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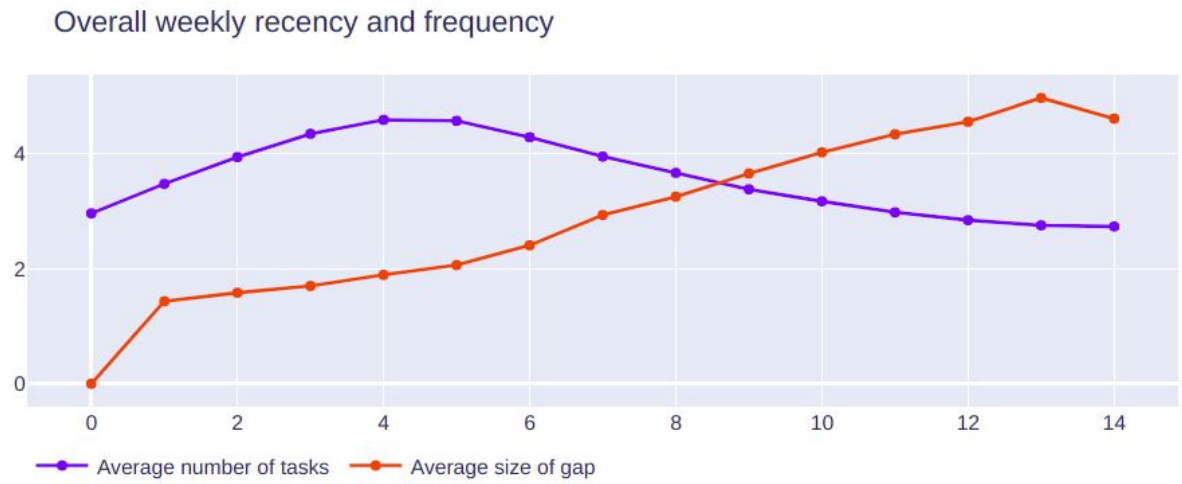
Recency, frequency and retention analysis of MyTherapy mobile app

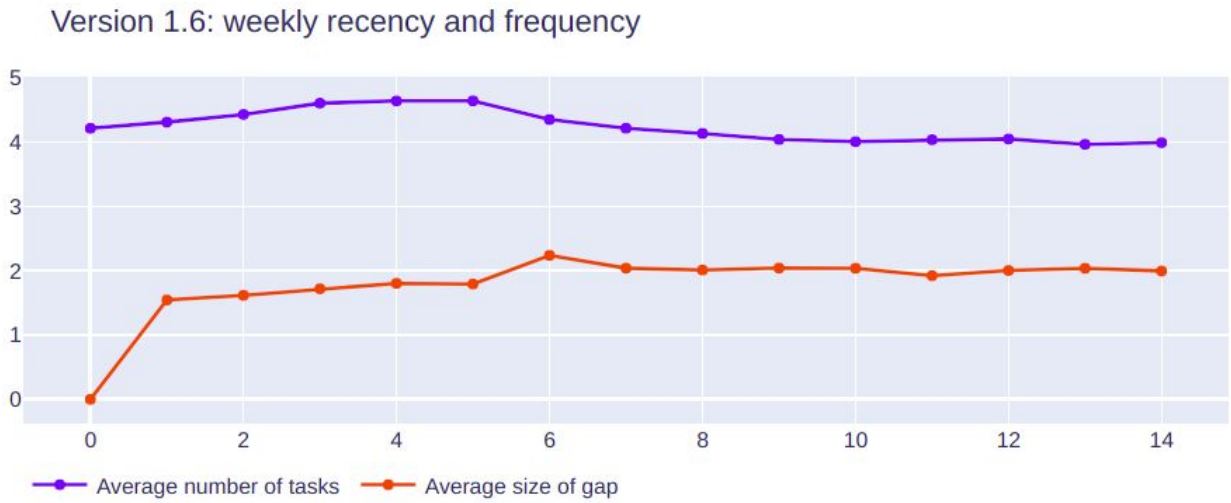
Recency and frequency

One of the most interesting metrics describing mobile app users is **RFV** - based on **R**ecency (how many days have passed since the last login), **F**requency (how often did they login lately) and **V**olume (how much content on average they consumed each time). From this dataset **we can only calculate recency and frequency, but even with those two we can come to a very interesting conclusion**. Take a look at the chart with average number of active days during last week and average size of gap between previous login starting from registration day.



