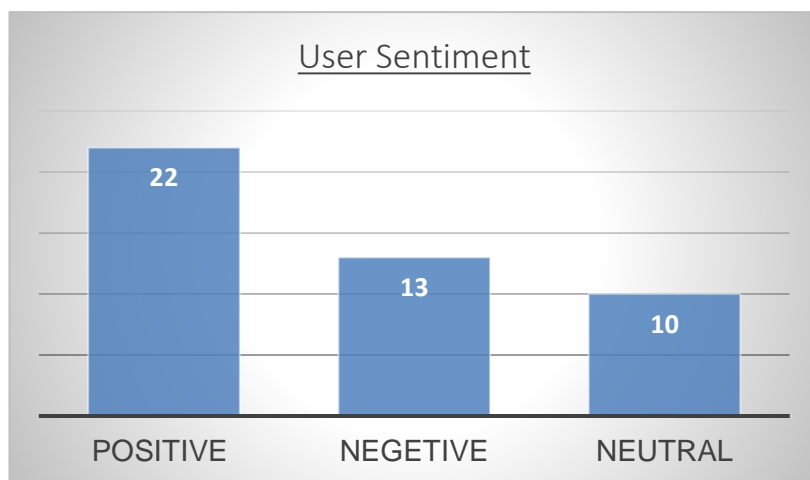


## Analysis of Google Play Store App Data Set AMAZON SHOPPING

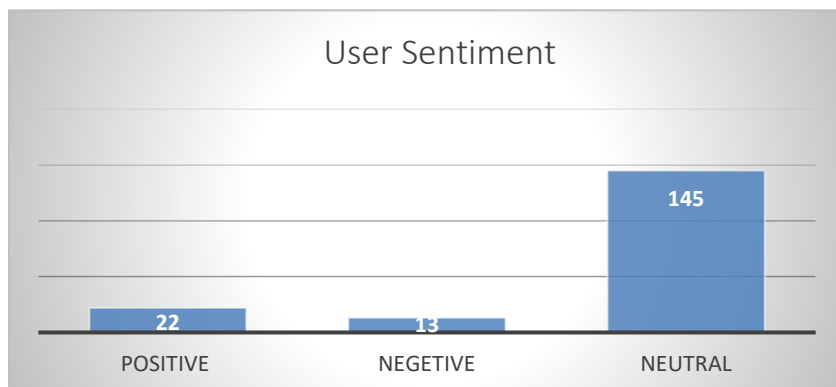
### User Sentiment Analysis:

We got the data of 180 users of Amazon Shopping app on Google Play Store out of which 25 percent of the app users have given a review. After the user sentiment analysis, we got the following data:



The data shows that out of 180 user reviews, 22 users have given a positive review about the app, 13 users are not satisfied with the app service and 10 users have not given any *specific rating* to the app but gave some subjective reviews, total of 45 users who gave ratings and subjective reviews to the app. The remaining 75 percent belongs to those who have not given any review about the app with a total of 135 app users.

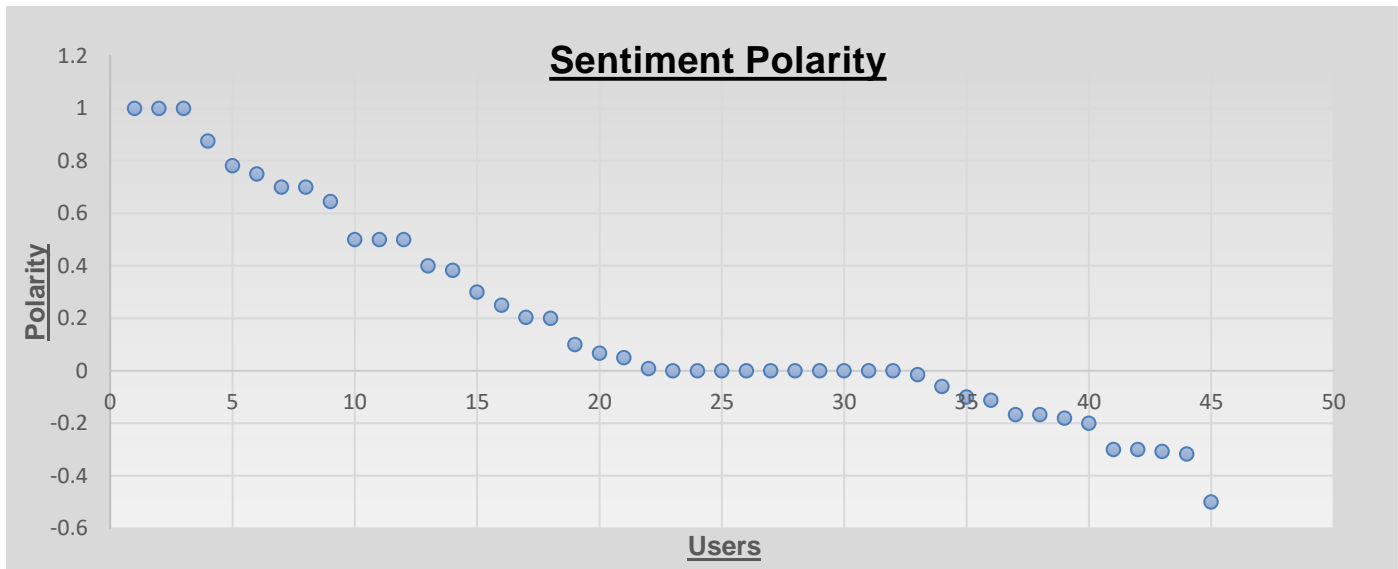
If we include the data of users who have not given any *specific rating* to NEUTRAL dataset, we get the following graph:



