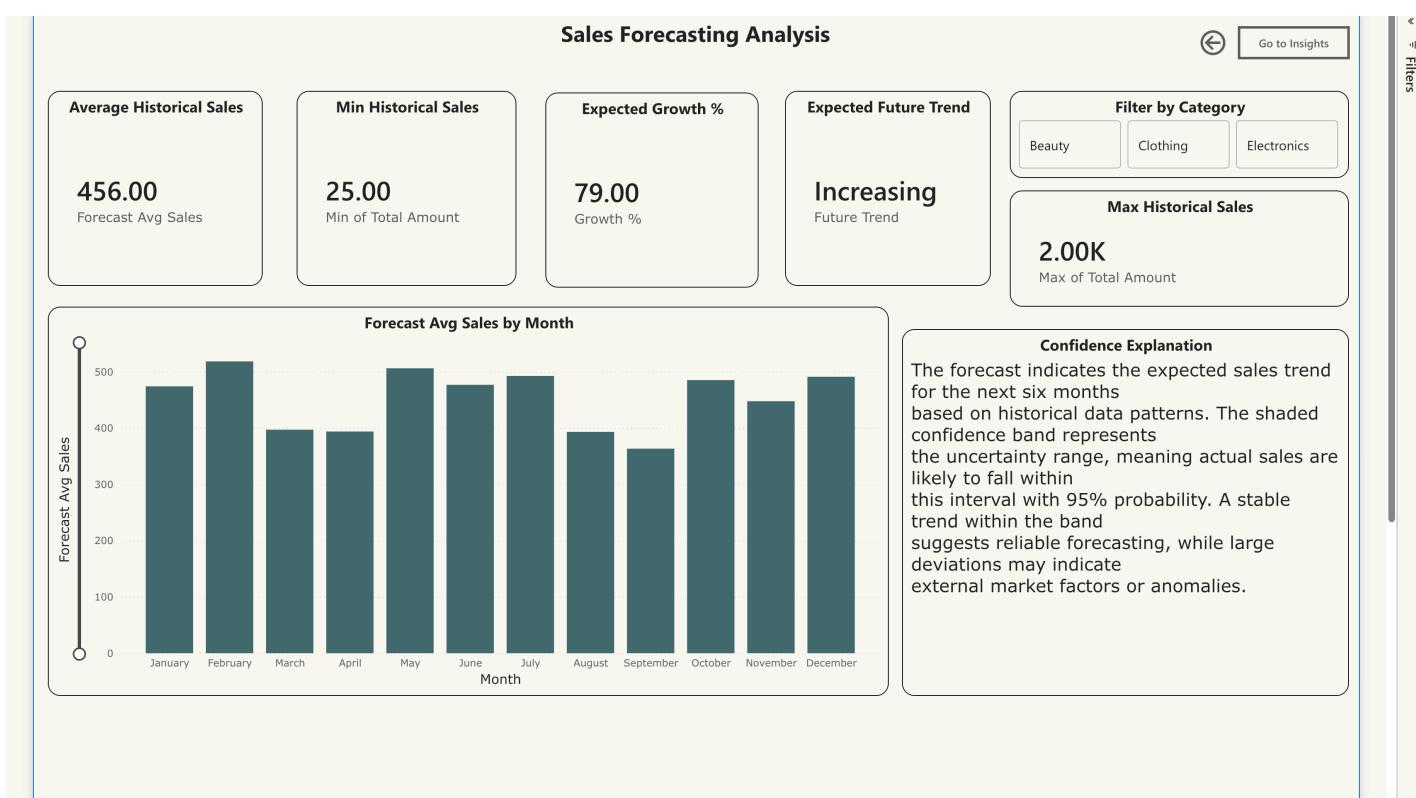
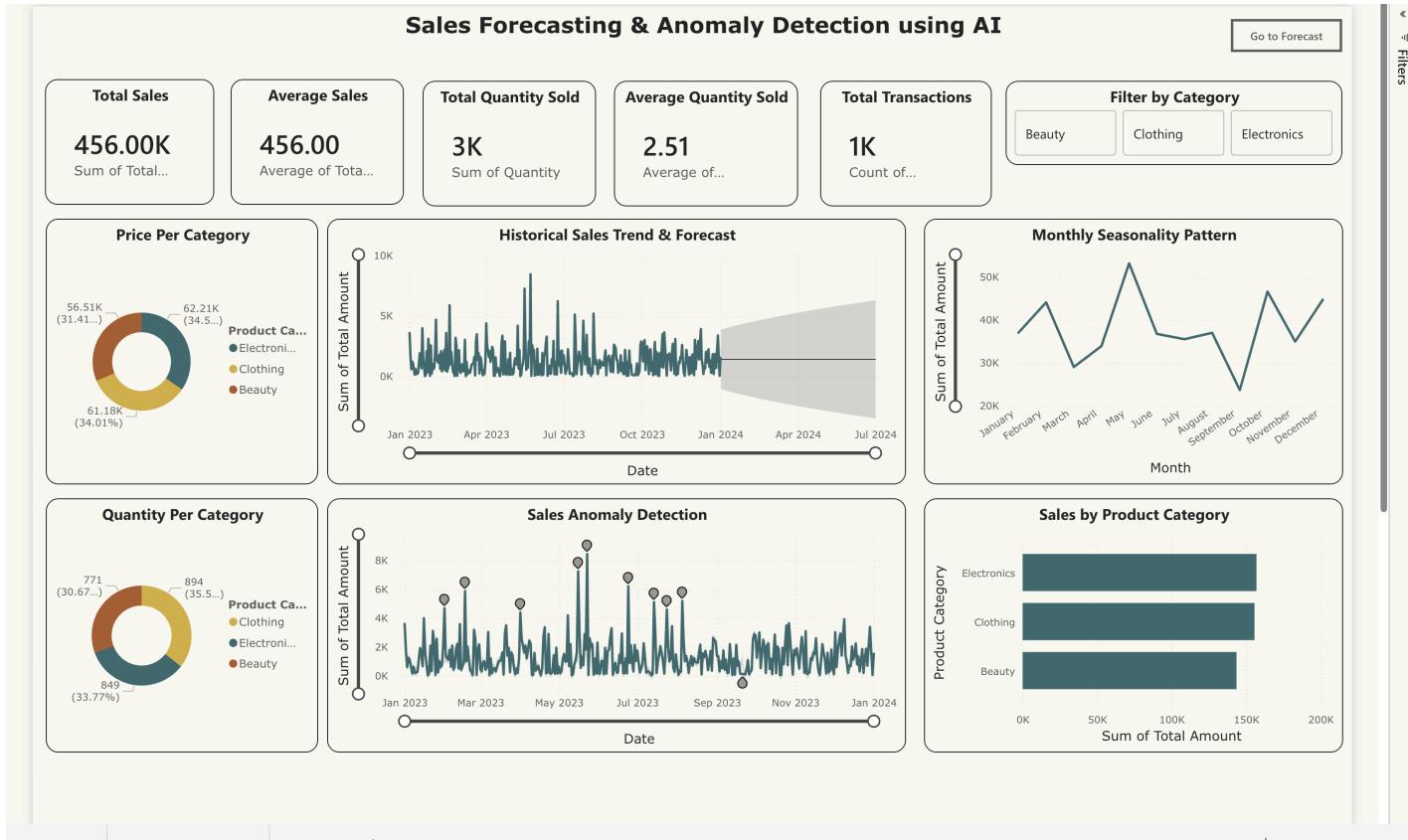


