

Twitter-Sentiment-Analysis of Iphone

Sriprasath

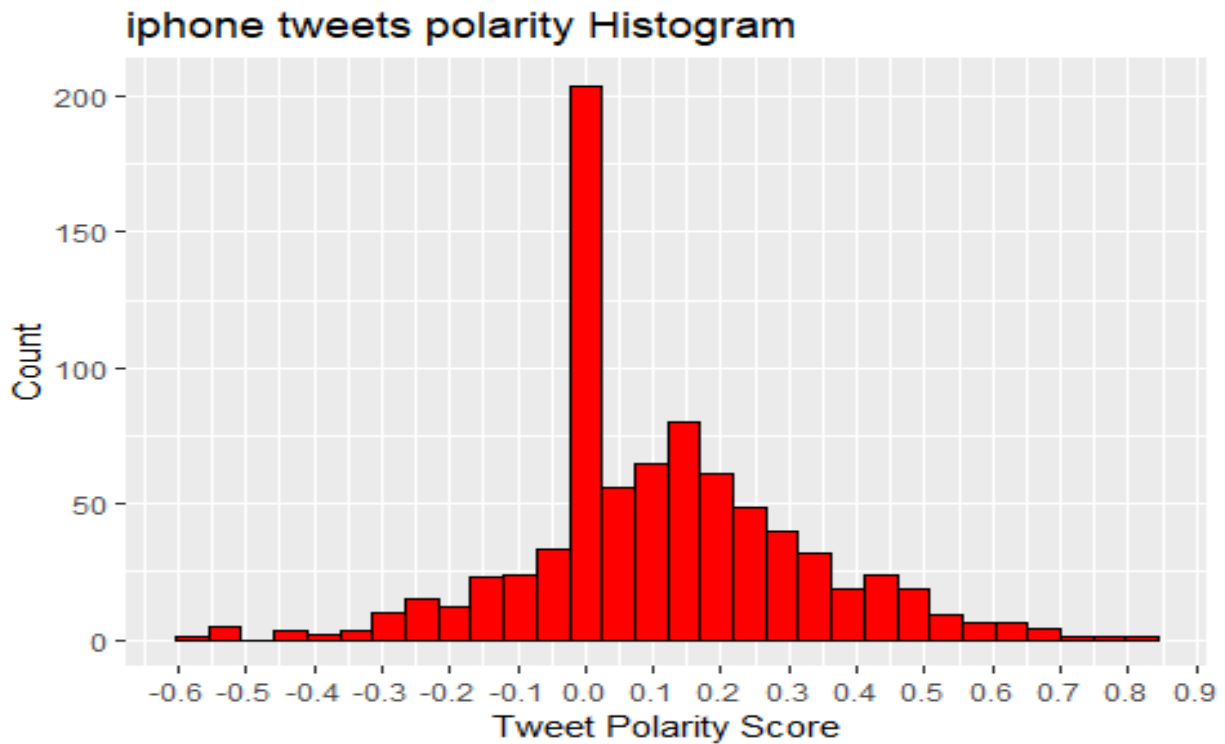
April 12, 2020

Introduction:

For this project I have taken the hashtag iphone. So all the tweets about iphone are collected from twitter using `search_tweets()`. After collecting them the sentiments of the tweets are determined by using `sentiment_by()` from `sentimentr` package. After determining the sentiment polarity score of each tweet, they are analyzed by using popular hashtags related to iphone. Through web search the popular hashtags related to iphone recently were found to be `portrait`, `android`, `mobilesecurity`, `iphone11`, `iphone12` and `ipad`.

Because of the following reasons the above hashtags are popular and are considered for the analysis of iphone tweet Sentiments. Portrait Camera mode became very popular recently since it uses the cameras in compatible iPhone models to create a depth-of-field effect. Hence it became popular among people recently. Iphone and android smartphones are often compared with each other by the users to determine which is better. So hashtag android is also often used by the iphone users. Iphones from the beginning have been very popular for their mobilesecurity. So mobilesecurity was also taken to analyze the sentiments of iphone tweets. The latest model of iphone released is `iphone11`. So this is also popular among people. `Iphone12` is yet to be released. So there is a huge expectation and talk going on among the iphone users. So it is also taken for the analysis. Iphones and ipads are interconnected to each other since both are apple products and have many common features. Hence it is also taken for analysis. So these analysis are performed using histogram, boxplot and likert plot.

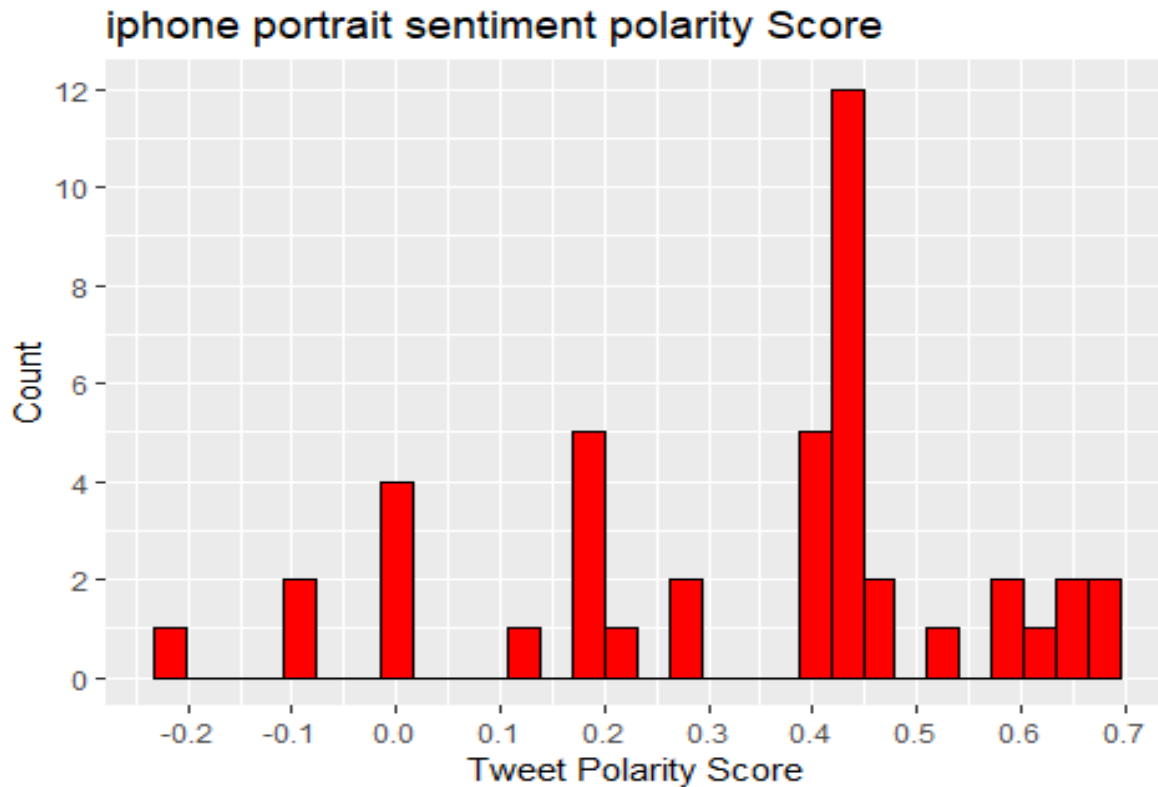
Determination of the Sentiment polarity score of iphone tweets and plotting it in the form of histogram:



From the histogram it is evident that there are more than 200 neutral sentiments .It is also clear that the number of positive sentiments is greater than the number of negative sentiments.

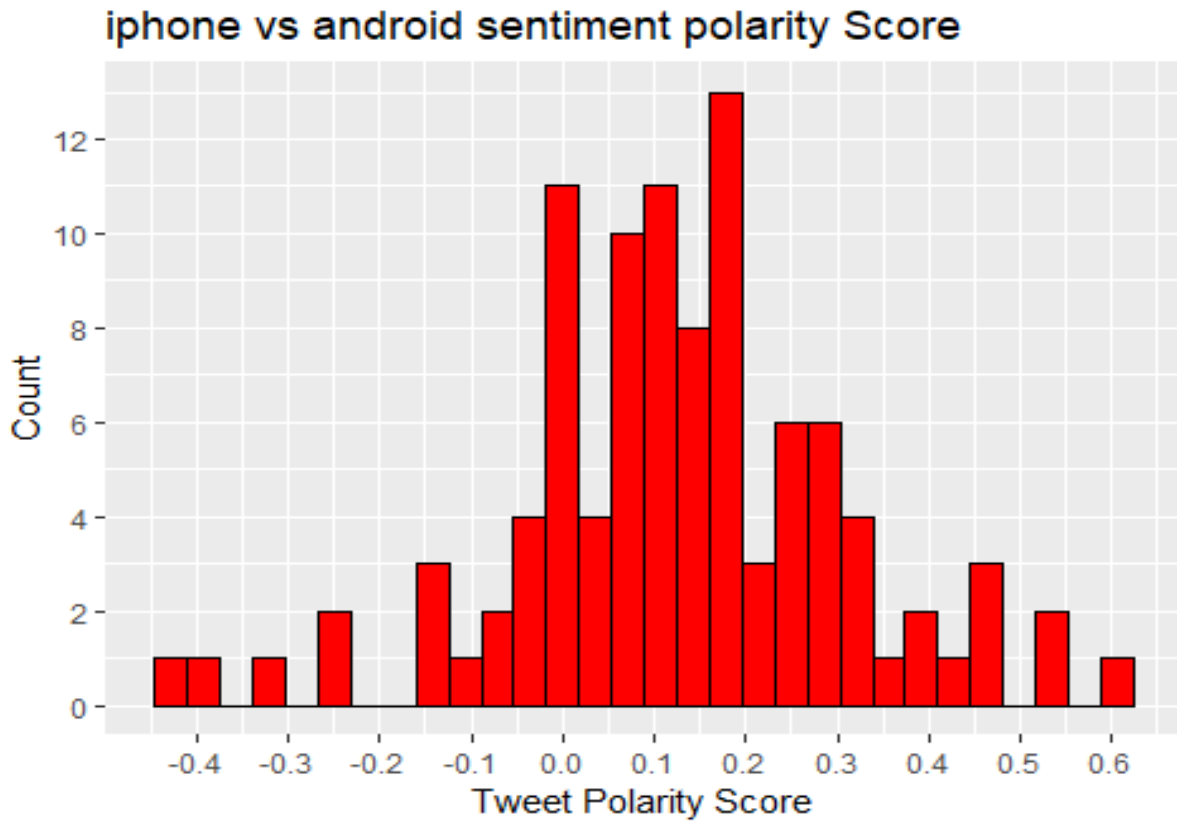
Deriving the sentiments of popular hashtags related to iphone like camera portrait mode, iphone vs android, iphone mobilesecurity, Iphone11, Iphone12, Ipad and plotting histogram for each of it.