Which leaves us with only 19 percent of users who rate the app and the remaining 81 percent in the neutral side.

## Sentiment Polarity

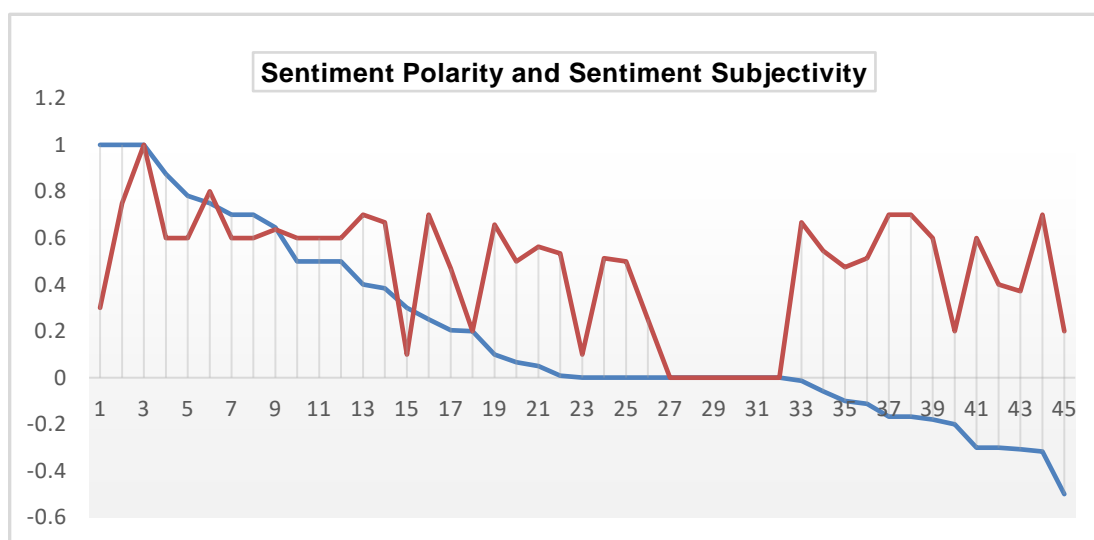
Sentiment polarity for an element defines the orientation of the expressed sentiment, i.e., it determines if the text expresses the **positive**, **negative** or **neutral sentiment** of the user about the entity in consideration. Polarity is float which lies in the range of  $[-1, 1]$  where **1** means **positive statement** and **-1** means **a negative statement**.



