



LIQUID&GRIT

PUZZLE REPORT

Competitive Research and Actionable Product Recommendations

FEATURE DATABASE TOOL: NOTIFICATIONS

Stay on top of the latest apps, features, events, and more using our new email notifications tool within the Feature Database. Log in to your Liquid and Grit account to get started.

How to Use Notifications

1. Go to the [Feature Database](#) and create a search.
2. Click on the "Add Filter Notification" button.
3. Create a name for your notification.
4. Choose when and how often you want to receive notification emails.
5. Click "Save".
6. Click "My Notifications" to view, edit, or delete notifications.

Suggested Notifications

- [Puzzle features](#)
- [Puzzle events](#)
- [Puzzle content](#) (level designs)
- New releases from [Candy Crush Saga](#), [Toon Blast](#), or [Matchington Mansion](#)
- New releases from [Gardenscapes and Homescapes](#)

Note: If you have access to Liquid and Grit through a company-wide subscription, email support@liquidandgrit.com to set up an account.



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2020

PLATFORM CHANGES



SIGN IN WITH APPLE

Apps on iOS that require players to sign in using third-party login services must now also offer Sign in with Apple.

App Store Guideline Details

- Apps that exclusively use third-party login services (e.g., Facebook Login) must also offer Sign in with Apple.
- Apps with developer-based accounts and sign-in services do not need to add Sign in with Apple.

Sign in with Apple Details

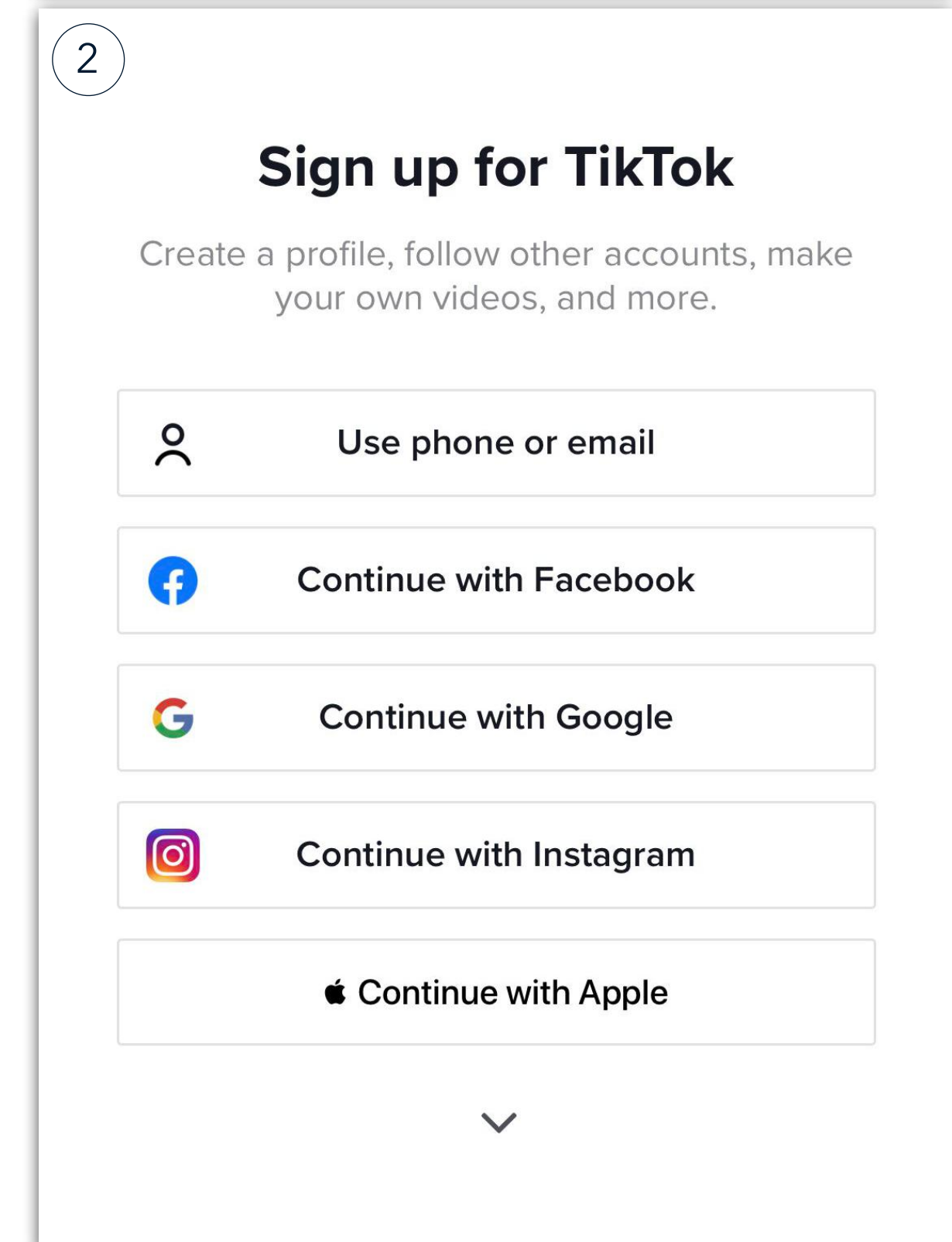
- Users can sign in to third-party apps using their Apple IDs.
- Apple does not collect data beyond names and email addresses.
- Apple IDs come with built-in two-factor authentication.
- Users can also sign in using Face ID or Touch ID.
- Apple IDs work on all Apple operating systems for mobile devices, computers, and TVs.
- Apple automatically flags suspected fake accounts for developers to review.

