

Analytics Report on Consumer Reviews on Amazon Products

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Consumer Reviews on Amazon Products

Introduction:

As Amazon continues its rapid growth, consumers are increasingly making purchase decisions with the help of one of the most powerful ecommerce tools: Consumer reviews.

Reviews are not just beneficial for shoppers trying to find the perfect product, they are one of the most effective ways for us to boost our brand's conversion, credibility, and overall ecommerce presence. If we have very less reviews-or if the reviews we do have are negative-we are less likely to convince customers that our product beats the competition. Reviews are a powerful form of consumer engagement.

I have undertaken this topic to research and understand about how do consumer reviews affect sales and finances? This analysis can help the product based companies implement this kind of research and to make their sales by selling products on Amazon. Also, this analysis provides a correlation between new products and increase in reviews. I have studied in this analysis that this can be beneficial to Amazon Products or any Products to keep a regular track about its popularity because as the reviews increases, the popularity increases and so does the market value.

Data Exploration:

In this report, I have analysed the Consumer Reviews Dataset to understand the importance of reviews and to analyze Amazon's most successful consumer electronics product launches. The dataset for this analysis is accessed from <https://www.kaggle.com>.

I have also worked on the below questionnaire to discover the insights into the consumer reviews.

1. Are the reviews received on Amazon Products important?
2. How do we speculate whether the product ratings received are genuine or not?
3. How do we find the Net Promoter Score (NPS) of Amazon?
4. How do we analyze and drill the characteristics of any one of Amazon's Product(Amazon Kindle)? What about its recommendations? How is its rating related to the recommendation?
5. How can we derive the comparison based on the number of reviews received for a particular product over a period of two years?
6. What are the most reviewed Amazon products?

1. Importance of Amazon Products reviews:

Not only being a metric to boost the listing's SEO ranking, but positive Amazon product reviews also directly influence the purchasing decisions of various other buyers. According to a recent study,

- **95% of shoppers read reviews** before making a purchase.
- Conversion rate exponentially increases with the number of positive reviews for that product.
- A customer is **270%** more likely to buy a product with 5 reviews than a product with zero reviews.

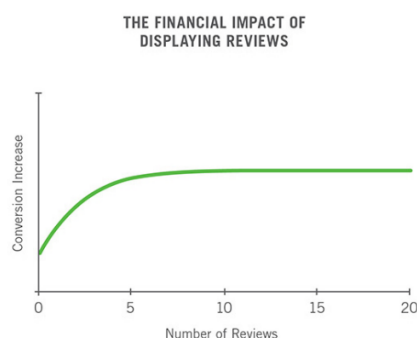


Figure 1. The Financial Impact of Displaying Reviews

Clearly, Amazon product reviews play a massive role in the customer decision-making process. This is because product reviews are one of the best forms of social proof. From a logical perspective, most consumers will look to the experiences of other customers to validate their decision. The best way to prevent remorse is to ensure that others who have purchased the product are happy with it! A good review can often push on-the-fence buyers into a purchase.

This means that the quality of reviews is paramount. Getting a lot of reviews won't necessarily translate to more sales unless those reviews are positive. This is why Amazon looks at the quality of reviews rather than just the volume. Quality reviews increase the relevance of your product and will help it rank higher in Amazon's search results.

Also, Amazon Product Reviews are important for sellers for the below reasons:

1. Amazon Safeguards the trustworthiness of reviews.
2. Reviews give Important Market Insight.
3. Buyers cherish online reviews.
4. Amazon Product Review leads to higher rankings.

2. Speculating whether the ratings are genuine:

Firstly, I read my dataset, then filtered it by removing the null values, further I classified the ratings on the basis of the No. of Users, where I found the maximum of 23775 users have rated for 5.0 and the minimum of 402 users have voted for 2.0.