*This chart shows the Sentiment Polarity of the 45 users who reviewed Amazon Shopping app on Google Play Store*

## Sentiment Subjectivity

Subjective sentences generally refer to **personal opinion, emotion or judgment** whereas **objective** refers to **factual information**. Subjectivity is also a float which lies in the range of  $[0, 1]$ . Where 1 means high subjectivity and 0 means low subjectivity or objectivity. The data shows the comparative analysis between sentiment polarity and subjectivity:

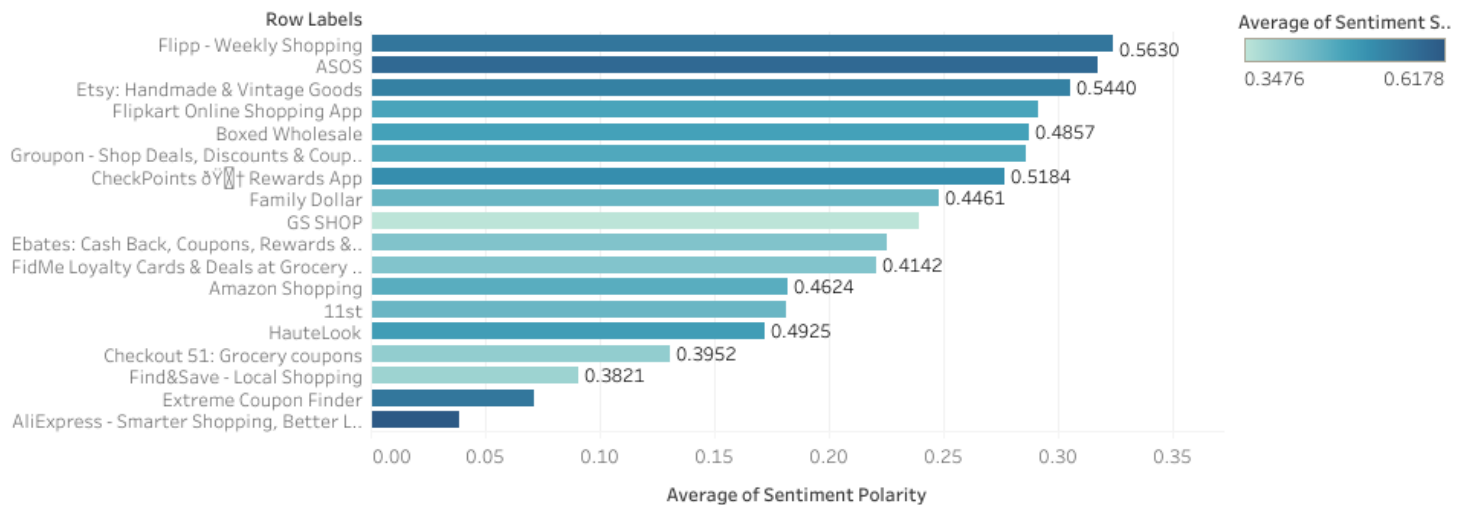


*Red line shows the Sentiment Subjectivity and Blue Line shows the Sentiment Polarity.*

We have also identified the app's standing against its competitors in its category set in relation to the average sentiment polarity and subjectivity. You will see in the table that the app did not receive as much POSITIVE reviews from its users as compare to its competitors. This may also show that in parallel to this analysis only a few of Android users installed the app on their phones.

