# Investigating a Drop in User Engagement

SQL analytics training case study for springboard.

There are many probable causes for the dip seen at the end of chart for user engagement numbers. This is not an exhaustive list of every possible reason but here are some of the possible explanations:

- Some part of the application is making it cumbersome to use continuously, or has stopped working. There may be a problem with some of the code or design which maybe due to a new update.
- Traffic was driven up by some promotion of the application leading users to try it out but the users weren't interested in using the application after a certain amount of time has passed. There is a slight spike in engagement before the dip that may suggest this is what has happened.
- Less people are hearing about the application and looking at it. It's not necessary that the user engagement is showing only users that use the application regularly, it also shows new users who may just be exploring the application. If there were less exposure of the application then less people would be looking at it and lead to lower user engagement numbers.
- If one of the companies using Yammer either switched to a different service or had workers out on vacation that may also explain the dip in user engagement.

The dip in engagement occurs from the period between July 28, 2014 and August 25th, 2014. The easiest possible explanation to eliminate is a reduction in the number of people signing up between that time period.
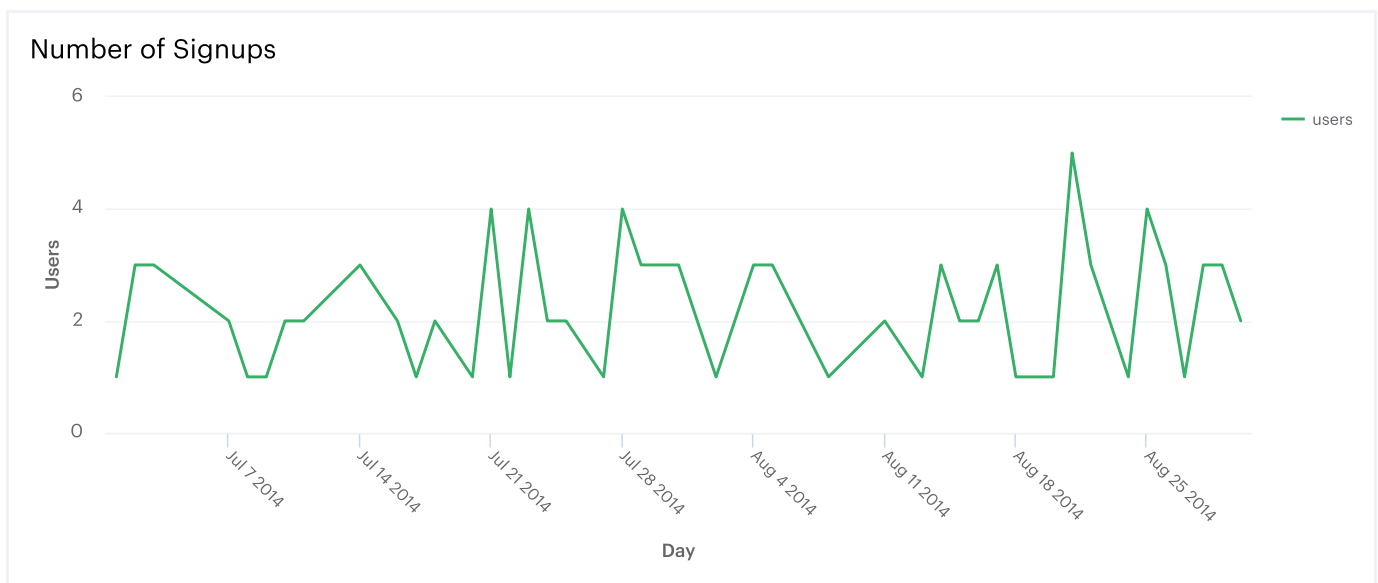

Looking at the chart above there isn't any significant difference seen in the amount of people signing up before July 28th and the amount of people signing up after July 28th. One would expect to see lower numbers after July 28th to attribute the dip in engagement to less people signing up to use the app. There also doesn't seem to be a significant spike in the week between July 21st and July 28th so the spike in activity is probably not due to some promotional event or rise in sign ups. The dip must then be caused by users who have already signed up and decided not to keep using the application.

We can further explore this by looking into the number of ways in which the application is being used and try to narrow down which user events are occurring less often to see if that can help us pinpoint the dip in engagement.