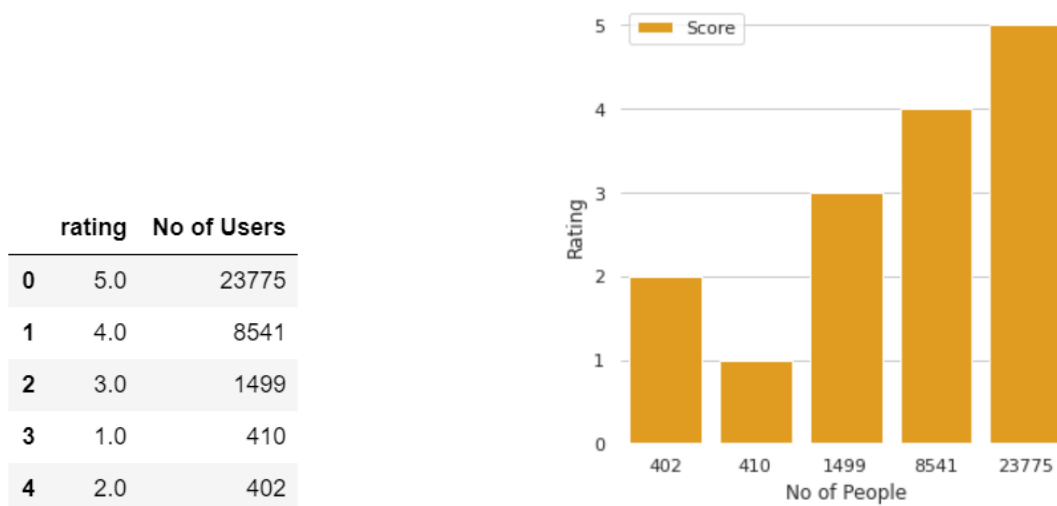


Figure 2. Table and Plot for Ratings and No. of Users

Then I analyzed if all the reviews were given by the same group of users, taking into consideration how will the distribution look for the bulk users? The output that I observed gave the following details:

Total ratings : 34658
Total users : 26789
Users giving bulk ratings (more than 10) : 146
Bulk ratings : 3160
Populations of bulk ratings : 9.117664031392463
Populations of bulk users : 0.5449998133562283

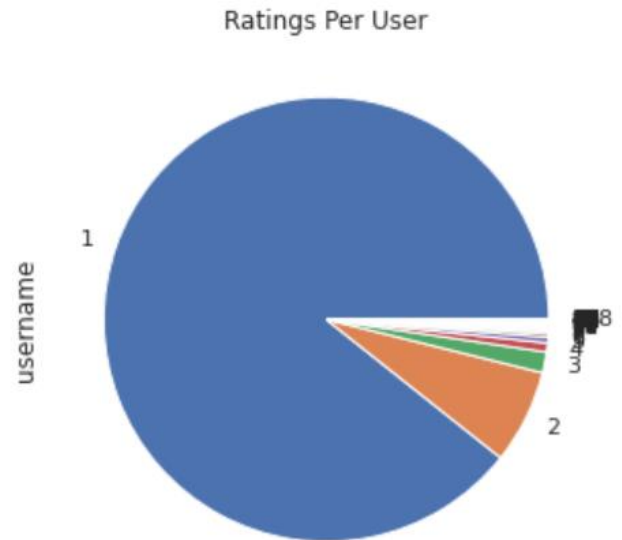


Figure 3. Output and Pie Chart of Bulk Ratings and Bulk Users

Although the pie chart reveals that most of the users have given single rating, but it is interesting to observe the facts that:

1. Only 0.55% of the users are bulk users.
2. Around 9% of the ratings have been submitted by just 0.55% users – which seems quite odd.

Then in order to make sure that the bulk users are not spam users, I plotted the distribution of user ratings.