### Category: Shopping

Average of Sentiment Polarity and Subjectivity

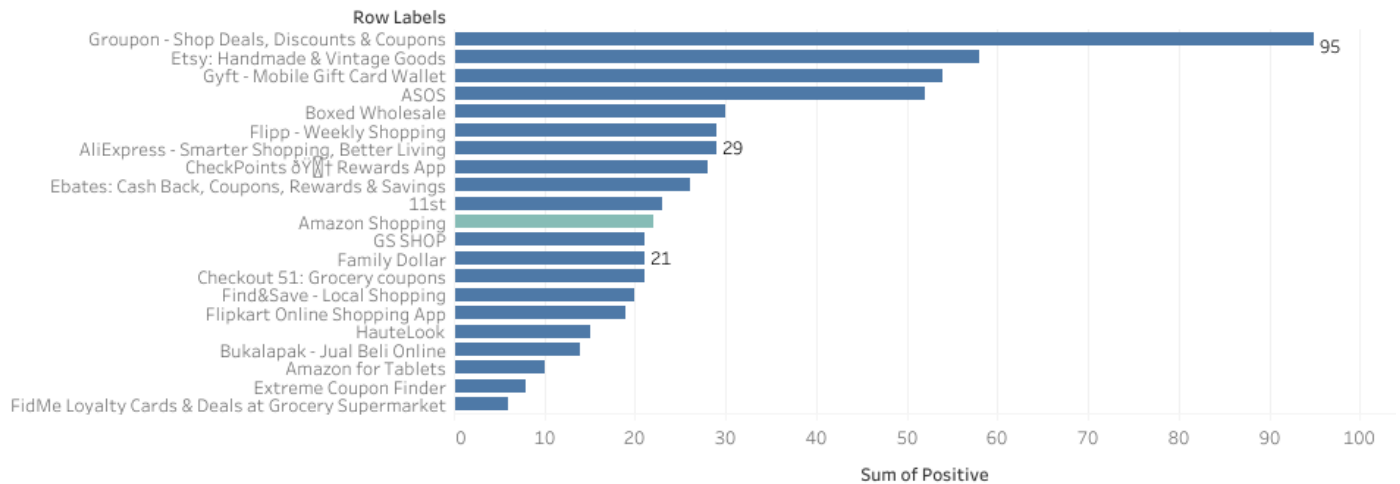


The users complemented the app about how Amazon keep its great deals with cheaper prices, its features - some of which the app provides comparisons over top-rated best-selling items at its best price, the exact detailed description of each product and also the refund buyer protection. However, despite all the complements, app users complained a lot about the app itself. Many said that problems occurred when the latest update happened, there were some lags and delays when loading a product, unnecessary advertisements, frequent crashing of the app which disrupts user's shopping experience. There were also some comments about unnecessary notifications from the app when not in use due to lack of option in deactivating notification from the app which leaves the users continuously bombarded with messages to buy some items using the app.

In the next page, we will show you the ranking of Amazon Shopping app in relation to the positive and negative reviews from its users in its category set.

**Category: Shopping**

Positive Review of Shopping Apps with Ranking

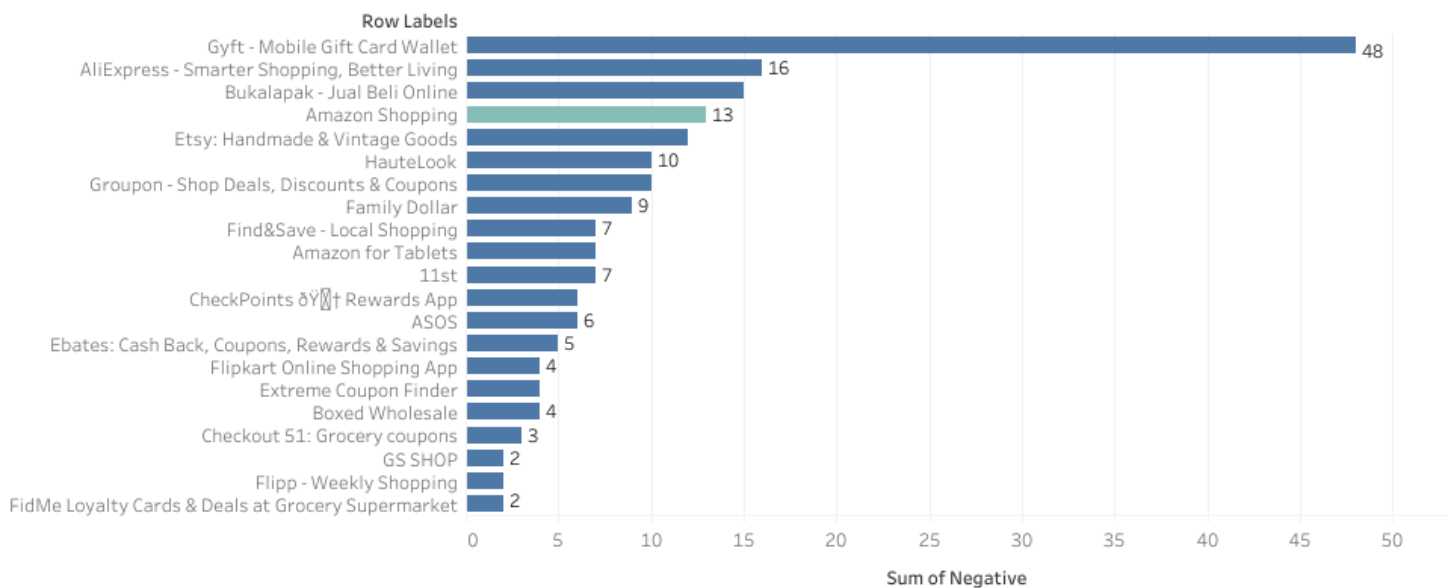


In the overall Shopping Category in relation to the positive feedback received from the app users, Amazon Shopping app placed 11<sup>th</sup> over the 30 shopping apps existing in Google Play Store with 4% positive rate from the users leaving *Groupon – Shop Deals, Discounts & Coupons* app in the top with 16% positive reviews from its app users.