# Topic: Sales Forecasting & Anomaly Detection

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Caption

## Business Insights & Recommendations

[Go to Summary](#)

### Lowest Performing Category

#### Beauty

Lowest Category

### Top Performing Category

#### Electronics

Top Category

### Overall Business Risk

#### High Risk

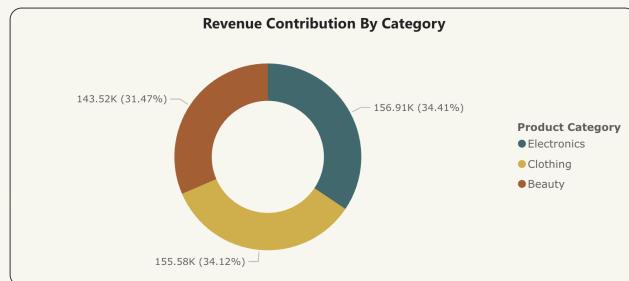
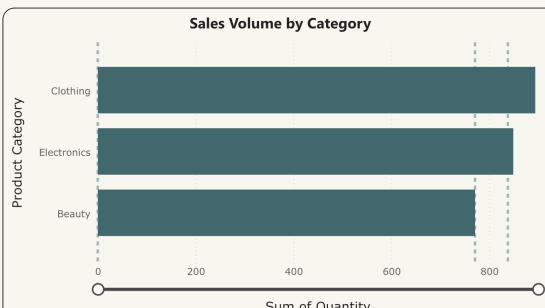
Business Risk Level

### Filter by Category

Beauty

Clothing

Electronics



### Product Category Sum of Total Amount Sum of Qu

Beauty	143,515.00
Clothing	155,580.00
Electronics	156,905.00
<b>Total</b>	<b>456,000.00</b>

#### Smart Narrative

Sum of Total Amount trended down, resulting in a 5.75% decrease between Sunday, January 1, 2023 and Monday, January 1, 2024.

