

# **Segmentation of "Metanprombank" customers by consumption**

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Drawing up user portraits  
and testing of statistical hypotheses

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Data sources: "Metanprombank" clients' data  
(bank\_dataset table) and the author's calculations

# Brief overview and conclusions

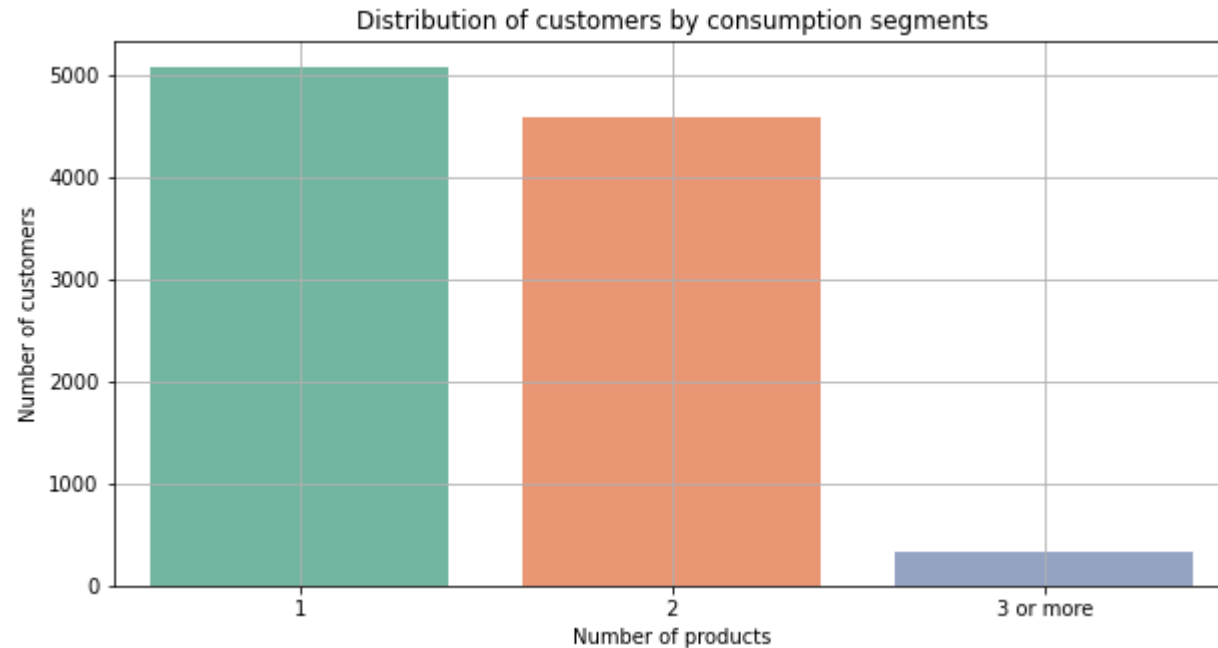
## What is done :

- Researched the main patterns in the data;
- Clients are segmented by the number of banking products consumed - 1, 2, 3 or more;
- Compiled and described consumer portraits of clients;
- Recommendations on working with clients by segments are given;
- Statistical hypotheses about the difference in the average income of clients of the two largest segments and about the difference in the average account balances for clients from different cities were tested.

## What conclusions are formulated:

- There are 16% more men than women. Most of the clients live in Yaroslavl. 70% use credit cards. Total churn rate – 20%;
- Customers with 3 or more products churn 86% of the time, while they have the highest income and are older than the rest;
- Customers with 1 product are churning at a rate of 28%, while they have the highest account balances. The least churn customers using 2 products;
- The hypothesis about the difference in the average income of customers with one bank product and with two products is rejected;
- The hypothesis about the difference in average account balances for clients from different cities, taking into account clients with a zero balance on accounts - is not rejected, without taking into account such clients - is rejected.

