

REPORT ON THE NEW VERSION TUTORIAL

ASSESSMENT & UPGRADE SUGGESTIONS

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01. Context

CONTEXT

Department: LiveOps

Report to: Team Leader

Organization Goal: Enhancing User Experience

Upper Management Request: Assess the tutorial in the new version and provide recommendations for improvement

QUESTIONS

- How can we know if the improvement of Tutorial in-game version 1.6.0 has impacted the User Experience better than in-game version 1.5.2?
- Can we roll out 100% game version 1.6.0 to all users or not? Why? (Analyze and evaluate the 2 versions).
- Based on the data and your experience with the game, do you have any ideas to improve our User Experience?

Key Metric:

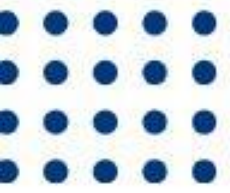


Key Metric

- **Tutorial Completion Rate:** A higher completion rate indicates better user engagement and tutorial effectiveness.
- **Tutorial Skip Rate:** A high skip rate suggests low tutorial engagement and potential UX issues.
- **Average Steps in Tutorial:** A lengthy tutorial may increase drop-off rates and negatively impact user experience.
- **Win Rate at Level 1:** A well-designed tutorial should improve players' ability to succeed in the first level.
- **Average Engagement Time:** Higher engagement time indicates a more immersive and effective tutorial experience.
- **Retention Rate:** A strong tutorial positively correlates with higher Day 1, Day 7, and long-term retention.
- **Loss Rate:** A high loss rate may indicate gaps in tutorial clarity, leading to poor player understanding of game mechanics.



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Key Metric

Secondary Metrics

“These insights will enable data-driven decision-making to optimize the tutorial experience and improve overall user engagement”.

Secondary Metrics

Analytical Factors to Better Address the Problem

1. High-Level Comparative Analysis Between Versions

- Focus on comparing key performance metrics between the two versions to gain a quick **overview of effectiveness**.

2. Time-Series & Version-Based Analysis

- Evaluate how key metrics evolve over time, focusing on:
 - **Completion rate**, total completions, and time spent in the tutorial
 - **Win rate at Level 1** as an indicator of tutorial effectiveness
 - Tutorial **skip rate** to assess engagement levels
 - Player **retention rate** to measure long-term impact

