



Amazon Products Data Analysis

Project Team Members

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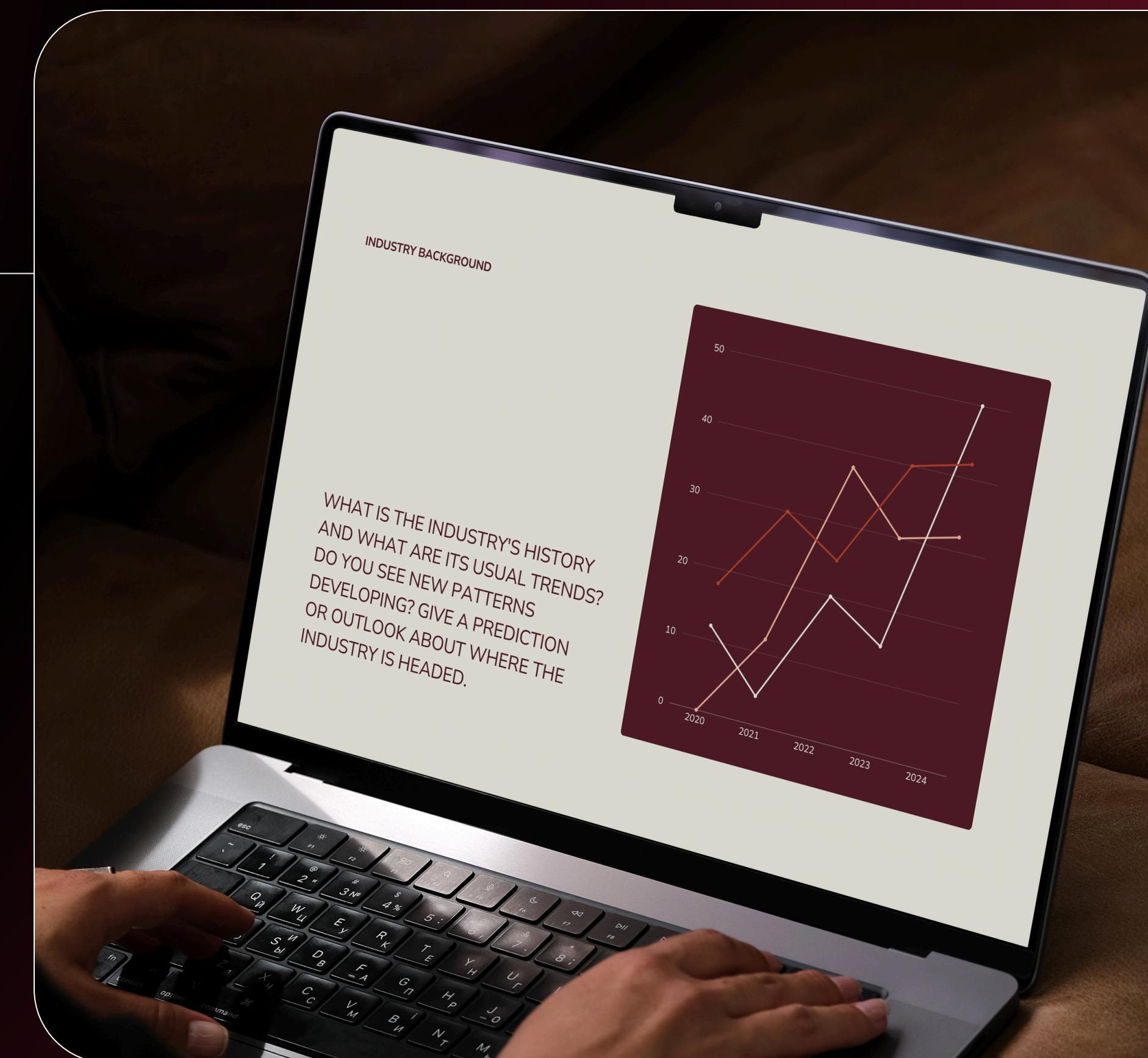
Project Overview

About Project

complete Exploratory Data Analysis on Amazon products dataset

Objectives

analyze data set and extract actionable business insights and improvements including pricing, ratings, discounts, and category performance



