Revenue metrics
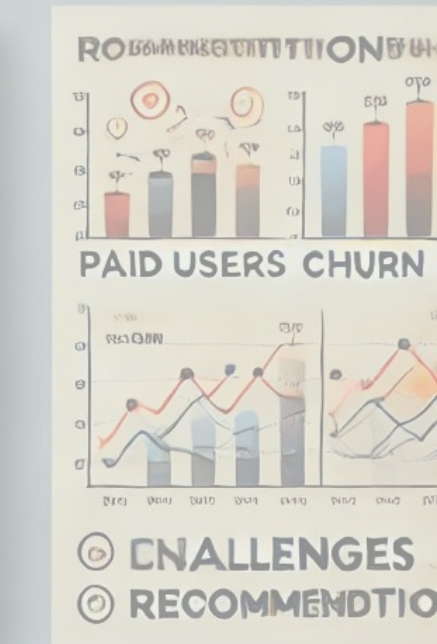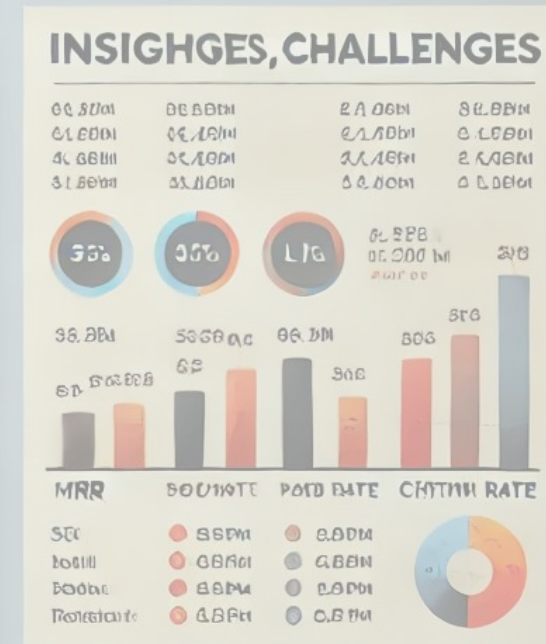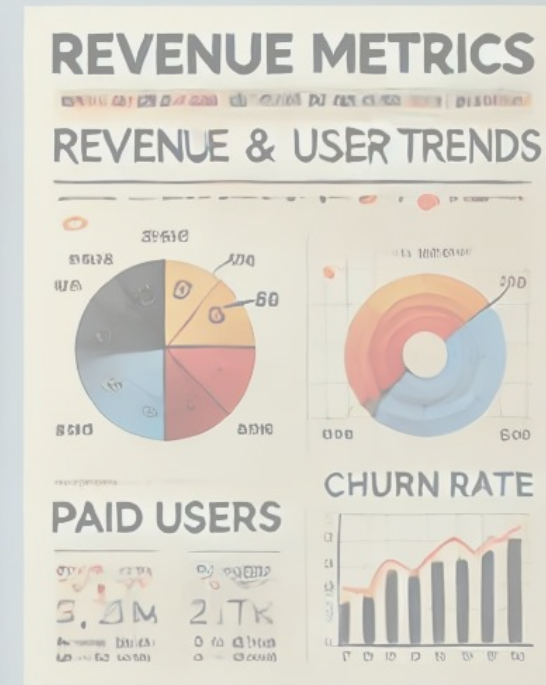
Monetary Inflow Analysis for the Project

by Diana-Mariia Shalai

December 19th, 2024

AGENDA

Introduction

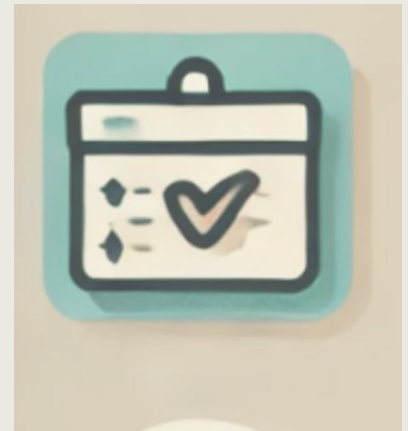Create a dashboard to analyze monetary inflows for the project. This tool will allow product managers to track the dynamics of changes in monetary inflows and conduct a high-level analysis of the factors influencing these changes.

