



Game Data Analytics

Farrel Mahardhika Fajar

Outline

1. Overview
2. Playerbase by Operating System
3. Version update User Acquisition
4. Difficulty Spike Evaluation
5. Game Time Evaluation
6. Player Logins by Time of Day

Overview

Day XX, Month XX, Year 20XX

6,523

Unique active players

3 hours 27 minutes

Average session length

12.72

Average session frequency per user

68.45%

Level completion rate

In **1 out of 3 sessions**,

Power ups were used

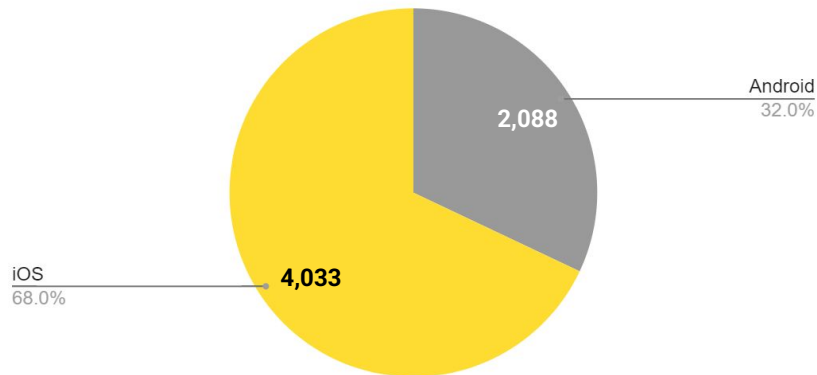
51.33 seconds

Average time taken for level clear

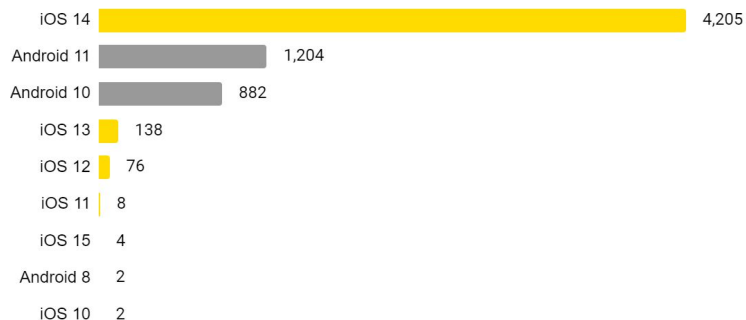
iOS Users Still Dominate the Playerbase

- iOS 14 users comprise almost half of our userbase
- With iOS 15 and Android 12 being around the corner, developers should maximize app compatibility with the latest versions
- Even at the cost of **abandoning older versions** for iOS 13 and Android 9 or below, as they only make up the minority of our users.