Dataset Overview

Our data components

PRODUCTS

name - ID - Image

PRICE

actual - discounted

CATEGORIES

Main Department and what
below it

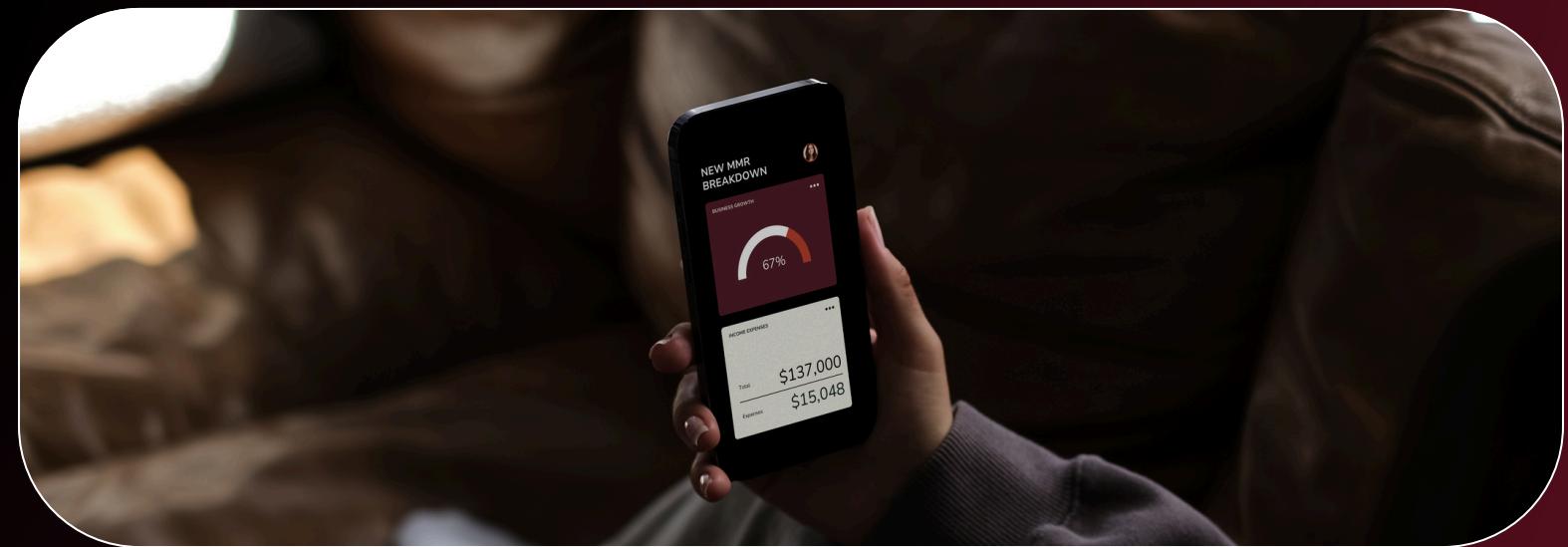
RATING

Rates - Rating counts - reviews

Main Objective

The business have more than + 1000 product our vision was to determine which areas to focus on

- What are products higher in market demand and popularity ?
- Which categories performs best?
- Is our product supply correlate qualitatively with our customers demand ?



The Data Analysis Process

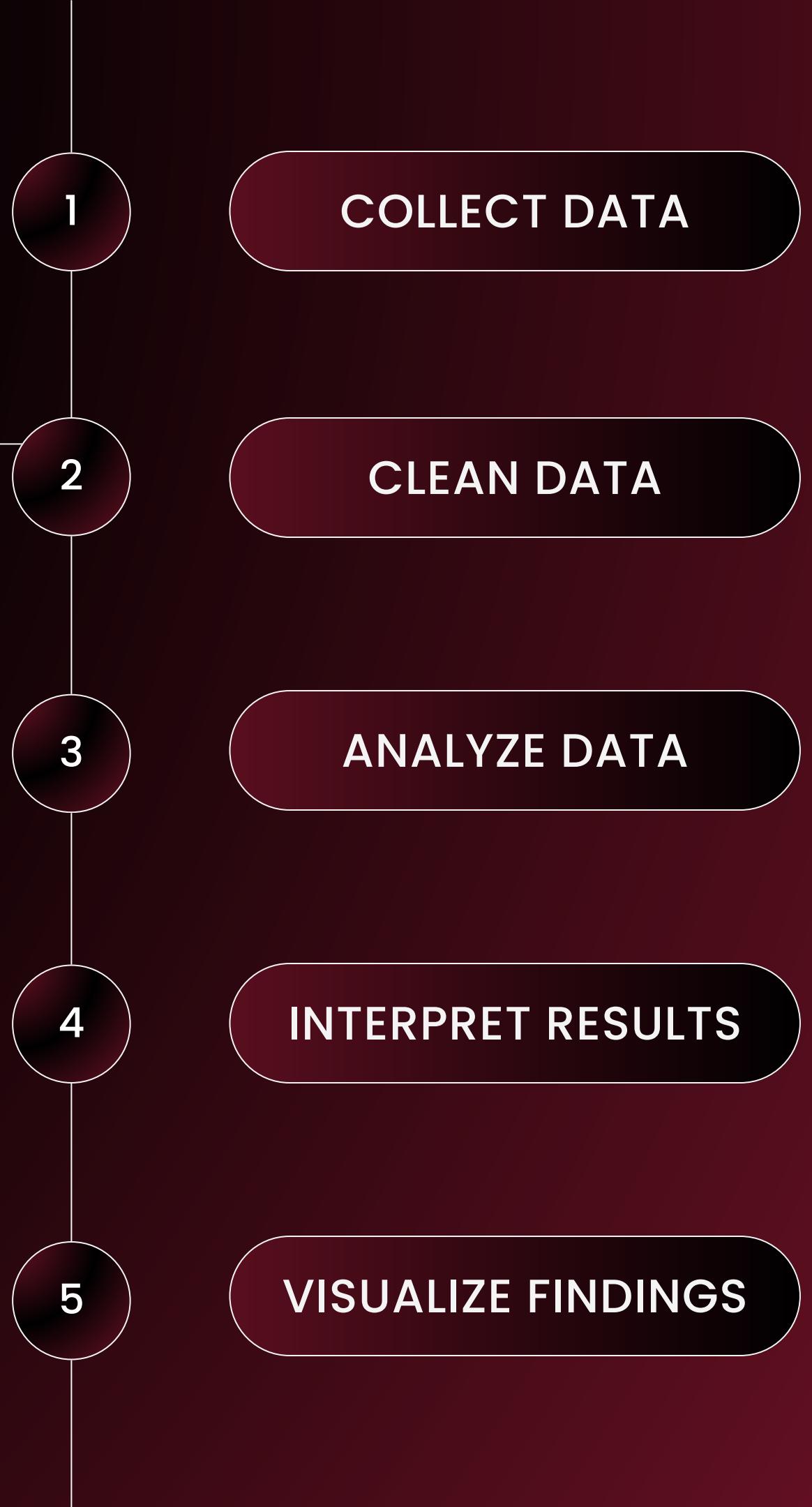
During the analysis several issues appeared in the data:

- Missing values in some columns
- Incorrect formatting in price columns
- Some inconsistent or noisy records

How these were handled

- Cleaned the dataset
- Converted right columns to numerical values
- Removed invalid or incomplete raws

After cleaning the dataset became ready for analysis and descriptive statistics



Feature Engineering

creating new features from our data to improve analysis



- **Popularity Score**
data doesn't contain sales info , so popularity score helps us show product demand.
- **Price Category**
ctogrizing prices to 4 catogries
- **Last Category**
Extracted from the full category hierarchy to represent the most specific product classification.

which category
performs best?

