Dynamic Pricing

Business Problem

Goal

Strategy

Conclusion

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Business Problem

- A game company gives gift coins to their users for purchasing items.
- The users purchase various tools for their characters by using this coins.
- The company does not remark any price for any item, and it provides users to buy items at the price they wanted.
- In other words, while one user pay 30 units for any item, other user also might pay 45 units for the same item. Therefore, users could buy this item with the amounts that they can afford to pay.

Dataset

	category_id	price
0	489756	32.117753
1	361254	30.711370
2	361254	31.572607
3	489756	34.543840
4	489756	47.205824

1. The dataset consists of **3448 observations** and **2 variables**.
2. **category_id:** The category identity number of item.
3. **price:** The fee that users are willing to pay for item.
4. The dataset is available at the following link. https://www.kaggle.com/cemalcemtastan/pricing

Goal

What should be the price for this item?

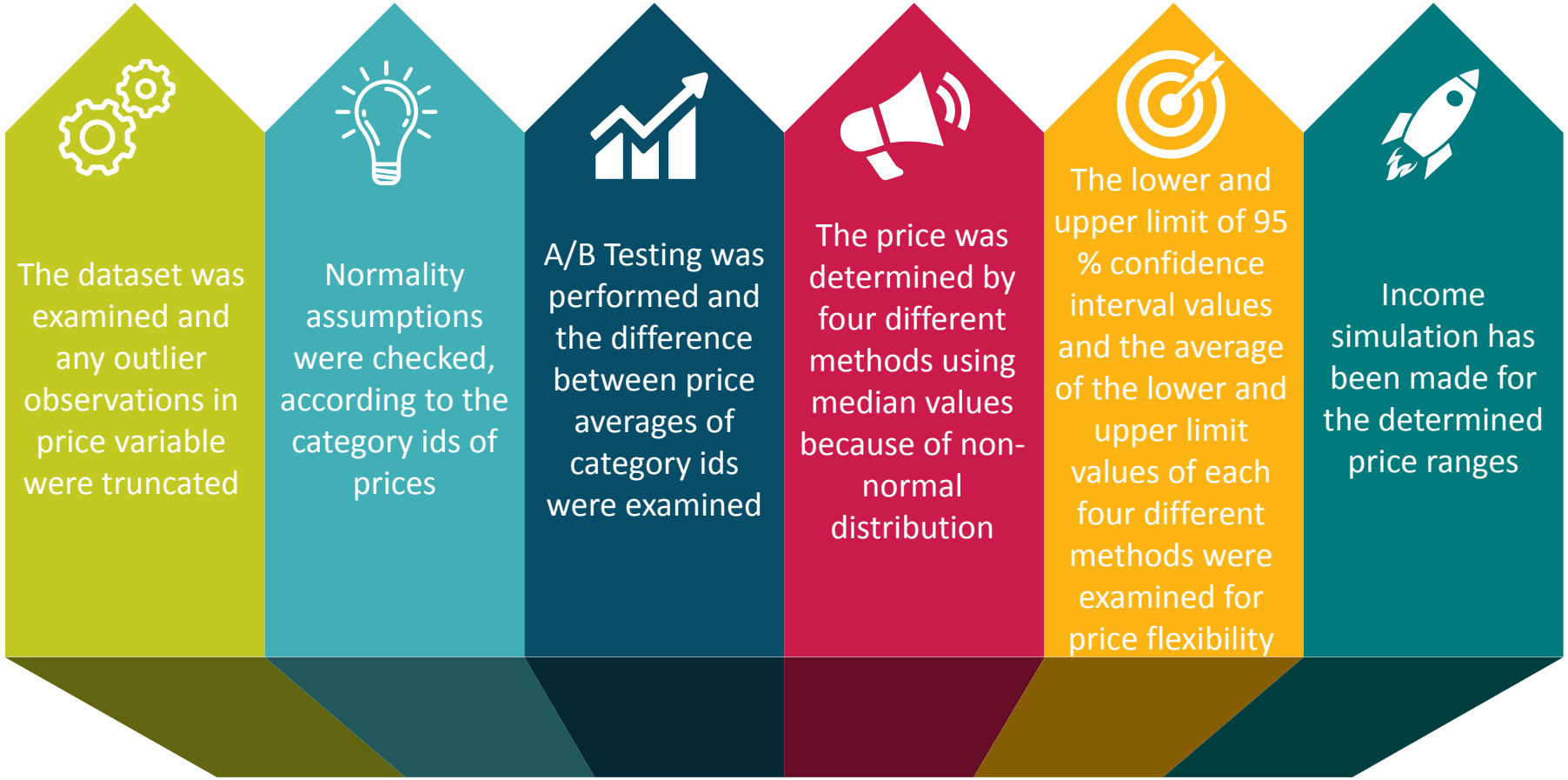
Are there any difference for item's price according to category id’s?