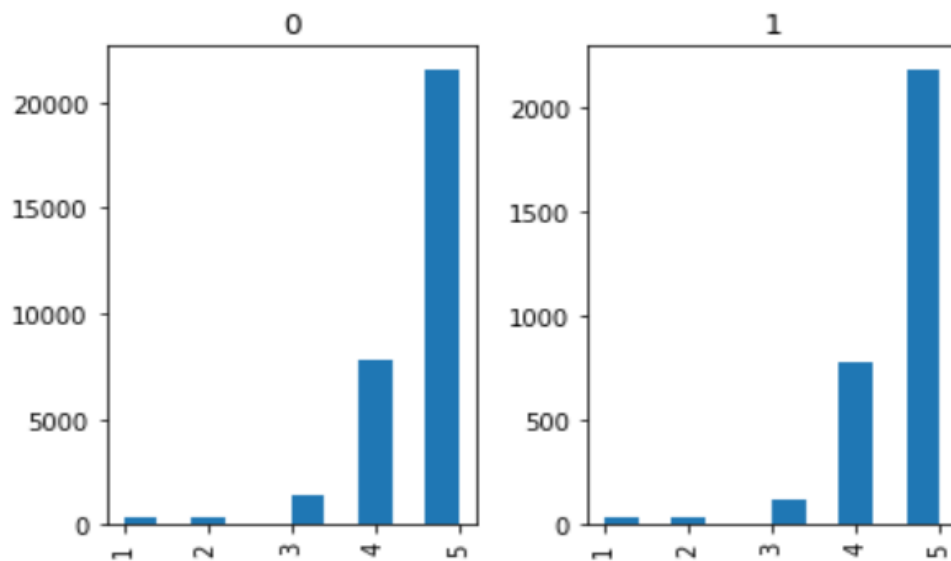


Figure 4. Distribution of Bulk and Spam Users ratings

So based on the plots, I observed that bulk users are not spam since they have the same distribution as others.

3. Net Promoter Score (NPS):

Net Promoter Score is a metric used in customer experience programmes which helps us to evaluate customer satisfaction and loyalty.

Rating 1,2,3 - Detractors

Rating 4 - Passive

Rating 5 – Promoters

$$\text{NPS} = (\text{Promoters} - \text{Detractors}) / \text{Total ratings} * 100$$

NPS score of Amazon is : 61.99

4. Analyzing the Characteristics of any one Amazon Product:

From the dataset used, I have extracted the data for '**Amazon Kindle Paperwhite - eBook reader - 4 GB - 6 monochrome Paperwhite - touchscreen - Wi-Fi – black**'. After filtering the dataset, it consisted of a total of 17 columns and 3176 observations without any null values.

Then I plotted the Amazon Customer Ratings for the filtered dataset, Figure 5. which can be found below, and also calculated the Net Promoter Score for Amazon Kindle Paperwhite, which came out to be 77.08, better than the NPS of overall Amazon.



Figure 5. Plot for Amazon Kindle Paperwhite Customer Ratings

Taking a look over the recommendations, I wanted to classify how many users do and do not recommend Amazon Kindle Paperwhite. After analyzing the filtered dataset, I observed that only a few number of users, 65, do not recommend Amazon Kindle Paperwhite, rest of the 3111 users do recommend it.

Later on, I wanted to plot the ratings of Amazon Kindle paperwhite along with its recommendations. The below Figure 6. illustrates the relation between the two of them.