# Segmentation of customers by the number of consumed banking products



The two largest consumer groups are users with one and two products. Their part of the total number of users is 50.8% and 45.9%, respectively.

Significantly fewer clients with three or more banking products. They account for only 3.3%.

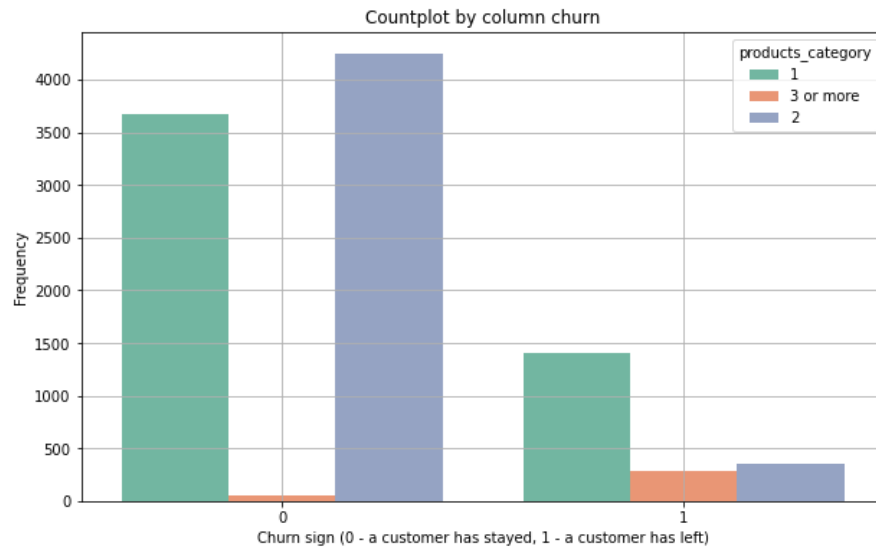
# Description of the customer profile with 1 banking product

Parameter	Average values
Credit scores	649,121
Age, years	39,673
Number of objects in the property	4,975
Account balance, RUB	98 551,871
Has a customer got a credit card or not (0 - has not got, 1 - has got)	0,704
Is a customer active client or not (0 - inactive, 1 - active)	0,504
Customer's salary, RUB	99 487,257
Churn sign (0 - a customer has stayed, 1 - a customer has left)	0,277

Clients with 1 banking product:

- have an average credit rating of 649;
- most of them live in Yaroslavl, then comes Rostov Veliky, and in last place is Rybinsk;
- there are more men among them than women;
- their average age is 39;
- they own an average of 5 properties;
- have on average the highest account balances compared to customers from other categories;
- 70% of them use a credit card;
- half of them are active clients;
- their average salary is approximately 99 000 RUB;
- churn with average intensity (percentage of churn is 27.7).

# Recommendations for work with the customers, which use 1 product



From the churn chart, you can see that customers with 1 product are churning with middle intensity.

From the description of their portrait, it can be seen that these customers have the highest average debit account balances. Using just one bank product, it is quite easy for a client to go to a competitor.

Therefore, it is important for them to offer other bank products, taking into account their income and savings, such as savings and investment accounts. Cashback privileges for high account balances can also be effective here.

# Description of the customer profile with 2 banking products

Parameter	Average values
Credit scores	652,189
Age, years	37,754
Number of objects in the property	5,052
Account balance, RUB	51 879,146
Has a customer got a credit card or not (0 - has not got, 1 - has got)	0,707
Is a customer active client or not (0 - inactive, 1 - active)	0,533
Customer's salary, RUB	100 452,013
Churn sign (0 - a customer has stayed, 1 - a customer has left)	0,076

Clients with 2 banking products:

- have an average credit rating of 652;
- most of them live in Yaroslavl, then comes Rybinsk, then - Rostov Veliky;
- there are more men than women;
- their average age is 37;
- have an average of 5 objects in the property;
- have on average the lowest account balances compared to customers from other categories. About half of the customers do not have an account (balance = 0);
- 70% of them use a credit card;
- slightly more than half of them are active clients;
- the average salary is approximately 100 000 RUB;
- have the least churn part (only 7.6% left).

