Arjun Sharma

Assignment – The Circuit House

Understanding and Analysing "Smart Lock" Market using Flipkart

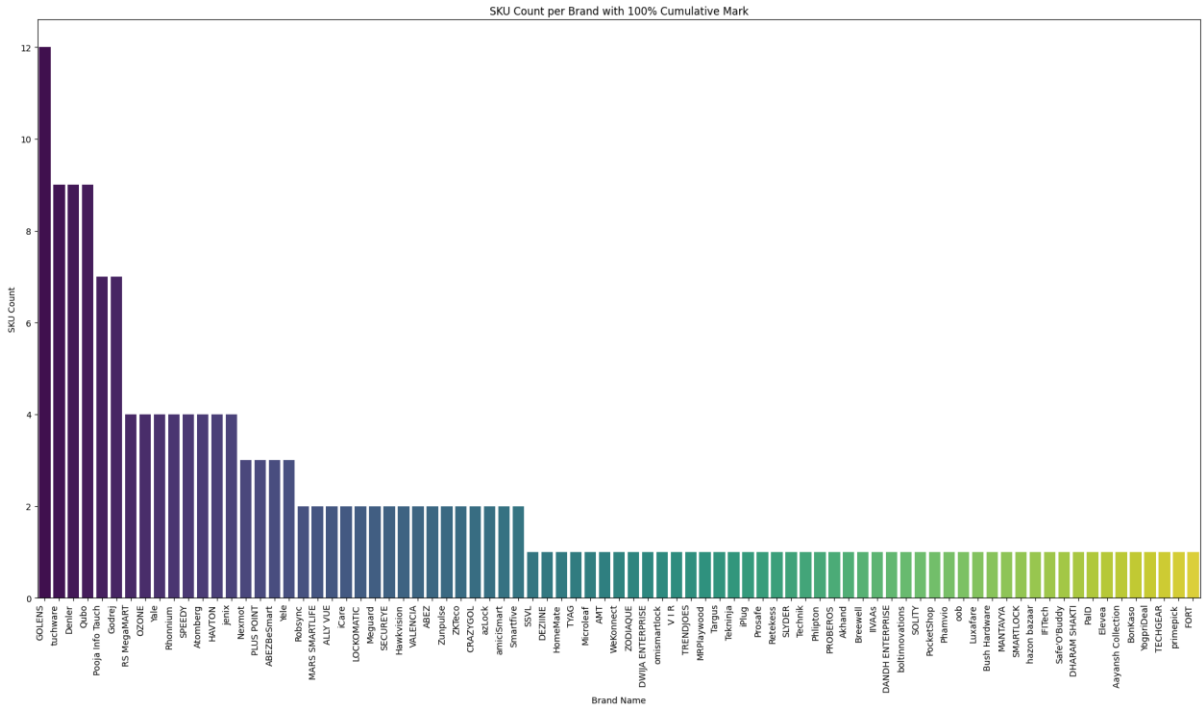
a. Number of brands in the segment

number_of_brands = df['Brand_Name'].nunique() = 81

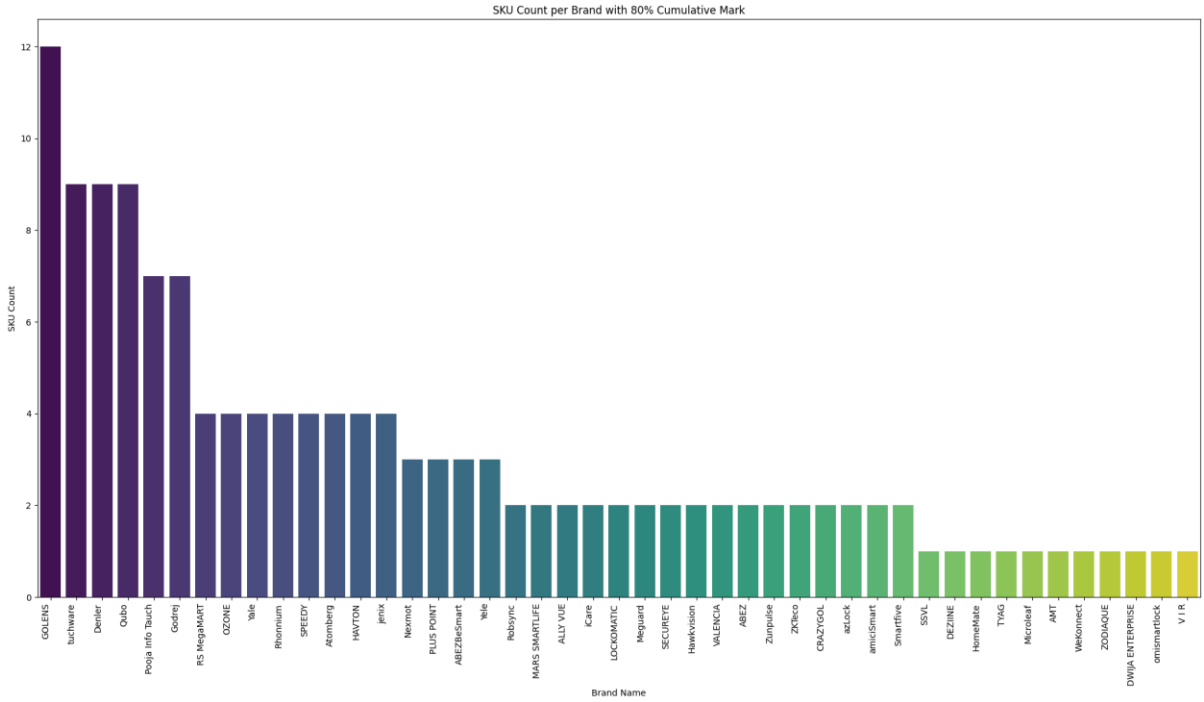
There are 81 different brand in this segment using **FlipKart,** follow are there names

'amiciSmart', 'ZODIAQUE', 'HomeMate', 'DWIJA ENTERPRISE', 'TYAG', 'Microleaf', 'AMT', 'azLock', 'WeKonnect', 'omismartlock', 'CRAZYGOL', 'SSVL', 'Zunpulse', 'ZKTeco', 'ABEZ', 'ABEZBeSmart', 'DEZIINE', 'Targus', 'Tekninja', 'DANDH ENTERPRISE', 'boltinnovations', 'SECUREYE', 'IIVAAs', 'OZONE', 'Breewell', 'V I R', 'Qubo', 'Hawkvision', 'SOLITY', 'VALENCIA', 'MRPlaywood', 'TRENDJOES', 'GOLENS', 'SLYDER', 'Phlipton', 'Denler', 'Technik', 'Meguard', 'Robsync', 'PROBEROS', 'Akhand', 'Prosafe', 'iPlug', 'RS MegaMART', 'Retekess', 'Smartfive', 'Atomberg', 'HAVTON', 'MARS SMARTLIFE', 'Yele', "Safe'O'Buddy", 'oob', 'Phamvio', 'jenix', 'Yale', 'PocketShop', 'Pooja Info Tauch', 'IFITech', 'tuchware', 'hazon bazaar', 'Nexmot', 'SMARTLOCK', 'MANTAVYA', 'Bush Hardware', 'Luxafare', 'Aayansh Collection', 'PLUS POINT', 'ALLY VUE', 'DHARAM SHAKTI', 'SPEEDY', 'Rhonnium', 'Elevea', 'PalD', 'BonKaso', 'iCare', 'TECHGEAR', 'YogpriDeal', 'Godrej', 'primepick', 'LOCKOMATIC', 'FORT'