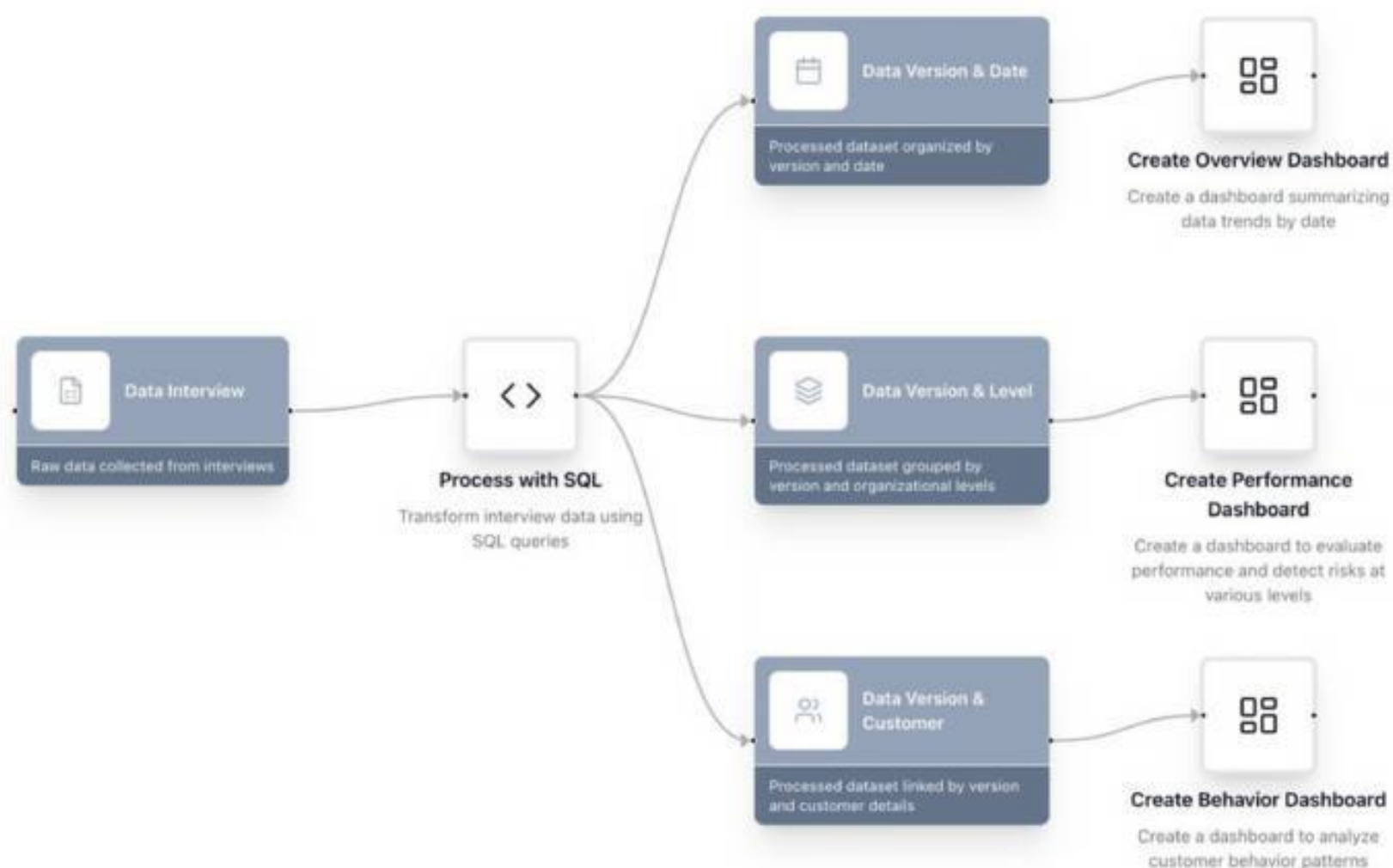
3. Level-Based & Version Analysis

- Assess detailed performance across different levels to identify **potential risks** at higher stages.
- Compare player performance across versions to see how they progress through various levels.
- Analyze average playtime across **level groups**, comparing data between different game versions.

4. Customer Segmentation & Version Analysis

- Evaluate different customer segments based on:
 - **User behavior** patterns and engagement habits
 - Segmentation by playtime and skill level to determine how different user groups interact with the tutorial
- Leverage these insights to provide data-driven recommendations for improving tutorial quality.

02. Data processing



In this case, due to the **large dataset** (>7 million rows), using **Power BI for direct data** processing would be inefficient and could negatively impact performance.

Therefore, I will **leverage SQL Server to pre-process** the necessary data tables before importing them into **Power BI**.

Within Power BI, only minimal transformations will be performed using simple **DAX calculations** to optimize efficiency.

The processed SQL file is attached in the designated folder.



03. Analyze



Overview Comparison Between Versions



version	1.6.0	1.5.2
total user	6929	6671
tutorial completion rate	92.91%	92.97%
tutorial skip rate	5.15%	5.14%
avg time on tutorial	4	2
win rate lv1	77.24%	74.98%
lose rate lv1	22.76%	25.02%

- The new version has a slightly lower completion rate compared to the previous version, but the difference is negligible (0.06%).

However, the average engagement time in the tutorial has more than doubled.

- The win rate at Level 1 has increased significantly (~3%).

- The tutorial in the new version appears to be more complex than in the previous version but provides more detailed guidance, helping players perform better at Level 1.
- This is only a preliminary assessment; for a more accurate understanding, we need to conduct an in-depth analysis of the following aspects.