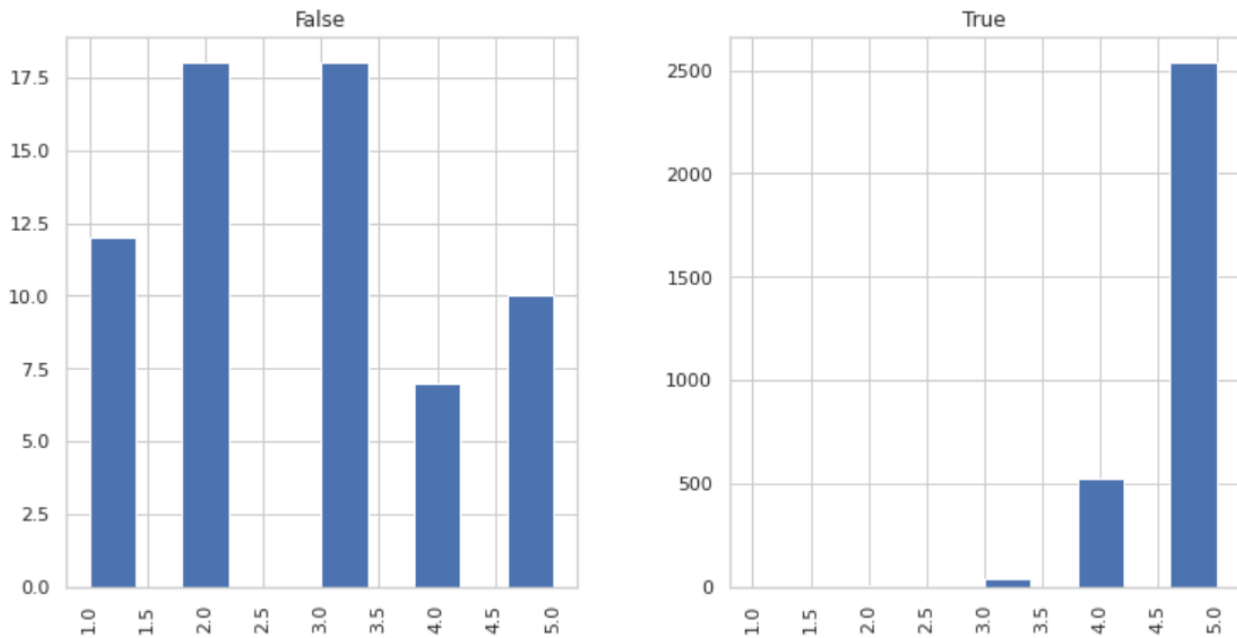


Figure 6. Plot for Amazon Kindle Paperwhite Ratings along with Recommendations

After plotting the ratings and recommendations, I generated the Net Promoter code based on the recommendations. The output that it calculated for those who do and do not recommend Amazon Kindle was not even close to each other.

Those who recommend amazon kindle generate high NPS score of 98.23
Those who DO NOT recommend kindle produce a NPS score of -20.0

The Time series graph for Amazon Kindle Paperwhite shows *random variation* since there are no patterns or cycles. But there is a sudden increase in the time series at the start of the year 2017 which again later falls back and follows random variation.

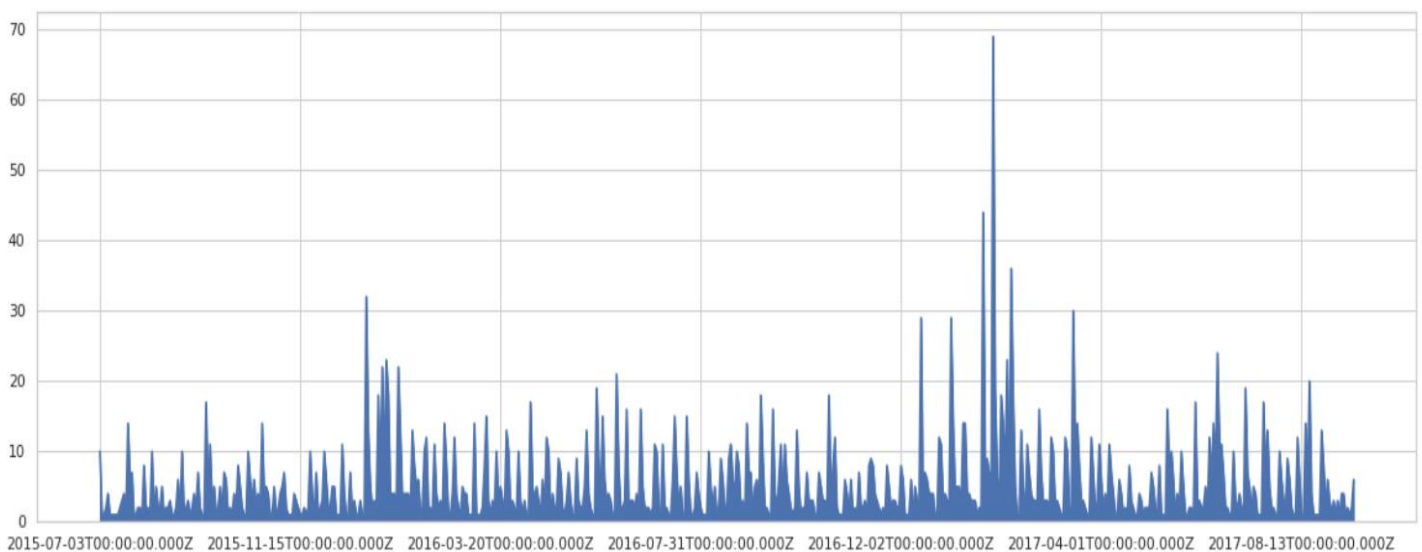


Figure 7. Time Series Plot for Amazon Kindle Paperwhite

Furthermore, based on the dates and ratings, I wanted to know which month of the year shows higher number of sales and what is the change in the reviews over time?

1. January month has the highest number of peaks of 8, which tells us that the activities are performed on a higher scale in the month of January hence, a rise in the sales are observed.
2. There is high degree of variance in the reviews added over time.

5. Comparison based on the number of reviews received for a particular product over a period of 2 years:

For this analysis, I have considered the Amazon Product ‘Fire Kids Edition Tablet, 7 Display, Wi-Fi, 16 GB, Green Kid-Proof Case’. I have analyzed the data of this product for over two consecutive years, 2016 and 2017 respectively. I have first plotted a graph of the number of reviews over the year 2016 to observe the changes that might have taken place and then plotted a second graph over the year 2017. The plots for both of them(Figure 8. And Figure 9.) can be seen below.

