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Sentiment Analysis of Starry Station using Amazon Reviews

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Objective

Analyze customer reviews of *Starry Station* on Amazon to identify potential improvements.

Starry Inc. and Starry Station

Starry Inc. is an internet service provider that promises to deliver a wireless internet service that are faster and cheaper than traditional providers.

The first major product from Starry is *Starry Station*, a Wi-Fi router with a touchscreen that has many user-friendly features including;

- *monitors for internet connection and speed*
- *set up Wi-Fi directly from the device*
- *recognize and fix any problems that arise*
- *discover what speed they're actually getting*
- *parental controls*
- *find their username and password with one click*

- *request a call from Starry Support*
- and more...



< How Starry Station looks like (Source : <https://starry.com>) >

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Procedure

I. Data Collection

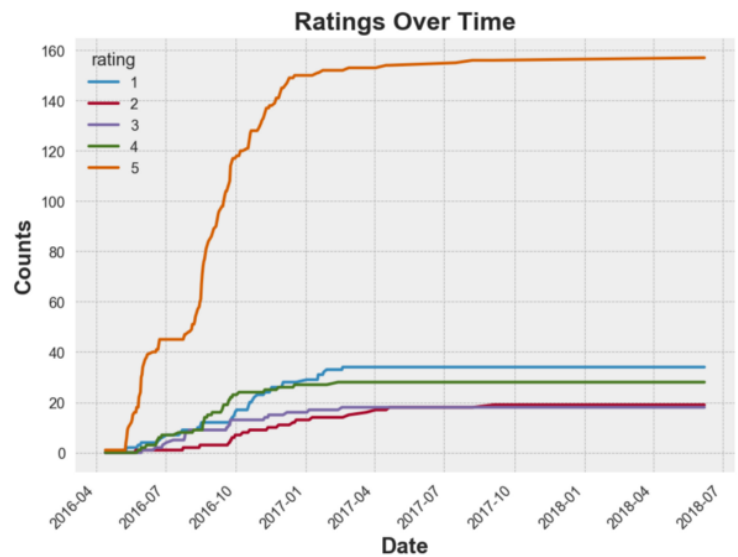
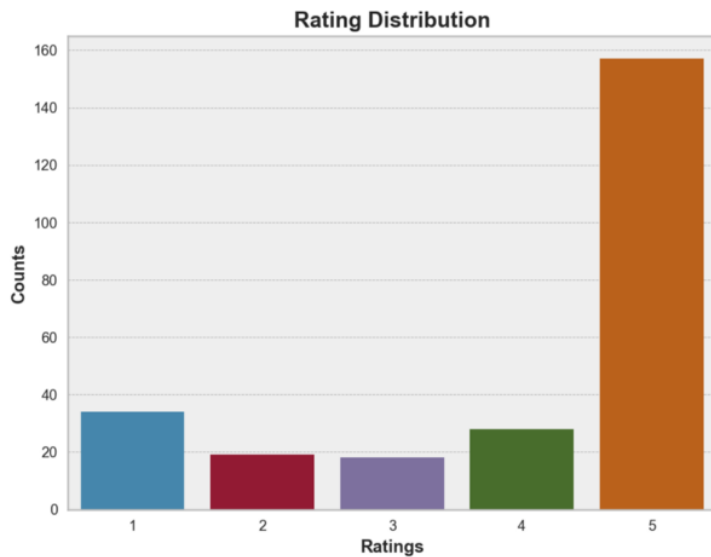
Data Source

I collected 256 reviews on Amazon since 2016 through web scraping using Python *lxml* library.

Variables

i) Author | ii) Title | iii) Text Body | iv) Date | v) Rating | vi) Helpful Score

II. Analysis



< Rating Distribution Plot over 2016–2018 >

i) Rating Distribution

- 5-Star : 61% | 4-Star : 11% | 3-Star : 7% | 2-Star : 8% | 1-Star : 13%
- Positive Reviews (4–5 Stars) : 72% vs. Negative Reviews (1–2 Stars) : 21%

ii) Time-Series of Ratings (2016–2018)

- Reviews were actively posted after April 2016 since *Starry Station* was available on Amazon in early February and started shipping in March.
- Most of the reviews were posted in 2016.
- Less than 10% of total reviews were posted in 2017 and there is only one new review posted in 2018

→ *new potential purchases are affected by old reviews*

Generally, there were more positive reviews than neutral and negative reviews (Good!)