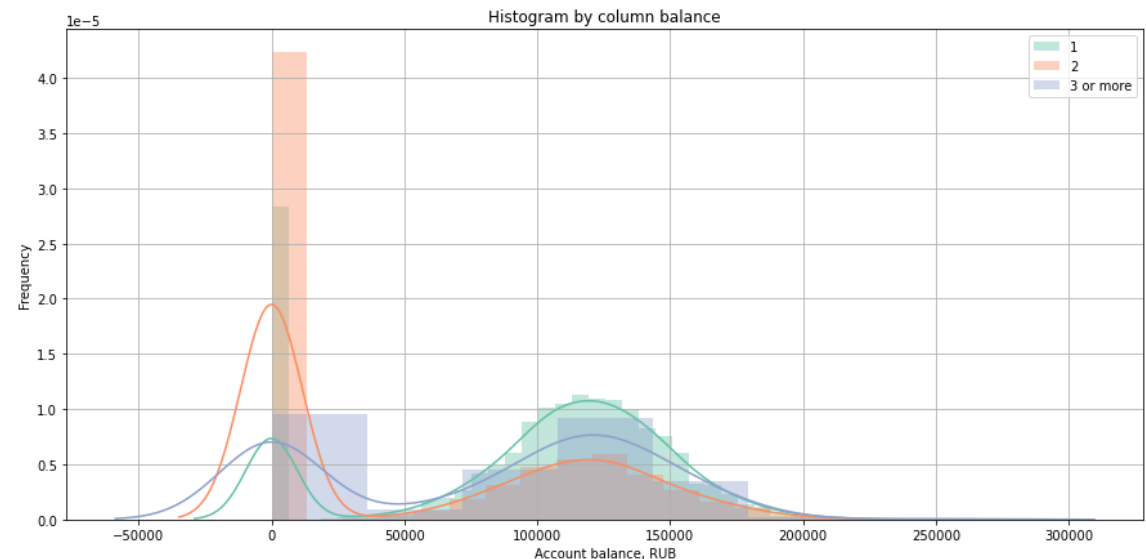
# Recommendations for work with the customers, which use 2 products

As we have seen, customers from this segment are generally not prone to churn.

The distribution histogram shows that among the customers who use the two products, the largest proportion of users with a zero balance.

This means that such customers can be involved in opening debit cards by describing the benefits of the card (cashback, mobile app convenience).

Keeping in mind that the youngest clients are concentrated in this segment, they may be interested in a mortgage offer. It is also possible to offer lower mortgage interest for debit card holders.