From the Figure 8. , I observed that in the middle of the year the reviews were very low after that they increased for a while and remained stable, but towards the end of the year, we could see that it increased gradually.

From the Figure 9. , I observed that the increase during the end of the previous year 2016, continued in the start of the year 2017 but that was just for a short span of time. Later in the end of the first month of 2017 itself, the reviews fell back and increased slightly later.

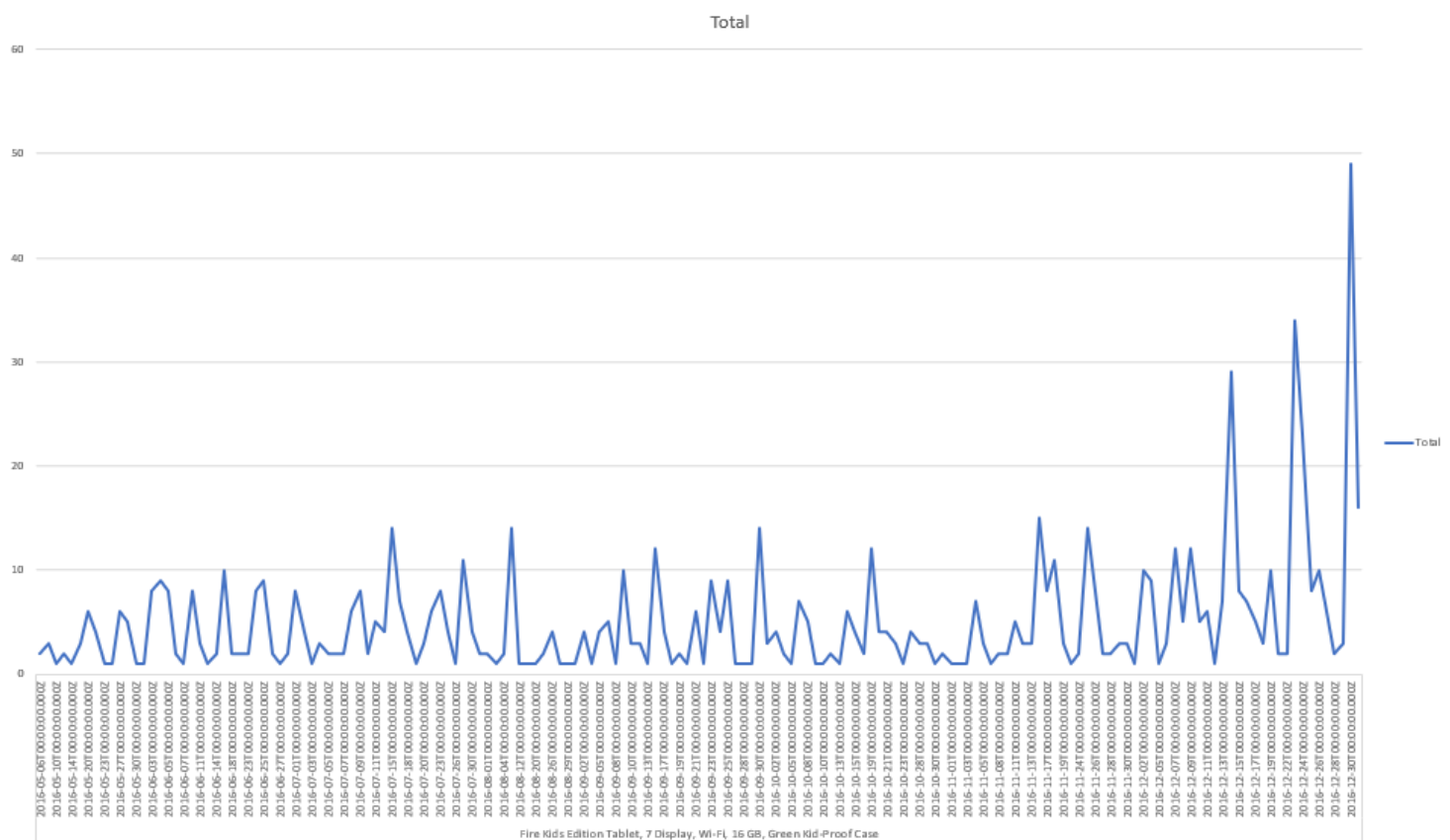


Figure 8. Line Graph of Reviews for Fire Kids Edition Tablet (2016)

