

RFM-analyzing Yandex.Market customers

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Contents

Introduction	1
Hypothesis	1
Analysis	1
Proposition	4

Introduction

The data set contains 10007147 measurements of 299208 Yandex.Market users' activities, collected from 2013-01-01 till 2013-12-31. We have also manuals on goods categories and geoposition information.

Hypothesis

We are interested in analyzing activities of users using *RFM-analysis*, so we could increase *LTV* by reducing outflow of customers and (or) gaining contacts. We need also to estimate potential benefits of our actions. For these purposes we use **R** (version 3.4.4).

Analysis

Since we are analyzing exactly customers, then to facilitate our process it's better to refuse using of geodata and categories manuals. The most required variables are date (to get R - recency), number of clicks (F - frequency) and price per click (M - monetary) – we have them all.

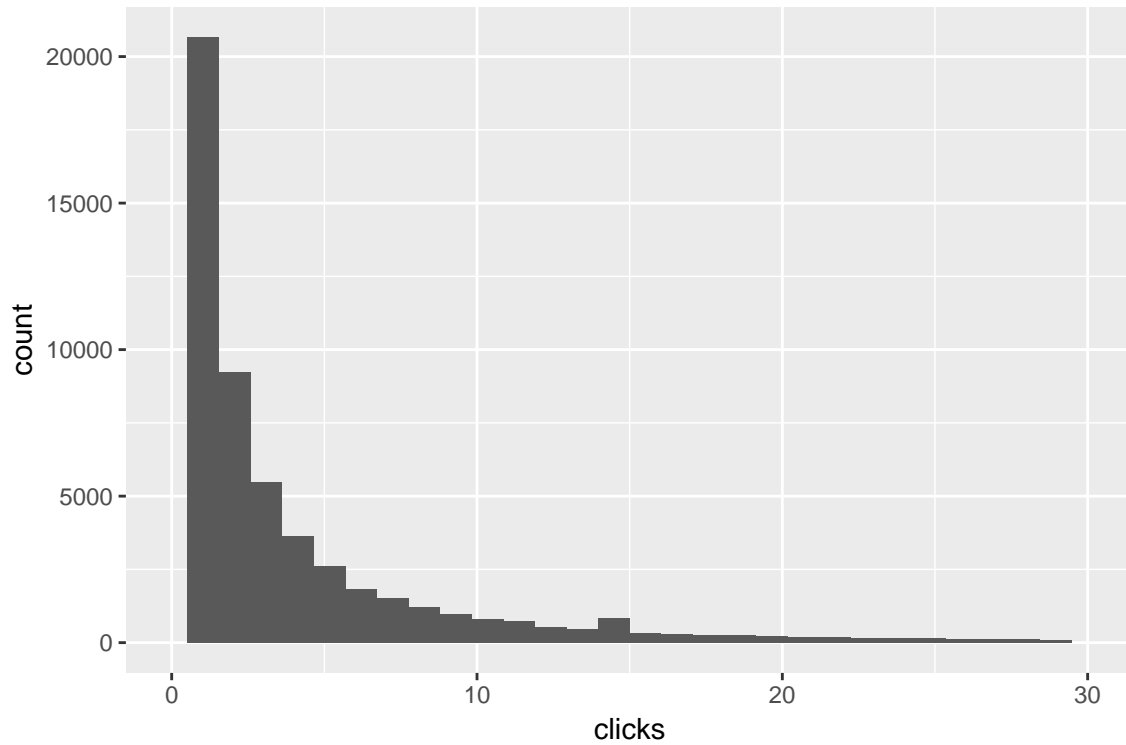
So, according to classical RFM approach, we need to divide each parameter into 5 clusters. Let the recency parameter be divided as follows:

1. Clients with activities during the last 0-30 days;
2. The last 31-60 days;
3. 61-90 days;
4. 91-180 days;
5. 180+ days.