Sentiment Polarity Score and histogram of Iphone Camera Portrait mode



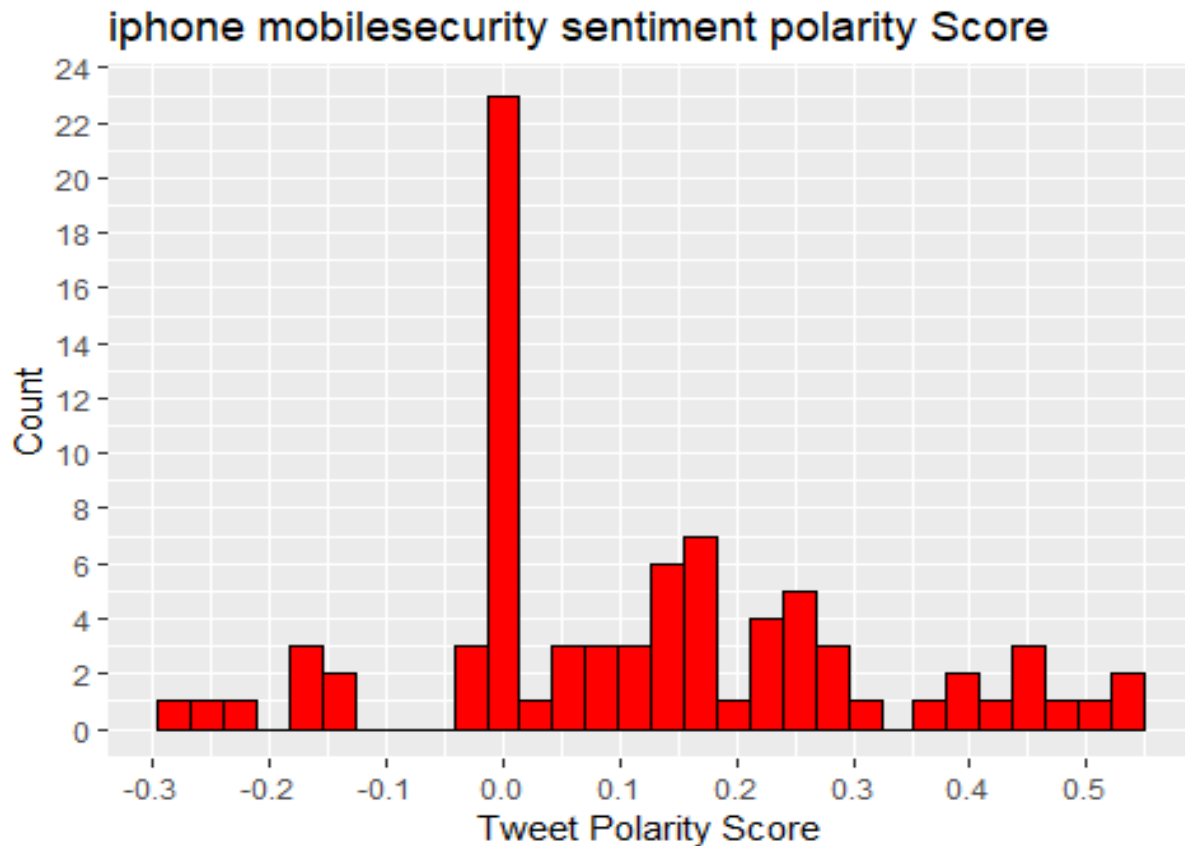
From the histogram it is evident that iphone camera portrait mode tweets have more positive tweets than the negative tweets. The maximum number of tweets have polarity score from 0.4 to 0.5. So iphone users enjoy the portrait mode of iphone camera and hence have given a good positive tweets for that.

Sentiment Polarity Score and histogram of Iphone vs Android



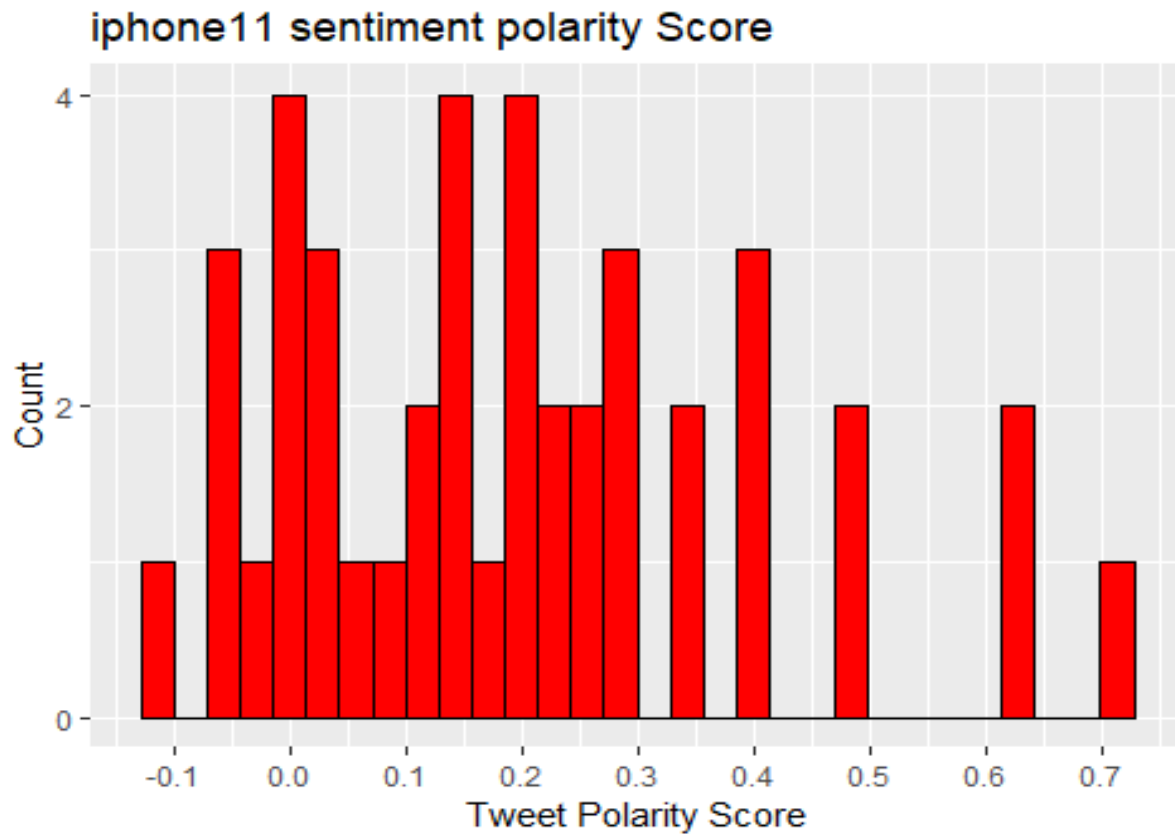
From the histogram we can see that there are many peaks in the positive side. These positive tweets may be due to tweets which highlight the impressive feature of one of them compared to another. The highest number of tweets in the histogram is between 0.15-0.2 which is 13.

