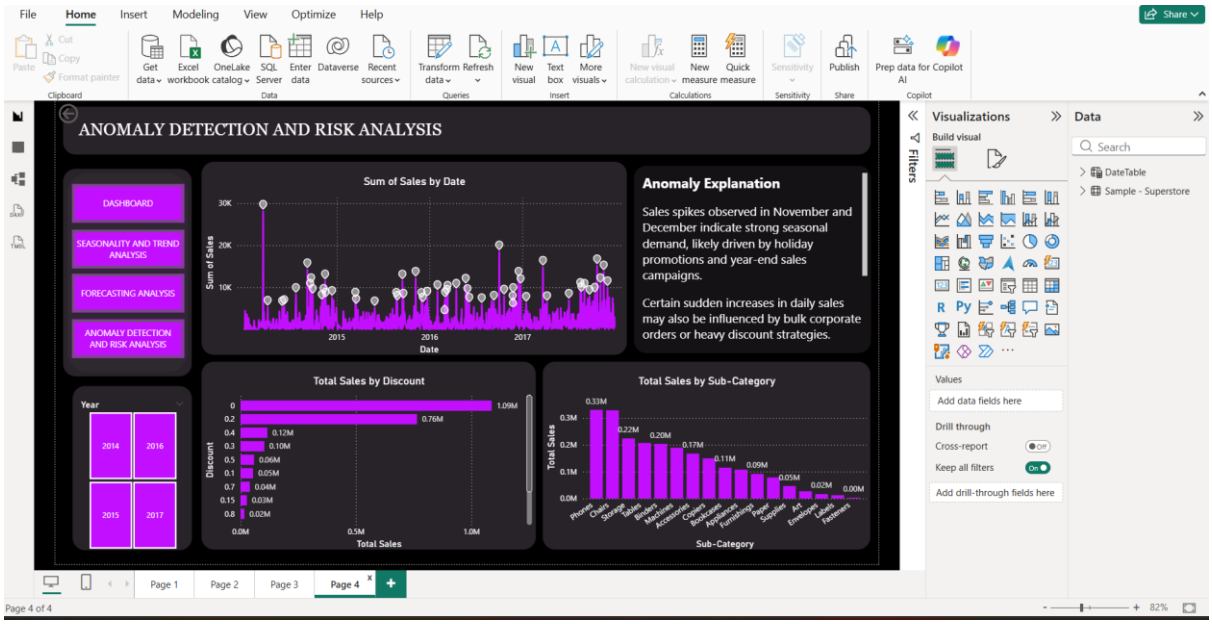

FORECASTING ANALYSIS
DASHBOARD
SEASONALITY AND TREND ANALYSIS
FORECASTING ANALYSIS
ANOMALY DETECTION AND RISK ANALYSIS
Year
2014
2016
2015
2017
Sum of Sales by Order Date
Sum of Sales
Order Date
Actual vs Forecast Comparison
The forecasted sales trend follows historical seasonal patterns observed in previous years.
The projected sales for the next 10 months show moderate growth with expected fluctuations based on past seasonality.
The confidence interval indicates possible variation in future sales,
Sum of Sales trended up, resulting in a 4,239.68% increase between Friday, January 3, 2014 and Saturday, December 30, 2017.
Management Recommendation
• Increase inventory levels before high-demand months such as November and December.
• Monitor high discount periods to ensure profitability is maintained.
• Focus marketing efforts on the Consumer segment, which contributes the highest revenue.
• Improve performance of low-performing
Forecast Model Reliability
The forecast model is based on approximately four years of historical sales data.
Since the dataset includes consistent seasonal patterns, the short-term forecast is moderately reliable.
The 95% confidence interval reflects possible variation and uncertainty in external market conditions.
Visualizations
Build visual
Scatter chart
Values
Add data fields here
Drill through
Cross-report
Keep all filters
Year is (All)
Data
Search
DateTable
Sample - Superstore
Filters
Page 1
Page 2
Page 3
Page 4
Page 3 of 4
82%

Page 4 :


ANOMALY DETECTION AND RISK ANALYSIS
DASHBOARD
SEASONALITY AND TREND ANALYSIS
FORECASTING ANALYSIS
ANOMALY DETECTION AND RISK ANALYSIS
Year
2014
2016
2015
2017
Sum of Sales by Date
Sum of Sales
Date
Anomaly Explanation
Sales spikes observed in November and December indicate strong seasonal demand, likely driven by holiday promotions and year-end sales campaigns.
Certain sudden increases in daily sales may also be influenced by bulk corporate orders or heavy discount strategies.
Total Sales by Discount
Discount
Total Sales
Total Sales by Sub-Category
Total Sales
Sub-Category
Visualizations
Build visual
Values
Add data fields here
Drill through
Cross-report
Keep all filters
Add drill-through fields here
Data
Search
DateTable
Sample - Superstore
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Project Description — Executive Sales Dashboard (Power BI)

This project is an interactive Executive Sales Dashboard developed using Power BI to analyze and visualize business sales performance using the Superstore dataset. The dashboard provides decision-makers with insights into sales trends, regional performance, forecasting, and anomaly detection through intuitive visual storytelling.

The report is divided into four analytical sections:

◈ Overview Dashboard

This page presents a high-level summary of business performance including:

- Total sales trends by month
- Profit and order distribution
- Geographic sales distribution using map visualization
- Sales contribution by sub-category

It enables executives to quickly understand overall performance and identify strong or weak regions and product segments.

◈ Seasonality & Trend Analysis

This section focuses on historical sales behavior:

- Monthly sales comparison across multiple years
- Segment-wise revenue contribution
- Regional order distribution
- Identification of seasonal patterns and recurring trends

It helps understand how sales fluctuate throughout the year and across business segments.

◈ Forecasting Analysis

This page applies time-series forecasting techniques to predict future sales:

- Historical sales trend visualization
- Forecast-based insights and interpretation
- Business recommendations based on projected demand

- Model reliability explanation

This assists in planning inventory, marketing, and resource allocation.

🔷 Anomaly Detection & Risk Analysis

This section highlights unusual sales patterns:

- Detection of sales spikes or drops
- Discount impact analysis
- Sub-category risk evaluation
- Explanation of potential causes (promotions, bulk orders, etc.)

It supports proactive decision-making and risk mitigation.

Tools & Techniques Used :

- Power BI Desktop
- Data Modeling & Relationships
- DAX Measures
- Interactive Filters & Slicers
- Time Series Visualization
- Geographic Mapping
- Analytical storytelling layout design

Project Objective :

To transform raw sales data into actionable insights through interactive visual analytics, enabling stakeholders to:

- Monitor performance
- Identify trends
- Predict future outcomes
- Detect risks