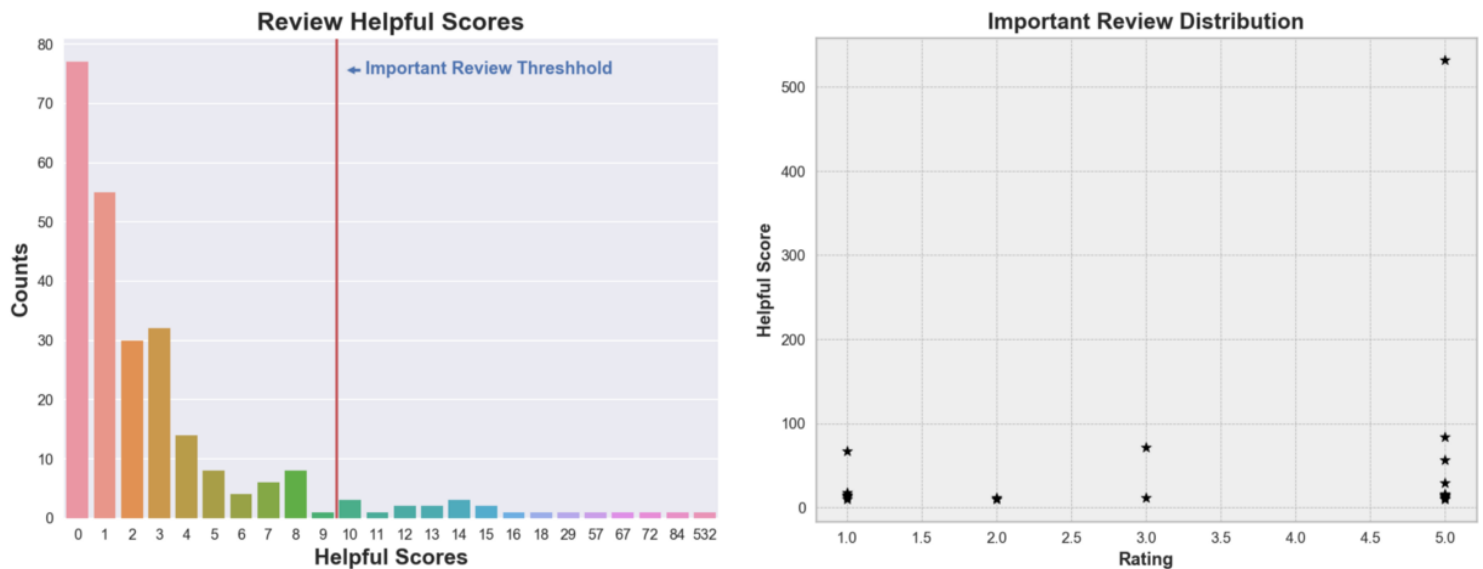
iii) Helpful Reviews

In Amazon review, there are features called *Top Positive* and *Critical Reviews*. *Top Positive Reviews* indicates positive reviews(4–5 Stars) with

high ‘helpful’ scores and *Top Critical Reviews* indicates negative reviews (1–2 Stars) with high ‘helpful’ scores.

Those Top reviews might influence decisions customers make. I defined ‘*Important Reviews*’ as reviews that received at least 10 ‘helpful’ scores

Let’s look at the overall distributions of *helpful* scores and *Important Reviews*.



< Distributions of helpful scores and Important Reviews >

- Among *Important Reviews*, there are more positive and neutral reviews in than in negative reviews.
- There is one positive review with 532 *helpful scores*. It was a very thorough and somewhat sounded like a professional review. Since a lot of people upvoted this review, it may be worth going over.
- Avg. Helpful Scores : 1-Star : 23 | 2-Star : 11 | 3-Star : 42 | 5-Star : 72

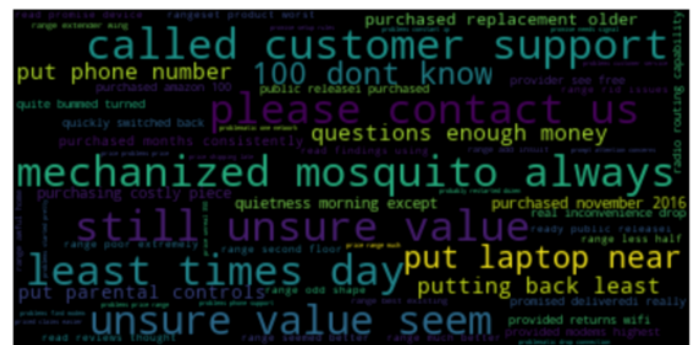
iv) Popular Words/Phrases in Reviews

Below are word clouds visualizing the most popular words in positive (4–5 stars) and negative (1–2 stars) reviews.

In negative reviews, there are words like “disappointed”, “average”, “slow”, “value”, “returned”, “toaster”, “outage”, and etc.



However, it is really difficult to tell *what* customers actually like/hate about *Starry Station*. So, I tried to capture phrases that were frequently used in the reviews. (2-grams and 3-grams worked best for positive and negative reviews respectively)



Now, we can see what customers liked or didn't liked about *Starry Station*.

From the positive reviews, it is more clear that customers really appreciate the product's **user friendliness**. Phrases like “easy set”, “easy setup”, “easy use”, “touch screen”, and “user friendly” were particularly highlighted.

On the other hand, phrases like “still unsure value”, and “unsure value seem” indicate customers think the product is **overpriced**. Also, phrases like “put near laptop”, “mechanized mosquito always”, and “quietness morning except” indicate that customers experienced some kind of **product malfunction** (loud fan, wifi range etc).

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III. Discussion

According to BrightLocal survey(2017), approximately 85 percent of consumers trust online reviews as much as personal recommendations. Moreover, consumers trust Amazon as Amazon actively defends integrity of its reviews. I think it is worthwhile analyzing the product reviews to make improvements in product and services.

“Customers trust that they can shop with confidence on Amazon. Reviews provide ... authentic feedback about products and services. Any attempt to manipulate reviews ... is strictly prohibited.” (Source : Anti-Manipulation Policy for Customer Reviews)

The number of new reviews had significantly decreased after 2016. This indicates that new purchases are highly dependent on previous reviews about *Starry Station*. I believe it is significant to manage and analyze those reviews to diagnose company's performance and obtain new insights for product development.

From this brief sentiment analysis about *Starry Station*, it was clear that customers were generally satisfied with the product and experience. 72% of customer reviews were very positive and the product's *User friendly* interface and installation were highly appreciated in particular. However, there is still room for improvements. Customers were unsure about the *price* and some had *bad experience* using the product. *Fan noise* and *wifi range* were two issues highlighted in terms of product's performance issues.

For further analysis, it would give better idea of where *Starry Station* stands in the market and help make strategic decisions by analyzing customer reviews in router subcategory.

- “Does *Starry Station* provide intended/unintended experience?”
- “What features *Starry Station* better/lack compare to competitors?”
- “Do we have appropriate pricing strategy?”
- and more...

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**I'm not affiliated with Starry Inc.*