Number of Unique Users by Platform



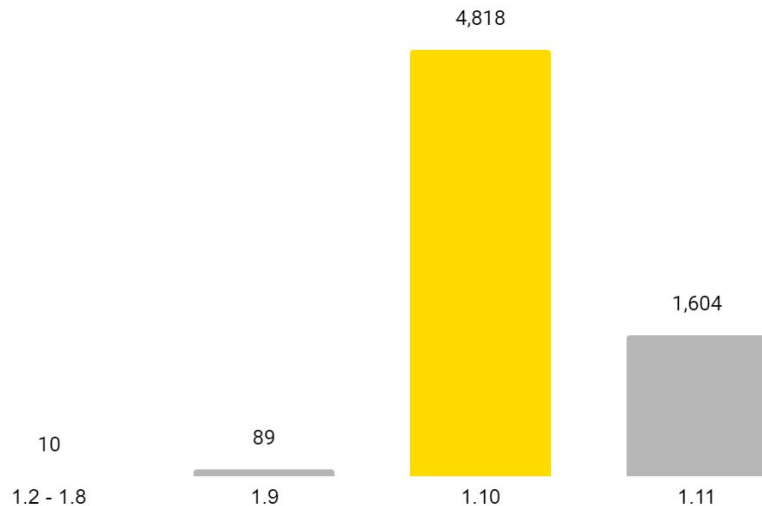
Number of Players by Operating Systems



Players are **Still Hesitant** to Update the Game

- **More than half** the playerbase are still **playing** on **version 1.10**.
- There could be **little to no incentives**, nor **urgency**, for players to update their game.
- To encourage users into updating as soon as possible, offer users an **in-game bonus** for those playing in 1.11 within a limited time.
- Nevertheless, due to the nature of the game, it's advisable to not force the players to updating (preventing people from playing) unless absolutely necessary (due to security concerns and whatnot).

Distribution of Users by App Version



Almost Half the Players Just Want their Daily Rewards

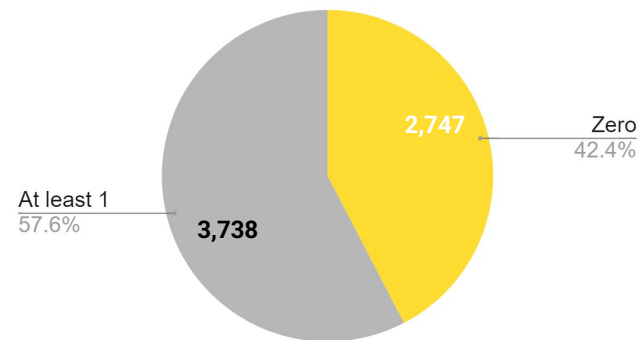
Insights:

- There's **not enough incentive** to encourage players to **continue playing** the level **after initial log-in**
- There's a good number of players who logged in multiple times without playing a single level. Was there a time-limited event? Do they just want to add someone to their friends list?

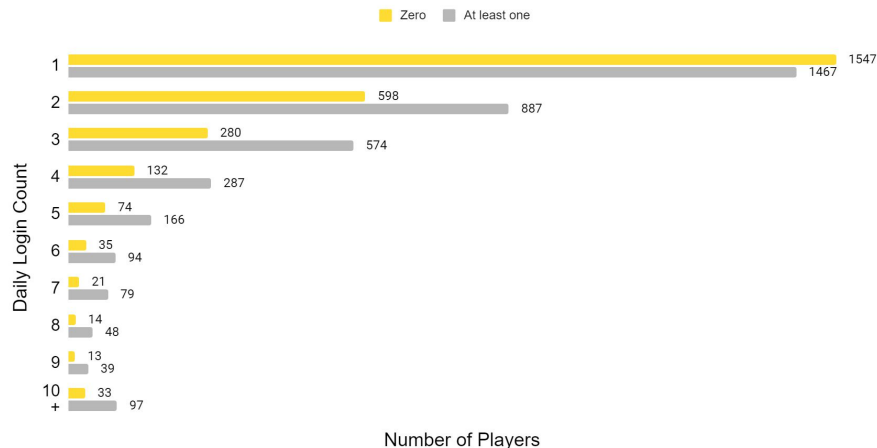
Recommendations:

- Give more incentive for users to play at least one level (daily rewards for at least win one)
- Provide more engaging content upon logging in
- Reward players who **play more consistently**
- Implement **A/B testing** on **daily incentives**

How many levels do players play today?