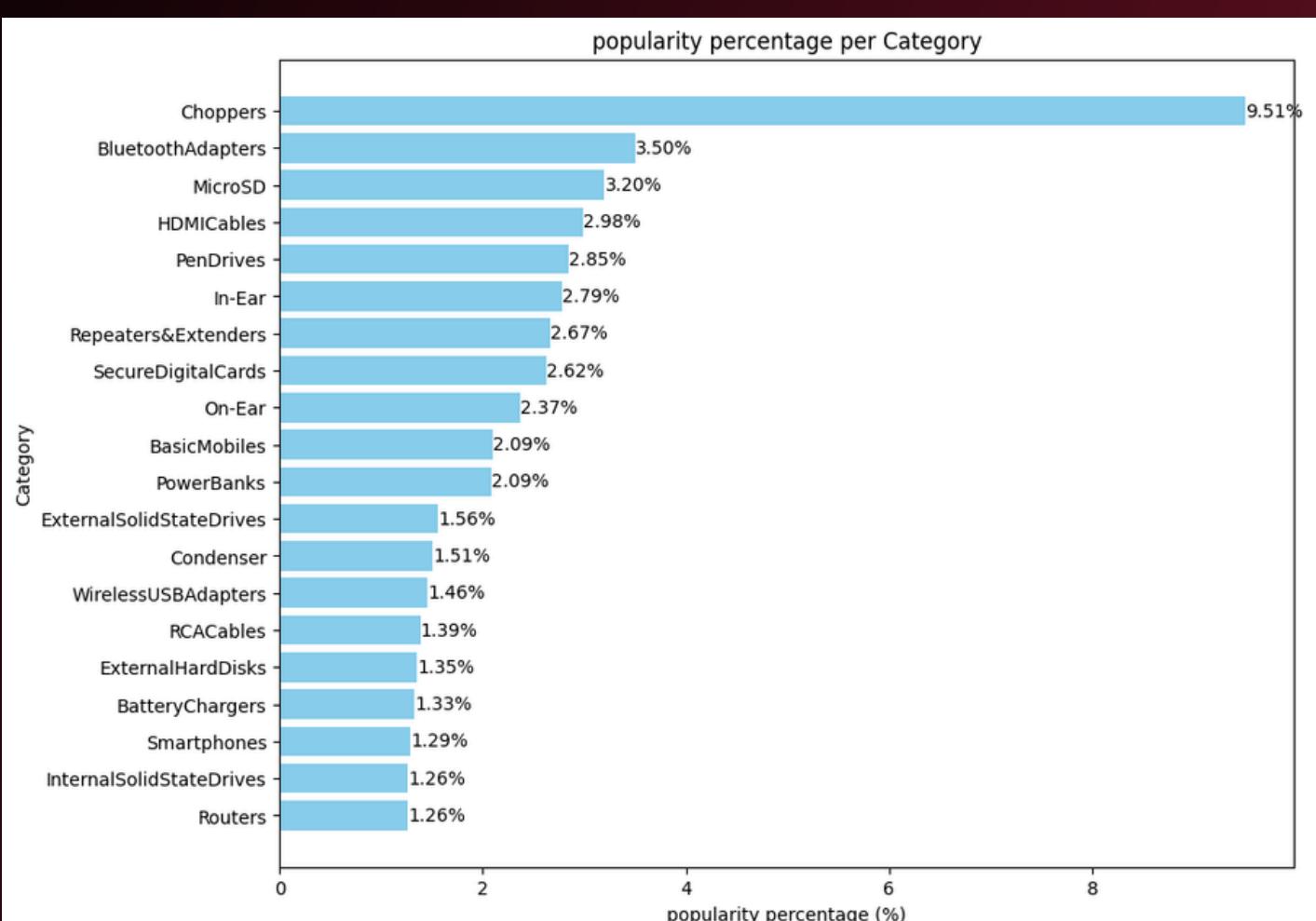
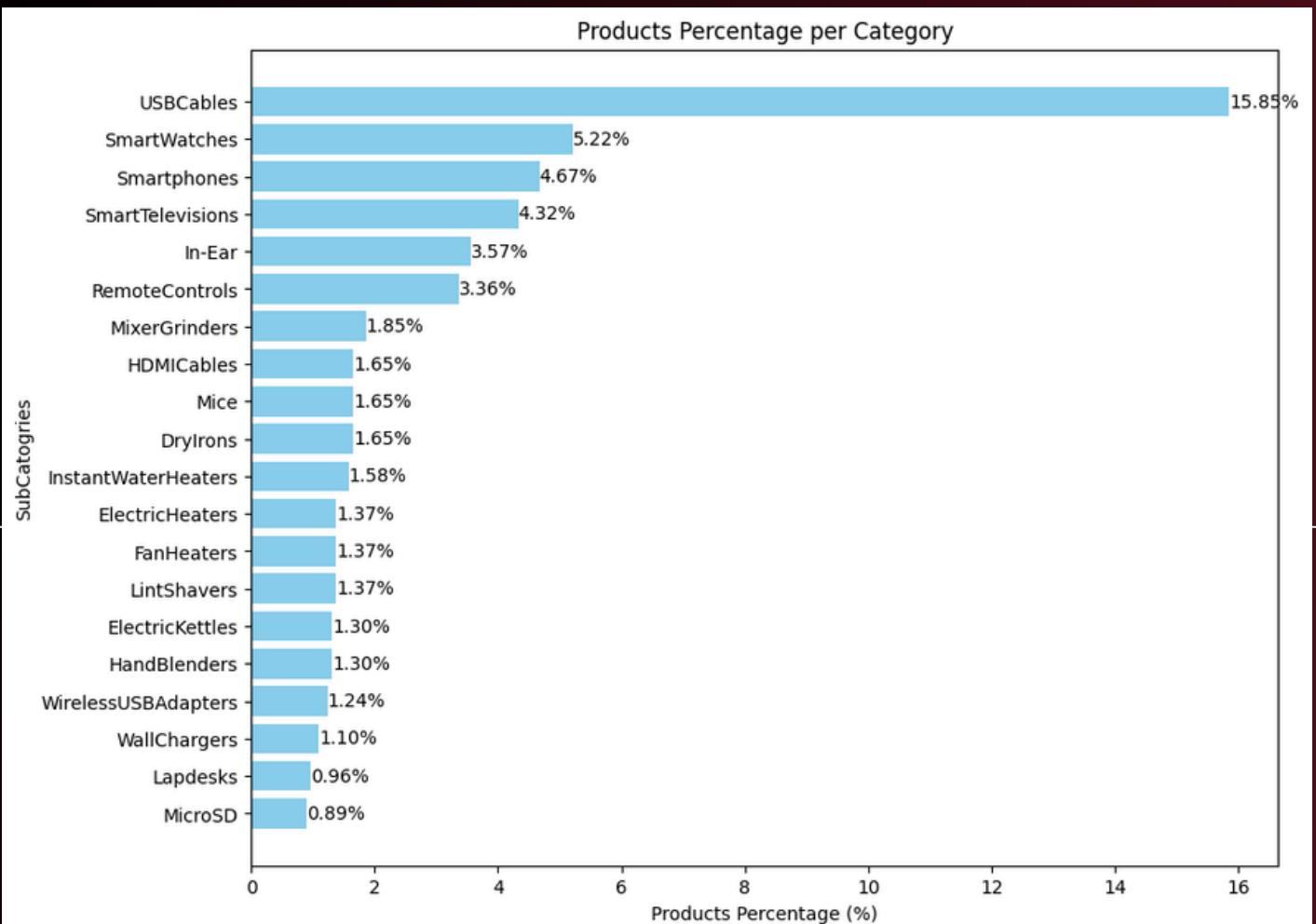
Category Performance

