
CAPSTONE PROJECT

“NAVIGATING TOMORROW’S DYNAMIC FURNITURE MARKET: A DATA-DRIVEN EXPLORATION OF SALES, PRICING, AND STRATEGIES”

PRESENTED BY:

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OUTLINE

- **Problem Statement**
- **Proposed System/Solution**
- **System Development Approach (Technology Used)**
- **Algorithm & Deployment (EDA)**
- **Result**
- **Visualizations and Business strategies**
- **Conclusion**
- **References**

PROBLEM STATEMENT

- In the dynamic furniture industry, shaped by evolving consumer preferences and economic conditions, a furniture manufacturing and retail company seeks to optimize its market position. Through a thorough Exploratory Data Analysis (EDA), we aim to glean insights from the historical data of future furniture sale, rates and prices. This analysis will inform strategic decisions, enhance forecasting accuracy, and refine pricing strategies, ensuring sustainable growth and improved market positioning.



PROPOSED SOLUTION

- The proposed solution aims to address the complexities outlined in the problem statement regarding future furniture sales, rates, and prices, we propose the implementation of an integrated data analytics solution. The solution will consist of the following key components:
- Data Collection:
 - Gather comprehensive historical data on furniture sales, pricing, and interest rates.
 - Utilize real-time data sources, such as wedding seasons, events, and availability of quality material, etc.
- Data Preprocessing:
 - Clean and preprocess the collected data to handle missing values, outliers, and inconsistencies.
 - Feature engineering to extract relevant features from the data that might impact quality furniture demand.
 - Implement robust data cleansing processes to ensure accuracy and completeness.
- Exploratory Data Analysis (EDA):
 - Identify patterns, trends, and correlations within the data through advanced statistical methods.
 - Utilize visualizations to effectively communicate insights.(discussed further in detail)
- Strategic Decision Support:
 - Provide actionable insights derived from the EDA to inform strategic decisions.
 - Align recommendations with long-term growth and market positioning goals.
- Provide Conclusion and Result:
 - Based on the performed EDA provide insights through suitable visualizations using various tools.
 - Finally conclude and result .

SYSTEM APPROACH

The System Approach section for Future Furniture Sales, Rates, and Prices Analysis includes :

- System requirement:
- IBM Cloud Object Storage: Utilize IBM Cloud Object Storage for secure and scalable storage of data.
- IBM Data Refinery facility: For data wrangling and preprocessing tasks as well as to ensure data quality through cleansing processes to address missing values and outliers.
- IBM Watson Studio: Uploading dataset in assets; Using IBM Watson Studio for carrying out exploratory data analysis (EDA) projects through use of assets.
- Using Watson studio tools for data visualizations.

ALGORITHM (EDA)

- This Algorithm section includes all the steps and resources that were required for EDA of future furnishing dataset.
- Step 1: Download dataset from Kaggle.com
- Step 2: Using IBM Cloud for further analysis and install IBM Cloud Watson Studio .
- Step 3: Launching into Watson studio, then clicking onto new project ->create empty project .
- Step 4: Upload the dataset in assets and open link .
- Step 5: Using Data refinery tool, refine dataset, perform wrangling and cleaning of provided data, remove empty rows and values, eradicate duplicate values , arranging columns in different forms to enhance analyzation process ,remove outliers ,check frequency of records and visualize the dataset using suitable graph representation.
- Step 6: Provide conclusion and result.

RESULT

The analysis specifically focuses on sales patterns, pricing dynamics, and strategic considerations. By leveraging a data-driven approach, the project aims to provide a roadmap for navigating the complexities of the dynamic furniture market. The outcomes are anticipated to guide informed decision-making, aiding in the development of effective sales and pricing strategies to thrive in the evolving future of the furniture industry.

The dataset contains 30 rows of listing and 5 columns (150 elements in all) with features such as :