Sum of Total Amount started trending down on Monday, December 4, 2023, falling by 11.56% (200) in 28 days.

Sum of Total Amount jumped from 100 to 2600 during its steepest incline between Friday, May 12, 2023 and Thursday, May 25, 2023.

Sum of Total Amount had several high anomalies between Wednesday, February

#### Key Insights:

- Sales show consistent seasonal variation with identifiable peak periods.
- Certain product categories contribute significantly higher revenue.
- Detected anomalies indicate possible promotional events or supply issues.

#### Recommendations:

## Caption

### Executive Summary / QA

#### 1. Historical Sales Trend Analysis

The historical sales trend was analyzed using line charts over time. The visualization shows fluctuating but generally stable sales performance with identifiable peaks and drops across different periods,

#### 2. Seasonality Patterns in Sales

Seasonality analysis revealed that certain months consistently experience higher sales, while others show reduced demand. This repeating pattern confirms the presence of seasonal purchasing behavior, which is critical for

#### 3. Forecasting Future Sales

Using Power BI's AI-based forecasting feature, future sales were predicted with a six-month outlook and 95% confidence interval. The forecast indicates stable to moderately increasing sales, enabling proactive business

#### 4. Detection of Sales Anomalies

AI anomaly detection highlighted unexpected spikes and sudden drops in sales values that deviate from normal patterns. These anomalies were automatically identified using Power BI's built-in analytical visualizations.

#### 5. Possible Reasons for Detected Anomalies

Potential business causes include:

- Promotional campaigns or discounts causing sudden spikes
- Supply shortages or operational issues causing sales drops
- Seasonal festivals influencing

#### 6. Smart Narrative Insights

Power BI Smart Narratives automatically summarized:

- Overall sales performance
- Trend direction
- Highest and lowest sales periods

#### 7. Comparison of Actual vs Forecasted Sales

Actual sales values were compared with forecasted ranges. Most observed values fall within the confidence interval, indicating that the forecast model aligns well with historical behavior.

#### 8. Reliability of the Forecast Model

The forecast is considered moderately to highly reliable because:

- Sufficient historical data is available
- Clear seasonal patterns are present

#### 9. Management Actions Based on AI Insights

##### Inventory Planning

Increase stock before high-demand seasonal periods and reduce excess inventory during slow months.

##### Marketing Strategy

Go back Executive Summary < > x

## Caption

## ~Q/A~

### 1. Historical Sales Trend Analysis

The historical sales trend was analyzed using line charts over time.

The visualization shows **fluctuating but generally stable sales performance** with identifiable peaks and drops across different periods, indicating changing customer demand and business activity.

### 2. Seasonality Patterns in Sales

Seasonality analysis revealed that **certain months consistently experience higher sales**, while others show reduced demand.

This repeating pattern confirms the presence of **seasonal purchasing behavior**, which is critical for inventory and marketing planning.

### 3. Forecasting Future Sales

Using Power BI's **AI-based forecasting feature**, future sales were predicted with a **six-month outlook and 95% confidence interval**.

The forecast indicates **stable to moderately increasing sales**, enabling proactive business planning instead of reactive decision-making.

### 4. Detection of Sales Anomalies

AI anomaly detection highlighted **unexpected spikes and sudden drops** in sales values that deviate from normal patterns.

These anomalies were automatically identified using Power BI's built-in analytical visuals.

### 5. Possible Reasons for Detected Anomalies

Potential business causes include:

- Promotional campaigns or discounts causing sudden spikes
- Supply shortages or operational issues causing sales drops
- Seasonal festivals influencing demand
- Data entry or transactional irregularities

Understanding these reasons helps reduce **future operational risks**.

## 6. Smart Narrative Insights

Power BI **Smart Narratives** automatically summarized:

- Overall sales performance
- Trend direction
- Highest and lowest sales periods

This demonstrates how **AI can convert raw data into meaningful business insights** without manual interpretation.

## 7. Comparison of Actual vs Forecasted Sales

Actual sales values were compared with forecasted ranges.

Most observed values fall **within the confidence interval**, indicating that the **forecast model aligns well with historical behavior**.

## 8. Reliability of the Forecast Model

The forecast is considered **moderately to highly reliable** because:

- Sufficient historical data is available
- Clear seasonal patterns are present
- Majority of actual values lie within the confidence band

However, extreme market disruptions could still affect accuracy.

## 9. Management Actions Based on AI Insights

### Inventory Planning

Increase stock before **high-demand seasonal periods** and reduce excess inventory during slow months.

### Marketing Strategy

Focus promotions on **high-performing categories** and stimulate demand during **low-sales periods**.

### Risk Management

Investigate detected anomalies early to **prevent revenue loss or supply issues**.

### Data-Driven Decision Making

Adopt **AI-based forecasting dashboards** for continuous monitoring and strategic planning.