Overview Tutorial of Completion Performance

version

1.5.2

1.6.0

90.85%

Average Of Tutorial CPR

2.71

Average of Time on tutorial

76.11%

Average Of Win LV1

4031

Sum of lose_at_level1

3/15/2025

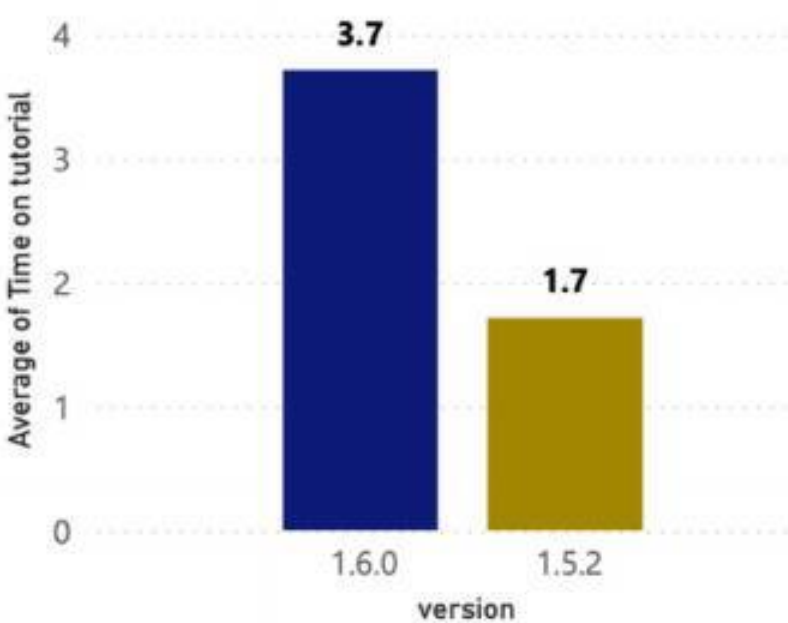
6/23/2025

Total Users and Completion Rate by Day

Sum of total_user Average of Tutorial Completion Rate



Average of Time on tutorial by version

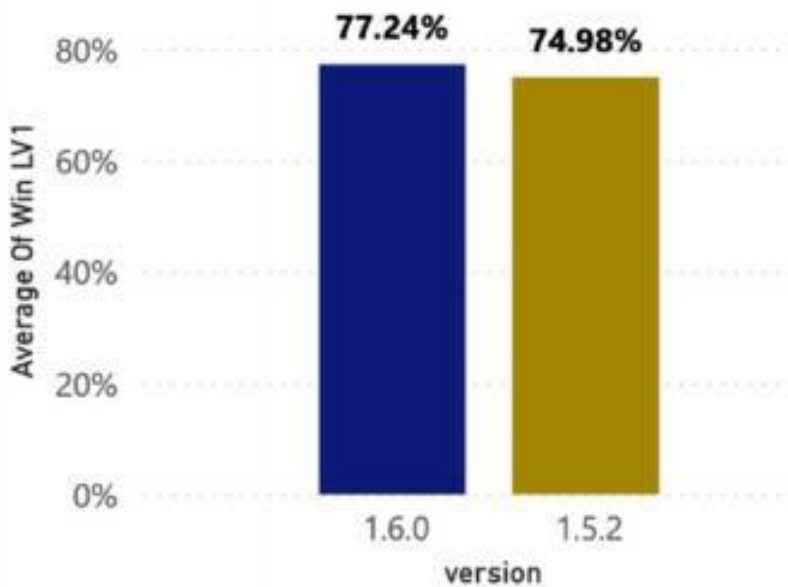


Total Users and Retention Rate by Day

Sum of retained_users Average of Retention Rate



Win Rate by Version





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Total user

13584

Tutorial Complete Rate

90.85%

Average Time On Tutorial

2.71

Average Win Lv1

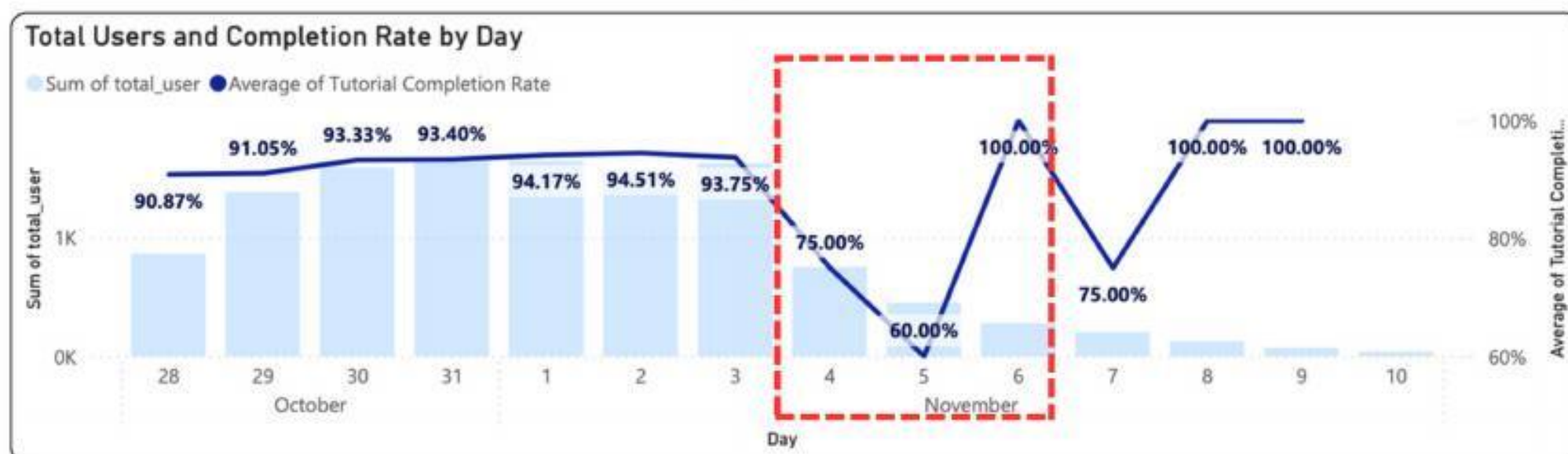
76.11%



03. Analyze



Version 1.5.2

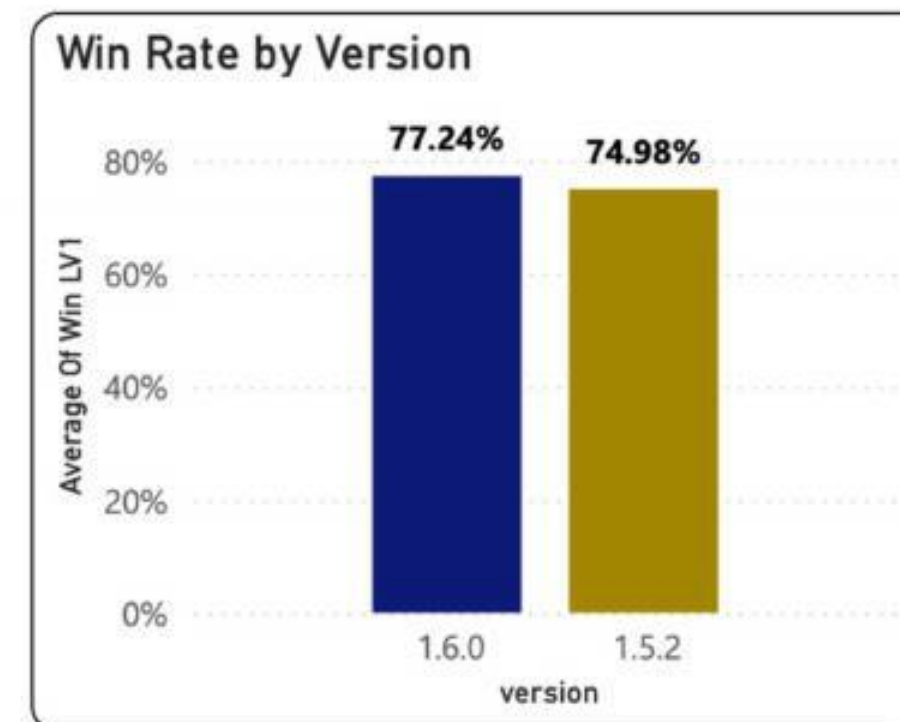
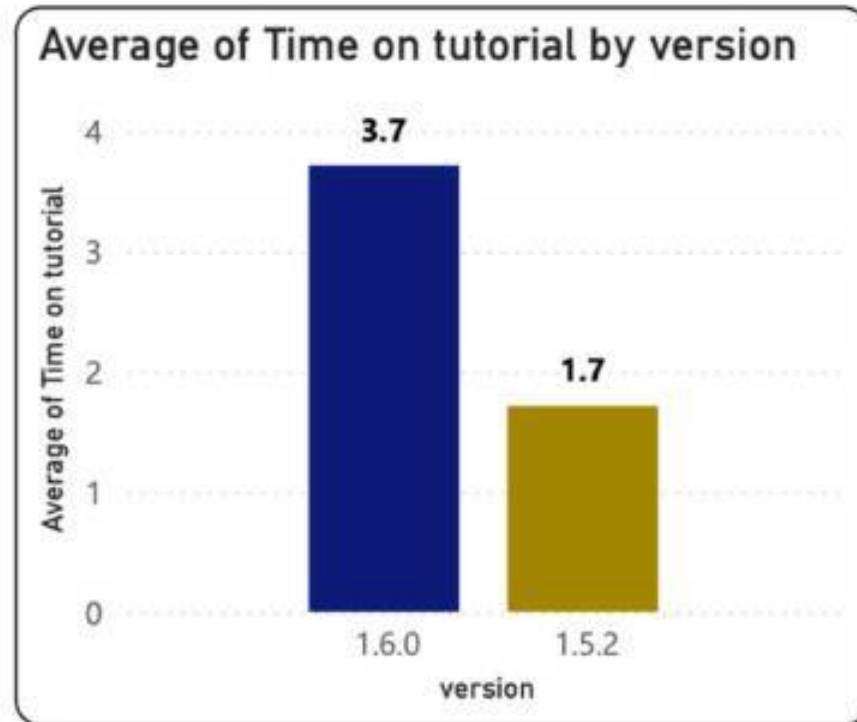


Version 1.6.0

- Both versions exhibit a common trend where the number of players increases during the initial days but then experiences a sharp decline. The same pattern is observed in the tutorial completion rate.
- Notably, **on November 4th, 5th, and 6th**, there was a significant drop in the number of players (3 to 4 times lower) and extreme fluctuations in the completion rate.
- The reason for this trend is that players typically go through the tutorial during their first play session. As a result, the tutorial is played the most in the initial days, but as players **become familiar with the game**, the number of new users engaging with the tutorial decreases.
- The fluctuations in the completion rate are partly due to the lower player count (**smaller sample size**) in later days, making the final results more **sensitive to minor changes** in the number of completions (numerator).



03. Analyze



The tutorial playtime in the new version is significantly longer than in the previous version (more than double). However, this comes with a notable improvement in the Level 1 win rate, which has increased by approximately 3%.

- This demonstrates that the tutorial in the **new version** has been adjusted to **provide more detailed guidance**, helping players **familiarize themselves with the game more effectively** and increasing their chances of **winning at Level 1 through a better understanding of the mechanics**.
- While this brings a **positive impact**, it also has a **potential drawback**—some players may find the **longer tutorial less engaging** and be more likely **to skip** it, as reflected in the **skip rate data** mentioned earlier.





03. Analyze



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Version 1.5.2



Version 1.6.0

- Both versions share a common trend where the number of players continuing to play **increases during the first half** of the period but then **declines in the latter half**.
- The retention rate in the new version is slightly higher than in the previous version during the early stages. However, in the later stages, the new version shows a declining trend, whereas the previous version tends to increase.

This suggests that the new version is more engaging for players, possibly due to the more detailed tutorial, which helps them feel more satisfied and better understand the game mechanics. As a result, they are more likely to progress smoothly through the early levels.

However, as the game becomes increasingly difficult, the tutorial's impact diminishes, meaning it no longer plays a significant role in determining whether players continue playing or drop off.

