

«Preparation and analysis of the A/B test»

Task: calculate the test parameters, evaluate the correctness of its implementation and analyze the results of the experiment for the “Vsyotekhnika” service for the period from 08/11/2020 to 09/10/20220.

Link to interactive dashboard in Tableau : [Link](#)

Purpose of the analysis

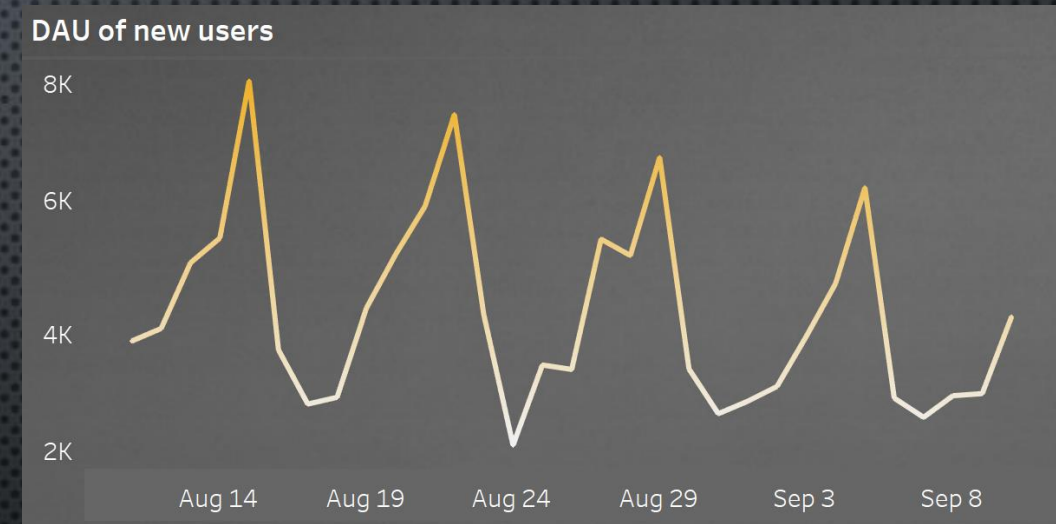
- Conducting an A/B test to test the implementation of a new category on the site for gaming laptops.
- It is expected that conversion to purchase will increase by 100%.

Historical Data

DAU of new users

- How many new users does the product attract daily?
- Is there a seasonality in recruitment?

Conclusion: In this period of time, the average DAU is 4324. The graph shows seasonality, the most active day is Saturday.

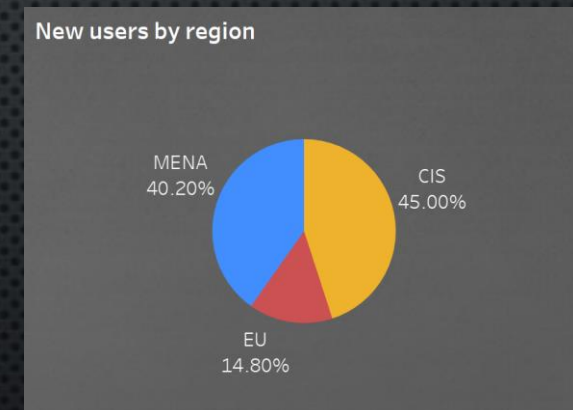
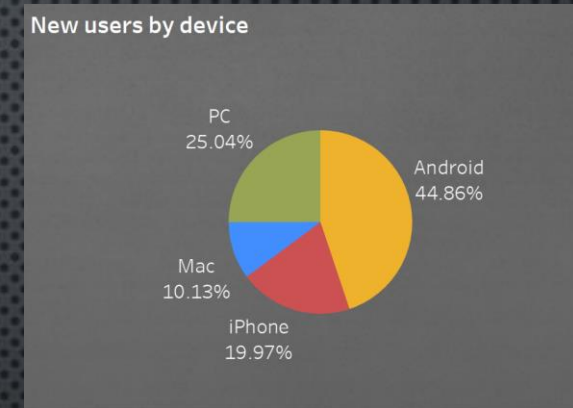


User distribution

- How are new users distributed by device type and region?

Conclusion: The chart shows that the most popular device among users is Android (44.86%). And the most unpopular is MacOS (10.13%).

The most popular region is CIS (45%). The EU lags far behind (14.8%).



Conversion to purchase

- What percentage of conversion to laptop purchases is observed in historical data?

