

Investigating a Drop in User Engagement

The case:

You show up to work Tuesday morning, September 2, 2014. The head of the Product team walks over to your desk and asks you what you think about the latest activity on the user engagement dashboards. You fire them up, and something immediately jumps out (a drop in user engagement) as it is indicated in the chart below. The chart shows “the number of users who logged at least one engagement event during the week starting on that date”.

The task given here is to determine the cause of the dip shown at the end of the chart above and recommending some solutions to get rid of the problem.

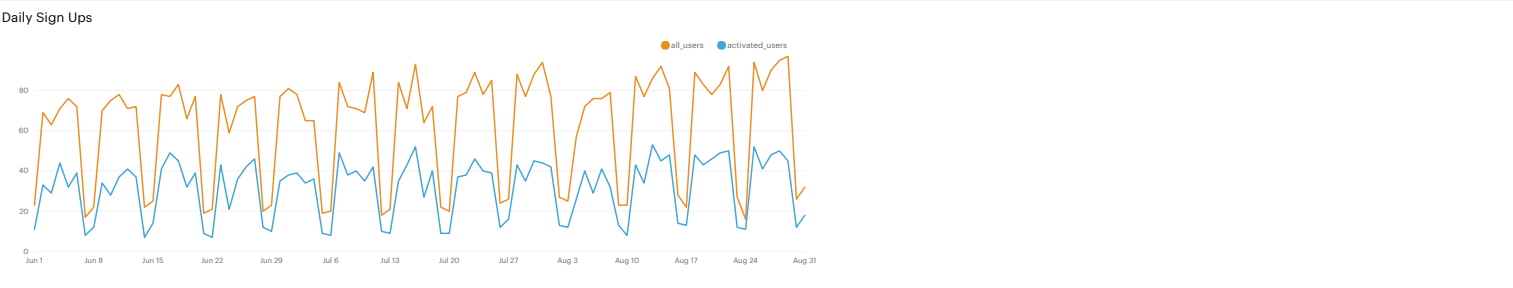
Approach:

There might have been many reasons which contributed to that problem. Some of the possibilities include internet outage, public events and holidays, broken features in log in, not able to access the website, issue with App, marketing events and others. All possible hypotheses will be tested using the info given in the tables. The solving approach to each of the possible reasons in the most efficient way might be different and is dependent on personal experience and easiness of the test. Therefore, all tests should be done accordingly. The easier ones are given first priorities.

Testing and solving the problem

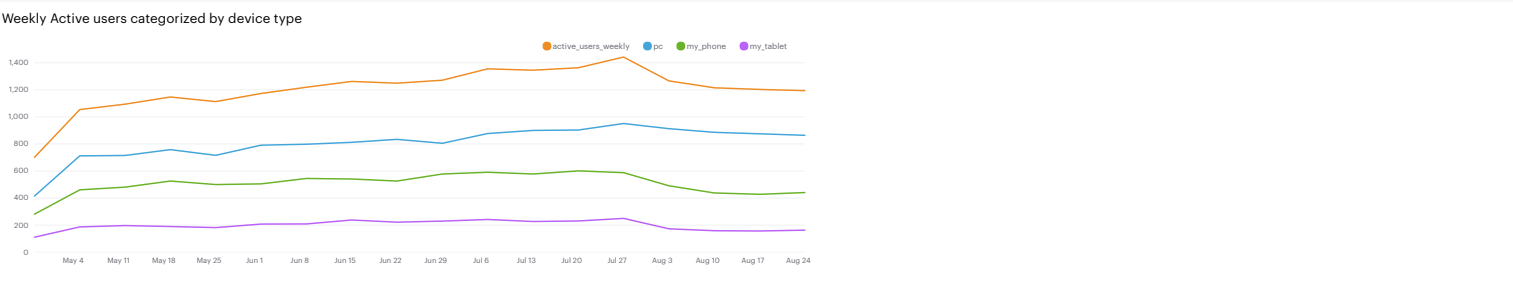
Hypothesis-1: testing the progress rate of daily sign ups

As the chart below shows, the trend of the rate of daily sign ups has not changed much during weekends or weekdays except for the fact that there have been low sign-ups on weekends and high on weekdays.



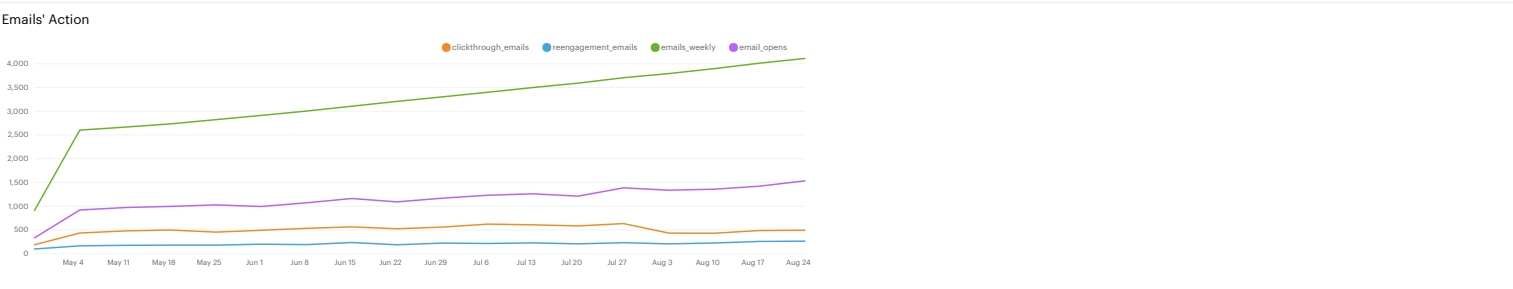
Hypothesis-2: testing if there was different result in weekly engagement trend when different devices was used.

In the chart below, a steeper drop in phone engagement rates was observed, which might indicate an issue with mobile app. At this point, we have to look up if there were any changes made in the mobile apps. Engagement from all the other devices showed not much change. Let us look if there was an issue with the events specific to the sending of emails.



Hypothesis-3: testing specific events related to the sending of emails for any possible problem.

Based on the chart below, while reengagement_emails and email_opens are showing a slight increasing trend, the email_clickthroughs action was indicating a drop at that specific week. This can tell us that there was a problem in the digest email.



Conclusion

As the charts show, the problem seems to be in the mobile app use and the digest emails (clickthrough emails). In both cases, the pattern indicates a drop in the engagement. Other problems, which are not explained here, might also contribute to that drop. However, this investigation is a preliminary work and will likely help the team to put their focus in those areas for further investigation, which will save time.