Tools and Technologies Used:

- **Database**: PostgreSQL
- **Data Analysis**: SQL
- **Visualization**: Tableau Public

Introduction

Project Goals

- Monitor **Paid Users** and **New Paid Users** to track engagement.
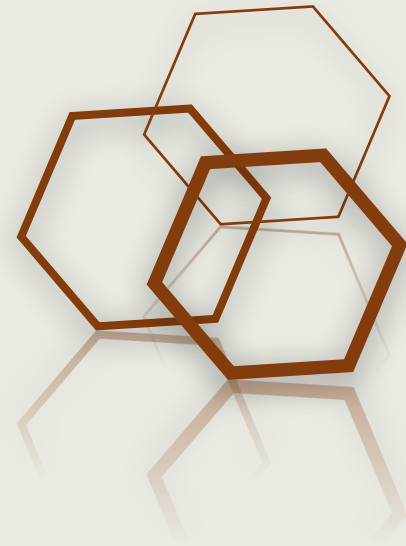- Analyze **ARPPU** and **New MRR** to evaluate user spending.
- Identify **Churned Users** and calculate **Churn Rate** and **Churned Revenue**.
- Measure growth with **Expansion MRR** and losses with **Contraction MRR**.
- Assess **Customer Lifetime (LT)** and **LTV** to understand long-term user value.

Project Goals
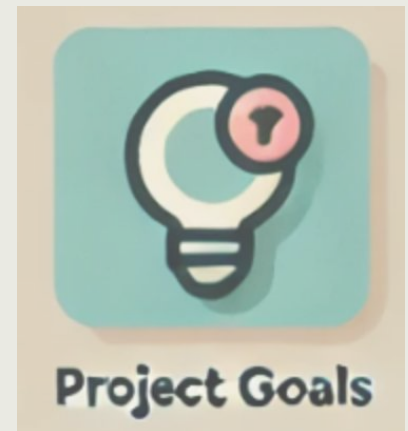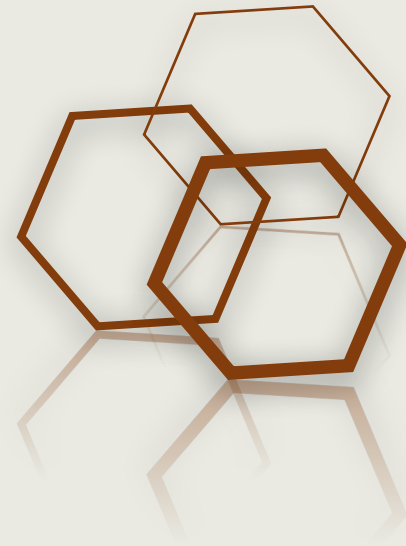
What Was Done
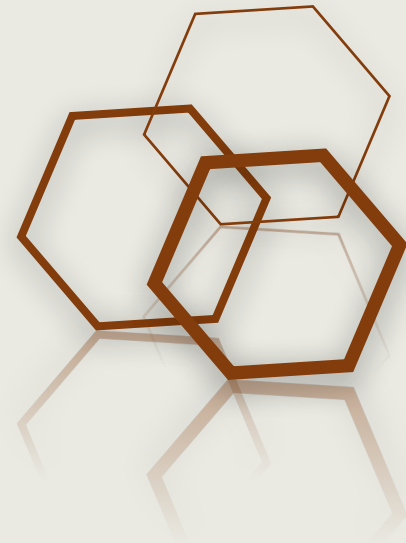
- Data Preparation:

    - Collected raw data from PostgreSQL database.
    - Implemented logic for historical data comparisons (e.g., `LAG()` and `LEAD()` functions).
    - Designed and optimized SQL queries to calculate key metrics:

        New MRR, Churned Revenue, Back from Churn Revenue, Expansion Revenue, Contraction Revenue, etc.