Sign-In Flow Examples

- *Homescapes* with [Sign in with Apple \(1\)](#)
- *TikTok* with Sign in with Apple ([2](#))
- *Hidden City* [G5 Games Account](#) without Sign in with Apple
- *Candy Crush Saga* [King Account](#) without Sign in with Apple
- *Caesars Slots* [Playtika Games Account](#) without Sign in with Apple

Additional Information

- [Sign in with Apple Information](#)
- [App Store Guidelines](#) (Section 4.8)



REVENUE DRIVERS



PUZZLE > FEATURES > MISSIONS

MISSIONS & UPGRADEABLE REWARDS

Furry Season in *Gardenscapes*

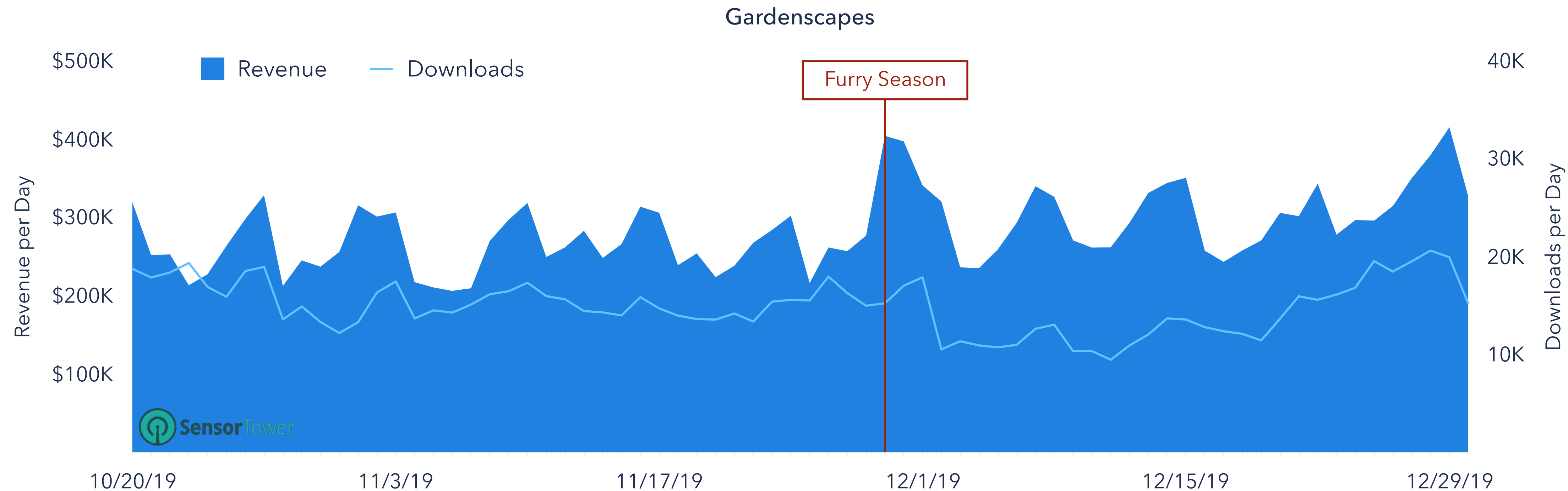
REVENUE ANALYSIS

Gardenscapes' revenue was +18% and downloads -14% WoW after the release of Furry Season. Revenue maintained at +14% 2Wo2W.