Sentiment Polarity Score and histogram of Iphone Mobilesecurity



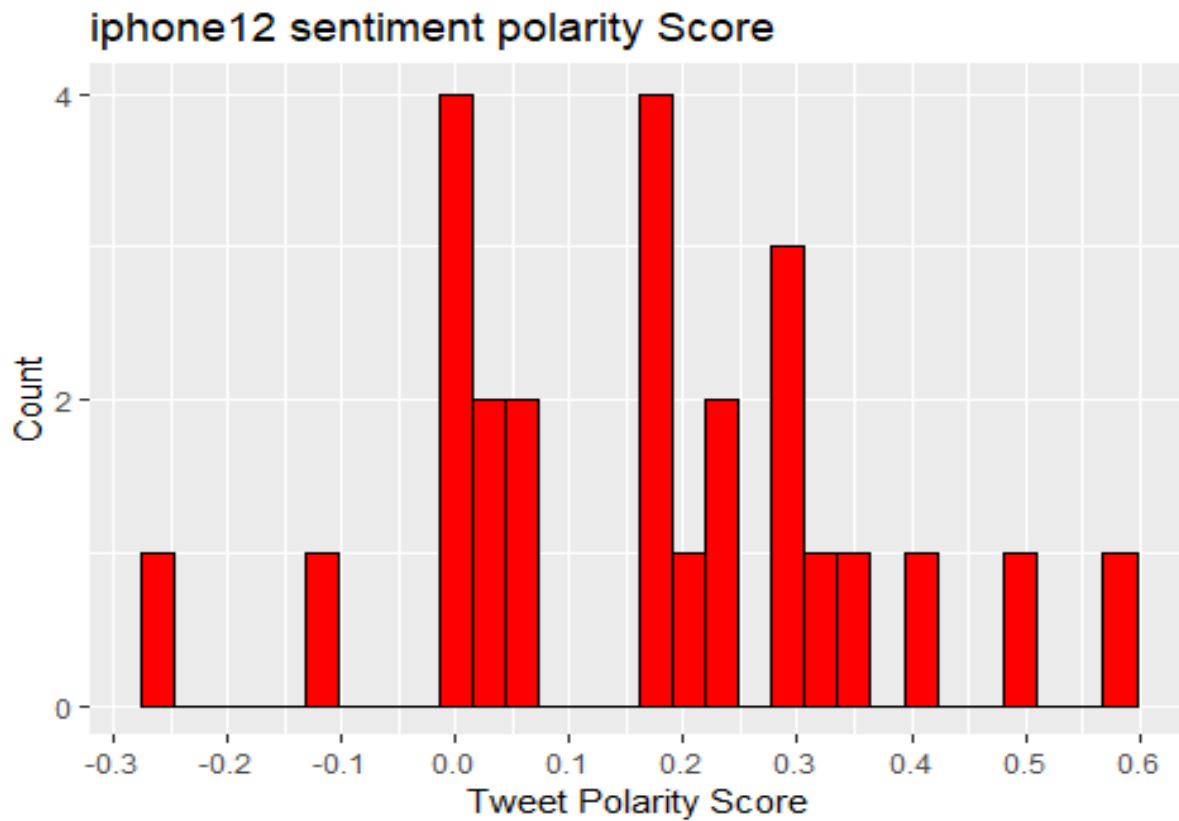
Iphone have been very popular for mobilesecurity. Many people buy iphone for this particular reason. This fact is clear through the histogram in which the number of positive sentiments is greater than the number of negative sentiments. Also there is a large number of neutral sentiments. These sentiments may be due to tweets which tell us about the updates of mobilesecurity on iphone.

Sentiment Polarity Score and histogram of Iphone11



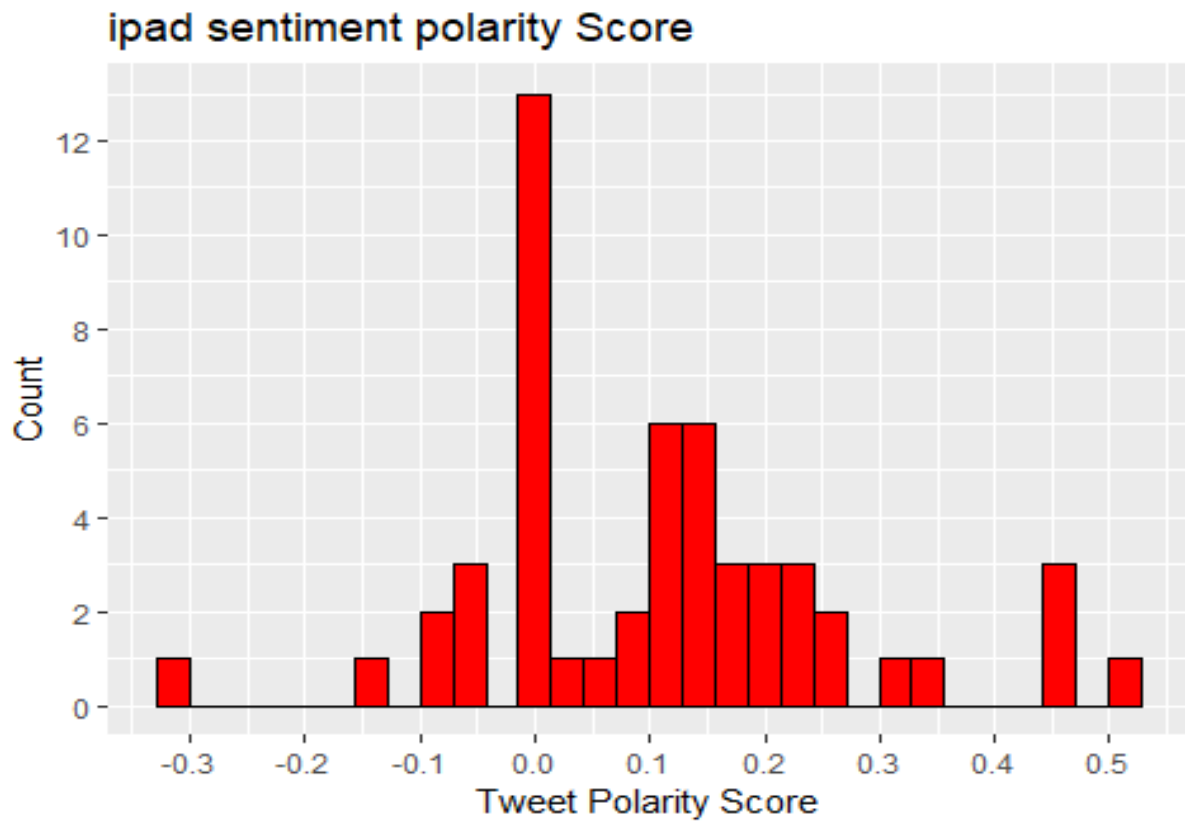
The latest model of iphone released is iphone11. The iphone11 also contains many positive reviews from the tweets taken. There are only countable negative reviews(5 reviews) for iphone11. So the tweeters(a person who tweets) who have tweeted the tweets that we have taken for this project are enjoying the new features of iphone11 model.

Sentiment Polarity Score and histogram of Iphone12



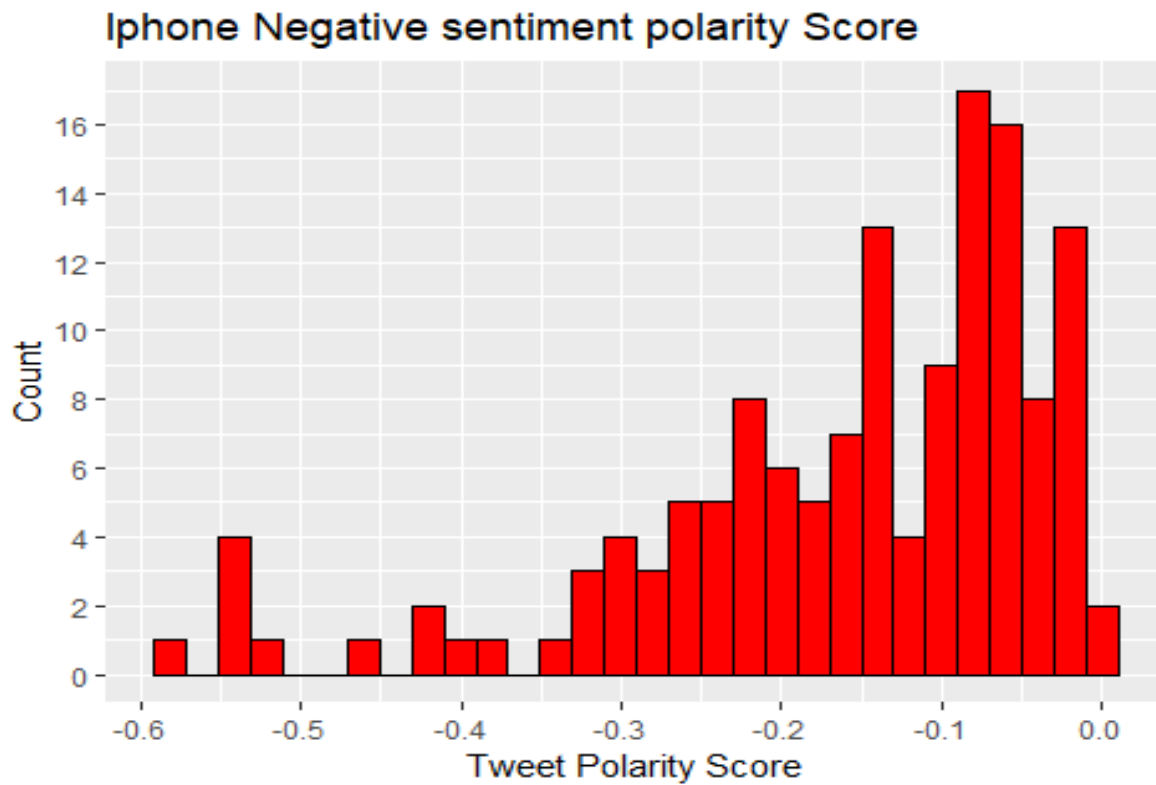
The iphone12 is yet to be released by apple. From the histogram we can see that there is a huge expectation for iphone12. So many people have given positive tweets telling us about the expectations of this model.