To simulate item purchases and income for price change possibilities

To create a decision support system for price strategies

Strategy

Project Steps



Strategy

What should be the price?

Method 1

The median value of all prices in whole dataset was determined as price without distinction between categories

Method 2

The median value of the prices of similar categories was determined as price

Method 3

The median value of the prices outside the category id 326584 was determined as price

Method 4

The median value of the prices outside the category id 489756 was determined as price

Strategy

What should be the price?

	Method	Income_according_to_median	Median_price	Median_count
0	Excepted_489756_id_prices	67754.149725	34.219268	1980
1	Similar_cat_id_prices	66286.964222	34.399047	1927
2	According_to_all_cat_ids	59992.690447	34.798544	1724
3	Excepted_326584_id_prices	59192.818424	34.860317	1698

Method 4: The median value of the prices outside the category id 489756 was the the most revenue generating option with **34.21** units and **67754.14** income

Strategy

What should be the price flexibility for the item?

Three approaches were examined for determining the price flexibility

Lower Limit of Confidence Interval for each methods was determined as price

Average of the Lower and Upper Limit Values of Confidence Interval for each methods was determined as price

Upper Limit of Confidence Interval for each methods was determined as price

Strategy

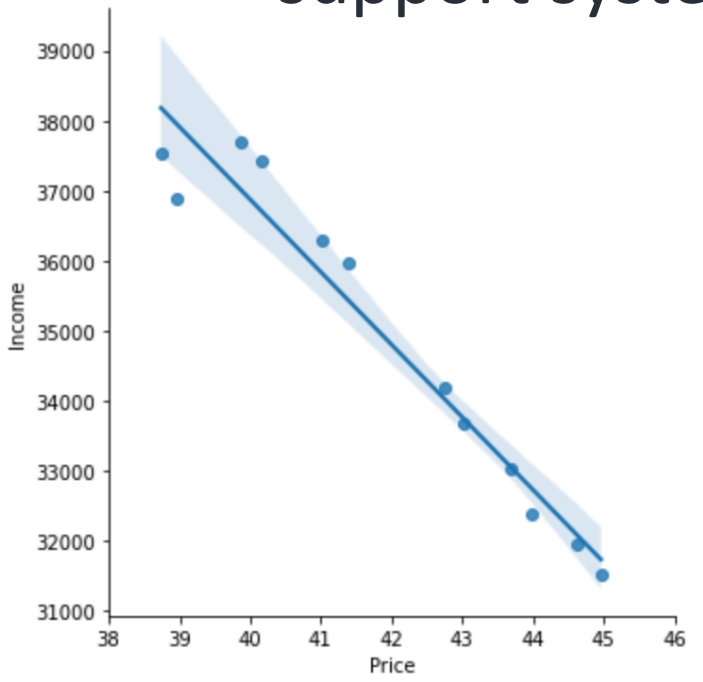
What should be the price flexibility for the item?