Inbox Viewing Frequency
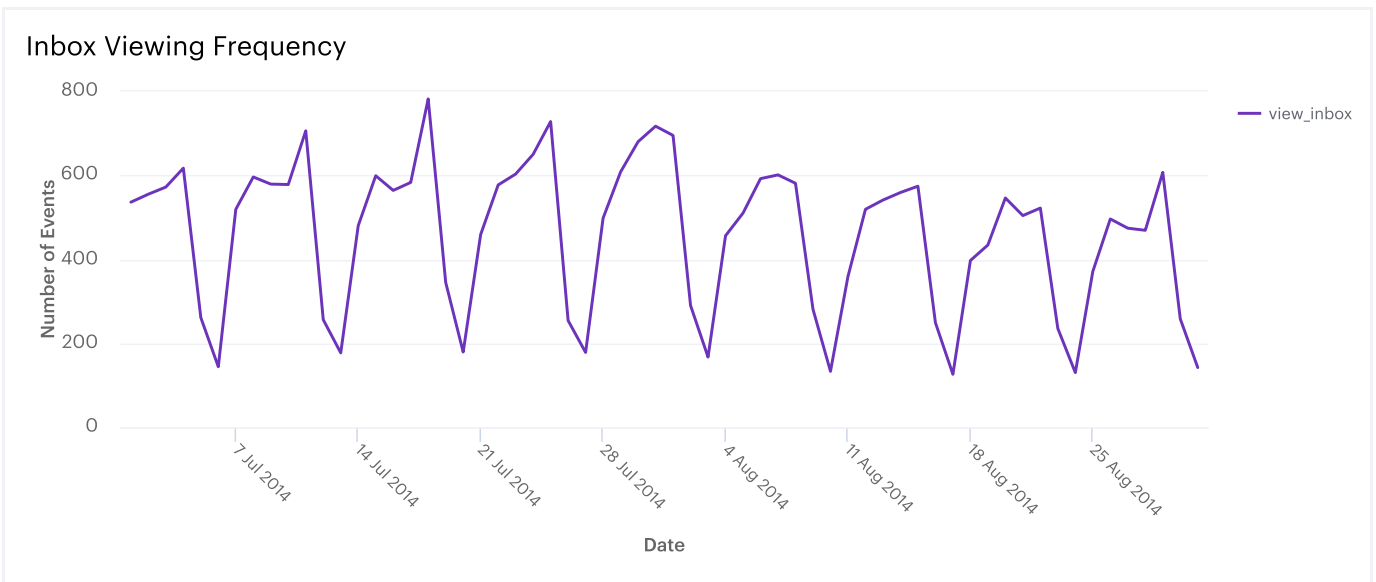
The amount of data if one tries to look at the number of times each activity has occurred over that period is too great so I had to break it down and look at the frequency for each type separately. The biggest reduction in usage was seen in the amount user's were viewing their inbox. This may be what is causing the dip in engagement but it doesn't seem big enough to account for the dip in engagement seen. We are also provided with a third table of data pertaining to specific email activities taken by users as well which we can explore to see if there are any other changes in user's behavior.

Email Usage
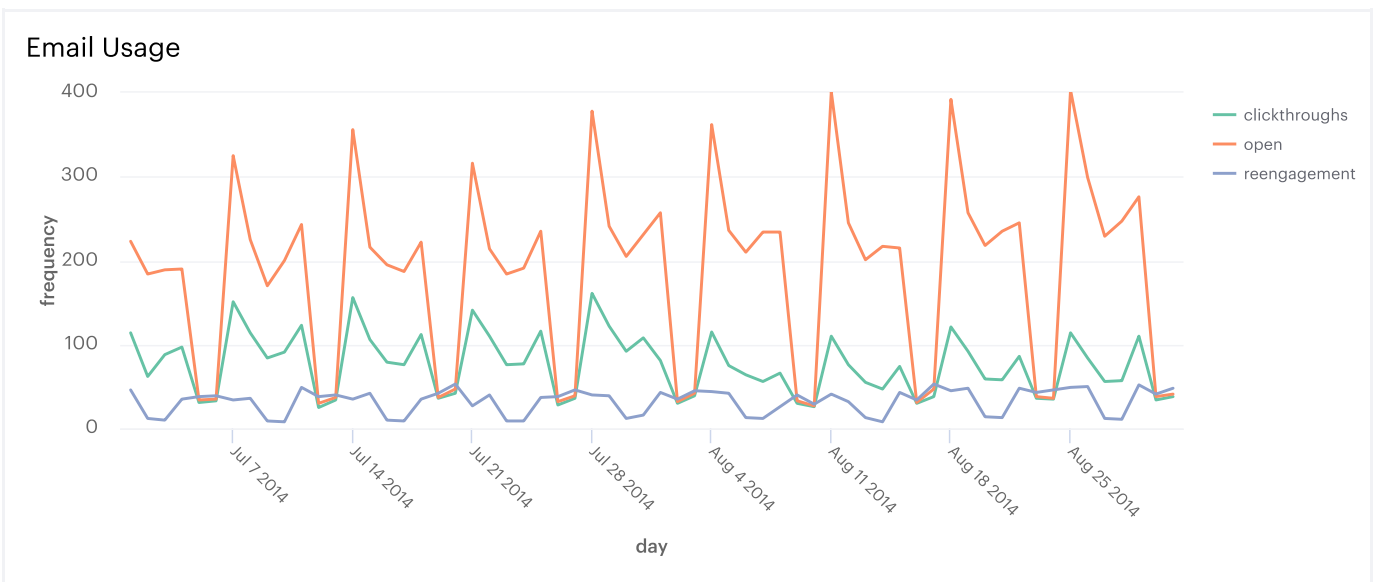
From the third data set we can see that other decrease seen in measures is in the amount of users clicking through emails. This coupled with the decrease in users checking their inbox may indicate that users aren't able to click through when receiving emails notifying them about a message they have received in the app possibly. Who ever is in charge of development should be informed so that they can check that all the links attached to emails are working and that there isn't any problem with users receiving notifications based on having new messages in their Yammer inbox and see if it helps with the dip in engagement.