Highest Product Distribution (by number of products):

- USB Cables → 15.85%
- Smart Watches → 5.2%
- Smartphones → 4.7%

Highest Popularity Percentage:

- Choppers → 9.15%
- Bluetooth Adapters → 3.5%
- MicroSD → 3.1%



Which category performs best?

According to popularity percentage
Top 3 Categories are :

- Choppers → 9.15%
- Bluetooth Adapters → 3.5%
- MicroSD → 3.1%

Are Expensive products
more popular ?

Are Expensive products more popular ?

depend on analysis we found that Expensive products are less popular by 25 % than other products

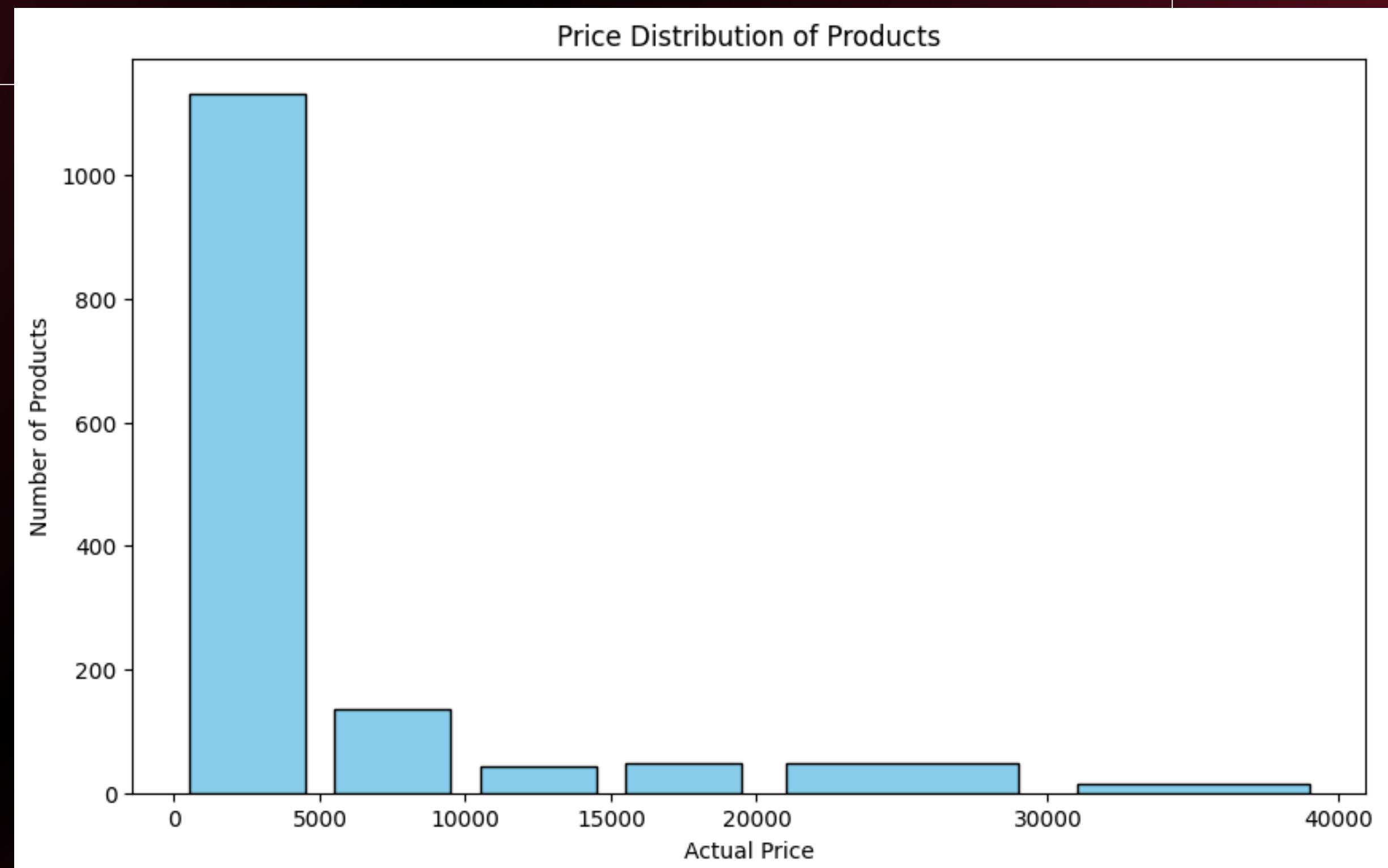
Insights :

- higher prices not boost or affect product popularity in market
- customers decision is not affected by higher pricing