Furthermore, the app ranked in the 4<sup>th</sup> place in its category set when it comes to receiving negative reviews from its users and ranked 3<sup>rd</sup> when the outlier is removed.

**Category: Shopping**

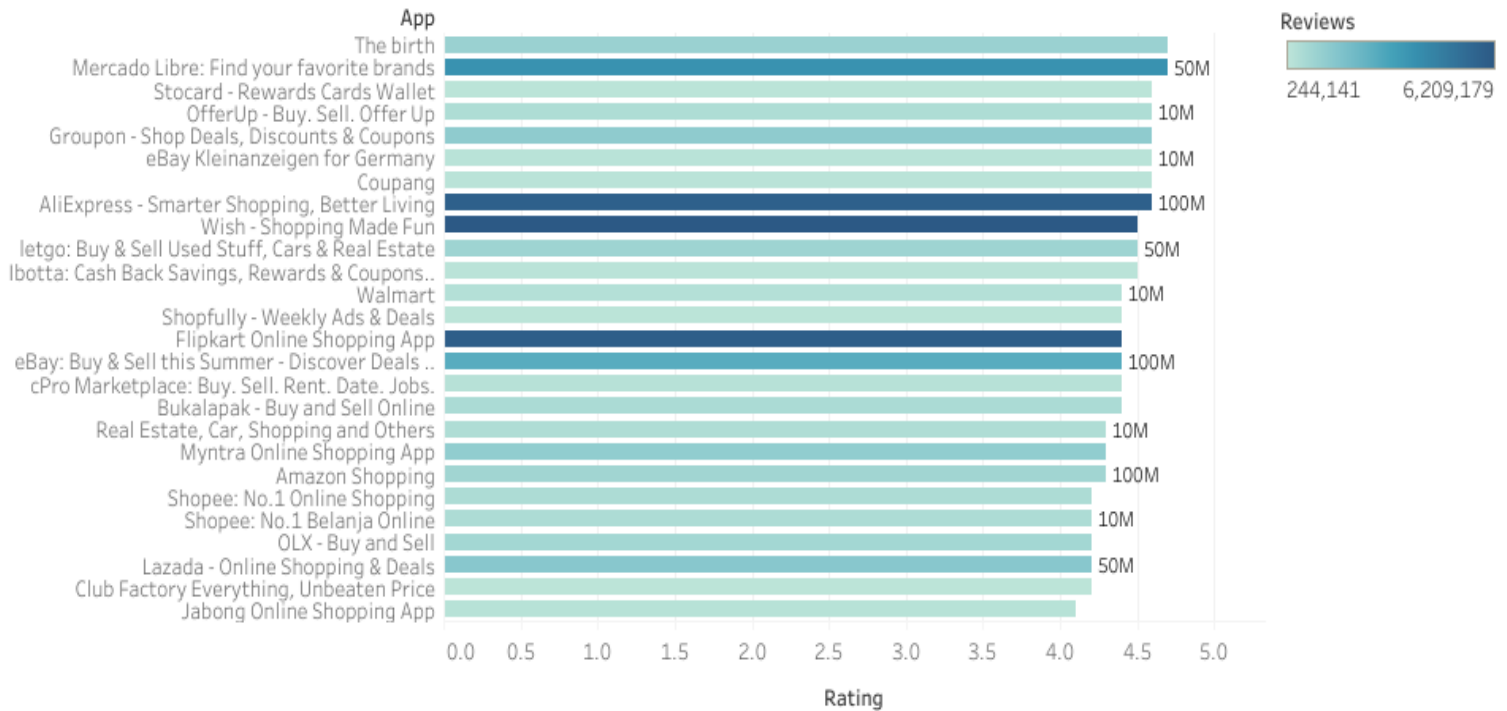
Negative Review of Shopping Apps



*The apps in the Shopping Category with no ratings nor reviews from its users are excluded from the graphs above*

On checking the broad view of Google Play Store App dataset, we found that there are around 260 shopping apps. Most of them have very a smaller number of installs. We found that 2 of them are PAID (\$2.49 & \$2.99). Below we have shown some popular shopping apps, they stand above average in terms of total number of installs and total number of reviews. The chart also shows the **Ranking** of these shopping apps in respect of their ratings.

Most Installed Apps in Shopping Category and their Ratings



*The shading on app bars shows the number of reviews they received on Google Play Store*