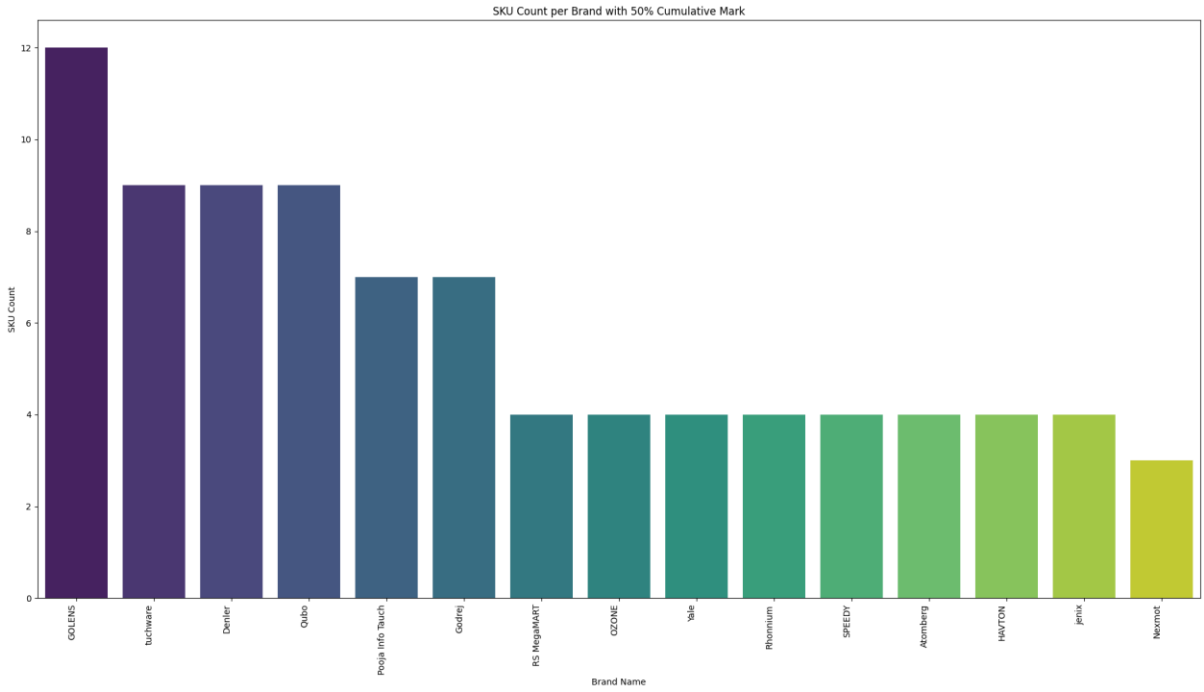
b. Count of SKUs per brand



All the brands and their respected SKUs values



80 percent of the SKUs belong to 45 brands(which is not 20% of 81(Total Number of Brands)), At first gland Market seems without any monopoly or oligopoly, as it does not follow pareto principle.



But when we come 50 % of the SKUs minimum of no. of companies that have hold over it are only 15(18% of 81). Which means there are effective players in the market as well .

c. Relative ranking

Relative Ranking is a method to rank brands based on the performance of their SKUs (Stock Keeping Units) in search results. The idea is to give more weight to highly rated products that appear higher in the search results. SKUs without Rating are given default rating of 1 which is lowest.

Formula:

For each brand, the score is calculated as:

$$\boldsymbol{Score\ of\ a\ Brand\ i} = \sum(\frac{\boldsymbol{Rating\ of\ SKUi}}{\boldsymbol{Raking\ of\ SKUi}})$$

Steps to Calculate the Relative Ranking:

1. **Compute the Score** for each SKU using the formula Rating / Ranking.
2. **Sum the Scores** across all SKUs for each brand.
3. **Sort the Brands** by the total score in descending order, where a higher score indicates a better relative ranking.

Interpretation:

- **Higher Scores**: Brands with higher scores have SKUs that are both highly rated and appear near the top of the search results.
- **Relative Ranking**: The brands are ranked based on these scores, with the highest score receiving the top rank (Rank 1).

d. Relative rating

Relative Rating adjusts the scores obtained from the Relative Ranking to a normalized scale, typically between 0 and 5. This makes it easier to compare across different brands.

Normalization Formula:

To normalize the scores to a scale from 0 to 5:

$$Relative\ Rating\ of\ a\ Brand\ i\ = ((Score\ i - \min\_score)/(\max\_score\ - \min\_score)) * (5)$$

Where:

- **Score**: The score calculated for a brand based on the formula above.
- **min_score**: The minimum score across all brands.
- **max_score**: The maximum score across all brands.