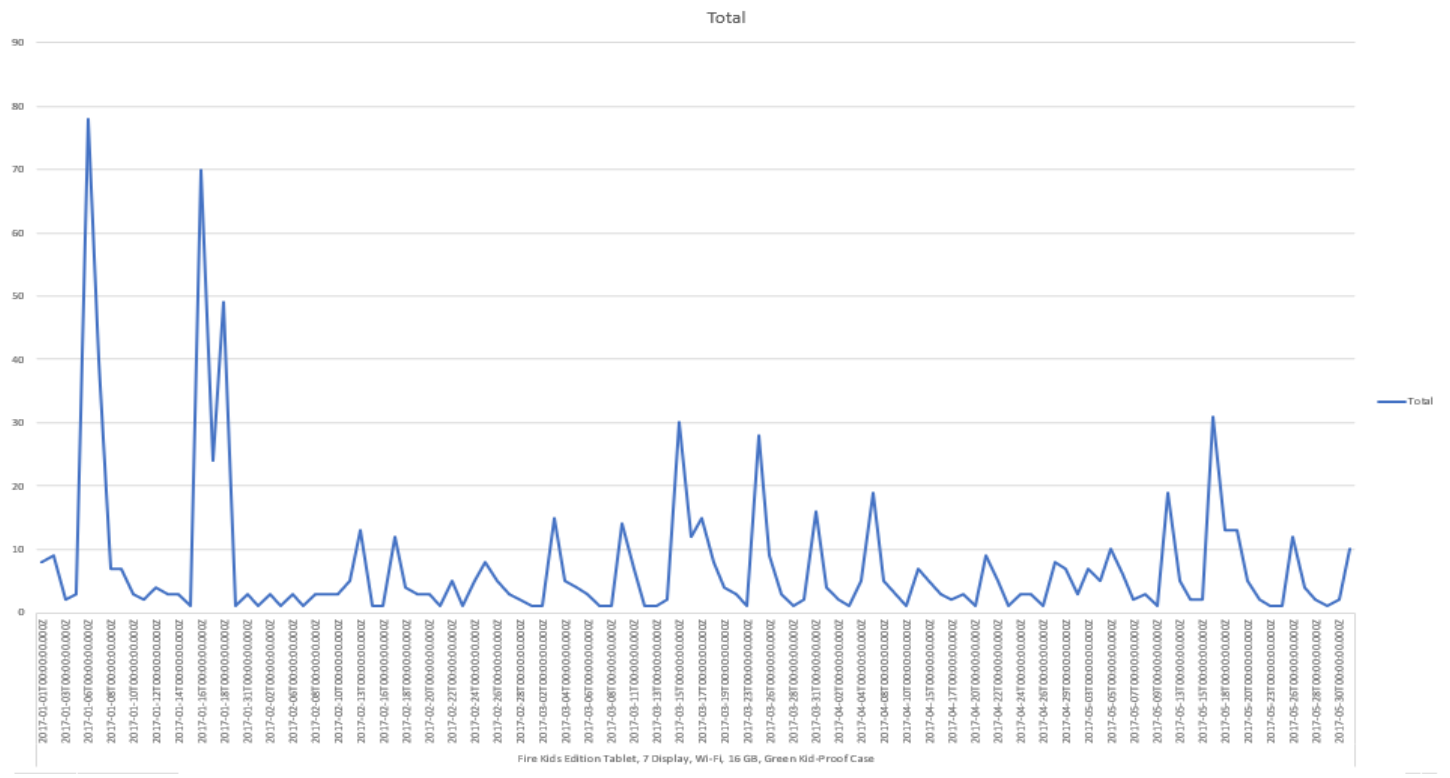


Figure 9. Line Graph of Reviews for Fire Kids Edition Tablet (2017)

6. The most reviewed Amazon Products:

The below Figure 10. illustrates the most reviewed Amazon Products over a period of six years, that is from 2010 to 2016.