Additional Examples

- A similar event is also driving revenue in *Fishdom*. *Season Adventures*, released on 12/13/19, increased *Fishdom*'s revenue by 32% WoW and 21% 2Wo2W.
- Seasons of mission events with upgradeable rewards are trending across genres. *myKONAMI Slots* released *myKONAMI Pass*, *Bingo Party* released *Royal Pass*, and *AFK Arena* released *Champions of Esperia*.

Releases
11/26-12/1: Team Chest club event
11/27-12/1: Study custom design event
11/29: Furry Season mission feature
11/29-12/1: Black Friday purchase event
11/29-12/1: Fireworks Festival competition event
12/2: \$2.99 Gold Reserve IAP moved +1 to #4



FEATURE TEARDOWN

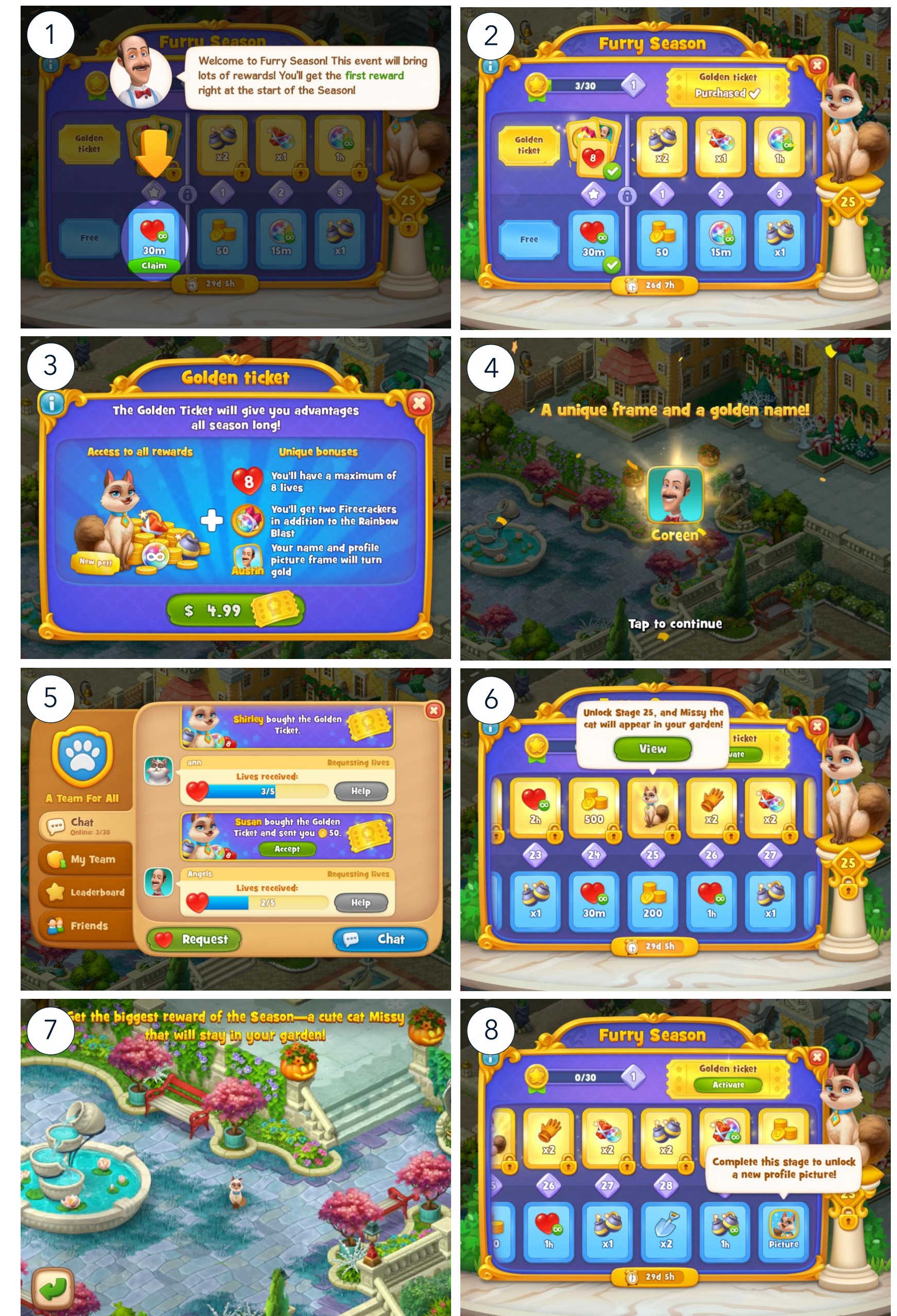
During a season, players can purchase a golden ticket that adds a second tier of rewards to all stages. Later stages unlock two exclusive cosmetic items, one of which is only available to golden ticket holders.