Number of Levels Played by Number of Login

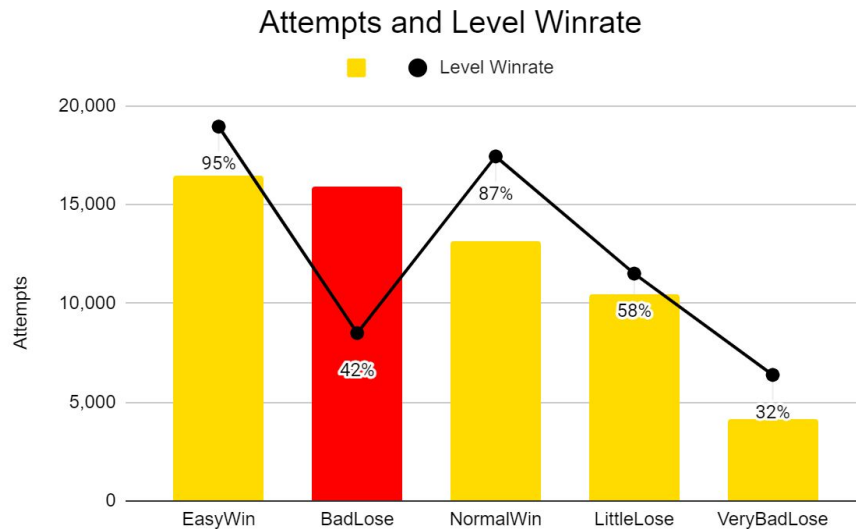


Level Winrate Decreases as Attempt Count Declines

Due to lack of context, the difficulty level from easiest to hardest was presumed the following:

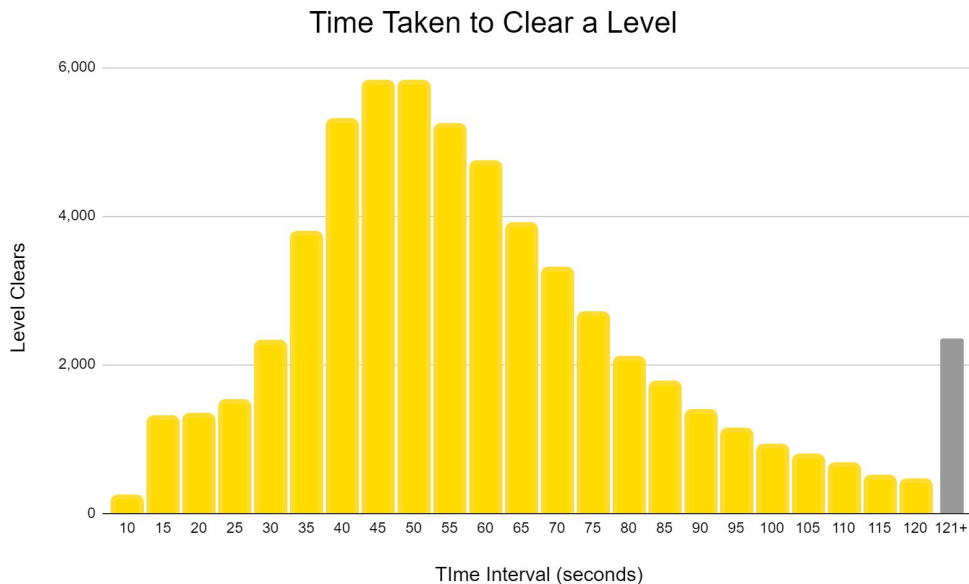
EasyWin \Rightarrow LittleLose \Rightarrow NormalWin \Rightarrow **BadLose** \Rightarrow VeryBadLose

- It's natural that players struggle more as the difficulty ramps up, but may impact player retention if the challenge becomes too frustrating.
- The **low attempt-to-win ratio** on BadLose difficulty may indicate that players are **retrying multiple times** despite the difficulty. However, this may also suggest that there's a level where players end up **getting stuck**.
- There's a room of optimizing the difficulty to boost the winrate on LittleLose, considering it's in-between EasyWin and NormalWin.