    - Ensured data accuracy and consistency for visualization.
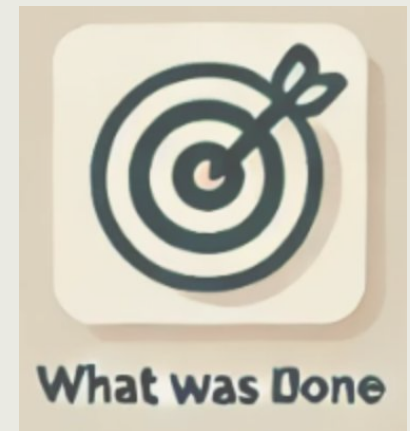
GitHub: Revenue_metrics.sql

What Was Done
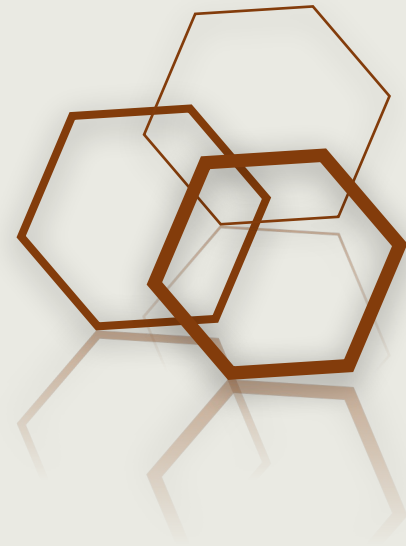
- Building the Dashboard:

- Developed an interactive dashboard in Tableau Public.
- Created calculated fields to compute additional metrics, including:

  Churn Rate, Revenue Churn Rate, ARPPU, and others.

- Focused on user-friendly design with clear visualizations:
  - Bar charts for user growth.
  - Line graphs for changes in inflows and churn.
  - Cohort analysis table for LTV trends.
- Added filters for segmentation by:

  Date, language, age

GitHub: Revenue_metrics.sql

What Was Done
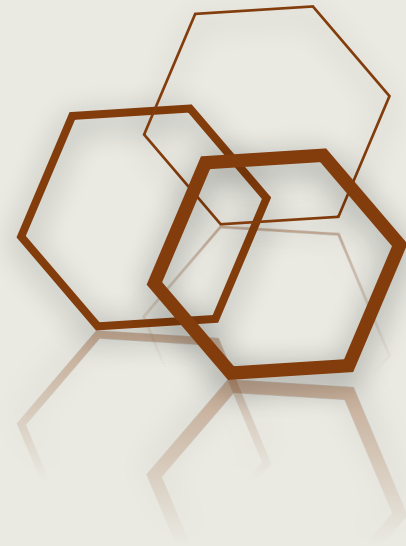
- Key Visualizations:

- Highlighted revenue growth and user retention through:
  - Monthly trends (e.g., MRR changes).
  - Expansion vs. contraction analysis (MRR breakdown).
- Displayed retention and lifetime value:
  - Cohort analysis for LTV and LT.
- Analyzed churn impact:
  - Revenue churn and churned users trends.

GitHub: Revenue_metrics.sql

What Was Done
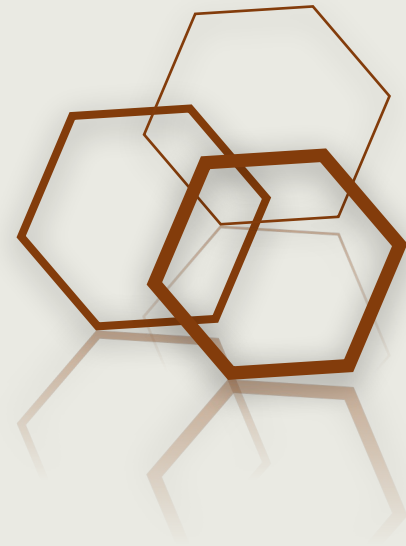
- Why This Dashboard Matters:

- Helps product managers monitor financial performance and user behavior.
- Provides actionable insights into growth opportunities and risks.
- Supports strategic decision-making by focusing on:
  - Key user retention metrics.
  - Revenue and inflow dynamics.