In order to find out proper frequency division, let's see, how many clicks per customer do we have and build clicks histogram plot. Here is clicks count summary:

Min.	1st Qu.	Median	Mean	3rd Qu.	Max.
1	1	2	7	5	2356

The main part of our distribution is concentrated approximately between 0 and 30 clicks:



According to the visualization, frequency parameter may be divided in this way:

1. Customers with more or equal 16 clicks;
2. 11-15 clicks;
3. 5-10 clicks;
4. 2-4 clicks;
5. 0-1 clicks.

The next step of RFM-analysis is to make monetary parameter and also clusterise it. But it's much easier to visualize and moreover to perceive recency/frequency distribution with sum of price variable. So, after comparing each customer its recency and frequency group, we get the following result:

Table 1: Descriptive RF statistics with monetary equivalent

Recency/Frequency	Part (%)	Count	Money	Money part (%)
11	0.68	2032	6681107637	61.86
41	0.29	881	1429446952	13.23
51	0.33	979	931187503	8.62
31	0.12	358	598623848	5.54
21	0.16	484	546390598	5.06
13	0.83	2494	100024907	0.93
12	0.28	840	93923451	0.87
53	0.94	2823	57782341	0.53
43	0.61	1826	56382066	0.52
42	0.17	514	45615126	0.42
52	0.23	698	43774404	0.41
54	2.25	6737	28950516	0.27
23	0.34	1005	27058971	0.25
22	0.1	314	25757130	0.24
14	1.28	3828	25375084	0.23
44	1.35	4052	24438696	0.23
33	0.26	789	22525822	0.21
32	0.07	217	16432379	0.15
24	0.7	2082	13459459	0.12
34	0.56	1662	9008618	0.08
55	36.49	109193	6705174	0.06
45	18.32	54809	5910442	0.05
15	14.44	43203	5650152	0.05
25	12.16	36394	3073160	0.03
35	7.02	20994	2263038	0.02

As we can see, despite the 1-Recency group is just a 1.58% of all customers, its monetary coverage makes 94.31%. This group of customers is the most valuable for Yandex.Market. 11-group, for example, consists of users who click on internet shops URLs more often and more recently than any another customers, so-called VIP. Remaining 1R groups (21, 31, 41, 51) are those customers, who used to be or didn't become 11-group. They are probably united by the fact that somewhat of Yandex.Market's service disappointed them, and they stopped to use or became less use of the service.

Proposition

The proposition to LTV's increase is to impact on these 1R groups in order to compact them to 11-group as much as possible.

1. 11-group is our VIP-segment. They have done some actions most recently and they do this really often. But it doesn't mean that we need to relax and forget about them. Without consolidation of success they can turn into 21-group or even worse. We need to stay in touch with these customers and time to time send them some small form, for example, where they could indicate things in service they would like to change. Or they could also make suggestions to market's service. That's the way for customers to feel themselves important and moreover it increases loyalty. These actions should cost something to Market, but it should save much more in prospect.
2. 21 and 31-groups are also the most frequent users, but they haven't been active in past 2-3 months. They need to be reminded about Yandex.Market. In addition to actions from previous clause we could analyze their previous clicks in order to find out their items of interest. After that we could periodically send them compilations of goods that might interest them. These goods could be either small accessories or something big. Probably it's even better to interchange distribution of small and big goods. The main idea is to interest them, recall, how interesting and useful is Yandex.Market, how it could help to solve their problems. Another way to use interests analytics is to monitor discounts and sales of such goods in shops and then send letters with these offers to customers. It should also increase chances of customers to become more recent ones.
3. 41 and 51-groups are most hard to affect. All suggestions from two previous clauses are also applicable to these last groups, but with less chance of success. Nevertheless, it is very important to take them back, because they make up 21.85% of all monetary. Since they deserve, for example, some discounts on another Yandex's services or some amount of free deliveries on Market. The point is that they require stronger exposure, comparing to another groups. Another reason they stopped to be recent customers is they had some bad experience in the past, which made them angry and disappointed. This may be unsuccessful purchase which entailed bad review on that shop's page. Thus, there should be analysis of these customers most recent actions, and if there are really bad reviews or just bad experience, especially without result, Market's team needs to deal with these cases. After that there could be contact with client, like we know, that there you had a bad experience in the past, so here is our conclusion, we are really sorry etc. In the end some compliment should be offered.

These propositions and cases are permutable ones. For example, bad experience could be happened even earlier, not only with 41 or 51-groups. It is more important to solve such situations on time, without waiting up to one year (according to 3rd clause). The main idea is complex of these tools to increase loyalty of customers who spend or used to spend a lot of time in Yandex.Market.

So, if we suppose, that these suggestions could help to reestablish, for example, at least 10% of activities of the least active customers from 21 to 51-groups, Yandex.Market could gain 6495779 roubles in the same activity period. In addition, if Market doesn't lose at least, again, at least 10% of the least active 11-groups customers, then it will prevent losing – that means earned – 7124555 roubles.