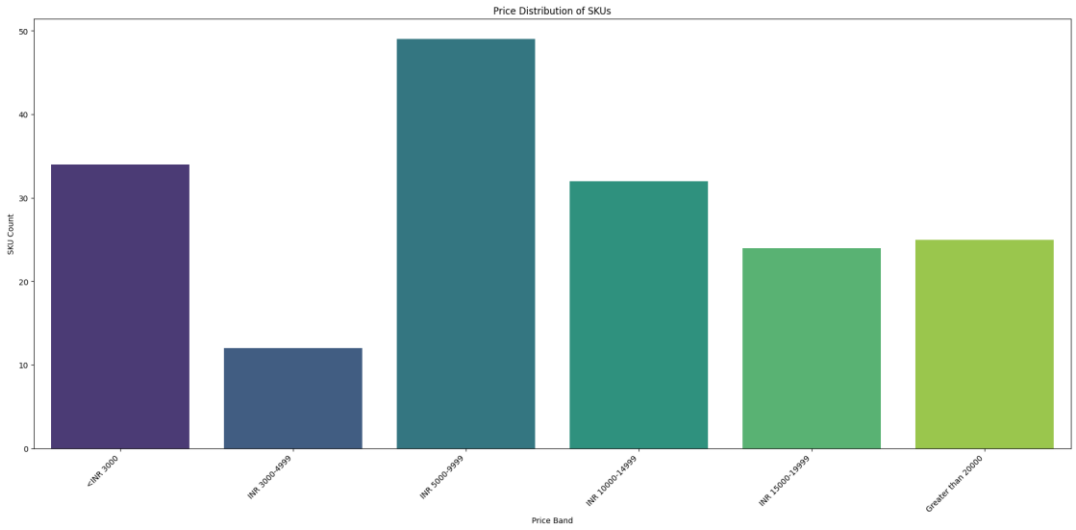
Steps to Calculate the Relative Rating:

1. **Calculate the Score** for each brand using the Relative Ranking formula.
2. **Determine the Min and Max Scores** among all brands.
3. **Normalize the Scores** to a scale of 0 to 5 using the minmax normalization formula.

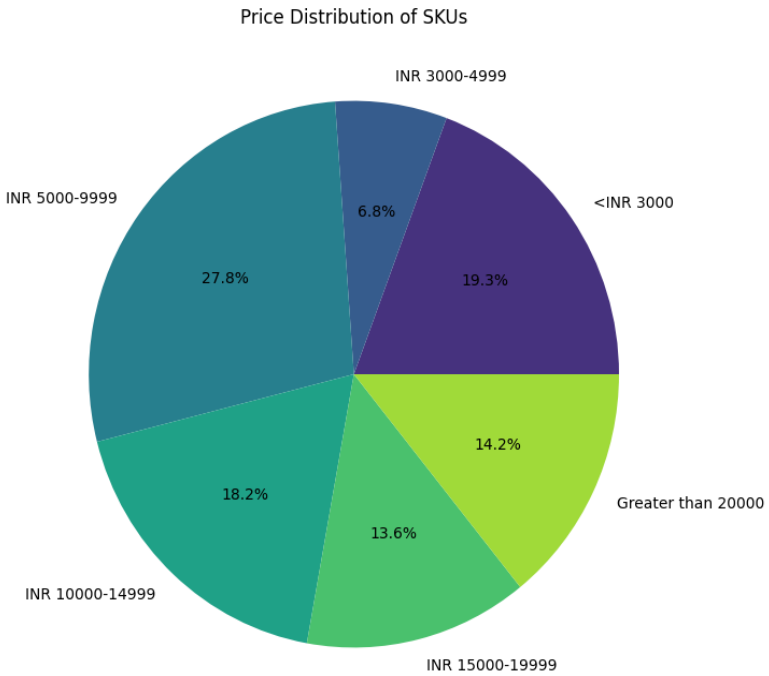
Interpretation:

- **Relative Rating of 5**: Indicates the best performing brand relative to others.
- **Relative Rating of 0**: Indicates the worst performing brand relative to others.
- **Intermediate Values**: Provide a proportional comparison between brands.

e. Price distribution of SKUs



Highest number of SKUs are in the range of 5000-10000 which is 49, followed by below 3000 which is 34, although the standard deviation quite high 12.35 and mean in nearly 30, most of the SKUs come from three category <3000, 5000-10000 and 10000-15000.



The interesting thing about the pie chart is that segment < 10000 have nearly 50 percent SKUs and >10000 as well.

Insights and Conclusion Drawn

- SKUs seems to be distributed on both end where it is economy or premium products
- Deriving actual ranking for sponsored product will be difficult and hence relative rank and rating
- Should number of review and rating should be considered in relative rating and ranking because we rating always gives the idea of review as it is the average of all users rating or can we have our review system based on sentiment analysis of reviews commented.