Pricing Strategy and Market Demand

Supply or Product Catalog

- most products fall in medium or cheap price category
- medium or cheap price products are the dominant
- our product supply is concentrated on segment under 5k



Market Demand Analysis

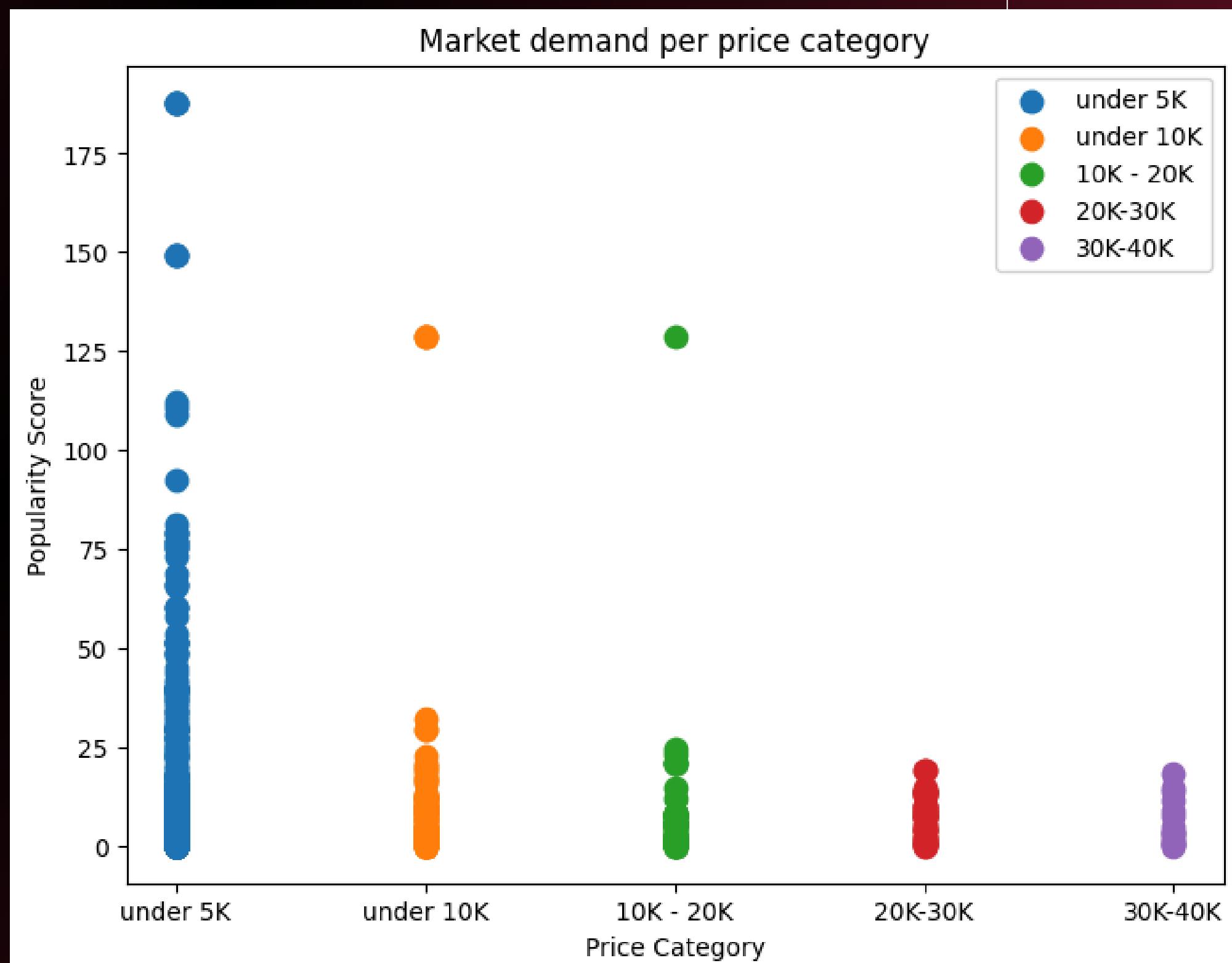
Business insights:

1) Efficiency analysis:

- Our supply is correlated to market demand which lead to effective Inventory Turnover

2) Pricing strategy:

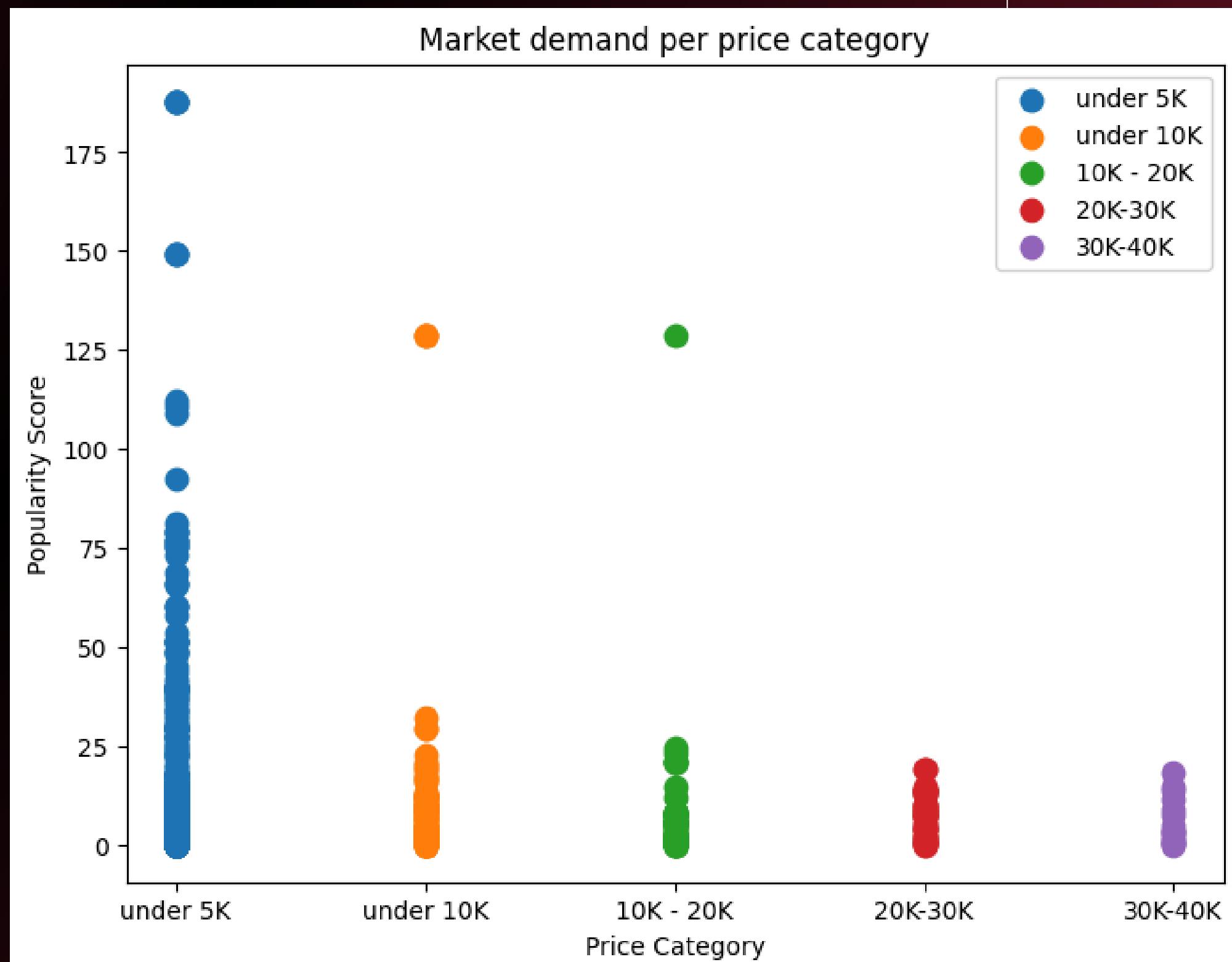
- Our pricing strategy is perfectly tailored to our target customers ,
- By focusing our supply on the 5k segment we are maximizing our reach within the most active consumer segments



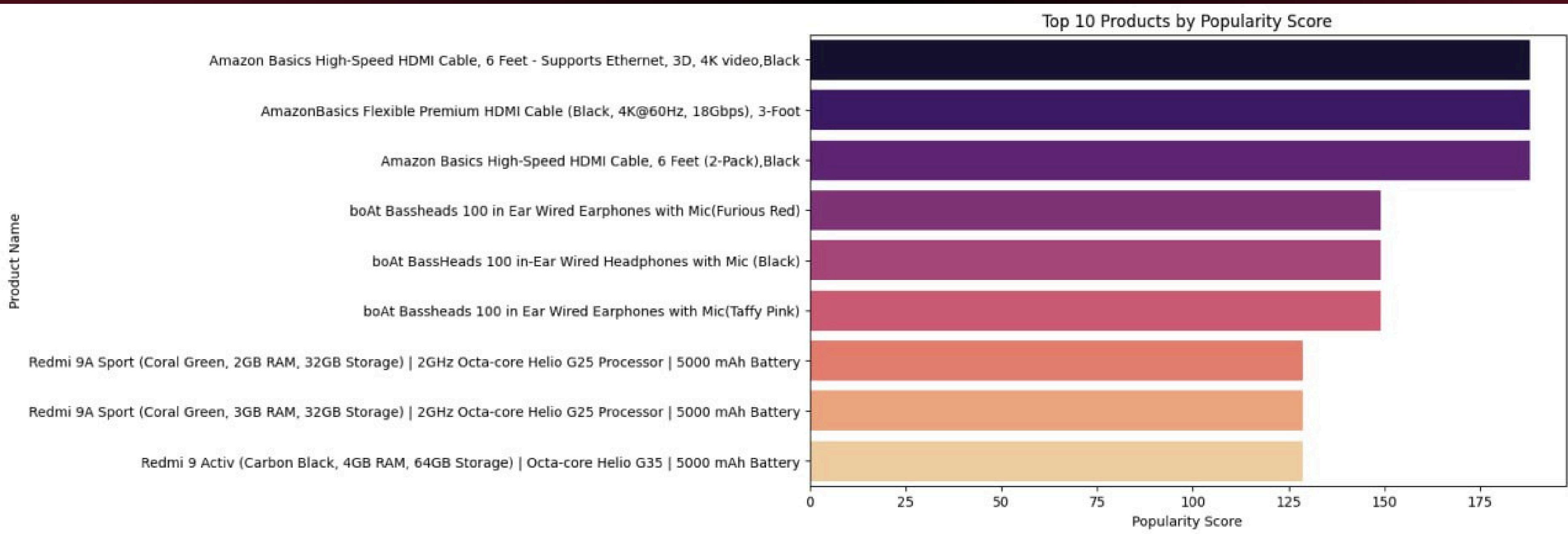
Market Demand Analysis

Business insights:

3) Opportunity Gap : noticing outliers in price category (under 10K) & (10K - 20K) achieving high popularity for specific higher-priced products , indicates an opportunity to expand our inventory in those segments