Details

- All players receive a boost reward at the start of the season (1).
- Players beat levels to earn points and fill a meter.
 - Beating a level in fewer tries awards more points.
- Filling the meter advances players to the next reward stage.
- Each stage awards boosters, currency, or other items (2 and video).
- Players can purchase a golden ticket for \$4.99 that:
 - Adds a second tier of rewards to every stage (3).
 - Increases the maximum number of lives.
 - Awards a boost bundle.
 - Gives players a gold avatar frame (4).
 - Awards currency to all club members when purchased (5).
- Unlocking stage 25 with the golden ticket awards an exclusive cat (6 and 7).
- Unlocking stage 30 with or without the golden ticket awards an exclusive profile picture (8).

Additional Information

- See the [Furry Season](#) Library for more images and videos.



PRODUCT INSIGHTS

Annual subscriptions increase up-front revenue and reduce churn. When implementing purchasable event-exclusive rewards, ensure that all non-cosmetic items can also be earned through free play.

Revenue – Economy Multiplier

- **Multiply free and paid economies based on players' season levels.** A key part of *WSOP*'s annual revenue growth of 27% in 2019 and 20% in 2018 is the increased value players receive based on their season level through the [Clubs](#) feature (1). Compared to other apps, *WSOP* rewards players more for quality poker play using this economy boost.