Furniture : It has the furniture name

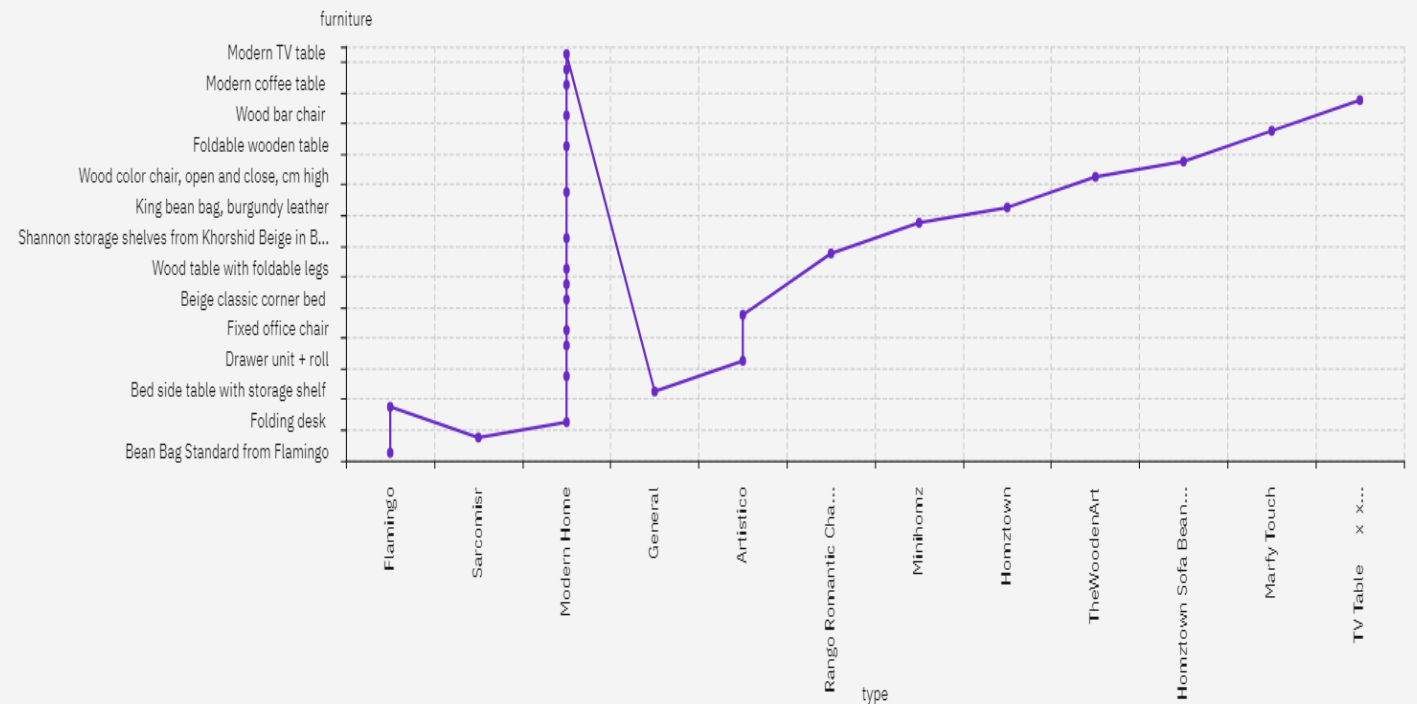
Type: It has the type of furniture(majorly modern home)

Rate: It has the rate of the furniture note from 0 to 5 rating

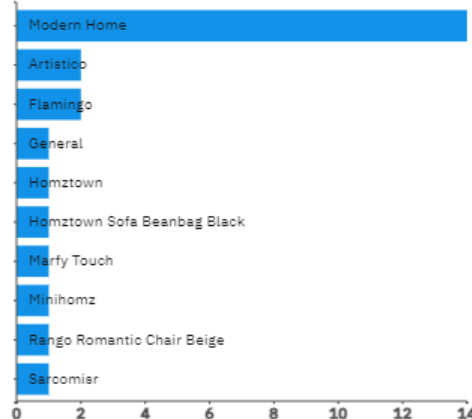
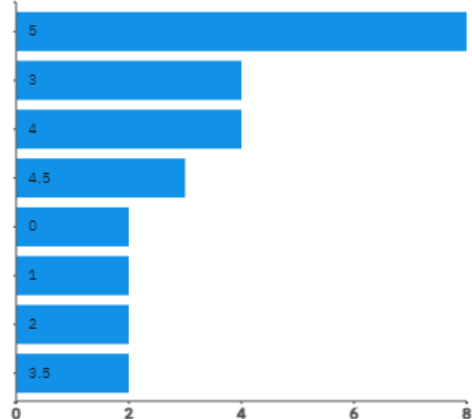
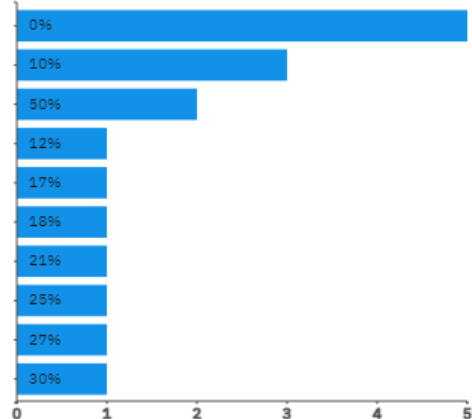
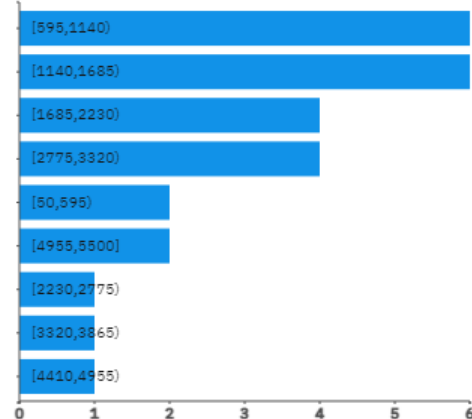
Sale: It has the percentage of discounts on furniture