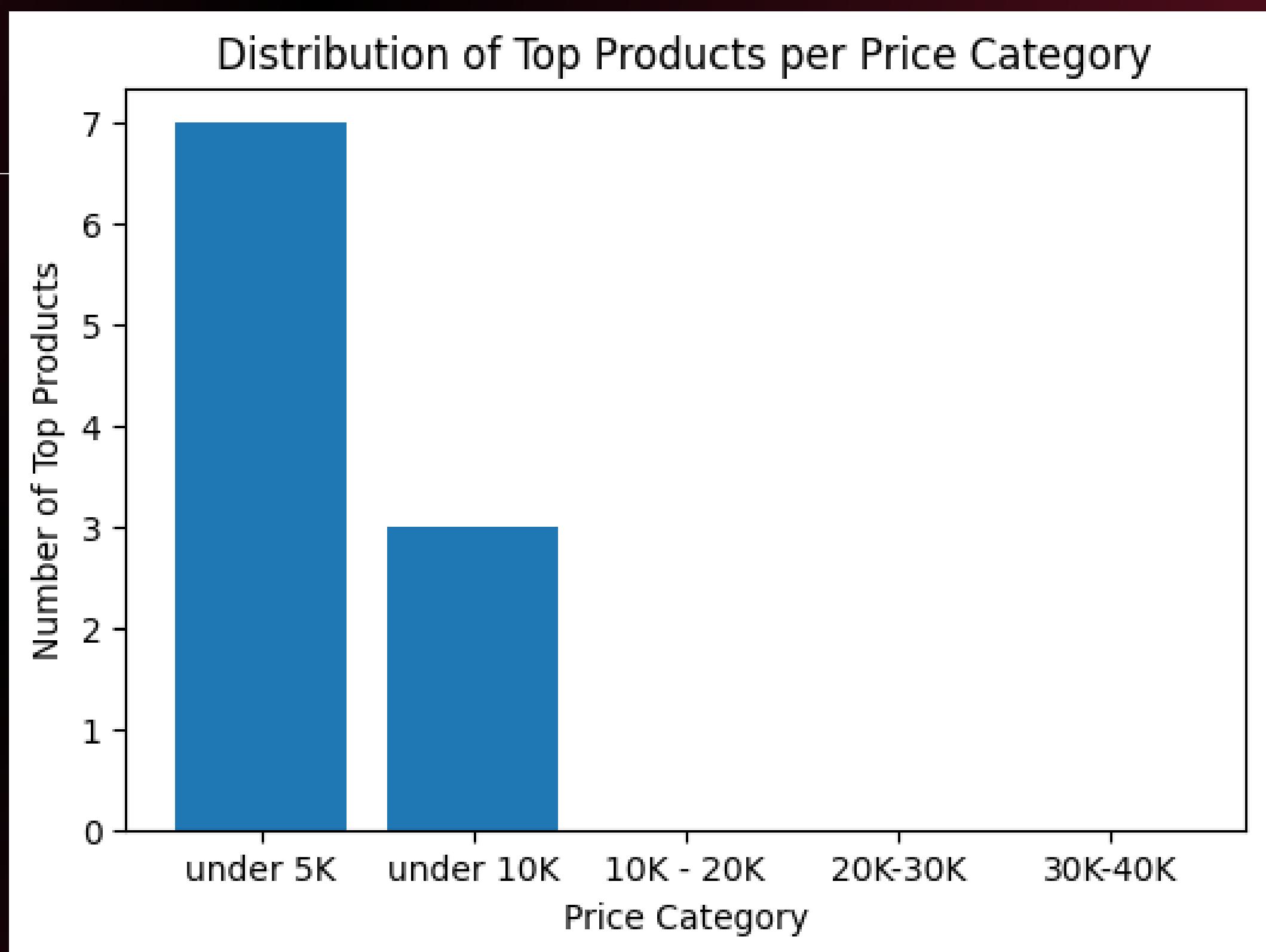


Top 10 Products



Top 10 products insights

- Distribution of Top Products per Price Category
- most of products fall in price catogry 'under 5 K'



Top 10 products insights

- Distribution per Category
 - 4 products from with the highest popularity
 - 3 of them from category In-Ear
 - 3 of them from category Smartphones

HDMI Cables

In-Ear

Smartphones

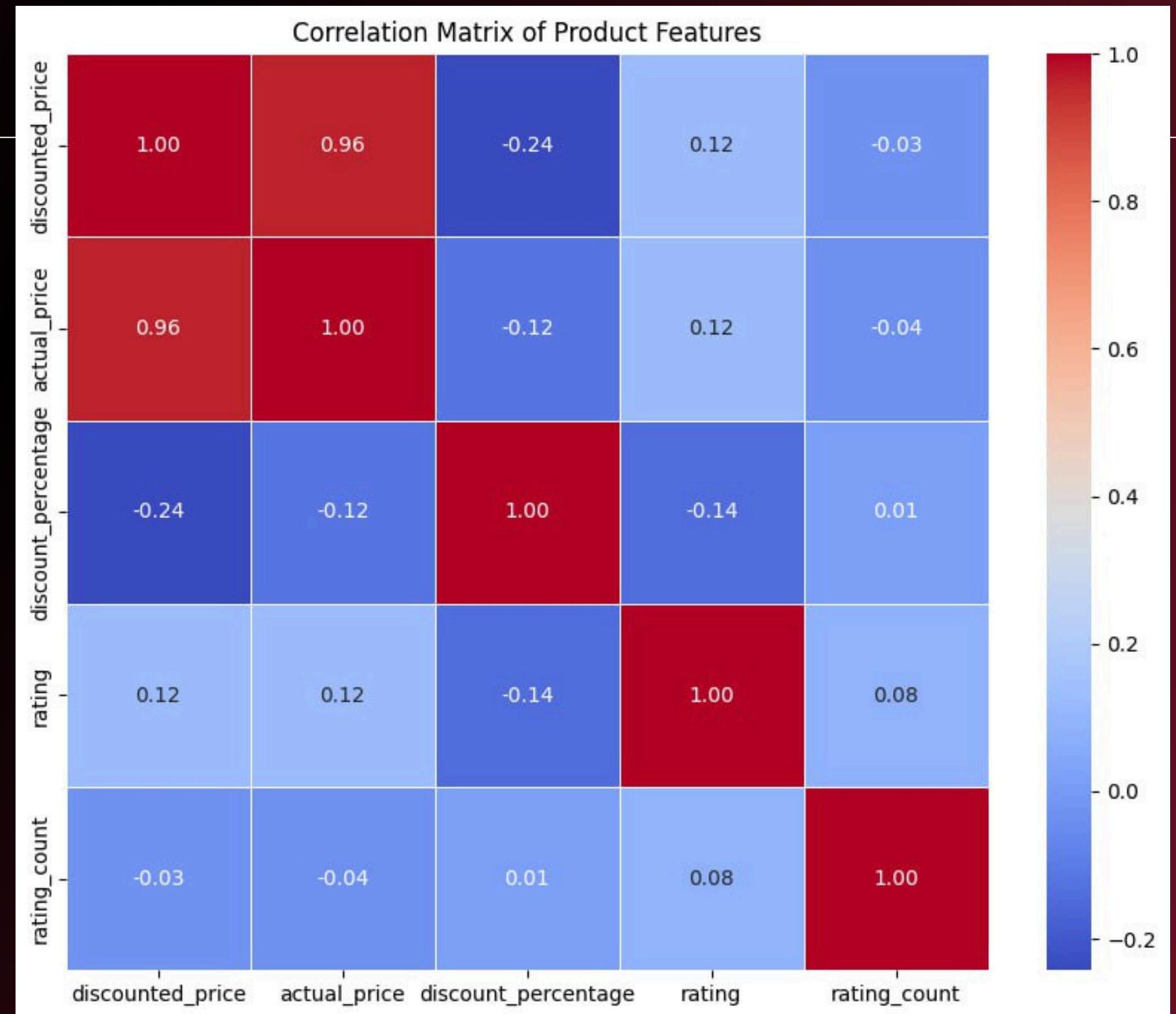
HDMI Cables category shows the strongest presence in top-performing products