More than 2,000 players took more than 2 minutes to clear the level

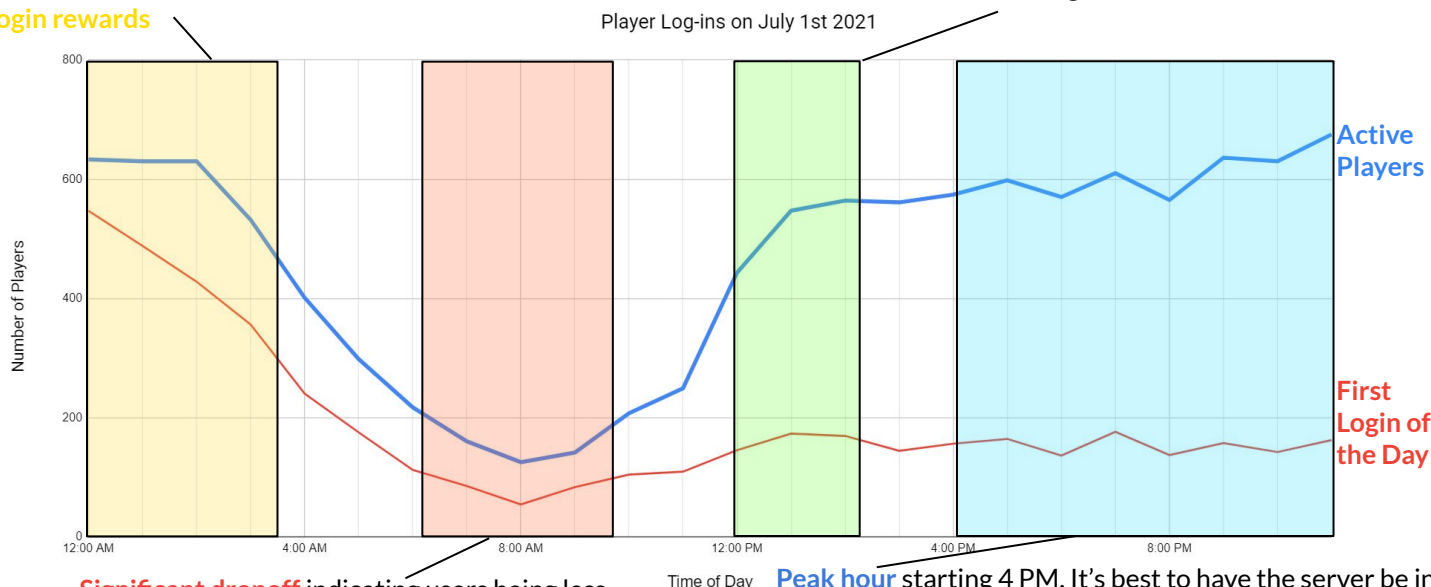


- That's almost twice as long as the average.
- Players most often took time between **45-55 seconds** to clear a level.
- It's recommended to give some help to players facing **skill issue**, such as an option to purchase **skip button** with gold or by watching an ad.
- However, **further behavioral analytics** are required, as it can filter out players going idle, or devices that are lagging, as soon as the game starts.

Late-Night Hours Drive Majority of First-Time Logins before Logging in Again Later That Day

High activity during late night.
Players don't want to miss their
daily login rewards

Players start **having their free time** starting **11:00**



Significant dropoff indicating users being less available as they're on their way to school or work.

Peak hour starting 4 PM. It's best to have the server be in its peak reliability. To maintain high engagement, launch a time-limited campaign for this hour





Thank You

Chapter 2

Problem-Solving With SQL

1. Number of player that only online but without play any level
2. Number of player that close the game in the level (don't have any result)
3. Number of player that replay a level, and which level that has the most replay attempt
4. Number of win with one `add_card_usage`
5. Number of attempt by level



-- 1 Number of players online without playing any level

```
SELECT COUNT(DISTINCT ss.user_id) AS  
players_online_without_playing  
  
FROM session_start ss  
  
LEFT JOIN level_data ld ON ss.user_id =  
ld.user_id  
  
WHERE ld.user_id IS NULL;
```

	players_online_without_playing
1	2747



-- 2 Number of players that closed the game during a level (no result)

```
SELECT COUNT(DISTINCT ld.user_id) AS  
players_closed_game  
FROM level_data ld  
WHERE ld.level_result = '' OR  
ld.level_result IS NULL;
```

	players_closed_game
1	1428



-- 3 Number of Players that replay at least one level

```
SELECT
    COUNT(DISTINCT user_id) AS
players_replayed_level
FROM (
    SELECT
        user_id,
        level
    FROM
        level_data
    GROUP BY
        user_id, level
    HAVING
        COUNT(*) > 1
) AS replayed_levels;
```