Conclusion: In historical data, the conversion to purchase is 0.5%.

Conversion to purchase

0.50%

Revenue distribution

- How are the proceeds from the purchase of computer equipment by users distributed? Describe the distribution parameters - mean and standard deviation.

Conclusion: Average revenue is 5,421.
Standard deviation – 4697.

Average revenue

5,421

Revenue variance

4,697

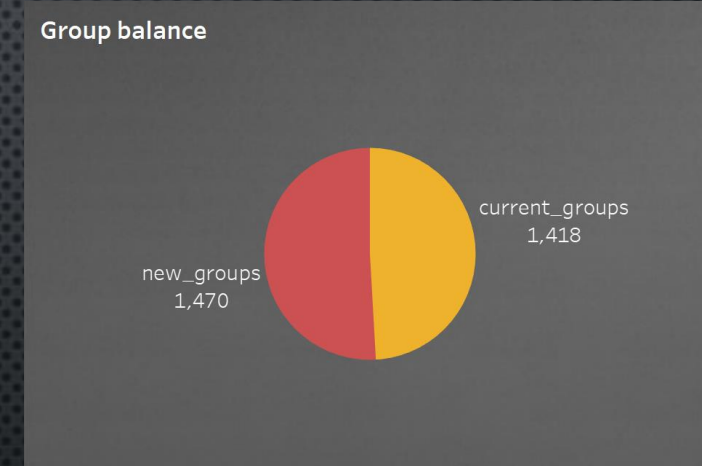
Technical task

- **Test name:** Moving gaming laptops into a separate product category.
- **Purpose of the test:** Will the conversion to purchase increase after implementing a new feature?
- **Tested metrics:**
 - Conversion to purchase – expected effect 100% (from 0.5% to 1%)
 - Average bill in the laptop category – the metric is expected not to deteriorate.
- **Number of test groups, their names, share of users for each group:** 2 test groups (test and control), 50/50
- **Duration of the test and the required number of users:** 7 days, 4673 in each group.
- **Test launch date:** 10/14/2020
- **Test stop date:** 10/21/2020

Number of users by group

- How many users took part in the test? Are they evenly distributed across the groups?

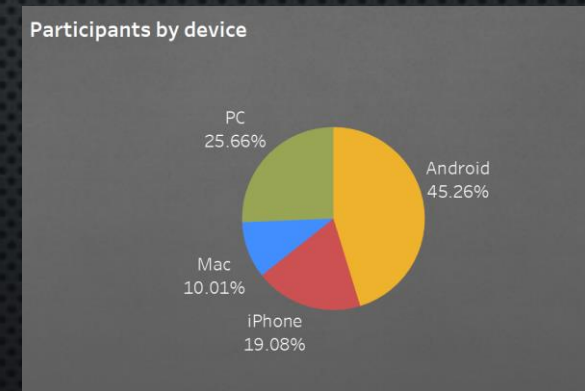
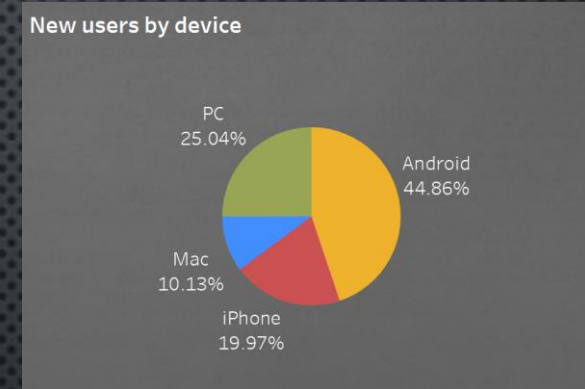
Conclusion: The diagram shows the number of participants in each group. 1470 in the test group versus 1418 in the control group. Users are approximately equally distributed.



Differing participants by device

- Is the distribution of test participants across devices different from the distribution in historical data?