On chart you can see recency (Average size of gap), with tells you what is the average size of the gap between two tasks measured in days, and frequency (Average number of tasks), calculated from last week.

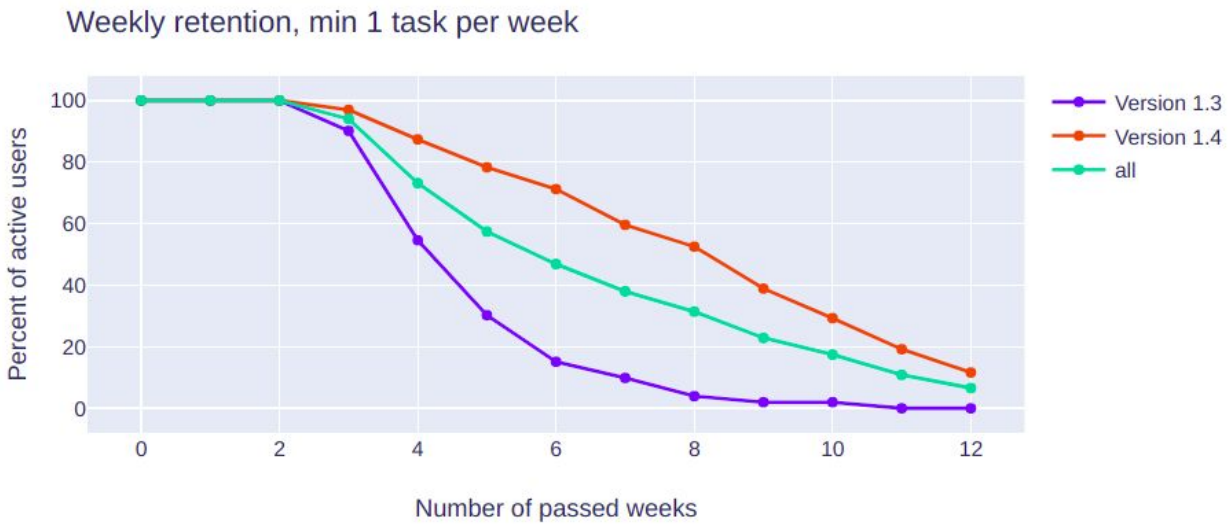
We can easily see that overall, **after the first week of using app, people stop being active because they lost interest**, the gap between tasks increases and number of registered tasks during last week decreases. **It is true for versions 1.3, 1.4, 1.41 and 1.5** (and since chart looks almost the same I won't put it here), **but not for a new version, 1.6.**



It is clear that something has changed - people keep using app with the same level of engagement as at the beginning. This is a really good change, since this is what causes people to create a habit of using the app and prolongs users lifespan.