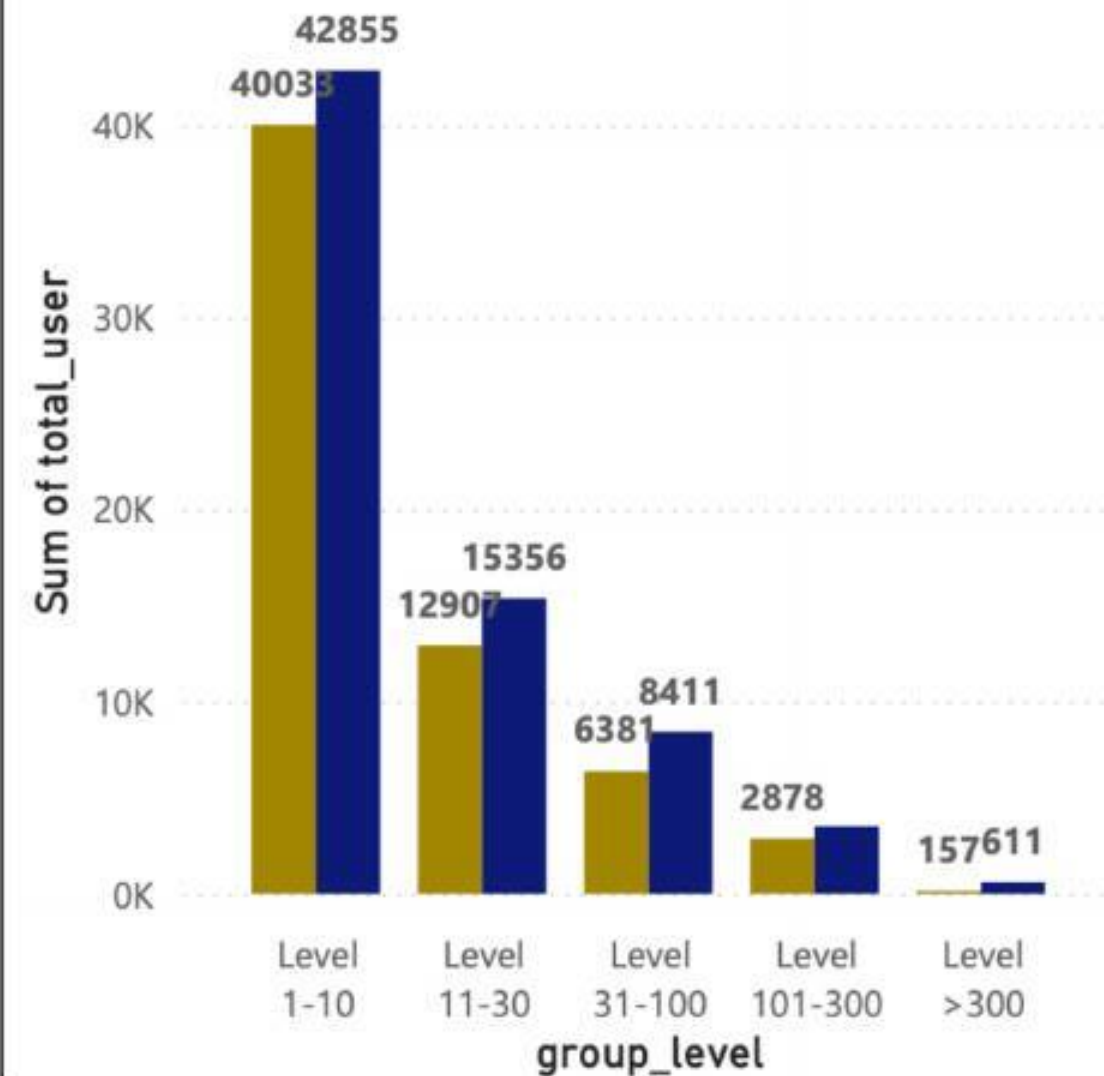




03. Analyze

Total user by Version & Level

version ● 1.5.2 ● 1.6.0



For better analysis, I have categorized the levels into five groups:

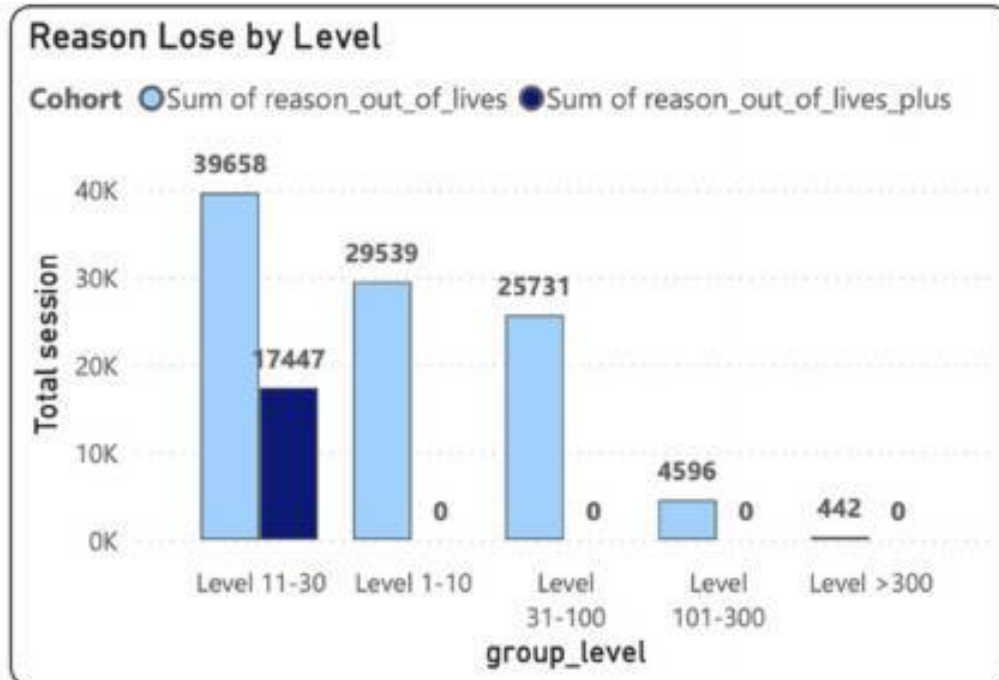
- **Beginner Group (Levels 1–10):** New players in the onboarding phase, getting familiar with the game. These levels are easy, and almost everyone can complete them.
 - **Challenge Group (Levels 11–30):** The most difficult phase for players. The game introduces harder levels, requiring strategic thinking and player skills, leading to a high dropout rate.
 - **Proficient Group (Levels 31–100):** Players at this stage are familiar with the game mechanics and have learned some strategies to secure victories.
 - **Expert Group (Levels 101–300):** These players primarily play for entertainment. The key difference from the Proficient Group is that they invest significantly more time into the game.
 - **Veteran Group (Levels >300):** This group consists of highly skilled players with exceptional game mastery and fast decision-making. They aim to complete all levels or achieve full game progression.
- As expected, the number of players decreases as they progress to higher levels. The biggest drop occurs between the Beginner Group (Levels 1–10) and the Challenge Group (Levels 11–30).
 - The difference between the two versions is minor (around 5–15%) in the earlier level groups. However, in the Veteran Group (Levels >300), there is a significant gap (~350%).