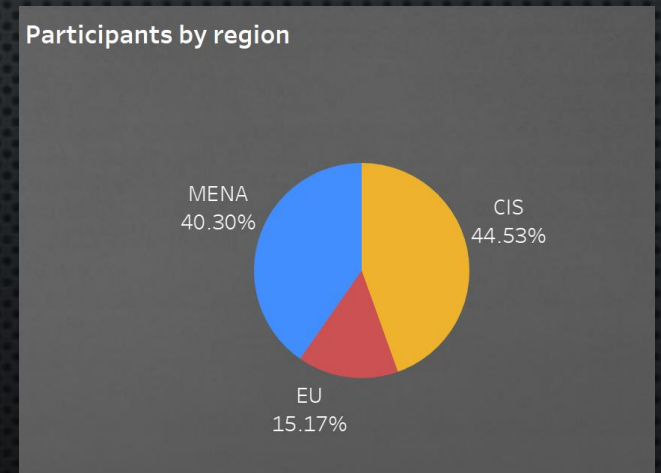
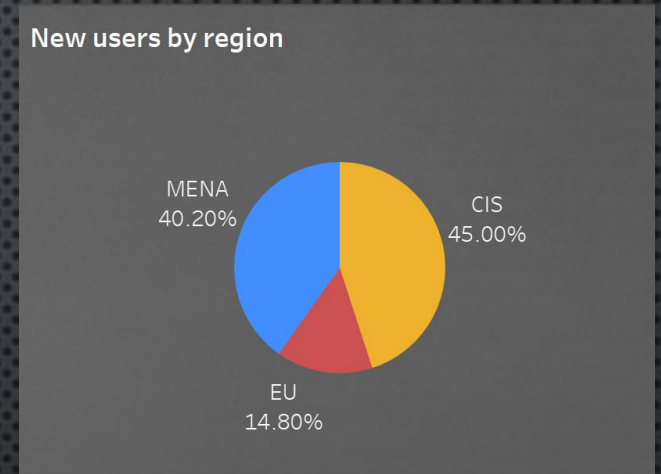
Conclusion: From the plotted diagrams it can be seen that the differences between users by device between historical data and data after the start of the test are distributed approximately equally.



Differences in participants by region

- Is the distribution of test participants by region different from the similar distribution in historical data?

Conclusion: From the plotted diagrams it can be seen that the differences between users by region between historical data and data after the start of the test are distributed approximately equally.



Conclusions from the first day of the test

- Conclusion about the nature of the distribution of users into groups.
- Conclusion about the advisability of stopping the test.

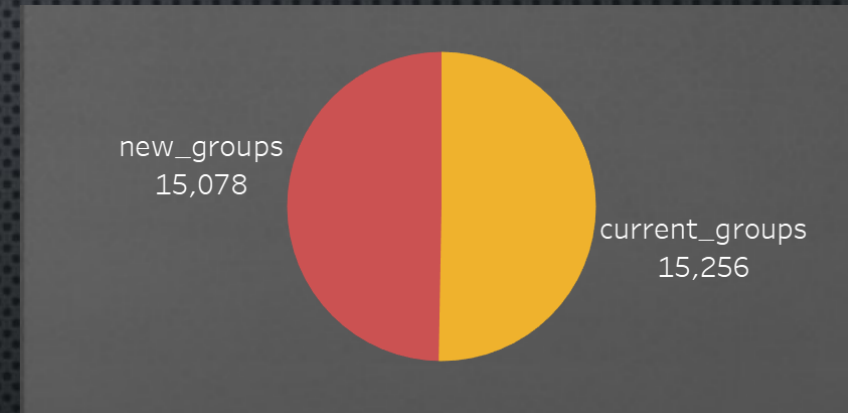
Conclusion: The data shows that the data in the test group and in the control group are distributed approximately equally with a slight bias towards new_group. At the moment, we have collected 2888 users, which is much less than the required audience size. The test is worth continuing.

