# GamesABC Product
## Revenue Analytics 2022
Power BI

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# About the Project

The project goal is to create a Revenue Analysis dashboard for a Product team at a Games Development company.

There were **3 games**, which were presented at different time during **10 month**, were available for different timeframes and in **1-3 languages**.
A transaction-based revenue model was applied with **pay-per-use** pricing tactics.

The Product Team needs **to analyze Revenue data** to plan product-market fit improvements, as well as to set sales and marketing focus and KPIs. The dashboard shows data

- **at the end of the period** to gain insights about user groups and games performance,
- **in monthly dynamics** to review the sources of income and to define factors, impacting the Revenue changes.

The terms of the project:
February 15 - February 29 2024.

The technology stack:

- Initial dataset: two tables in **PostgreSQL** database,
- Dashboard: **Power BI**
- **Excel** - for testing purposes



# Project Functionality

## Requirements analysis and Design of the Reports

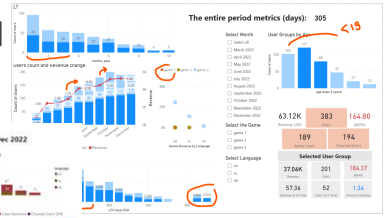

- **End of the period** report:
  1. **Summary metrics** totals (Revenue, User Count total and by status at the end of the period, ARPPU) should be compared with those for selected
     - Game (and language) and
     - User group.
  2. **Users should be grouped** by age, number of active months (LT), total spend (LTV).
  3. It should be possible to see data for selected groups and games relative to the entire scope of data, as well as absolute ones (i.e. **selected values filtering, as well as slicing should be available**).

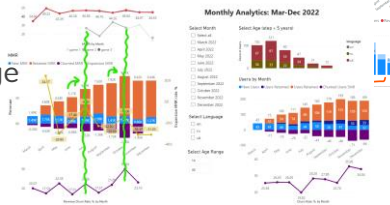
- **Monthly analytics** report:
  1. Total Monthly Recurring Revenue (MRR) data should be provided for the 10-month period.
  2. MRR structure should be clear: revenue generated by New Returned and Retained Users.
  3. Churn rate and Retention rate change should be presented.
     - It should be possible to compare the Churn rate for a selected Game or user group with the total Churn rate
  4. Factors impacting Revenue (including components of its structure) and Churn Rate should include:
     - the change of User Count and
     - Games launch/ withdrawal dates
  5. It should be possible to see data for selected user groups and games relative to the entire scope of data, as well as absolute ones (i.e. **selected values filtering, as well as slicing should be available**).

# Project Scope

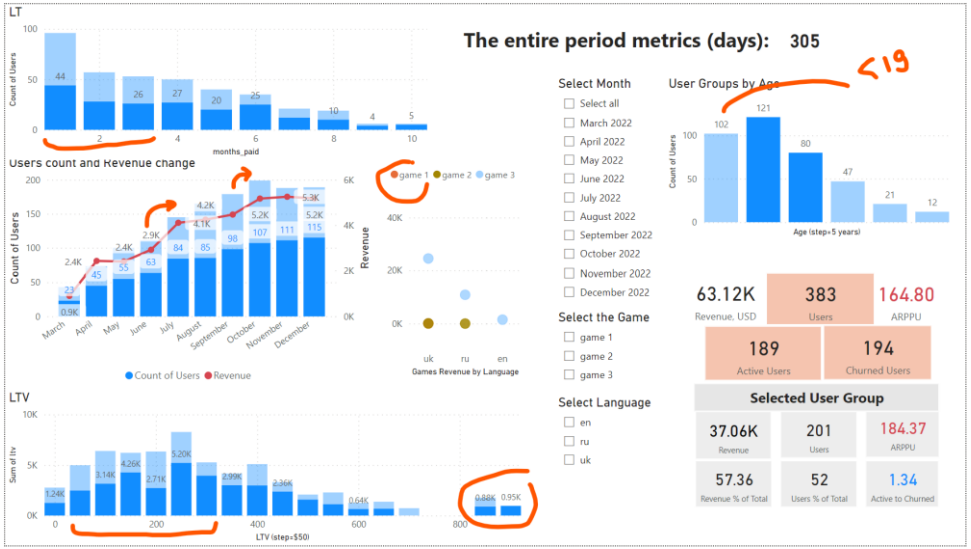
To complete the project it required:

- To transform initial datasets with SQL to get data, required for visualization:
  - The **Users table** was enriched with LT, LTV and Status of the User at the end of the period. This table was needed for the period summary calculations.
  - The **Transactions table** was enriched with monthly revenue and the previous month's revenue for each user to make it easier to categorize Users and Revenue sources.
  - Additional calculations were made and added as columns for testing and alternative calculation purposes.
- Transformed tables were loaded to PowerBI, where the data and model were checked and updated. A Calendar table was added.
- Two dashboard pages were created,
  - up to 20 measures were added with DAX,
  - slicers on Month, User Age and Game Language were added to both of pages.