Sentiment Polarity Score and histogram of Ipad



Iphone and ipad are always closely interconnected to each other since there are many common features among them and both are produced by apple. In many respects, the iPad is a big iPhone that can't place traditional phone calls. From the histogram it is evident that there are many positive tweets which may be tweets highlighting the features of ipad. There is also many neutral tweets, these may be tweets about the new releases about the ipad models.

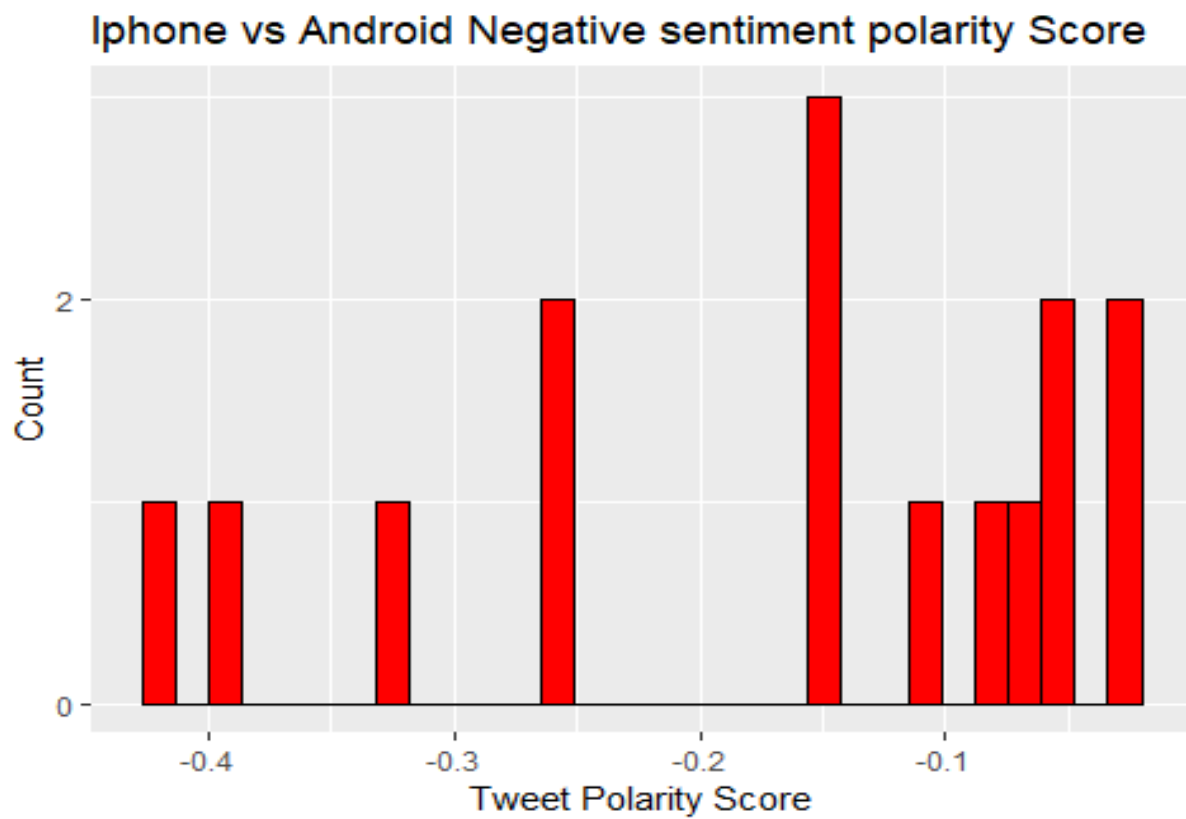
Filtering the negative Tweets



There are very less number of negative tweets from the tweets I have taken for this project. So in order to analyse the composition of negative tweets thoroughly I have filtered out the negative tweets from the from the other tweets. From the web search the popular negative tweets related to iphone were found to be iphone vs android, Iphone Camera, IOS, Covid 19.

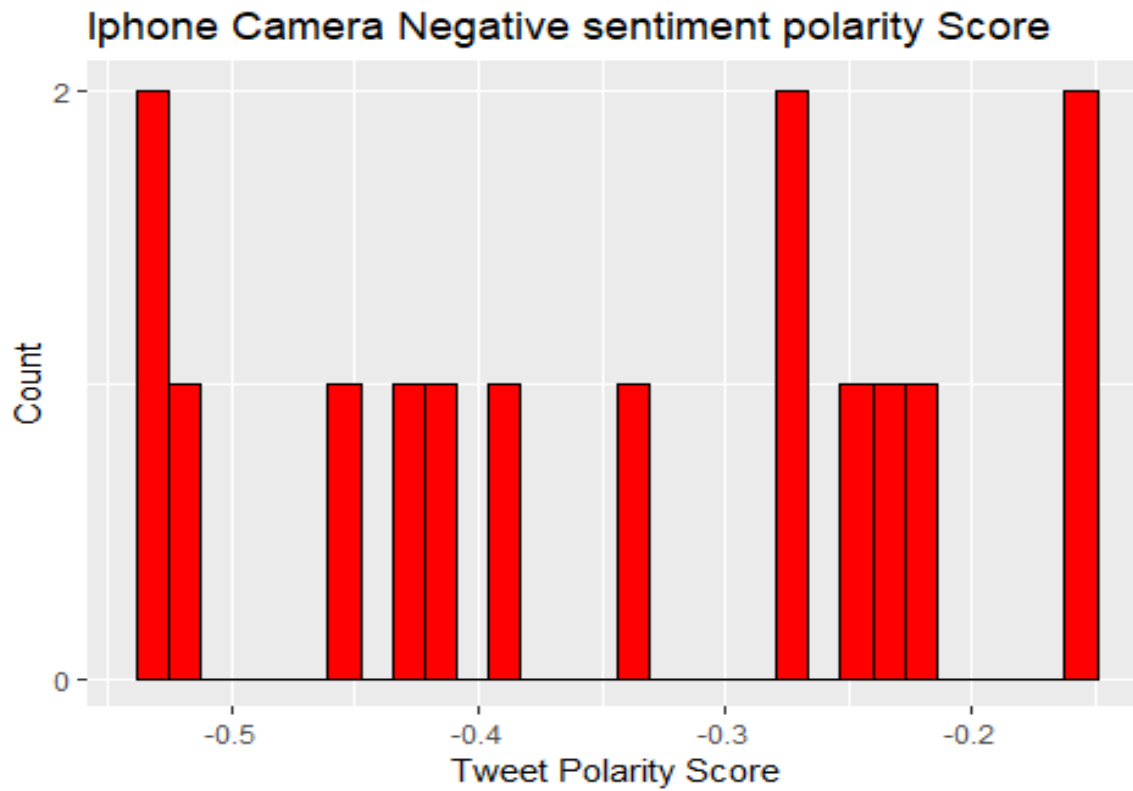
Though in the earlier part we took the iphone vs android tweets and analysed that there are many positive tweets for iphone, but there were also some(very less in number) negative tweets. I have also taken Covid19 because it is one of the most trending hashtag in every topic of discussion in twitter nowadays.

Sentiment Polarity Score and histogram of Iphone vs Android Negative Tweets



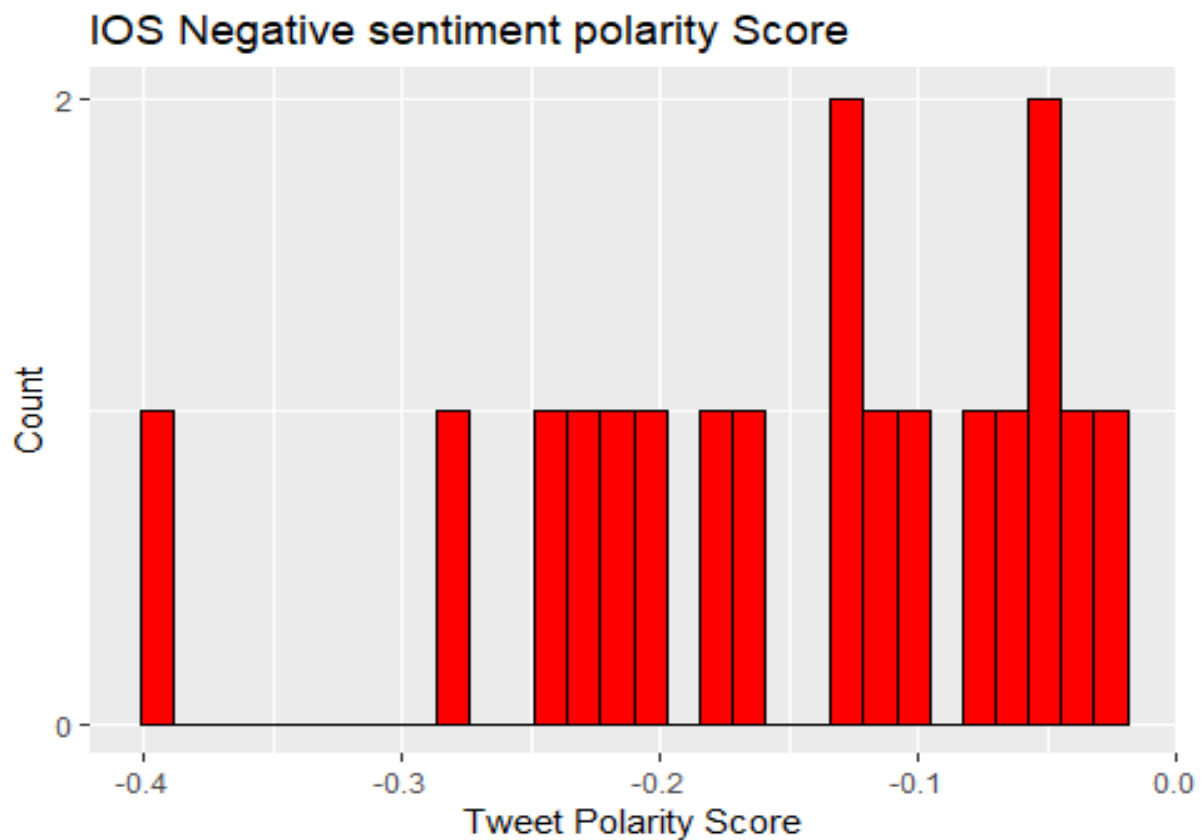
These negative tweets may be due to tweets which highlight the negative features of one of them compared to another.