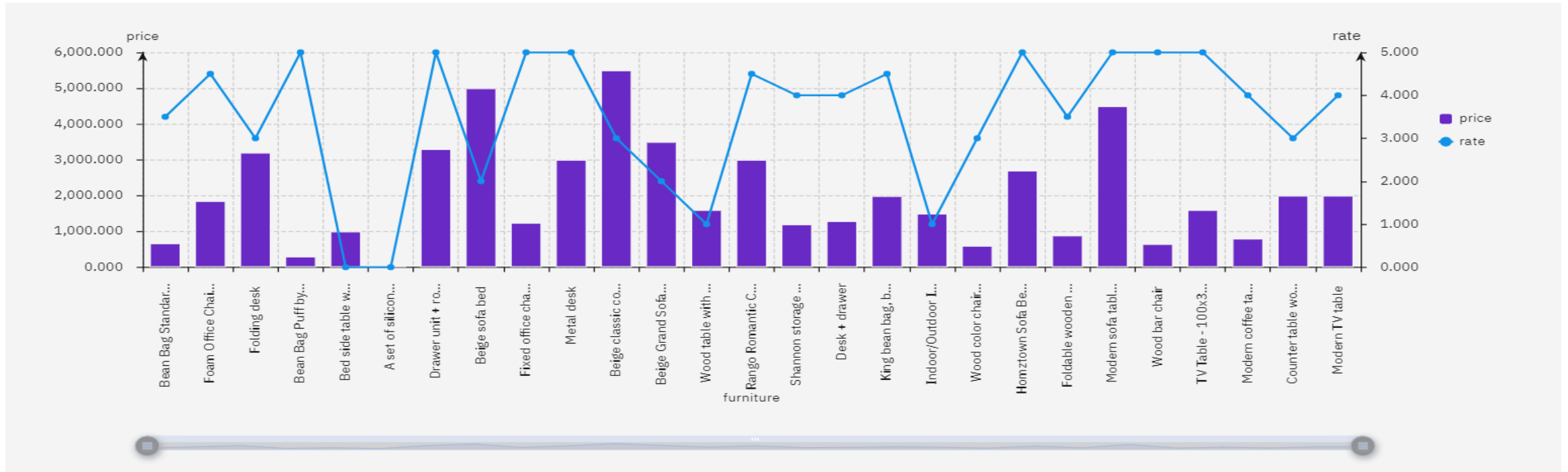
Price : It has the price of the furniture(in USD)

The graph alongside represents type and name of furniture item. Most of the items in the list are of type modern home, Flamingo, artistico, etc.