# Description of the customer profile with 3 or more banking products

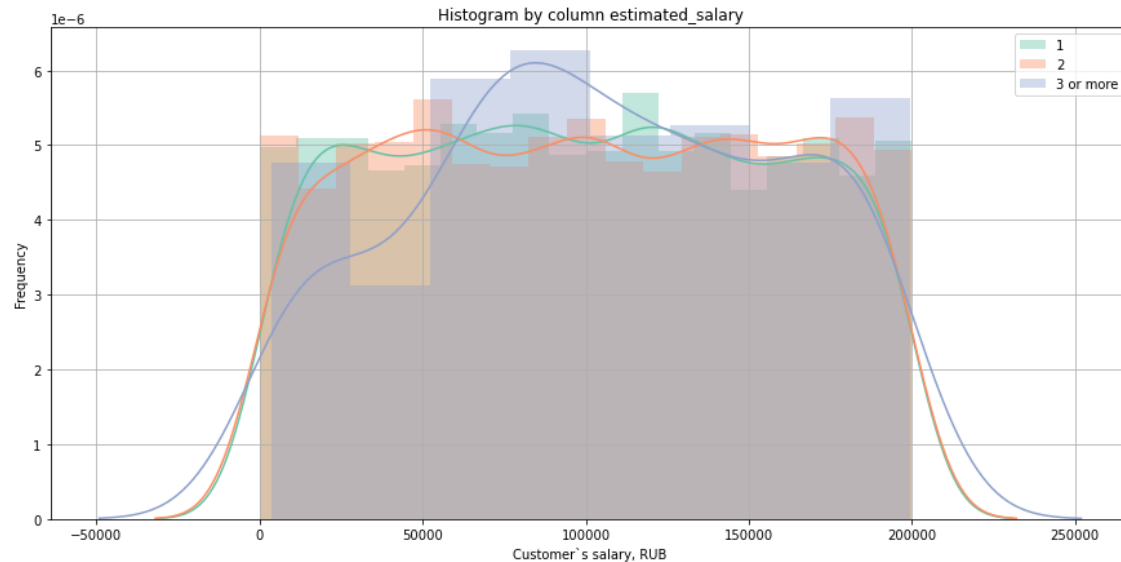
Parameter	Average values
Credit scores	649,113
Age, years	43,653
Number of objects in the property	5,058
Account balance, RUB	78 821,790
Has a customer got a credit card or not (0 - has not got, 1 - has got)	0,709
Is a customer active client or not (0 - inactive, 1 - active)	0,436
Customer's salary, RUB	104 400,142
Churn sign (0 - a customer has stayed, 1 - a customer has left)	0,859

Clients with 3 or more banking products:

- have an average credit rating of 649;
- almost the same number of clients live in Yaroslavl and Rostov Veliky, in Rybinsk there are in 2 times less than in Yaroslavl;
- there are more women than men;
- average age - 43 years;
- have an average of 5 objects in the property;
- 70% use a credit card;
- less than half of them are active users;
- the average salary is the highest than that of clients from other categories. It is 104 000 RUB;
- churn with high intensity (85.9% gone).



# Recommendations for work with the customers, which use 3 or more products



The salary distribution histogram shows that customers with 3 or more products have the highest average salary.

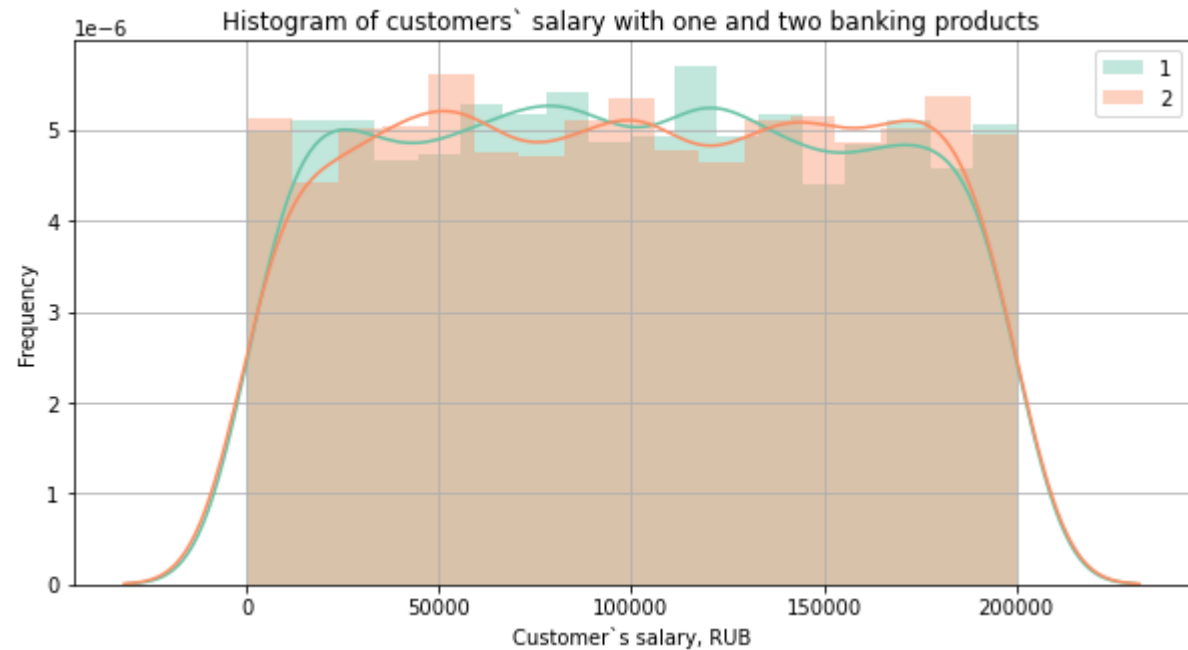
From these data, it can be assumed that the bank, seeing high income from the client, seeks to offer him as many banking products as possible. However, usually people with higher incomes are also more busy, and offers from the bank for additional products are probably regarded as intrusive, so they churn.