GitHub: Revenue_metrics.sql

Dashboard Overview and Insights

Legend:
- % Difference in MRR
- Back from churn revenue
- Churned Revenue
- Contraction MRR
- New MRR
- Expansion MRR

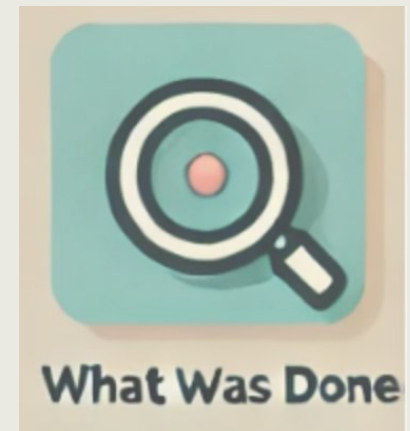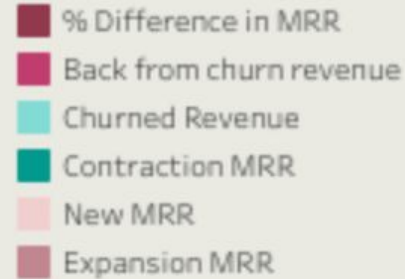- A **stacked bar chart** combined with a **line graph**.
- Shows the components of monthly changes, including **Expansion MRR**, **Contraction MRR**, and **Churned Revenue**.
- The line represents the **% Difference in MRR**, illustrating revenue growth or decline.
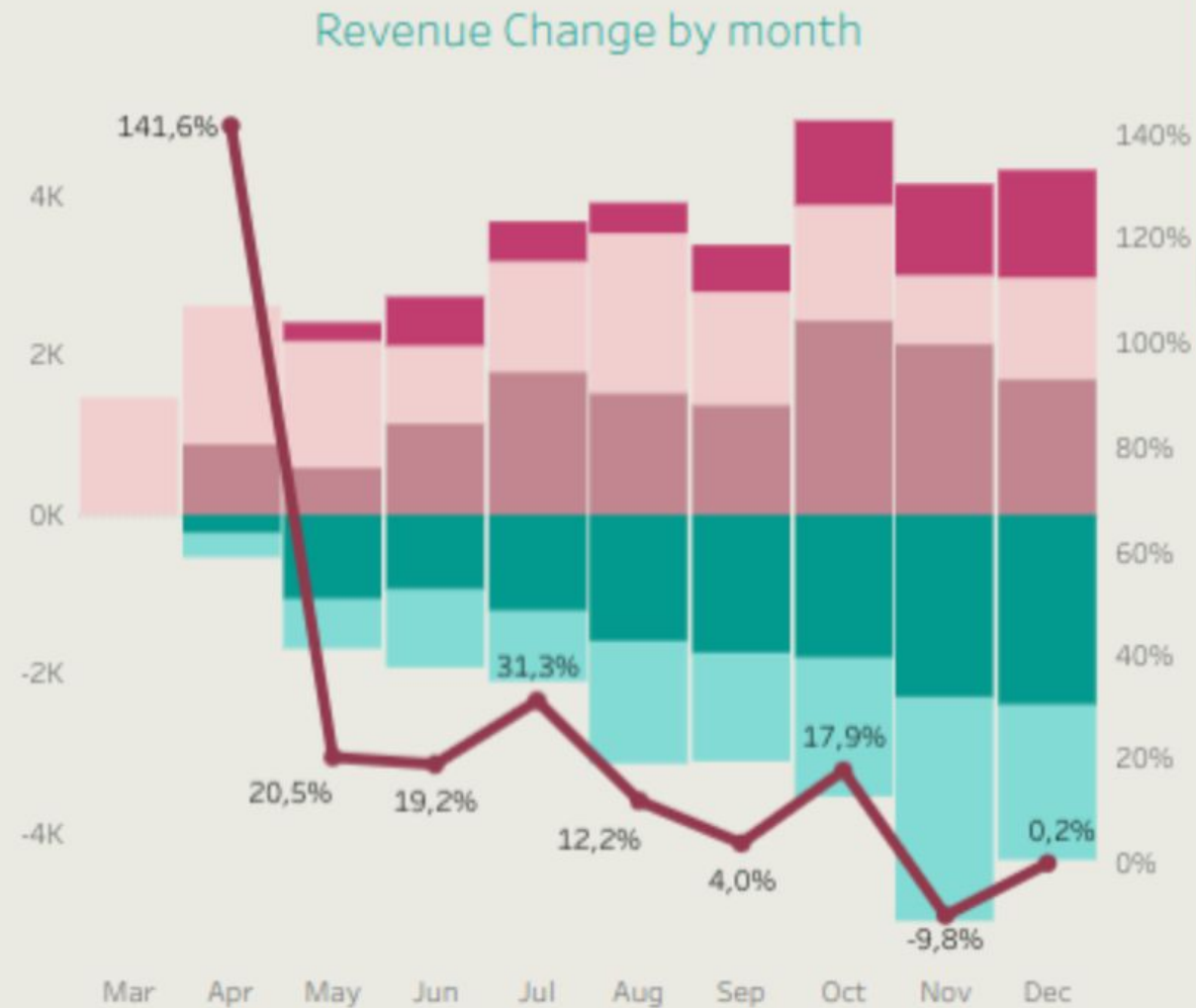
Insights:
- Growth in March and July driven by Expansion MRR.
- Significant decline in November due to Churned Revenue.

