**Cosmetics Analysis**

**Beauty Intelligence Analyst**

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**About the Data**

This dataset contains information on various cosmetic products, including label (category like moisturizer, cleanser etc), brand, name, ingredients, price, rank, and skin types the products are intended for. Dataset came from Kaggle:<https://www.kaggle.com/datasets/kingabzpro/cosmetics-datasets>

# **Process**

Price, Rank, and Skin Types were chosen as 3 factors to analyze the data. We chose Tableau because of its visualization and flexibility.

We created a list of questions the data could answer and developed story points to answer the questions.

# **Summary of Findings**

There are lots of cosmetic products in the market targeting various areas of skin health. The price of products ranges from $3 - $370, while the rankings vary from 0 to 5. These products are targeted for various skin types.

Sephora Collection products have the lowest average price ($10) in the entire dataset but have a high ranking of 4.2. While La Mer products have an average price of $184, they have an average rating of 4.1

The highest five products have an average cost of $167, an average rating of 4.2 and 38 products that are suitable for all skin types. The lowest five products have an average price of $10, rating of 4.15 and 23 products that are suitable for all skin types.

**Explanation of Visuals**

**Framework for each Story Point**

Exploration Statement: Describes the EDA for each story point to guide the audience to our final conclusion.

Question: What we want to know about the data and what the chart/ visualization is demonstrating.

Visualization: The visualization type to be shown on each story point.

**Story Point 1) Introduction**

* Title Slide

**Story Point 2) Introduction**

* **Overview**
* **Visualization:** Text… who, what, why

**Story Point 3) Too Many Options to Choose From: Products & Brands**

* **Exploration Statement**: Whether you are in a cosmetic store, pharmacy, or in a grocery aisle, the volume of cosmetic options is overwhelming.
* **Visualization: Bubble Chart -** brands & products count

**Story Point 4) Too Many Options to Choose From: Price**

**Exploration Statement**: Popular brands like La Mer, Estee Lauder, and Dior are really expensive; but are they any good? **Does a higher cost indicate a more effective product? We want to discern which cosmetic brands and their respective product types are the best.** To do this we will explore brands in terms of price, ranking, and skin types.

**Question**: What is the average price of each brand in our dataset?

**Visualization: Waterfall Chart** - average price & brands

**Story Point 5) Brands we will explore**

**Exploration Statement:** Here we will pick specific brands to explore based on average price. We selected the top and bottom 5 brands based on average product price. To make our analysis more holistic, we also choose brands that have products in all six product types: **Cleanser, eye cream, face mask, moisturizer, sun protection, and treatments.**

**Question:** Which Brands are the Most Expensive and Least Expensive?

**Visualization: Bar Chart** - Set containing avg price of 5 high end and 5 low end brands, average price

**Story Point 6) Rank**

**Exploration Statement:** Our data contains ranking information for each product on a scale of 0 to 5. We don't have much information on the specifics of the ranking data. For example, is the ranking information obtained from individual users who voluntarily and impartially submit the data; or is the ranking information obtained directly from the brands? Because of this, we found the ranking data is a bit ambiguous leading us to call out its limitations. We will continue to use it because we also found no reason to rule it out.

**Question A:** Among our top and bottom brands, which has the highest and lowest average product rank?

**Question B:** Which brand has the highest and lowest average product rank among all brands?

**Visualization: Dashboard**:

* Bar Chart a: Set containing avg price of 5 high end and 5 low end brands, average price.
* Bar Chart b: Set containing avg rank of 5 high ranking and 5 low ranking brands, average rank.
* text table: cross over set from a & b - average price, average rank,

**Story Point 7) Skin Types**

**Exploration Statement:** There are 5 skin types: Dry, Oily, Normal, Sensitive, & Combination. We want to find products that cater to all skin types; not just 2 or 3. Now let’s look at our Top and bottom brands in terms of average price, to see which one accommodates the most consumers.

**Question:** Among our top and bottom brands, which Brand is highest and lowest in terms of total products applicable to all skin types?

**Visualization: Bar chart -** Set containing avg price of 5 high end and 5 low end brands, count of products applicable to all skin types.