Sentiment Polarity Score and histogram of Iphone Camera Negative Tweets



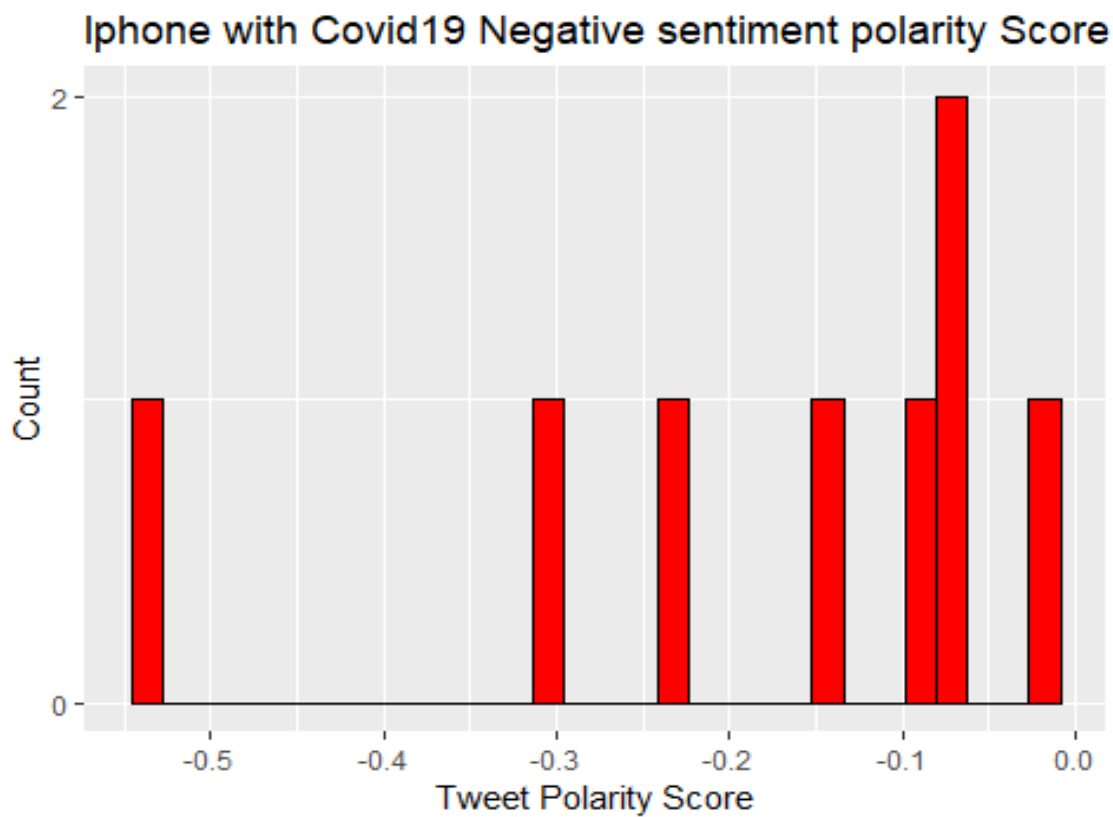
The negative reviews of Iphone Camera may be due to attacks by hackers to iphone camera. The number of tweets that have sentiments lesser than -0.5 from the tweets we have taken is only 6. Out of this 3 of them are about Iphone Camera.

Sentiment Polarity Score and histogram of IOS Negative Tweets



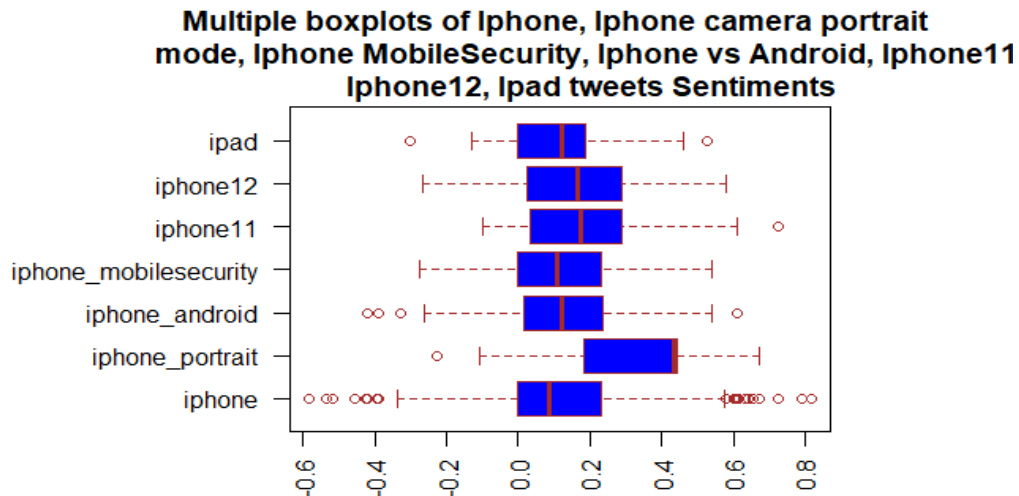
The negative reviews of IOS may be regarding the negative features of iphone. From the histogram we can see that many of the negative reviews regarding IOS are between 0 to 0.15 denoting a slight negative tweets.

Sentiment Polarity Score and histogram of Iphone and Covid19 Negative Tweets



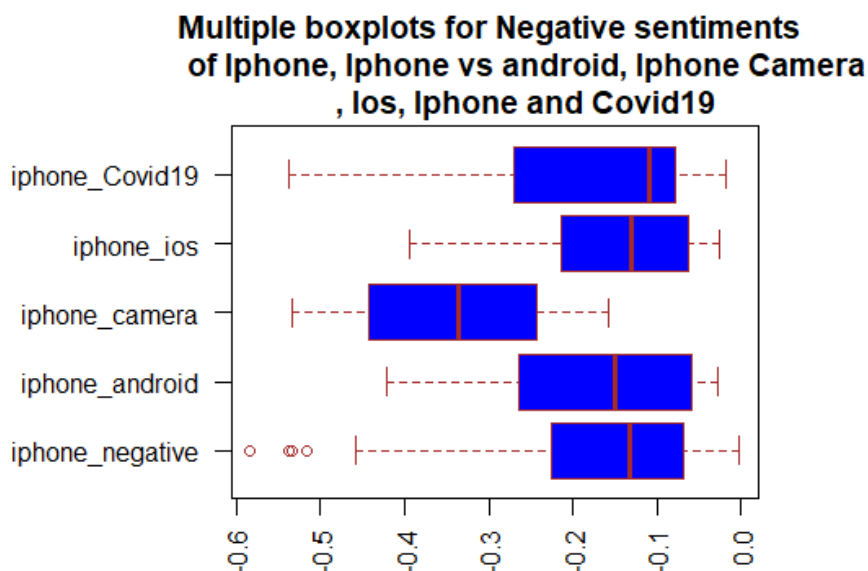
Since the coronavirus has been in every topics of day to day life I have also included it in our analysis. There are only very few tweets regarding covid19 (only 8 tweets) and these may be due to the inability to use phones outside their house.

Multiple boxplots of Iphone, Iphone camera portrait mode, Iphone MobileSecurity, Iphone vs Android, Iphone11,Iphone12, Ipad tweets Sentiments



From the boxplots we can see that there are many positive outliers for iphone than the negative outliers. The boxplot of iphone portrait is quite interesting because its median value is approximately 0.4. Hence almost 50% of the tweets about iphone portrait have sentiments greater than 0.4. So many of the outliers of iphone will also be contributed by iphone portrait among the 6 hashtags taken. Also another interesting point to note is that almost all including iphone have 25th quartile at either 0 or slightly greater than 0. Hence approximately 75% of the tweets have sentiment score greater than or equal to 0.

