Duolingo App Report

Introduction:

The intent of the report is to explore the app review data (which is in JSON format) and identify significant patterns and implications. Also, the report should contain some high level information about the app's health, along with deeper exploration of any significant patterns found.

To analyze the data I imported the data into SQL Server and for visualization I used Tableau. Also, for this report, I have considered a rating of 3 and below as a bad rating.

Observations and Suggestions:

In this section I will list down the observations and their implications and plausible suggestions based on that.

Observation-1

There has been a persistent demand by the users for addition of new languages, especially **Japanese, Mandarin (Chinese), Russian and Korean**, in the same order.
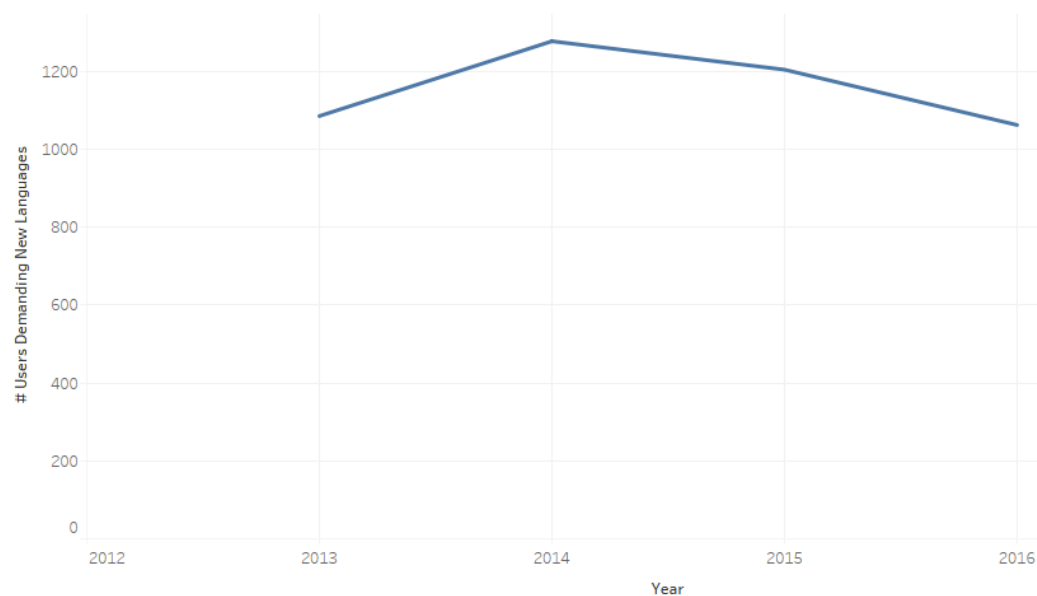

Demand for new languages

Sum of #Users for each Language.
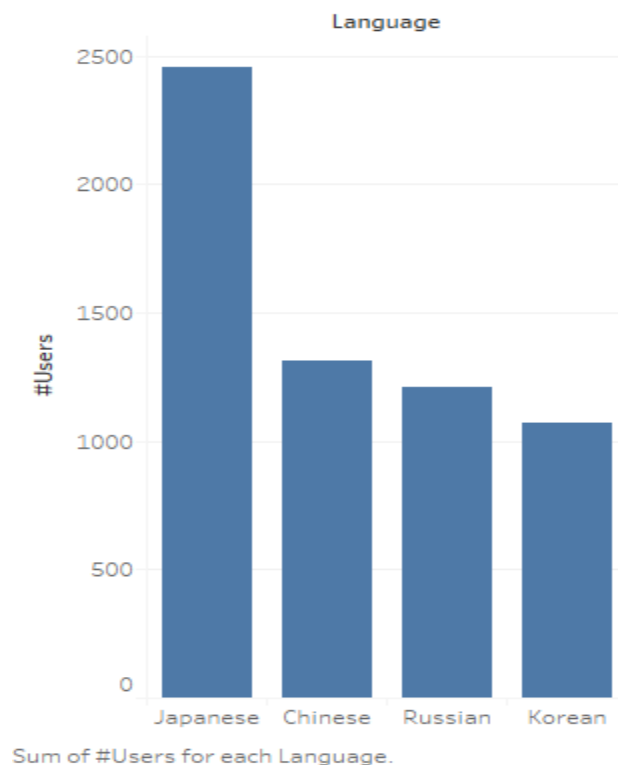
In year 2013, 1085 users gave the feedback that they want one of the above four listed languages to be added in the app. In 2014, 1277 users commented the same and likewise in year 2015, 1204 users and 1062 users in year 2016. This is indicated in the table below and also in the line chart in **XXXX.**