This can be explained by the fact that the new version includes additional level updates, allowing players to continue progressing through higher levels.

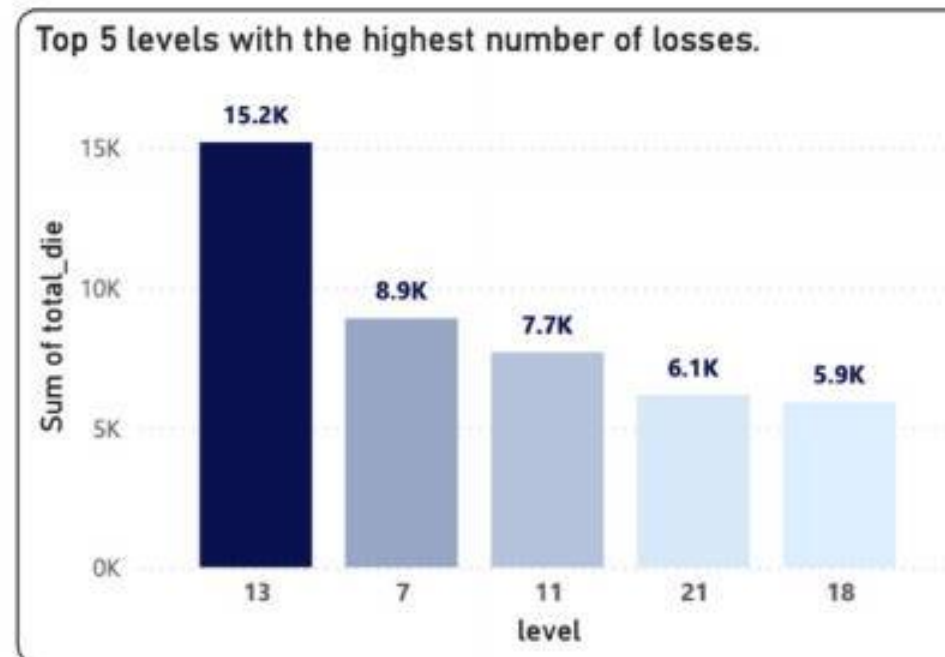




03. Analyze



- Most players **fail** between Levels 11–30, which is also the only stage where the "**live_plus**" assistance feature appears. The second-highest failure rate occurs in the Beginner Group (Levels 1–10), followed by the Proficient Group (Levels 31–100).
- Notably, in the Expert Group (Levels 101–300), the number of **failures drops significantly** (5x decrease), while the player count only decreases by about 3x.



- The level with the highest number of failures is **Level 13**, with nearly twice the failures compared to **Level 7**.
- From **Level 7** onward, the **failure count stabilizes**, with differences between levels not exceeding 20%.

- Once players surpass the Challenge Group (Levels 11–30), the game becomes significantly easier. In particular, players who reach the Expert Group (Levels 101–300) rarely lose, as they have fully mastered the game mechanics and strategies.
- Level 13 stands out as the most difficult level, even unusually difficult compared to other levels.