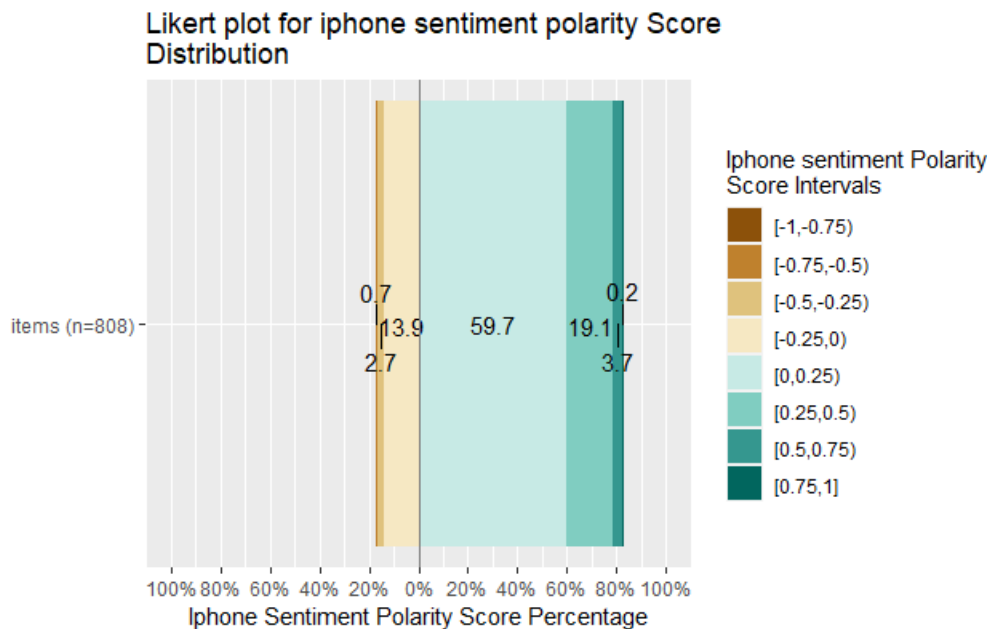
Multiple boxplots for Negative sentiments of Iphone, Iphone vs android, Iphone Camera, Ios, Iphone and Covid19



From the boxplots we can see that the outliers of iphone negative tweets are due to mainly iphone camera and iphone covid19. Also the median of iphone camera is very much less when compared to all others denoting that it has many negative values.

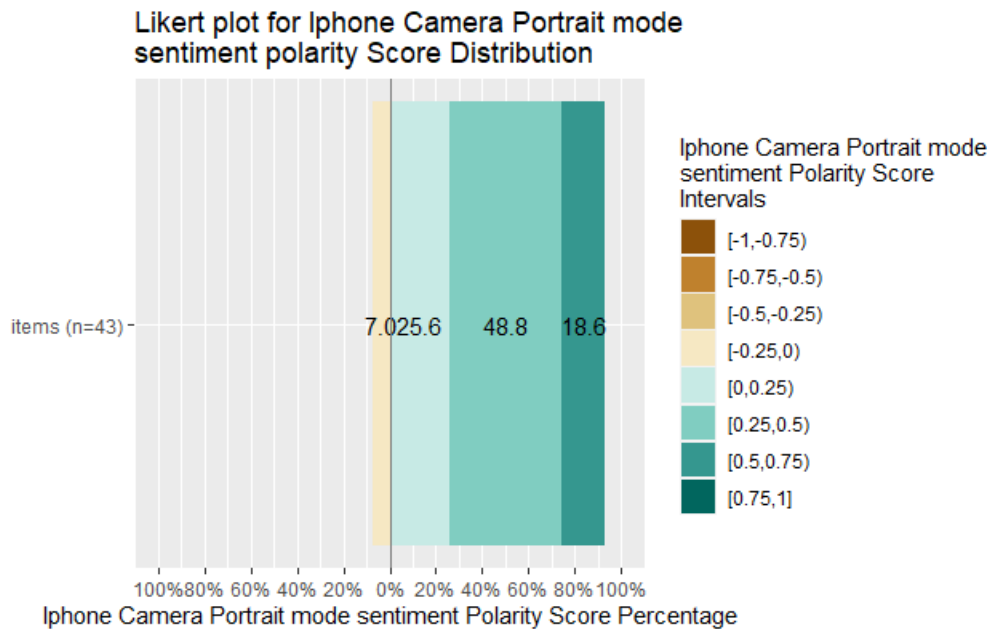
Partitioning the Sentiment Polarity Score into intervals and analysing through Likert Plot

Partitioning and Likert plot analysis of Iphone tweets



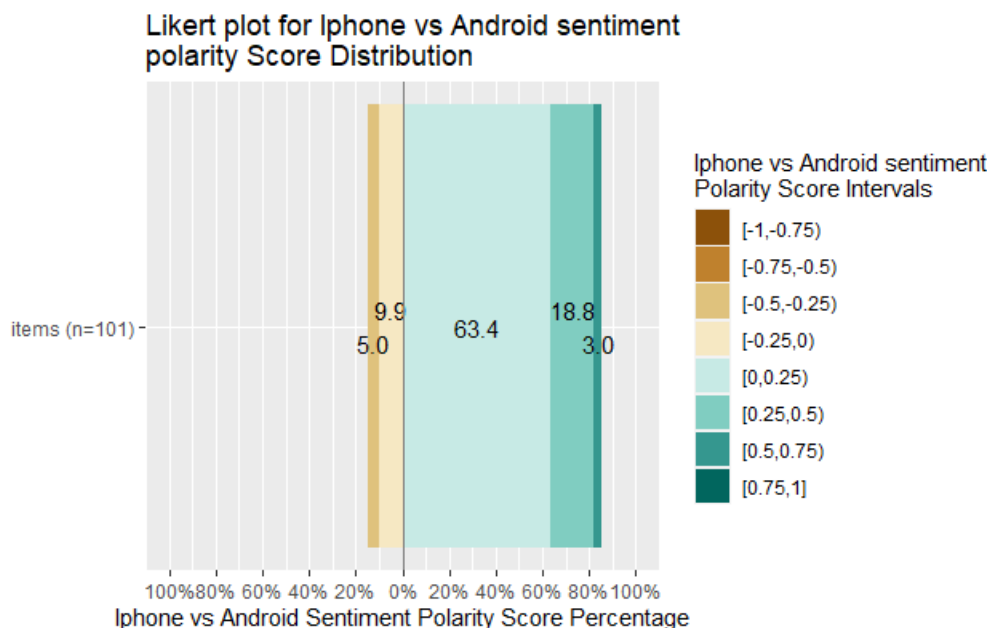
From the likert plot we can see that almost 83% of the tweets are either positive or neutral. Among these tweets almost 60% of them lie between 0 to 0.25 sentiment polarity score. Among the negative tweets almost 14% out of 17% lie between 0 to -0.25. There is a very small fraction of tweets lying between 0.75 and 1, -1 and -0.75. These may be the outliers in the boxplot of the iphone in the earlier part.

Partitioning and Likert plot analysis of Iphone Camera Portrait mode tweets



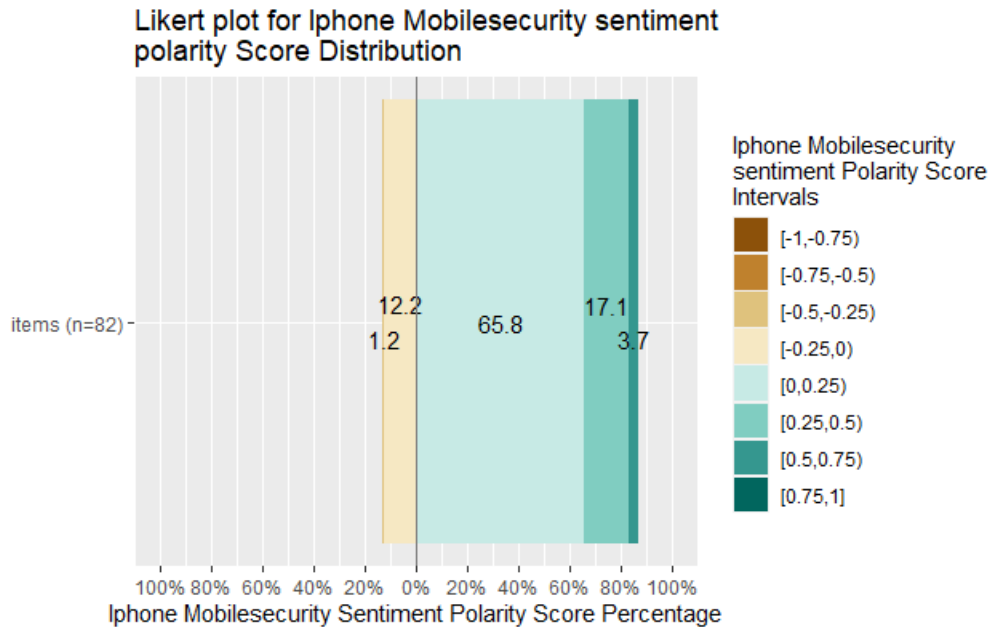
From the boxplot of iphone portrait we saw that almost 50% of sentiment score for iphone portrait were greater than 0.4. This fact is again supported by the above likert plot since almost 49% of sentiment scores are between 0.25 and 0.5. Also there is almost 19% of sentiment scores of iphone portrait between 0.5 and 0.75 which may be contributing to the outliers of iphone.