Year	# users demanding new languages
2013	1085
2014	1277
2015	1204
2016	1062

Yearwise demand for new languages

The trend of sum of # Users Demanding New Languages for Year.

Observation-2

Of all the users who have given their feedback about the app, **8%** want addition of Japanese, Mandarin, Russian or Korean. This 8% doesn't include users who want languages other than the ones listed above since their ratio is quite less compared to the demand for these 4 languages.

Furthermore, 20% of the users who want Korean language to be added in the app have given a bad rating to the app for this very concern/issue (bad rating being 3 and below).

Below are these values/percentages listed for all 4 highly demanded new languages.

Language	% of users given bad rating
Korean	20%
Japanese	18%
Mandarin	15%
Russian	12%

Suggestions based on observation- 1 and 2

Since there has been a huge persistent demand for addition of Japanese, Mandarin, Russian or Korean as the new languages and also a substantial number of bad ratings is attributed to the app not having these languages, the company has a great scope to increase its users by adding these new languages to its app.

Observation-3

Next, I calculated the average rating per day given by the users to see any major dips in the average rating value with time.I then tried to analyze the reason for user ratings and sentiment value going down on certain occasions.

Some of those occasions when the rating took the most hit are listed below-

2013-07-11 (YYYY-MM-DD): Released new ipad version 2.0 which is crashing for most of the users whenever they try to open a new lesson.

2013-12-12: Released version 3.1 that has more complicated layout than previous version. "Strengthen skills" functionality which gave users a chance to practice a few times before moving onto the next lesson, has been removed.

2014-04-25: Updated to version 4.0, "Practice weak skills" functionality removed. This feature that randomly quizzed on the weakest word or grammar skills to help one improve was considered the most valuable part of the tool.

2014-08-02: Updated to version 4.0.5, Removed "duel feature" which enabled users to compete against a human or against a bot'.

2015-09-04: Updated to version 4.5.0, Introduced cartoon characters and sounds which was considered a source of distraction for users while they are learning.

2016- 06-08: Updated to version 4.6.5, Users heavily complaining about removal of "graphs to track their daily progress".

Suggestions based on observation-3:

Since a lot many times users have complained about the app crashing after it has been updated to a new version, in my opinion, the developers of the app should be cognizant of this feedback so that they can take extra measures to do a thorough load testing of the app before releasing a new version.

Also, users have mostly showed agitation and frustration when a feature considered most valuable to them had been removed from the app. These were the occasions when average rating and user sentiment value took the most hit.

Additionally, the company should better understand the demographics of its app users and make the modifications in their app accordingly. Introduction of cartoon pictures and voices in the app wasn't well received by their users suggesting that most of the users aren't teenagers.

Conclusion:

The overall health of the app looks good. 94% of the users who have given their feedback have given a rating of 4 or 5. However, the company has a major scope of increasing its market capitalization by adding highly demanded languages such as Japanese, Mandarin, Russian and Korean, in the same order.

From the data, I conclude that the number of incidents of app crashes has a direct co-relation with the updates done on the app as part of new release. Hence to better improve on their app, the company should release more stable versions of the app that doesn't crash or hang. Also, it shouldn't remove the functionalities that are considered of utmost importance to their users. These typical functionalities are: graphs to check daily progress, practice quizzes on weak skills and competing against other users and bots. Also, Duolingo can make its content available offline since a lot of users have requested so.