Revenue Change by month

141,6%
20,5%
19,2%
31,3%
12,2%
4,0%
17,9%
-9,8%
0,2%

Mar Apr May Jun Jul Aug Sep Oct Nov Dec

Tableau: Revenue_metrics

Dashboard Overview and Insights

- A **stacked bar chart** with dynamics of new, churned, and returning users
- The **line graph** highlights **Change in Total Paid Users** across months.
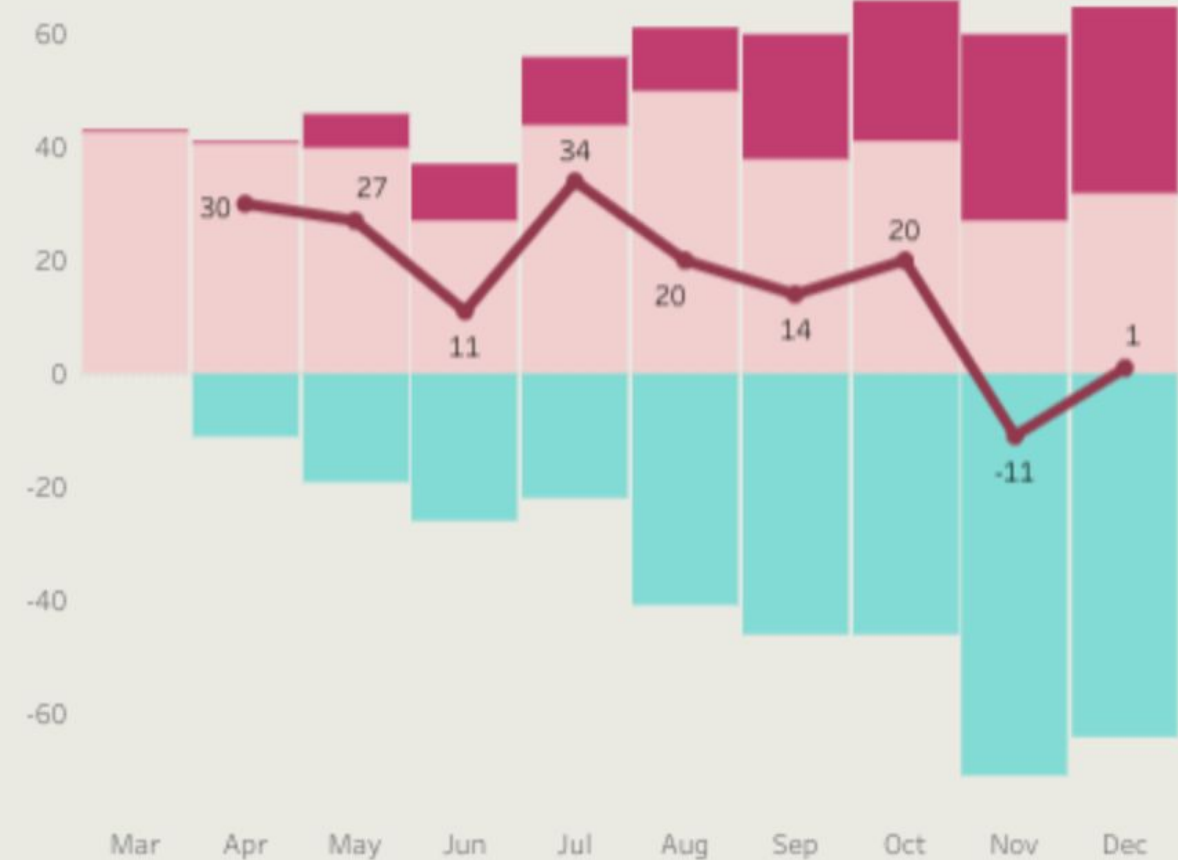
Insights:
- Growth peaked in July but declined sharply in November.
- Minimal recovery of churned users throughout the year.

