**Jewellery Pricing Analysis Report**

**Overview**

In this report, we dive into an analysis of jewellery pricing trends based on transaction data. Our goal is to understand how different jewellery types, materials, and gemstones affect average prices, and how these prices have changed over time.

**Dataset Insights**

The dataset contains detailed records of jewellery sales, including information about the type of jewellery, materials used, gemstones, average prices, number of transactions, and total items sold. The timestamps for each sale allow us to track price changes over time.

**Methodology**

To extract meaningful insights, we used SQL for data aggregation and Python for initial data handling. Here are the key SQL queries we executed:

1. **Jewellery Type Statistics** This query gives us the average price, transaction count, and total items sold for each jewellery type:

sql

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SELECT Jewelry\_Type, AVG(Price) AS Avg\_Price, COUNT(\*) AS Transactions, SUM(Quantity) AS Total\_Items\_Sold

FROM jewelry\_data

GROUP BY Jewelry\_Type

ORDER BY Avg\_Price DESC;

1. **Material and Gemstone Statistics** We examined how different materials and gemstones stack up in terms of average pricing:

sql

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SELECT Material, Gemstone, AVG(Price) AS Avg\_Price, COUNT(\*) AS Transactions

FROM jewelry\_data

GROUP BY Material, Gemstone

ORDER BY Avg\_Price DESC;

1. **Price Trends Over Time** To understand how prices fluctuate, we tracked the average price by date:

sql

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SELECT DATE(Timestamp) AS Date, AVG(Price) AS Avg\_Price

FROM jewelry\_data

GROUP BY Date

ORDER BY Date;

**Visualizations**

Using Tableau, we created several visualizations to make the data more digestible:

**1. Jewellery Type Bar Chart**

We built a bar chart showing average prices across various jewelry types. Each bar represents a different type of jewellery, with its height indicating the average price.

**2. Heat Map for Materials and Gemstones**

A heat map illustrates the average prices for different materials and gemstones, with darker shades indicating higher prices. This visualization helps us quickly spot which materials are most valuable.

**3. Line Chart for Price Trends**

We plotted a line chart to visualize average prices over time. The x-axis represents dates, while the y-axis shows average prices. This allows us to see how prices have risen or fallen, highlighting any significant trends.

**Findings**

**Jewellery Type Statistics**

Here's a summary of the average prices and transaction counts for different jewelry types:

| **Jewellery Type** | **Avg Price** | **Transactions** | **Total Items Sold** |
| --- | --- | --- | --- |
| jewelry.bracelet | 493.14 | 6129 | 6129 |
| electronics.clocks | 426.78 | 165 | 165 |
| jewelry.earring | 396.29 | 29047 | 29047 |

From this, we see that earrings are the most frequently sold item, suggesting a strong market demand. While bracelets command higher prices, they have lower transaction volumes.

**Material and Gemstone Analysis**

The following highlights the average prices associated with various materials and gemstones:

| **Material** | **Gemstone** | **Avg Price** | **Transactions** |
| --- | --- | --- | --- |
| gold | diamond | 504.11 | 28835 |
| gold | None | 236.53 | 17243 |

Gold jewellery featuring diamonds clearly stands out as a premium offering, emphasizing the value of gemstones in pricing.

**Price Trends Over Time**

The line chart we created showcases fluctuations in average prices over time, revealing patterns that may indicate seasonal demand shifts.

**Conclusion**

This analysis uncovers valuable insights into jewellery pricing trends. It’s clear that certain jewellery types, like earrings, lead in sales volume, while gold with diamonds represents a high-value segment. Understanding these dynamics can help inform marketing strategies and inventory management. Looking ahead, we might consider exploring consumer behaviour and external factors influencing these pricing trends.

**Data Source**

The primary dataset utilized for this analysis is derived from eCommerce purchase history from a jewellery store, updated by Michael Kechinov three years ago. The dataset includes detailed records of 130,000 purchased jewellery products over a two-year period, specifically from December 2018 to December 2021. Each row in the dataset represents a purchased product, with multiple products from the same order identified by the order\_id field.

This data was collected through the Open CDP project, an open-source customer data platform. The dataset can be accessed and downloaded as needed.

* **Dataset Title**: eCommerce Purchase History from jewellery Store
* **Size**: 3 MB