Analysis of A/B testing results

Number of users in the test

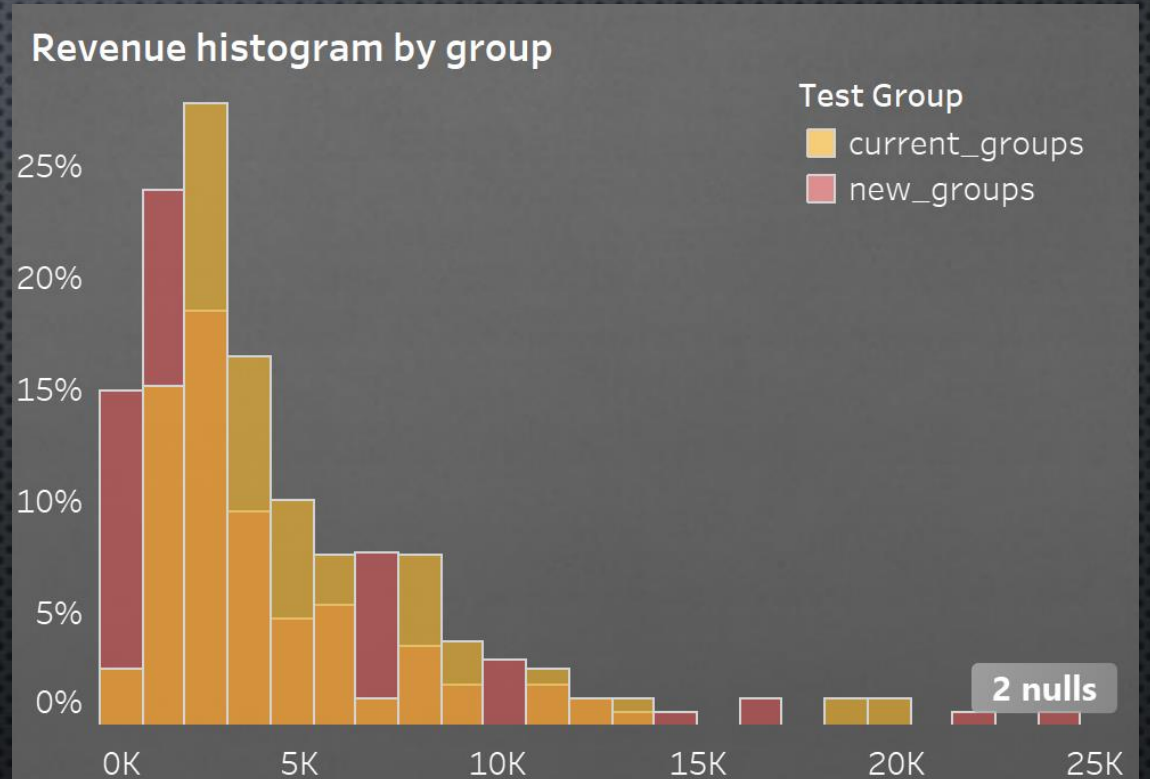
- How many users took part in the test? Are they evenly distributed across the groups?

Conclusion: The diagram shows that 30,334 unique users took part in testing. The z-test result (p-value = 0.29602) showed that the distribution across groups is even.



Revenue by group

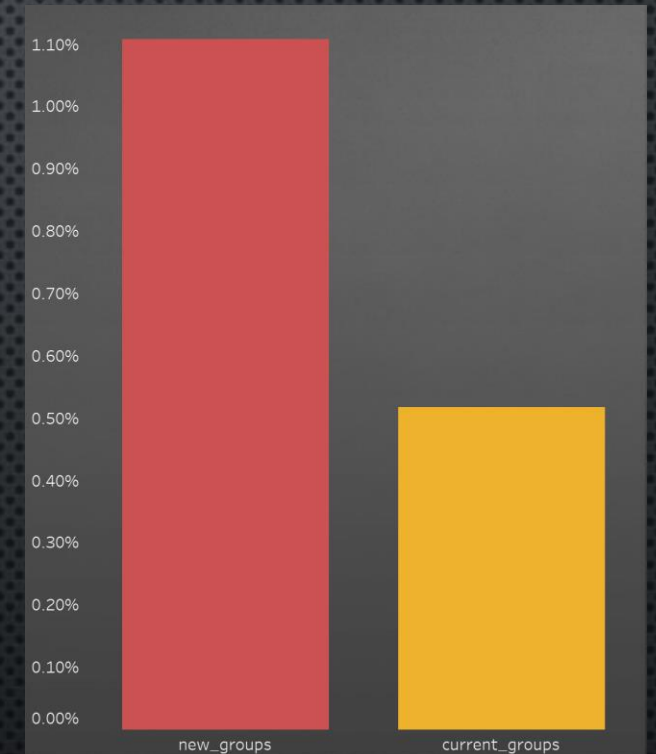
Conclusion: From the constructed histogram it can be seen that large purchases remained, but cheap purchases increased.



Conversion Differences in Test Groups

- Do test groups show differences in conversion rates?
- Which group is leading and by how much?