Partitioning and Likert plot analysis of Iphone vs Android tweets



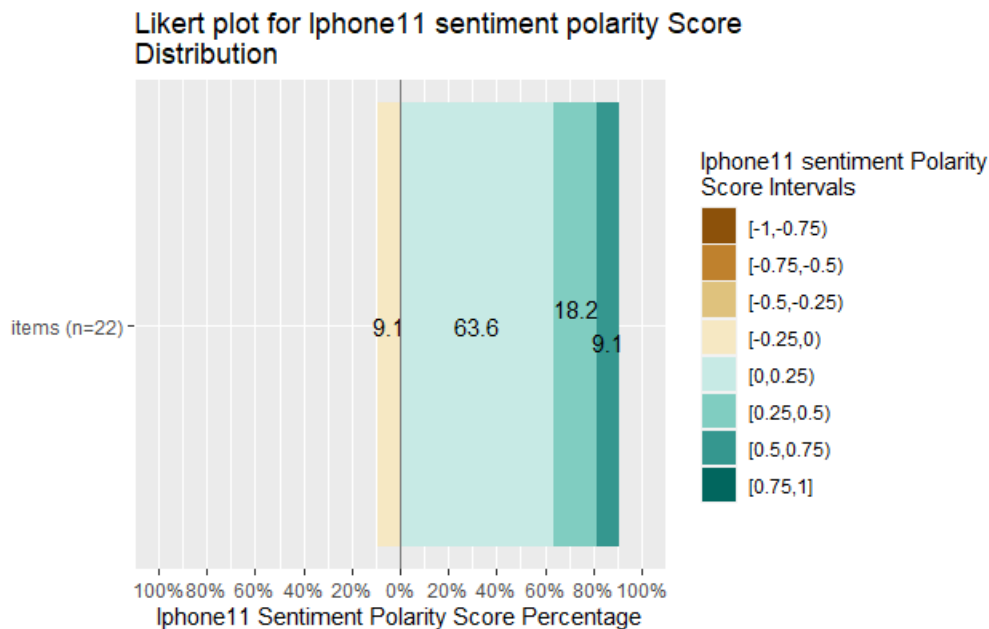
Form histogram we can say that there are many tweets with sentiment scores between 0 and 0.25. It is also evident that there is a small fraction of negative tweets equaling to almost 15% which is analysed later.

Partitioning and Likert plot analysis of Iphone Mobilesecurity tweets



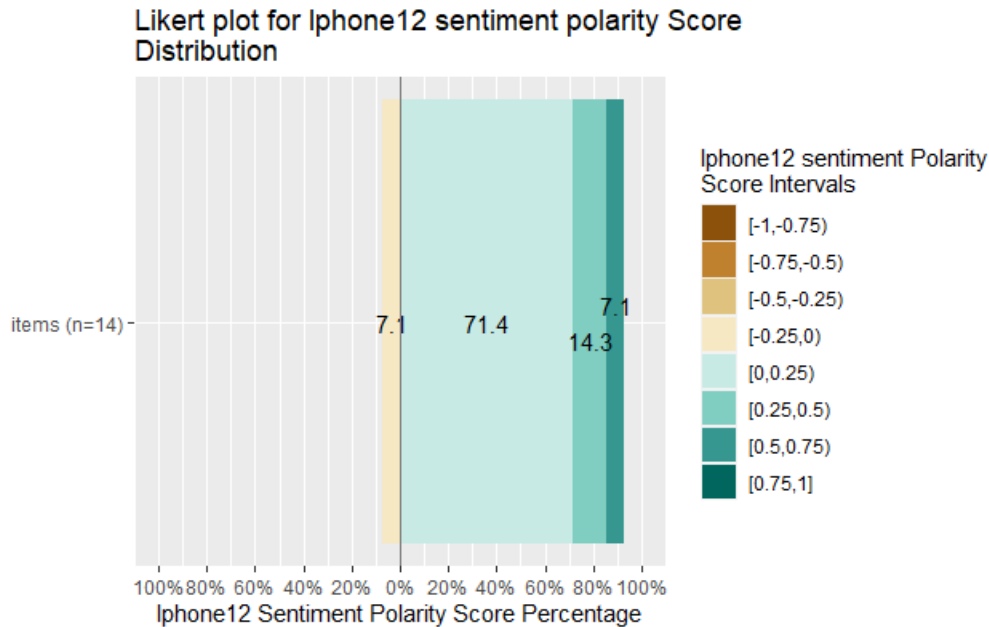
It is evident that a large fraction of tweets have sentiment score between 0 and 0.25. There is a small fraction(13%) negative tweets.

Partitioning and Likert plot analysis of Iphone11 tweets



We can see that many tweets have values from 0 to 0.25. Another interesting point to note is that though the overall % of tweets greater than 0.5 from iphone likert plot is just 3.7 but the % of tweets greater than 0.5 for iphone11 is 9.1. Hence it has a larger % of tweets greater than 0.5 when compared to others.

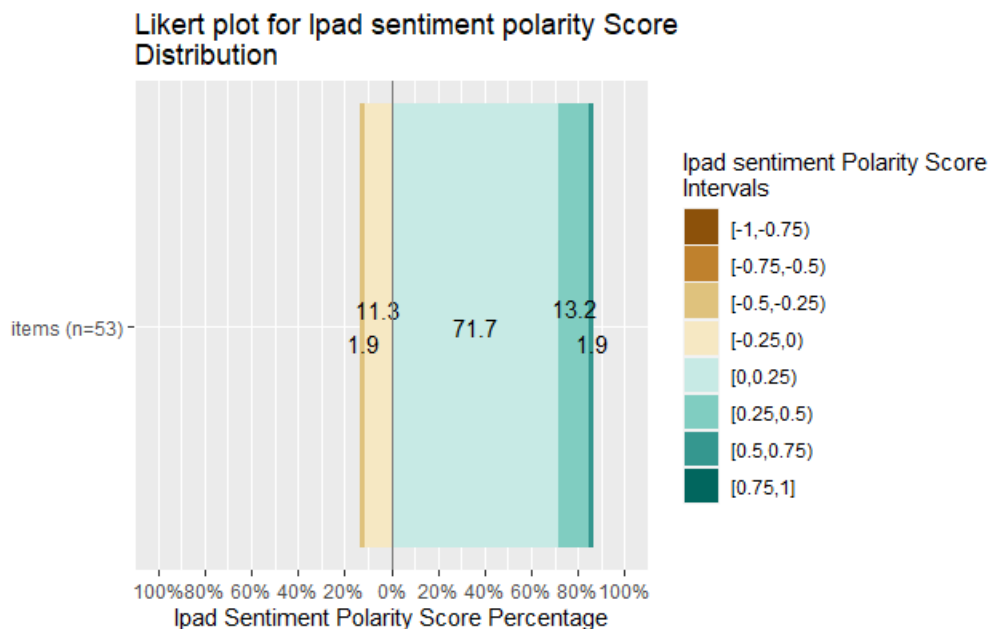
Partitioning and Likert plot analysis of Iphone12 tweets



Though the overall % of tweets having sentiment scores between 0 and 0.25 from iphone likert plot is 59.7 the above likert plot shows that iphone 12 has 71.4% of sentiment scores

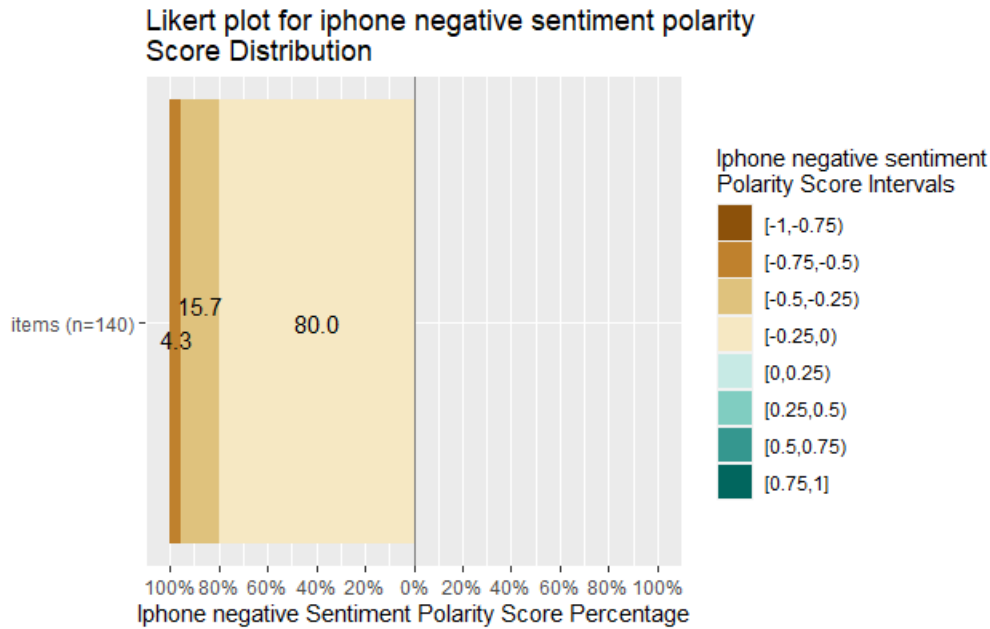
between 0 and 0.25. Also the % of tweets for iphone 12 between 0.5 and 0.75 is 7.1 which is greater than % of tweets between 0.5 and 0.75 for iphone.