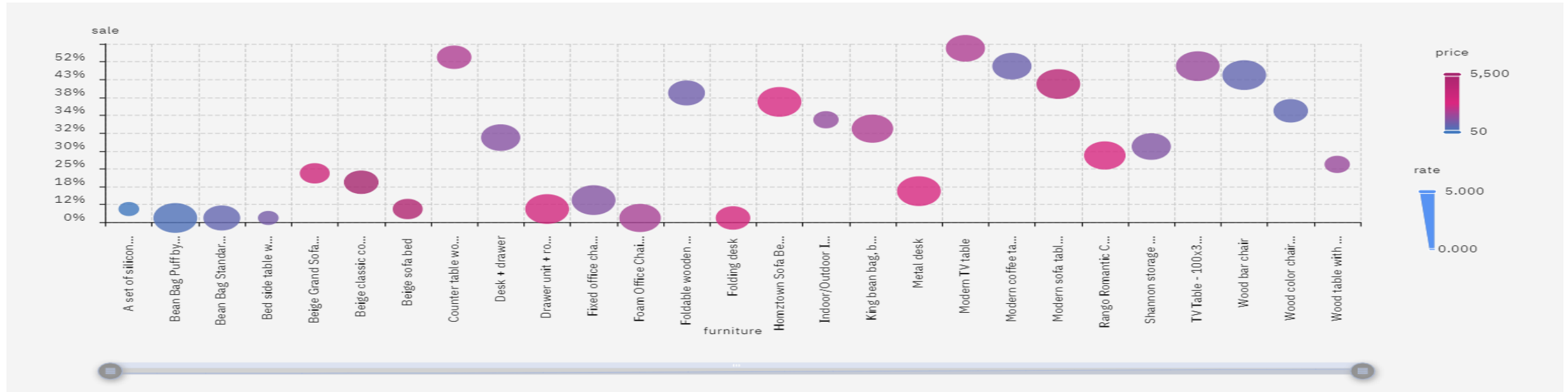
DATA PROFILE

type	rate	sale	price																																				
String	Decimal	String	Integer																																				
<div><p>FREQUENCY</p></div>	<div><p>FREQUENCY</p></div>	<div><p>FREQUENCY</p></div>	<div><p>FREQUENCY</p></div>																																				
<div><p>STATISTICS</p><table><tr><td>Maximum length</td><td>30</td></tr><tr><td>Minimum length</td><td>7</td></tr><tr><td>Mean length</td><td>12.1481481481481</td></tr><tr><td>Unique</td><td>12</td></tr></table></div>	Maximum length	30	Minimum length	7	Mean length	12.1481481481481	Unique	12	<div><p>STATISTICS</p><table><tr><td>Interquartile Range</td><td>2</td></tr><tr><td>Minimum</td><td>0</td></tr><tr><td>Maximum</td><td>5</td></tr><tr><td>Median</td><td>4</td></tr><tr><td>Standard Deviation</td><td>1.57504578688025</td></tr></table></div>	Interquartile Range	2	Minimum	0	Maximum	5	Median	4	Standard Deviation	1.57504578688025	<div><p>STATISTICS</p><table><tr><td>Maximum length</td><td>3</td></tr><tr><td>Minimum length</td><td>2</td></tr><tr><td>Mean length</td><td>2.81481481481481</td></tr><tr><td>Unique</td><td>20</td></tr></table></div>	Maximum length	3	Minimum length	2	Mean length	2.81481481481481	Unique	20	<div><p>STATISTICS</p><table><tr><td>Interquartile Range</td><td>2056</td></tr><tr><td>Minimum</td><td>50</td></tr><tr><td>Maximum</td><td>5500</td></tr><tr><td>Median</td><td>1600</td></tr><tr><td>Standard Deviation</td><td>1435.50296237443</td></tr></table></div>	Interquartile Range	2056	Minimum	50	Maximum	5500	Median	1600	Standard Deviation	1435.50296237443
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In above dual Y-axes chart, there is highest priced (5500usd) beige classic corner bed of about 3 rated with 18% sale that is highly preferred by the consumers since it is durable and is included in modern home type. The least item (worth 50 USD) being the set of silicone chair heels with 10% sale is also a part of modern home type. Highest 4 to 5 rated furniture items are also of type modern home, artistico, flamingo with reasonable prices ranging from 299 to 4500 (USD) with sale from 10% upto 68% .It is observed that the consumers are more inclined towards modern home metal-furniture that could be more sustainable and budget friendly.

VISUALIZATIONS (AND PREDICTIONS)



•Above Scatter plot chart represents the sale and name of furniture item on Y and X axes respectively, along with price and rate shown my color and size map. From the above visualizations few points are clear :

1. The demand for modern home furniture, particularly in metal, is likely to continue.
2. Consumers are expected to prioritize durable, space saving and sustainable options, as indicated by the preference for kitchen set, bed, office table, etc.
3. Price sensitivity is evident, and consumers are likely to respond positively to discounted items.

BUSINESS STRATEGIES

- Business strategies that can be applied to maximize the profit :
 - To improve the business we need to highlight the durability and modern space saving designs of furniture.
 - Emphasize the 10-30% sale for expensive furniture to attract price-conscious consumers.
 - Also introducing various special schemes for wedding season, programs when costumers buy more furniture.
 - Provide warranty.
 - Leverage online platforms and social media to showcase the modern and stylish aspects of the furniture.
 - Stay updated on emerging trends in modern home furniture like fully equipped smart furniture.
 - Regularly refresh the product catalog to align with evolving consumer preferences.
 - Strengthen customer loyalty through quality products and excellent customer service.

CONCLUSION

- In conclusion, by focusing on popular products, diversifying offerings, and maintaining a customer-centric approach, the business can capitalize on the current trends in the furniture market, leading to increased sales and long-term success. Regularly reviewing and adapting the business strategy will be crucial in staying competitive and meeting evolving consumer demands.

REFERENCES

- IBM Watson studio <https://cloud.ibm.com/catalog/services/watson-studio>
- Datasets from Kaggle <https://www.kaggle.com/>
- Furniture Market Research Reports & Industry Analysis
<https://www.marketresearch.com/Consumer-Goods-c1596/Consumer-Goods-Retailing-c80/Furniture-c115/>
- “Case Study of Furniture Manufacturing Companies” ,Venkatesh Amin, Anil Kumar,Researchgate.
https://www.researchgate.net/publication/359615814_Case_Study_of_Furniture_Manufacturing_Companies

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