Dashboard Overview and Insights

MRR & Total Paid Users

Legend:
- MRR
- Total Paid Users

MRR values: 43, 73, 100, 111, 145, 165, 179, 199, 188, 189
Months: Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec

- Bars display **MRR** (Monthly Recurring Revenue), and the line tracks **Total Paid Users**.

Insights:
- MRR steadily grows until October, then slows down.
- User growth slows, suggesting fewer new acquisitions.
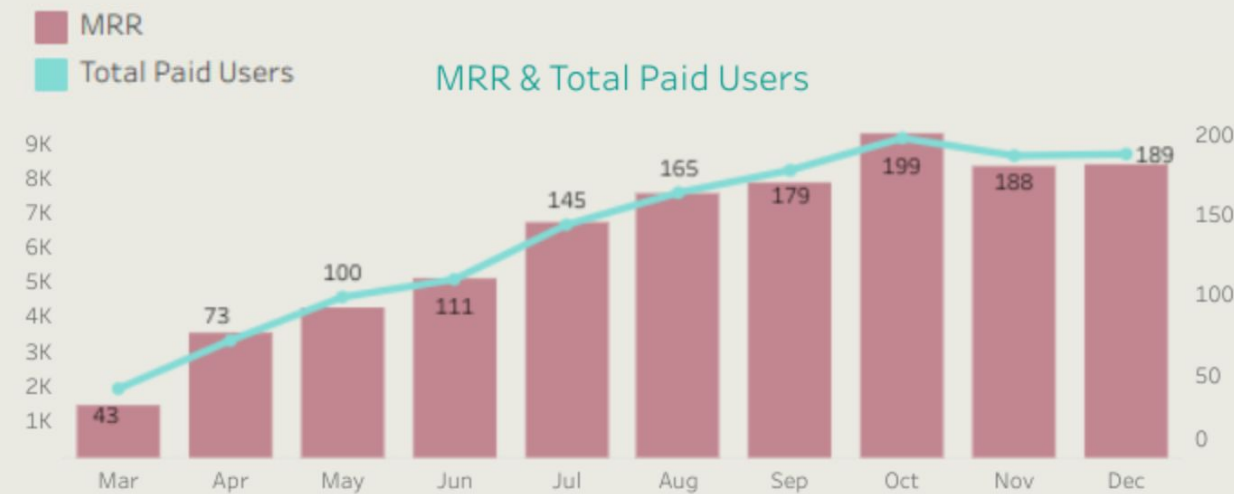
LTV & LT