Partitioning and Likert plot analysis of Ipad tweets



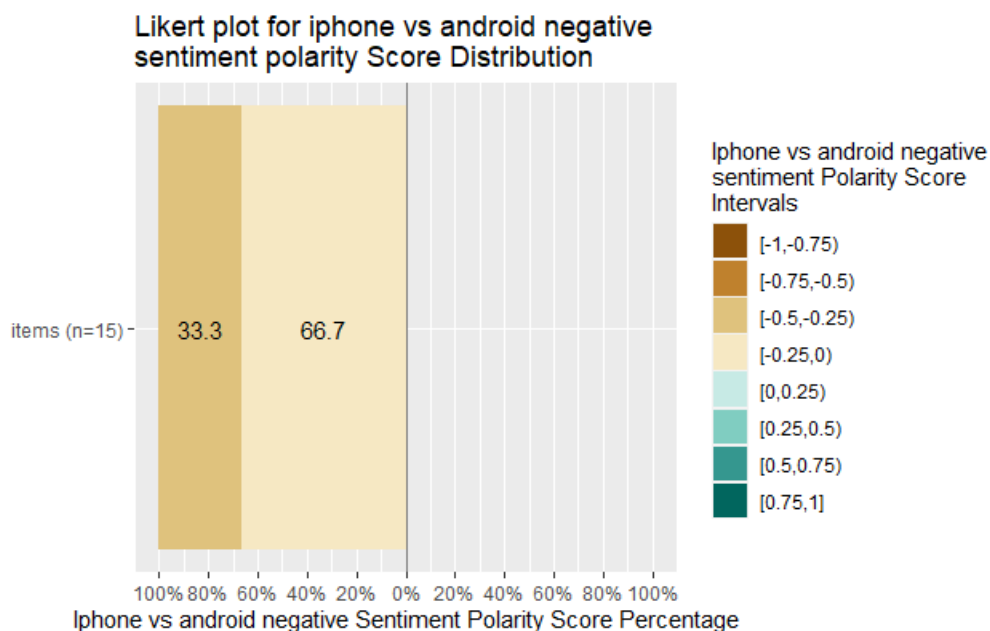
It has the highest % of tweets between 0 and 0.25 compared to all the other plots.

Partitioning and Likert plot analysis of Iphone Negative sentiment tweets



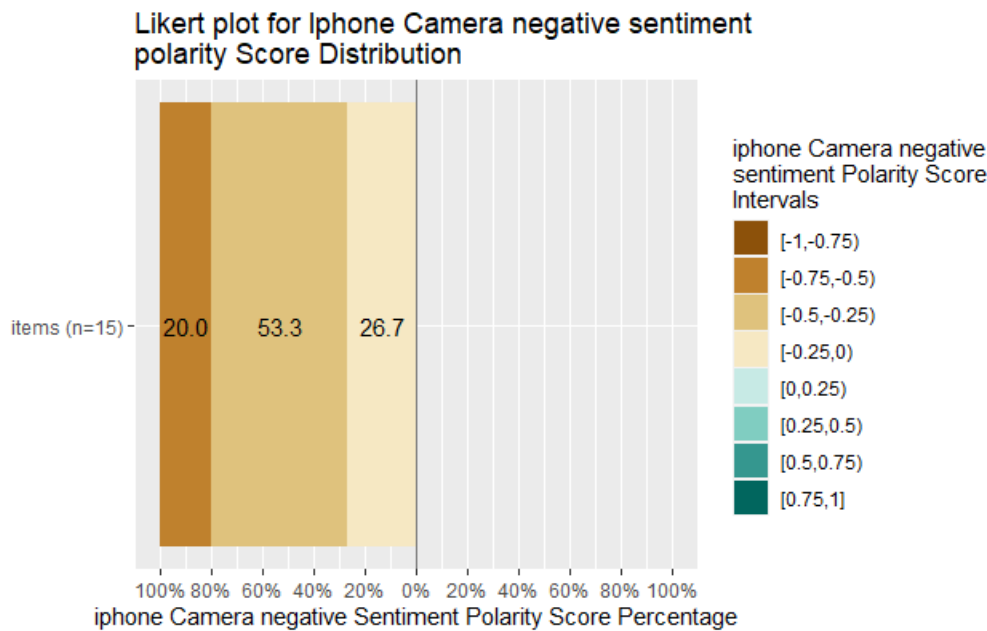
So from above plot it is clear that many negative tweets are between 0 and -0.25. Also we can see that 4.3% of negative tweets are lesser than -0.5 which may be the outliers in the boxplot.

Partitioning and Likert plot analysis of Iphone vs android Negative sentiment tweets



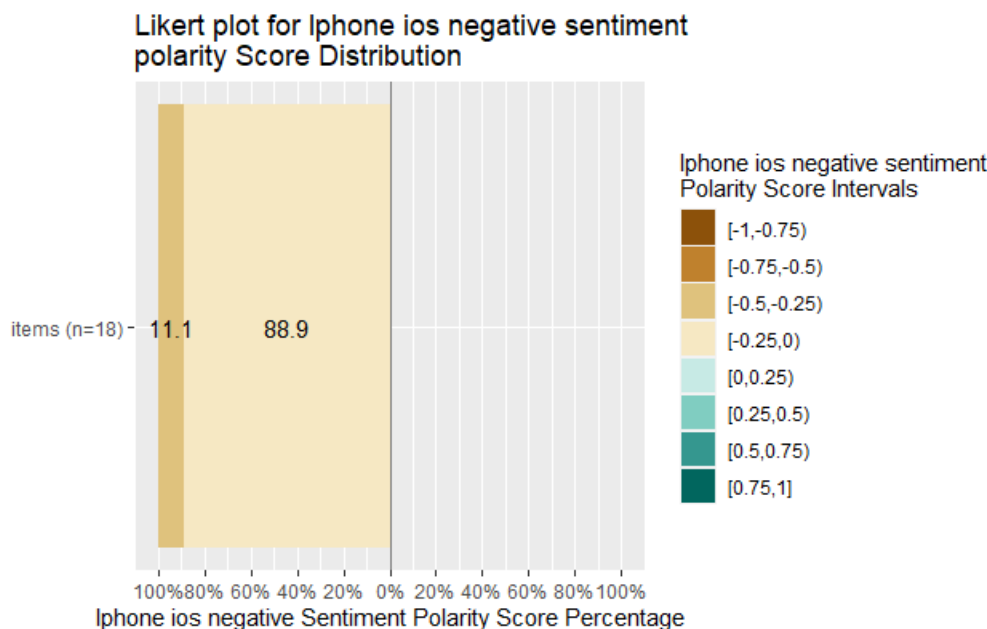
The overall % of tweets between -0.25 and -0.5 from iphone negative sentiment likert plot is 15.7, but iphone vs android has 33.3% of tweets between -0.25 and -0.5 which is way greater than the former..

Partitioning and Likert plot analysis of Iphone Camera Negative sentiment tweets



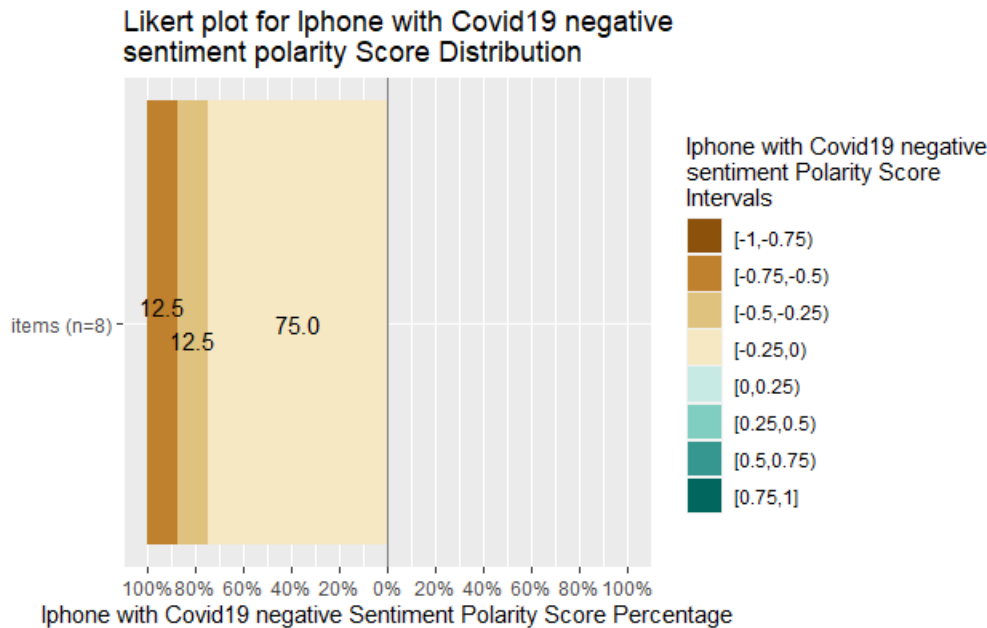
The interesting point to note in this plot is that almost one fifth of iphone camera negative sentiments is lesser than -0.5 which is way greater than 4.3, the % of negative tweets lesser than -0.5 for iphone negative tweets and hence they may be contributing to the outliers of the iphone negative sentiments.

Partitioning and Likert plot analysis of IOS Negative sentiment tweets



Many tweets have sentiment scores between 0 and -0.25

Partitioning and Likert plot analysis of Iphone and Covid19 Negative sentiment tweets



Almost one eighth of iphone with covid19 negative sentiments is lesser than -0.5 which is way greater than 4.3, the % of negative tweets lesser than -0.5 for iphone negative tweets and hence they may be contributing to the outliers of the iphone negative sentiments.

Conclusion:

Hence we can finally conclude that

- There are many positive tweets than the negative tweets and neutral tweets.
- Among the positive tweets some of the sentiment scores greater than 0.5 are contributed by iphone camera portrait mode and iphone11.
- Some of the positive outliers of the iphone sentiments were contributed by iphone portrait mode.
- A small fraction of about 17% of the tweets only have negative sentiments.
- Some of the negative sentiment outliers were contributed by iphone vs android and iphone camera negative sentiments.