	players_replayed_level
1	3017

```
-- 3 And the level with the most replay
attempts
WITH replay_attempts AS (
    SELECT user_id, level, COUNT(*) AS
attempt_count
    FROM level_data
    GROUP BY user_id, level
    HAVING COUNT(*) > 1
)
SELECT TOP 1
    COUNT(DISTINCT user_id) AS
players_replayed_level,
    level AS most_replayed_level,
    MAX(attempt_count) AS max_replays
FROM replay_attempts
GROUP BY level
ORDER BY max_replays DESC;
```

	players_replayed_level	most_replayed_level	max_replays
1	16	606	486



-- 4 Number of wins with add_card_usage = 1

```
SELECT COUNT(*) AS wins_with_add_card_usage
FROM level_data
WHERE level_result = 'level win' AND
add_card_usage = 1;
```

	wins_with_add_card_usage
1	6720



-- 5 Number of attempts by level

```
ALTER TABLE level_data  
ALTER COLUMN level INT;
```

```
SELECT level, COUNT(*) AS number_of_attempts  
FROM level_data  
WHERE level != '' OR level IS NOT NULL  
GROUP BY level  
ORDER BY level ASC;
```

	level	number_of_attempts
1	1	1603
2	2	1536
3	3	1506
4	4	1498
5	5	1531
6	6	1331
7	7	1456

Chapter 3

General Game Knowledge

1. What is fun factor in a game?
2. How do you determine a player's motivation?
3. What do you need to determine player's behavior?
4. In your opinion, what metric gives either positive or negative impact towards other metric that could affect Retention?
5. In your opinion, what kind of condition that make player buy in app purchase?



1. What is Fun Factor in a Game?

Fun Factor is a concept that comprises of engaging gameplay mechanics, immersive and relatable environments, rewarding feedback systems, and a compelling narrative.

In casual gaming, such concept can be achieved by providing easy-to-learn gameplay, quick one-shot sessions, and immediate feedback that's satisfying and encourages players to play more.



2. How do you determine a player's motivation?

Motivation can be from within the player's mindset - competition and socialization, to name a few; or came from the game itself - points, achievements, in-game currency. There's a reason why players play as far as level 604.



3. What do you need to determine a player's motivation?

1. In-game metrics

- In-game sessions, level completion, frequency of logins in a day, in-game purchases

2. Player feedback

- Surveys, reviews, and community discussions (if any)

3. Behavioral patterns

- Players' decision-making tree while navigating through the game, both in menu and level

4. Psycographic data

- Values, social status, culture, desires, and goals
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4. In your opinion, what metric gives either positive or negative impact towards other metrics that could affect Retention?

1. Retention rate

- Set Metrics to day 1, day 7, and day 30. If day 1 is already low, chances are the upcoming days will not be any higher.
- Improving the new player experience (better game presentation, more clear tutorial, better new player rewards) can affect retention rate. Another way is to have influencers endorse the game.

2. Churn rate

- Higher churn rate, higher the number of players keeping the app on their apps list without installing it, and can indicate either not the game's target audience, actual dissatisfaction, or boredom.
 - More regular, ever-changing content (without changing the core gameplay itself) will incentivize new players to keep coming back.
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5. In your opinion, what kind of condition that make player buy in app purchase?

1. **Perceived value**
 - People will think it's worth it by calculating the value compared to other games of similar nature
 2. **Emotional triggers**
 - When people lose a level over and over, they are more likely to buy the “skip” button.
 - Same when they see their comrades are in higher level than theirs.
 3. **Limited-time offers**
 - Nothing beats artificial scarcity for a quick buck. Drives urgency to players fearing of missing out.
 4. **Boost progress**
 - Refer to the second half of number 2. Not everyone wants to grind games.
 5. **Customization and personalization**
 - In a game with avatar, people want theirs to stand out and look unique.
 - Of course, UI elements like loading screens and terrains (Remember Dota?) to fit their wants
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