Which features make products more popular?

Competitive Advantage Insights

- No strong correlation between numeric features and popularity
- Customer reviews highlight:
 - “Value for money”
 - Product performance
 - Practical usage

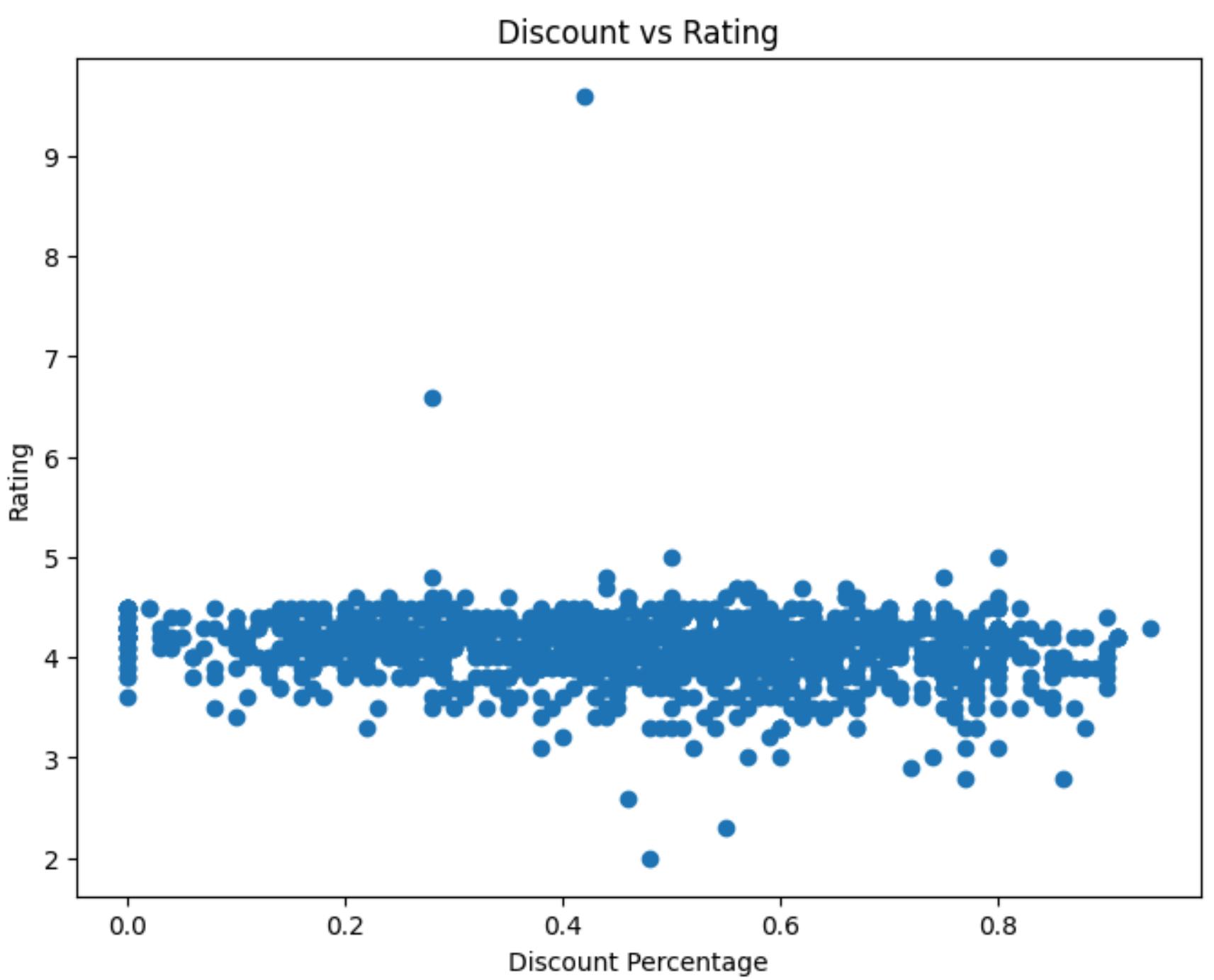
Perceived value is a key popularity driver



Do higher discounts
increase ratings?

Do higher discounts increase ratings?

- customers are objective; they rate the product based on its performance and quality, not just because they got it at a cheap price



Summary

Business Insights & Recommendations

- **Products**

Company should focus on offering affordable products since items priced under 5K show significantly higher demand and customer engagement.

- **Categories**

Businesses should prioritize high-demand categories such as USB cables, smart watches, and smartphones, as they represent a large share of the market.

Some subcategories like Bluetooth adapters and MicroSD cards show high popularity relative to their quantity. Increasing the supply of these products could lead to higher sales.

Summary

Business Insights & Recommendations

- **Discounts**

Discounts alone do not strongly influence product popularity, suggesting that factors like product usefulness and category demand play a larger role.

- **Quality**

Improving product quality and maintaining high ratings can help increase customer trust and product visibility.



Thank You

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