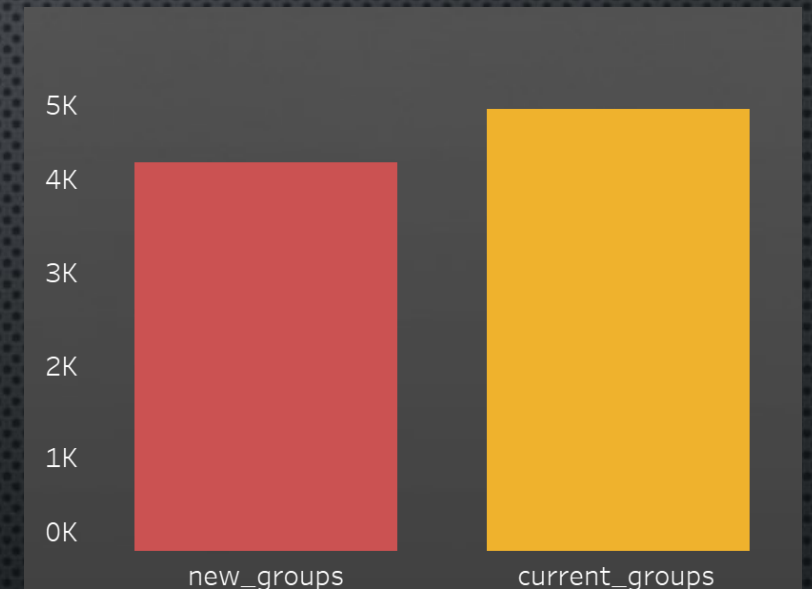
Conclusion: From the plotted graph it is clear that there is a difference in conversion between groups. The conversion in the test group (1.11%) is more than twice as high as the conversion in the control group (0.52%).



Average check difference

- Are there differences in the average check between the test groups?
Which group is leading and by how much?

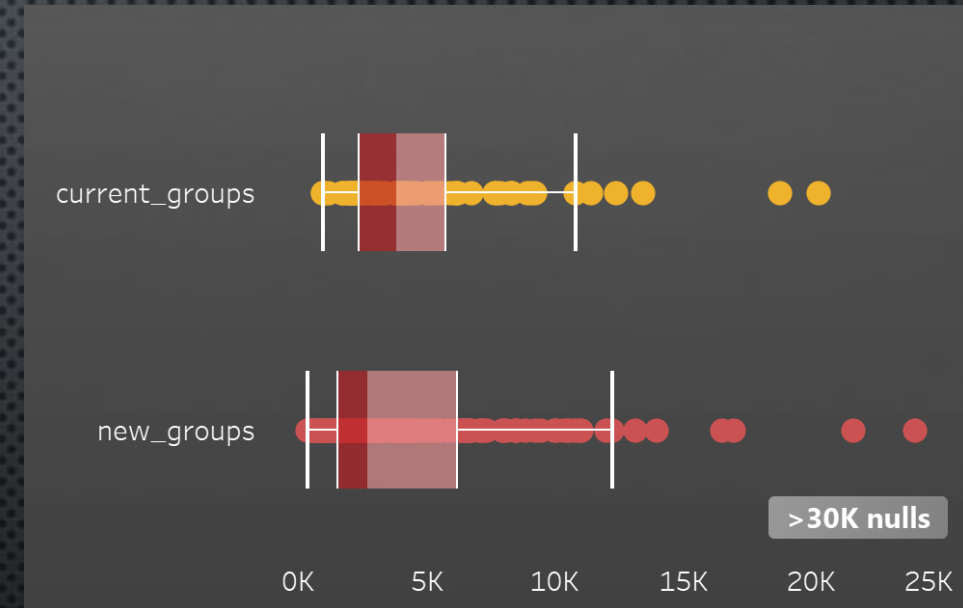
Conclusion: The graph shows that the average check in the control group (4775.7) is slightly higher than the check in the test group (4195).



Outliers in data

- Are there outliers in the data? How much do they influence the results?

Conclusion: From the constructed diagram, outliers are observed in two groups. We cannot exclude outliers from the analysis, since these are customers who made large orders.



Action Points

- Z-test results for conversion: P-value - 0.00000
- Results of the t-test for the average check: P-value - 0.26938
- Results of the Mann-Whitney test for the average check: P-value - 0.01016

Business conclusions and recommendations for the product team:

The introduction of a separate category of gaming laptops had a positive effect on the conversion to the purchase of computers in general, but at the same time the average bill decreased. From the data we have seen, we can conclude that the introduction of a separate category for gaming laptops will have a negative impact on the average bill.

Possible reasons:

- The new catalog made it possible to promote the middle price range; perhaps users stopped being intimidated by expensive models and began to order more affordable ones. Perhaps a new segment of users has opened up.

Thank you for your attention!

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