Legend:
- Customer LTV
- Customer LifeTime

LT values: 6,6 5,3 4,3 6,6 4,0 3,9 4,3 2,6 3,0
Months: Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec
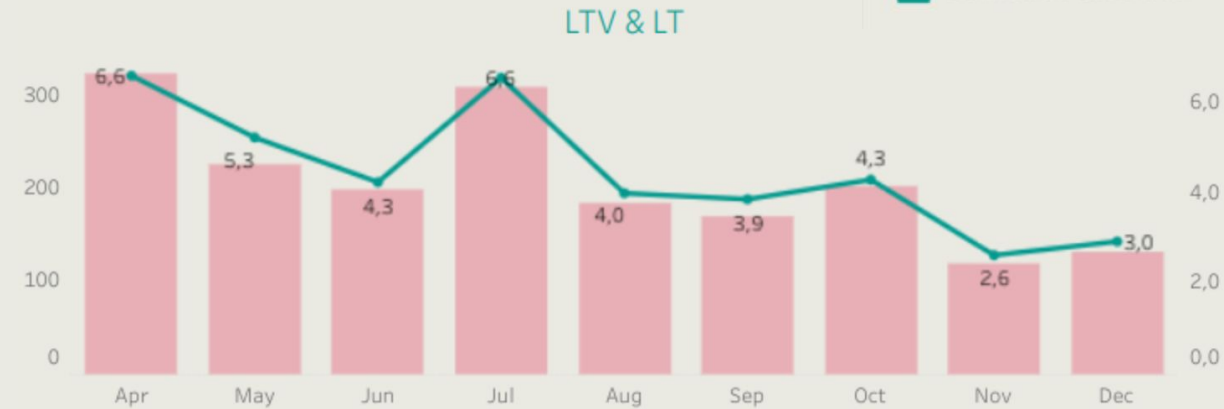
- Bars show **Customer LTV** (monetary value), while the line graph represents **Customer Lifetime (LT)** in months.

Insights:
- Both metrics decline over months, indicating challenges in retaining long-term paying users.

Dashboard Overview and Insights

Cohort analysis LTV

	1	2	3	4	5	6	7	8	9	10
Mar	27,2$	56,2$	76,2$	99,2$	130,6$	153,1$	164,1$	209,4$	218,6$	271,4$
Apr	28,3$	57,7$	77,7$	118,0$	134,1$	158,5$	169,6$	192,7$	222,0$	
May	31,2$	41,4$	59,9$	66,4$	84,4$	111,1$	135,6$	181,3$		
Jun	44,0$	65,5$	104,5$	156,8$	238,0$	255,7$	371,9$			
Jul	20,1$	26,9$	37,3$	49,2$	57,5$	117,3$				
Aug	27,5$	44,0$	66,7$	81,6$	133,5$					
Sep	38,3$	67,4$	100,5$	244,3$						
Oct	27,9$	42,3$	103,7$							
Nov	22,4$	101,2$								
Dec	39,6$									

Churn Rate & Revenue Churn Rate

- Churn Rate
- Revenue Churn rate

- Churn Rate (user-based churn).
- Revenue Churn Rate (financial impact of churn).

Insights:
- Peaks in August and October indicate increased churn, impacting revenue stability.

- A heatmap-style table showing the growth of LTV (Customer Lifetime Value) across cohorts over months.

Insights:
- **Best Performance:** The September cohort shows strong and consistent LTV growth.
- **Slowdown Points:** Older cohorts like March and June stabilize after 5-6 months.
- **Improvement Trend:** Newer cohorts outperform earlier ones, indicating better retention strategies.
- **Churn Risk:** Drop-offs in LTV growth suggest when users are most likely to churn.

Challenges and Solutions

Challenge: Proper Data Preparation

Issue: Ensuring data accuracy and flexibility for analysis.

Solution:

- Worked directly with raw data and avoided pre-aggregations at the SQL level.
- Performed all calculations and aggregations within Tableau for full control over the data pipeline.