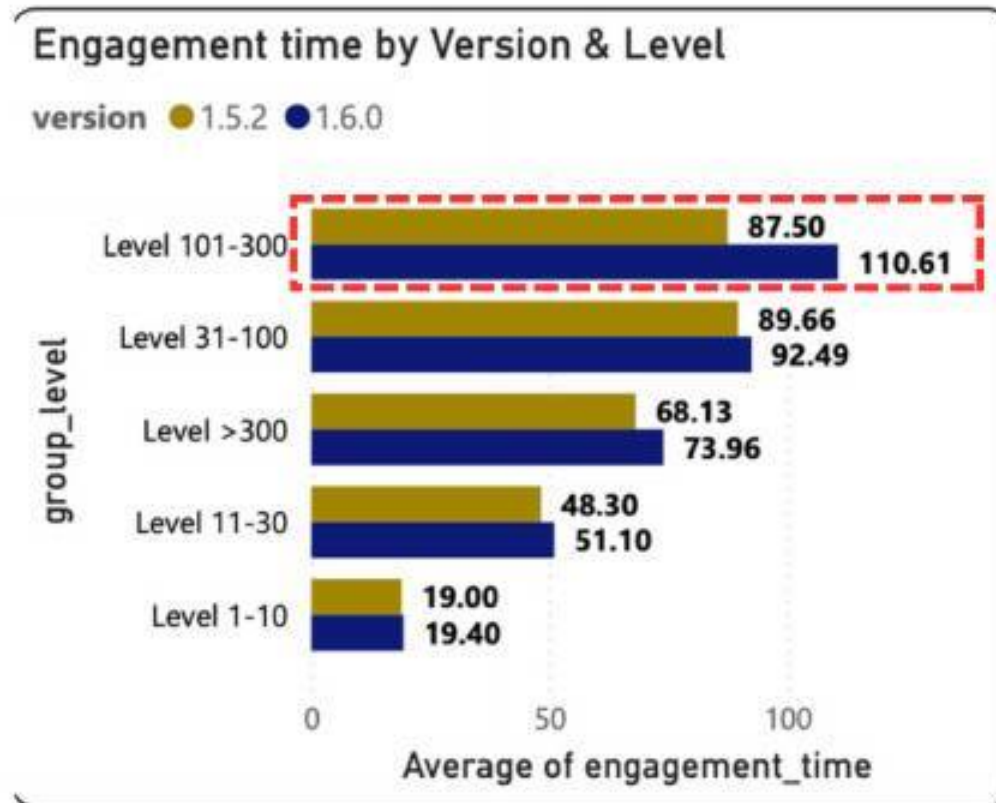




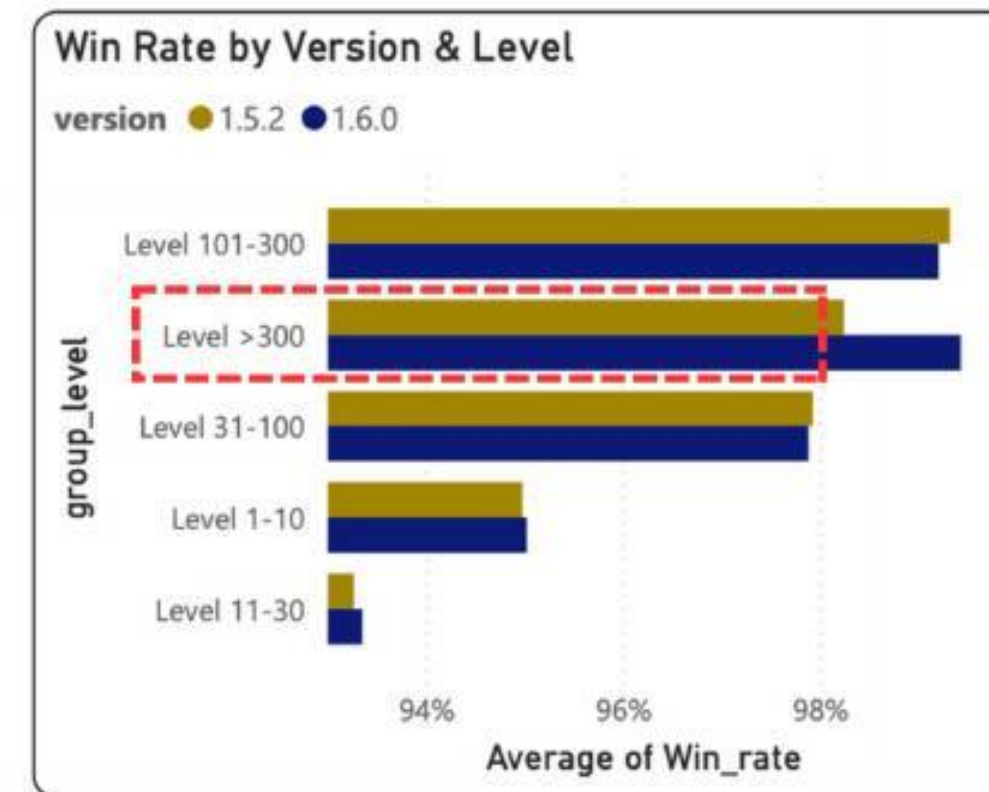
03. Analyze



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The playtime difference between the two versions is insignificant, except for the Expert Group (Levels 101–300).



The win rate difference between the two versions is not significant, except for the Veteran Group (Levels >300).

- Since the new version includes more levels (with additional updates), there is naturally a clear discrepancy in win rates and playtime between the two versions, where the **older version shows better metrics**.
- Although the new version requires more time for the tutorial, the actual gameplay time remains **nearly unchanged**.
- From Level 10 onward, the impact of the tutorial diminishes, as players have already become familiar with the game mechanics, making the differences between versions **less noticeable**.





04

Recommendation

Recommendations Based on Data Analysis:

- **Adjust Tutorial Length:** While a longer tutorial improves initial level success rates, it also lowers completion rates and may cause players to feel it is too lengthy. Consider optimizing its duration.
- **Stage-Specific Guidance:** Introduce progressive tutorials at different phases of the game to help players adapt gradually, reducing frustration and preventing early drop-off due to difficulty spikes.
- **Difficulty Balancing & Hints:** Fine-tune level difficulty and introduce hint features to assist players in overcoming overly challenging levels without discouragement.



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04

Recommendation

Limitations & Areas for Improvement

To enhance the analysis, we could integrate additional data sources such as:

- Player Demographics & Behavior Data – Understanding customer segments and their engagement patterns.
- User Feedback – Collecting insights on player experiences and pain points during gameplay.
- Interaction Metrics – Analyzing how players engage with different features of the game.

These data points would allow for deeper insights, leading to more precise recommendations and a better understanding of user behavior.