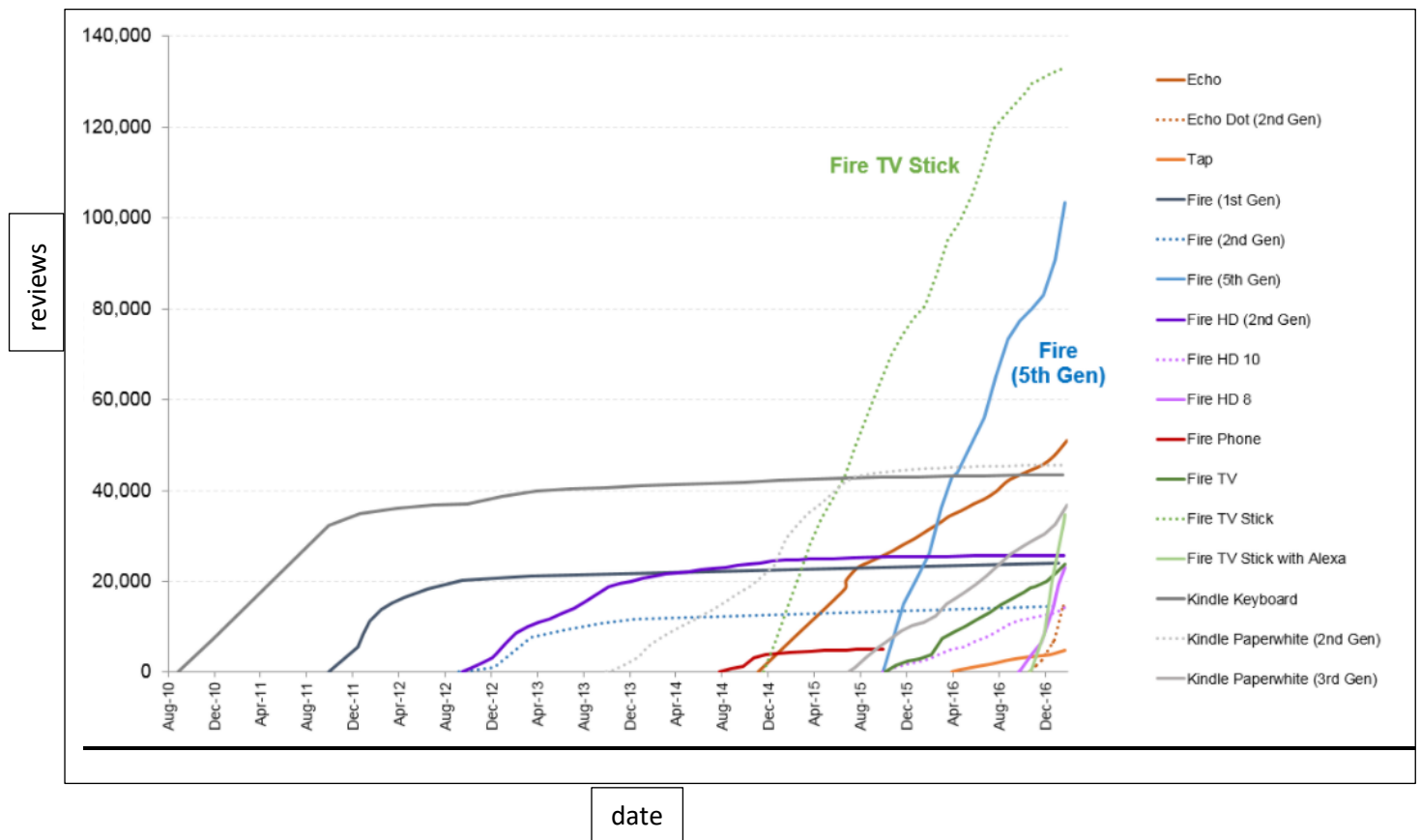


Figure 10. Graph including the Most Reviewed Amazon Products

From the above Figure 10. I observed that Fire TV stick showed the most number of reviews and it's graph is seen increasing gradually in a comparatively short span of time. Along with Fire TV Stick, the Fire tablet of the latest generation showed a gradual rise similar to the Fire TV stick.

Some products of Amazon that were launched in the beginning showed a slight increase and then remained constant till the end, like Kindle keyboard and Fire tablet first generation.

Besides, there are many other Amazon Products that have launched in the 2016 and they don't have much reviews as it would take sometime.

Ethics-

The content that I have used for this research is purely authentic. I have taken care that no customer data has been misutilized. The data was properly masked so that it would not be leaked or tweaked by any third party interference. The customer information along with the id is also utilized in such a way that there is no hindrance or issues from my end.

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