Challenge: Avoiding Errors in Aggregation

Issue: Pre-aggregated data in SQL risked incorrect visualizations and misrepresented insights.
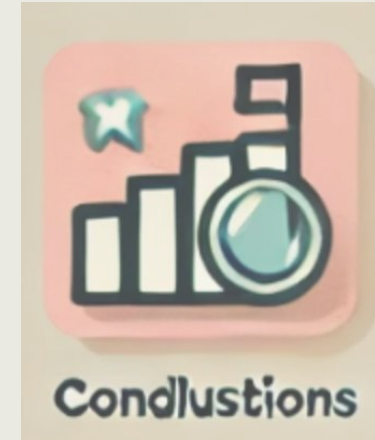
Solution:

- Used raw data to build calculated fields in Tableau, reducing the risk of errors during visualization.
- This approach simplifies updates when changes are required in the source data.

Outcome:

- This method ensured data accuracy, flexibility, and ease of maintenance for future adjustments.🚀
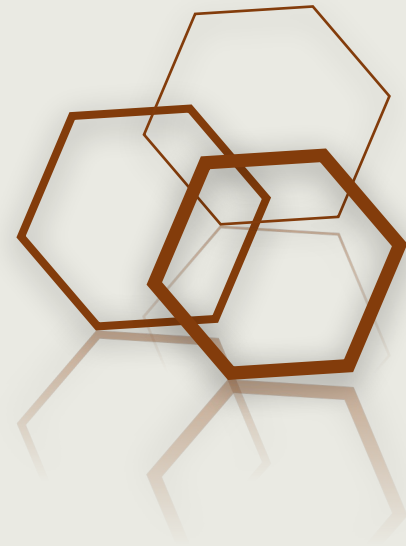
Conclusion

Condlustions
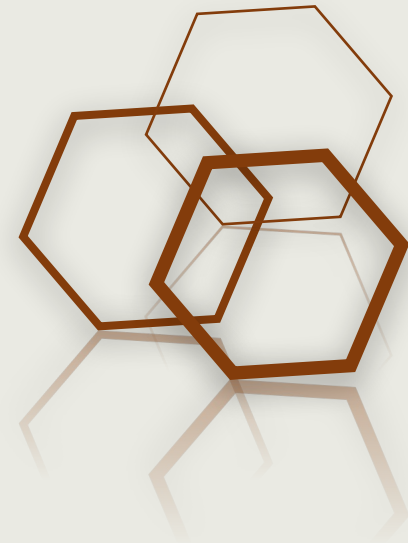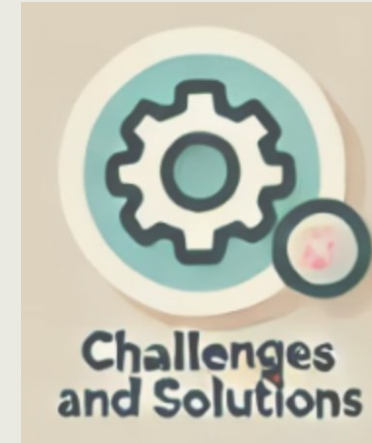
- Successfully created a dynamic and interactive dashboard to analyze key user and financial metrics.
- Focused on accurate data preparation by using raw data and performing calculations within Tableau, ensuring flexibility and reliability.
- Gained valuable experience in data management, visualization techniques, and analytical storytelling.

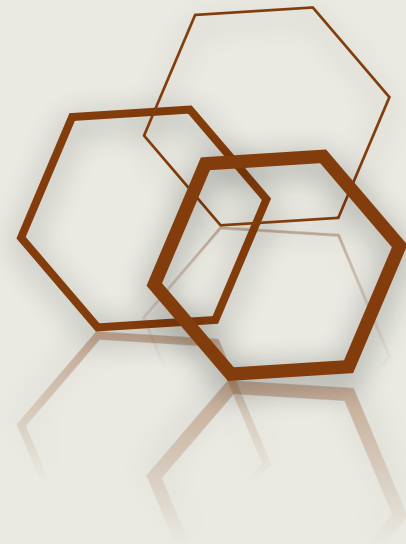- Final Thought: The project provides a clear, actionable tool for tracking trends and making data-driven decisions. 🚀

Appendix

Project on GitHub: [Repository](#)

Tableau Public: [Dashboard](#)

SQL: [revenue_metrics.sql](#)

THANK YOU

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