Recommendations from a Game Development Perspective

	6	6	5	1 4	2 4	9	2 4	1 4	5	5
0	X	X	X	X	X	X	X	X	X	X
3										
5										
1	X	X	X	X	X		X	X	X	X
2 1										
3 1 2										
10										
10										
10										
10										
2 1										
3 1 2										

- Identified Bug:

- Game bug in Level 11: When filling the correct tile, the hint tile does not turn gray as expected.
- Expected behavior: If the correct color is applied, Hint Tile 1 should turn gray.



04. Recommendation

Interactive Tutorial 2.0 Improvements

Identified Weakness:

- The current tutorial relies solely on text, making it less intuitive and difficult for new players to grasp. (This affects its strength: ease of understanding.)

Logic Design:

1. **Three-Step Structure (Video + Interaction):**

- Instructional Video (10s): Animated demonstration of filling a 3x3 grid (e.g., [1, 1, 1] row/column).
 - Logic: "Fill tiles based on hints" → Complete the grid.
 - Feedback: "Continue" or "Skip Step" button.
- Practice (5x5 grid): Hint [3, 1, 1, 1, 3], filling rows 1 and 5.
 - Logic: Animated arrow (0.5s interval) highlights the tile to be filled.
 - Feedback: "Skip Step" button.
- Completion: "Tutorial Completed!" notification + 50 gold reward.

2. **Rewards:**

- 50 gold upon full completion.
- Enhanced visual feedback through high-quality animations for a smoother experience.

Implementation Mechanism:

3. **User Interface Enhancements:**

- Videos & individual "Skip Step" buttons for each stage instead of skipping the entire tutorial.
- Arrow placement optimization to avoid obstructing key information.

4. **Performance Measurement:**

- Track Completion Rate and Skip Rate via event logs (event_name="tutorial").



04. Recommendation

Gameplay Improvement

Analysis:

- Identified Weakness: The hint system bug causes players to lose more frequently, reducing the "ease of understanding" experience.

Logic Design:

1. Easy Mode:

- Mechanics: 5x5 grid, 5 lives, and a free hint every 10 seconds (maximum 5 hints).
- Applied to the first 5 levels.
- Logic: Reduces pressure for new players while maintaining simple gameplay.

2. Hint System Bug Fix:

- Logic: When a correct tile is placed, the hint tile turns gray in real time.
- Verification: Testing on Level 11 (10x10 grid) to ensure 100% hint updates.

Implementation Mechanism:

1. User Interface:

- "Easy Mode" button at the game start.
- "Hint Fixed!" notification upon correct updates.

2. Tracking Metrics:

- Monitor out_of_lives % and Win Rate via event logs (reason_to_die).



04. Recommendation



Enhancing Player Engagement

1. Strengths to Leverage:

- The game features beautiful graphics, which should be utilized to increase player retention.

2. Logic Design:

- **Push Notification:**

- Logic: Send a notification if the player does not return within 24 hours:
 - Message: "A new puzzle awaits you!" + 50 gold bonus.
- Mechanism: Triggered based on last_login log.

- **Customization Options:**

- Mechanism: Players can choose a "brush style" (Classic, Star, Heart) using gold (100, 200, 300).
- Logic: When filling a tile, a unique visual effect appears (e.g., Heart brush → heart-shaped effect), maximizing the game's visual appeal.

3. Implementation Mechanism:

- **User Interface:**

- Add a "Customize" menu displaying brush options.
- Push notifications via Firebase.

- **Tracking Metrics:**

- Monitor D1 Retention Rate through logs (date_time and login).



04. Recommendation

Reward System Enhancement

1. Strengths to Leverage:

- The game's simple gameplay benefits from a reward system to encourage engagement.

2. Logic Design:

- **Daily Rewards:**

- Mechanism: Day 1: 50 gold
- Day 3: 100 gold + 1 hint
- Day 7: 200 gold + 3 extra lives
- Logic: Resets if the player does not log in for 7 days.

- **Reduced Cooldown Time:**

- Mechanism: Hint cooldown is 5 seconds for the first 5 levels, then increases to 10 seconds.

3. Implementation Mechanism:

- User Interface:

- Add a "Daily Reward" popup.
- Display a clear cooldown timer for hints.

- Tracking Metrics:

- Monitor Avg Playtime and reward claim rate through logs (login).



04. Recommendation

Integrating Features to Address Weaknesses

1. "Gallery" Menu (View Completed Artworks)

- Logic:Saves completed artworks using SQLite.
- Displays a 3x3 grid in the "Gallery" menu.
- Mechanism:Tap an artwork to view details (size, completion time).
- Tracking:Log event: gallery_view.

2. Sound Effects

- Logic:Placing a tile: "Click" sound (500Hz, 0.1s).
- Completing a level: "Ta-da!" sound (1000Hz, 0.5s).
- Mechanism:Toggle sound settings in the "Sound Settings" menu.
- Tracking:Log event: sound_usage.

3. Additional Features

• Time Attack Mode:

- Grid: 10x10.
- Time Limit: 60 seconds.
- Reward: Gold bonus.

• Community Mode:

- Players can upload custom artworks.
- Reward: 5 extra lives when an artwork reaches 100 plays.

• Custom Themes:

- Options: "Nature," "Space".
- Unlocked with gold.



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Thank you!