**Story Point 8) Skin Types and Specific Products**

**Exploration Statement:** Now that we know which brands are the most applicable to a variety of skin types. We will start exploring some of their products to find the best ones. The brand Sephora Collection is on the low end of average price, while the brand La Mer is on the high end of our average price.

**Question:** Which Products among our top and bottom brands are applicable to all skin types?

**Visualization: Text Chart -** labels, set containing avg price of 5 high end and 5 low end brands, count of products applicable to all skin types; tooltip = list of specific products for each brand

**Story Point 9) Product Type Price Distribution**

**Exploration Statement:** Let’s revisit cost. We now know which Brands and their products are the most skin type friendly, but how much does this cost us? Let's explore a high-end brand and a low-end brand. Ironically, our top two brands with products available are just that.

**Question:** What is the average price for each product type for La Mer and Sephora Collection?

**Visualization: Dashboard**

* Text Chart, brands, product type, average price
* Box & Whisker plots, avg price, brand (Set containing avg price of 5 high end and 5 low end brands that filters La Mer and Sephora)

**Story Point 10) Conclusion: Rank La Mer & Sephora**

**Exploration Statement:** Continuing our exploration of La Mer and Sephora, let’s return to rank and compare these two high-end cost and low-end cost brands against their product types. Eye cream is the only significant difference.

**Question:** How does La Mer compare to the Sephora collection based on average rank?

**Story Point 11) Conclusion: Pricing La Mer & Sephora**

**Exploration Statement:** Rank was not a big deal. We will keep everything the same and take a look at pricing.

**Question:** How does La Mer compare to the Sephora collection based on average price and price range?

**Visualization: Scatter Plots**

- average price, set containing avg price of 5 high end and 5 low end brands that filters La Mer and Sephora, product type

- price range, set containing price difference of 5 high end and 5 low end brands that filters La Mer and Sephora, product type

**Story Point 12) Conclusion: High End vs Low End** **Exploration Statement:**  Let’s bring it back to our initial question. **Does a higher cost indicate a more effective product?** While there are more options available to all skin types on the higher end, in terms of rank, the low end and high-end brands are the same.

**Question**: Does a higher cost indicate a more effective product?

**Visualization: Dashboard**

* Bar Chart: Set containing count of products applicable to all skin types for 5 high end price brands
* Bar Chart: Set containing count of products applicable to all skin types for 5 low end price brands
* Text Chart: Average price, count of products applicable to all skin types, Average Rank, Set containing avg price of 5 high-end
* Text Chart: Average price, count of products applicable to all skin types, Average Rank, Set containing avg price of 5 low-end

**Story Point 13) Summary of Findings and Recommendations**

* **Visualization:** Text

**Story Point 14) Outro**

* **Visualization:** Text

# **Conclusion**

Higher prices do not always relate to higher ranking products. Buying products really is stressful given the large number of products available. For any budget range, although it’s not easy to select a specific product, doing due diligence looking at the review/ranks of the products before buying will help the customers a lot.

Analyzing the dataset based on the ingredients could be a good scientific approach to study which products are good for different skin types.

# **Assumptions and Limitations**

Assumptions:

* Products that are applicable for All skin types are assumed to be providing value for the customers.
* Higher ranking products are assumed to be more effective, as ratings/reviews reflect the sentiment of customers that have used the products.

Limitation:

* The analysis doesn’t take into consideration the ingredients of products into account. Ingredients could have provided the effectiveness of a product in a more scientific way.
* We don't have much information on the specifics of the ranking data. For example, is the ranking information obtained from individual users who voluntarily and impartially submit the data; or is the ranking information obtained directly from the brands?

# **Recommendations and Findings**

Findings

* - High end brands and low-end brands were almost even in terms of ranking:
* High End Rank: 4.2
* Low End Rank 4.15
* - High end brands had more products available for all skin types
* High End Brands: 38
* Low End Brands: 23
* - Out of the 1472 products, only 61 of them were meant for all skin types
* - Sephora had the most products for all skin types with 19

Recommendations

* - Based on price and rank, Sephora branded items are best
* - Based on rank, Bioeffect branded items are best
* - Based on price, Sephora branded items are best