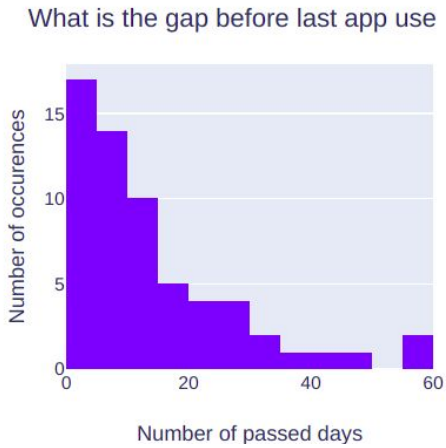
Retention analysis

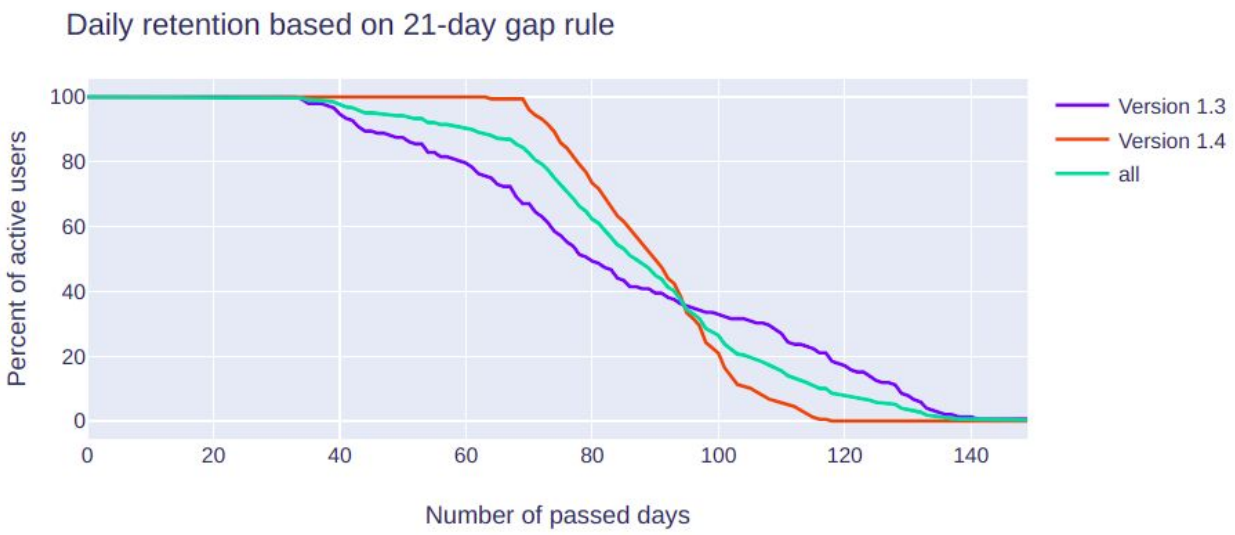
First of all, we need to **define retention and when we consider user as not active**. Keeping an eye on such detail and describing it well is very important because **it can be understood, calculated and visualised in different ways, each one presenting different results**. Here is an example of weekly retention: in this case inactive user is someone who didn't login during the whole week. Because there is a need to calculate 90 day retention I had to limit users to the ones who registered at least 90 days ago. Hence, on chart, there are only two versions - it is based on 24% (329) users.



As you can see after roughly three months we lose most of our users. **But is that really true?**

I asked myself a question: what is the most common way people use this app? - I came to the conclusion that because its purpose is to record and remind about therapy tasks, it does not mean that they should use it every day or every week, like many other mobile applications. I am not a medical authority so I cannot be sure how the therapies could look like. It might be **that some of them can require being present only once every two weeks, or people may simply miss one task, but continue it later on**. Such a user would be classified as inactive during the second week in terms of a typical retention definition. Keeping all of this in mind I visualised what does a gap before last task look like, so **I can choose the number of days that have to pass to classify user as inactive: 21.** After that number days 80% of people didn't turn on the app ever again. During that analysis I found that from all registered users who used the app more than once, **only 5% users (61 from 1382) didn't use the app in the last 30 days - it means that churn rate in long term is very low.** Using this assumption to define inactive users I made another retention diagram.





	21 day rule	week-to-week
1 day retention	100 %	100 %
7 days retention	100 %	100 %
30 day retention	100 %	73.14 %
90 day retention	43.77 %	6.57 %

As compared to the previous one, this one looks much different. We can easily see that **by changing the definition of inactive user our retention rates improved a lot**. There could be done more digging done here, depending on how app owners define the most common way of use or what goals are set.

It is also clear that between those two versions **1.4 performs better in the short term but loses with 1.3 in long term**. We can also take a look at day-to-day retention and it becomes clear then that **the newest version is superior in terms of user activity day to day.**