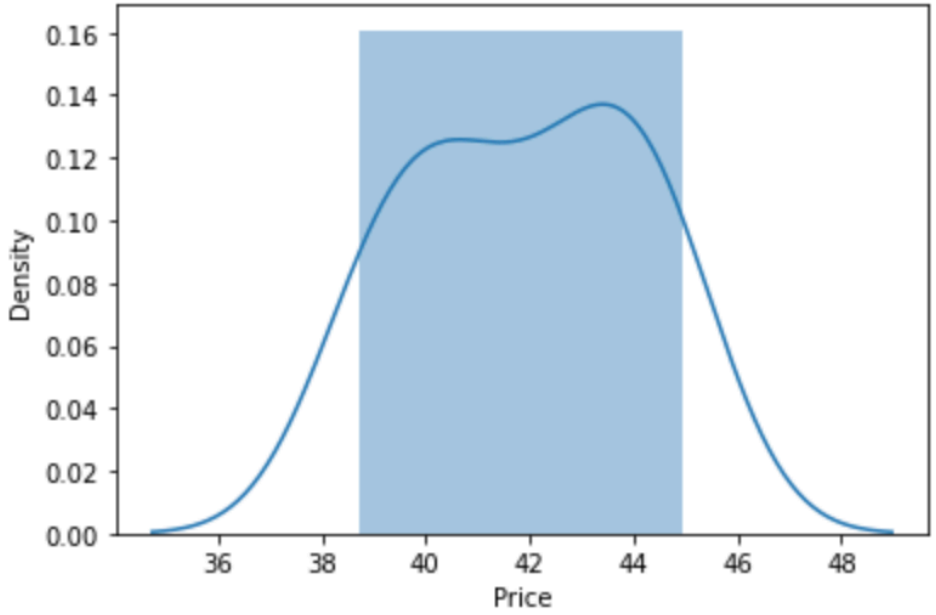
Method	Income	Price	Count	User_Ratio	Approach
Excepted_489756_id_prices	37687.13	39.88	945	0.2741	Average Value of Confidence Interval
Excepted_489756_id_prices	37537.96	38.74	969	0.2810	Lower Limit of Confidence Interval
Similar_cat_id_prices	37434.30	40.17	932	0.2703	Average Value of Confidence Interval
Similar_cat_id_prices	36883.55	38.95	947	0.2747	Lower Limit of Confidence Interval
Excepted_489756_id_prices	36304.70	41.02	885	0.2567	Upper Limit of Confidence Interval
Similar_cat_id_prices	35962.11	41.38	869	0.2520	Upper Limit of Confidence Interval
According_to_all_cat_ids	34192.21	42.74	800	0.2320	Lower Limit of Confidence Interval
Excepted_326584_id_prices	33679.04	43.01	783	0.2271	Lower Limit of Confidence Interval
According_to_all_cat_ids	33023.95	43.68	756	0.2193	Average Value of Confidence Interval
Excepted_326584_id_prices	32374.62	43.99	736	0.2135	Average Value of Confidence Interval
According_to_all_cat_ids	31951.27	44.62	716	0.2077	Upper Limit of Confidence Interval
Excepted_326584_id_prices	31518.14	44.96	701	0.2033	Upper Limit of Confidence Interval

When the confidence interval of prices outside the category id of 489756 is **39.88** units, which is the average of the lower and upper limit, it has been observed that the income is **37687.13** units and reaches the highest value

Strategy

Income simulation based on price changes and decision support system graphs for price strategies





Conclusion

201436, 361254, 675201, 874521 category ids were observed that their averages of prices are similar. Therefore these category ids were accepted as a single category. **326584, 489756** category ids also were observed statistically different from the others. These two category ids were evaluated as two separate groups.

When the median value of the prices other than the 489756 category id is considered as the item price; the item price was **34.21** units, and the total income reached its highest value with **67754.14** units

In the analyzed dataset; a single price was applied to all categories because there are no concepts such as cost, category features, flexibility of transition between categories. However, incase of having detailed information about the relevant situations, the pricing specific to each category can be examined in detail

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