# End of The Period
## technical and logical details

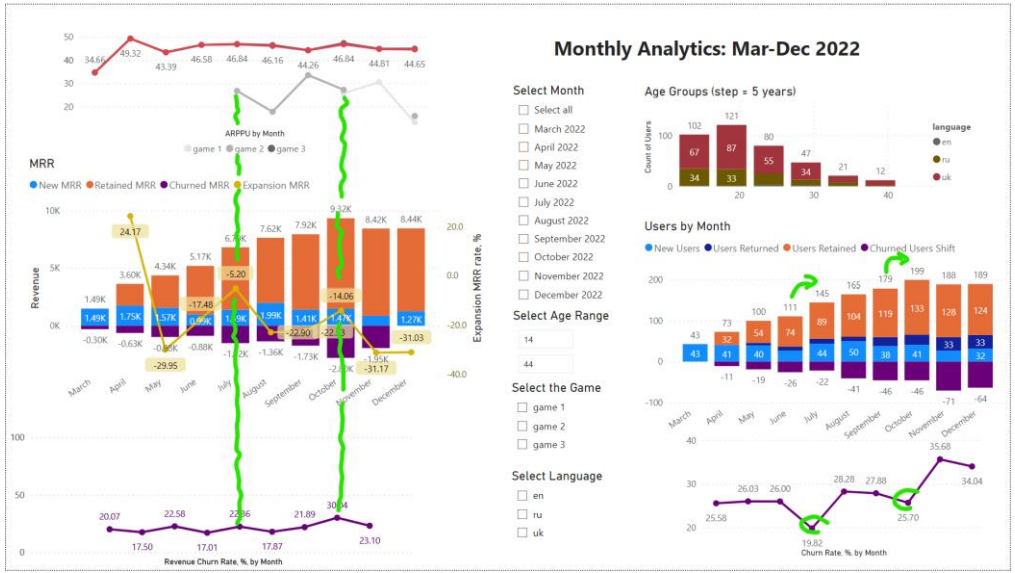



The PowerBI file with source dataset and SQL scripts may be found on my GitHub – [olenapetrova-da]

The report represents a **baseline** for the first 10 months of product usage.

- Totals of Revenue, ARPPU, and User Count (with decomposition to Active and Churned Users at the end of the period) **ignore any filters**.
- "Selected User Group" shows **absolute and relative to total metrics** for the selected group of Users.
- **Users are grouped** in bins with 5-year step. A big group of teenagers was identified. The largest part of the revenue was generated by users younger than 29.
  - User distribution among LT with 1-month step. Paid months are used instead of the time difference between the first and the last payments (due to the revenue model).
  - LTV summed in boundaries of groups with the step of $50. That allows to find groups of users with desirable LTV. Also, that shows anomalies.
- The scatter chart shows the Revenue amount in dimensions of **games and their languages**.
- **Change of user count and revenue by months**. That is the main subject of the project. It will be decomposed on the Monthly Analytics dashboard.

# Monthly Analytics
## technical and logical details

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The report represents
**Revenue and Churn Rate changes**
during the first 10 month of product launch.

- The **Revenue sources** were added to show the structure of MRR
- As **probable factors** of revenue change
  - the User Count by month was added. It consists of New, Retained, and Returned users measures,
  - ARPPU by Games was added. It shows the start and the end of each Game usage.
  - Users age groups were split by languages
- The **Revenue Churn Rate** and **Retention Rate** were added to plan the marketing and sales efforts.
- It is possible to see **ARPPU and Revenue Churn Rate** of selected User groups or Games **relative** to total numbers.
- All the charts may be **filtered**
  - by Month from any of the charts or from the slicer
  - by user Age and Language from binned age bar chart or from “between” slicer

# Analysis results

- 80% of users are in age groups from 14 to 29 years old
- 27% of users are teenagers younger than 18. One of them has an anomaly large LTV.
- 60% of Users are engaged with the product from 2 to 6 months
- 56% of Users spent from $50 to $300 during the LT. Their LT has a distribution close to normal, the average LT is 3,5 months. They played game 3 in Ukrainian and Russian.
    - Revenue from those, who played the Ukrainian version had a stable significant growth till November (may be related to the Game 1 launch in October)
- An increase in Revenue correlates with the launch of new games. However, it looks like that does not have a long-term effect: the churn rate grows the next month.
    - ARPPU of new games is also lower than that of the initial one.
- English version of the product has a significantly higher Churn rate
- Revenue from existing users gets lower month by month, meanwhile, the Revenue Churn rate grows.

# Pitfalls and Resolutions

**Non-Technical** issues I faced

- How to select metrics to show?
- What should be the design of reports?
- Which parameters to calculate in SQL before loading to Power BI?
- How to define factors impacting the Revenue change?

**Technical** issues I faced in Power BI

- How to group data?
- How to calculate number of users based on conditions?
- How to combine measures which calculate different User categories in one chart?
- How to ignore filters?
- How to move value on x-axis?
- How to ignore the first/ the last month?

Business Analysis practices helped a lot:

- Study of the Revenue and Unit Economics metrics, and their decomposition (e.g. importance of Churn rate).
- Study and definition of applied Revenue model and pricing type (e.g. what data to use for LT calculation).
- Definition of possible business needs for data analysis in such a business and at such a stage (e.g. KYC, Product-Market fit).
- Definition of ER, scenarios of usage and Use Cases.

Most of the difficulties were overcome by

- google search and
- parallel tests in SQL, Excel and Power BI,
- after the detailed decomposition of the metrics and tasks.