Therefore, it is necessary to retain customers not by the number of products, but by certain privileges, for example, increased cashback when spending from a debit card above a certain amount, discounts on investment account rates, etc.

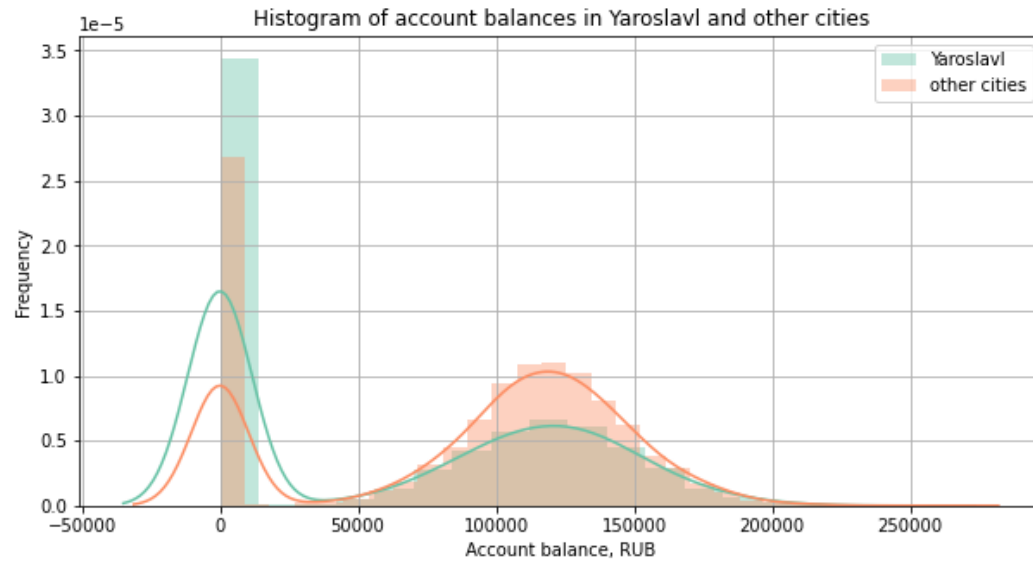
# Testing the Statistical Hypothesis about Income

The test showed that the hypothesis of a difference in average income between those customers who use two bank products and those who use one is rejected.

This means that the hypothesis that the average income of customers with 1 product and customers with 2 products does not differ is statistically confirmed.



# Testing the statistical hypothesis about account balances



Hypothesis: The average account balances of clients from Yaroslavl and clients from other cities do not differ.

The hypothesis was tested in two ways:

1. Taking into account clients with no account balances (outliers near zero on the graph);
2. Excluding such clients.

If we take into account clients without account balances, then the average values of balances for the two samples differ. And if such clients are not taken into account, then the balances on the accounts of clients from Yaroslavl and clients from other cities do not differ.