Revenue – Subscription Churn

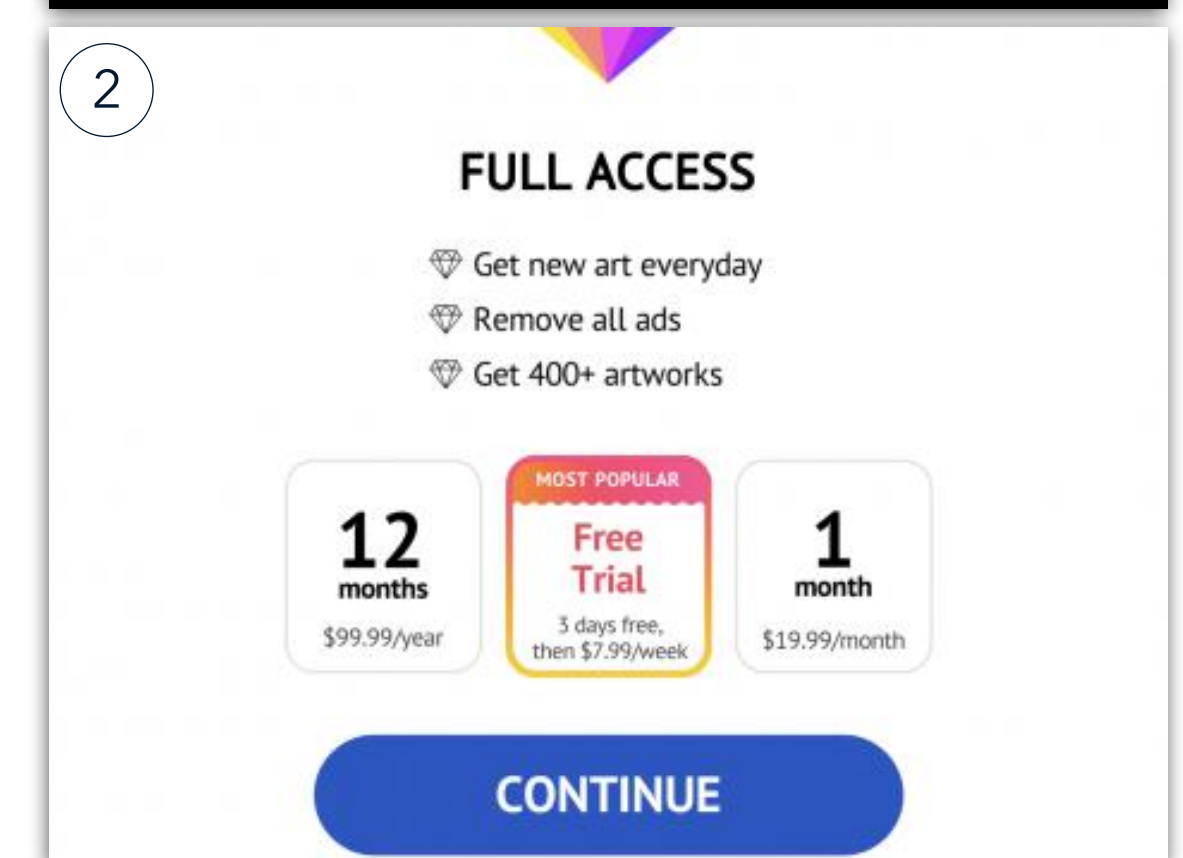
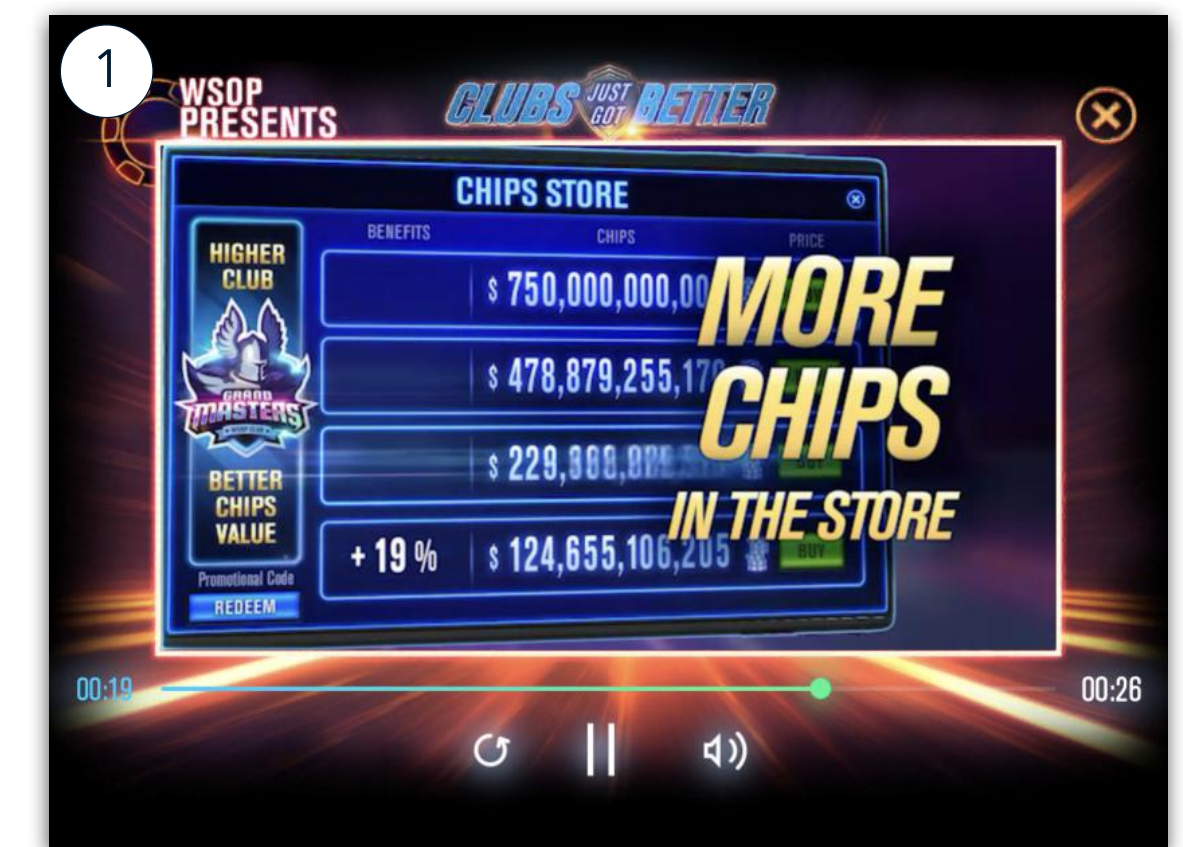
- **Offer weekly, monthly, and annual subscriptions.** Research on SaaS subscriptions found that companies that did not offer an annual subscription had a churn rate of 9%, leading to a 67.7% annual loss of subscribers. In comparison, companies with 75-100% annual subscribers had only a 3% churn rate and a 30.6% annual subscriber loss.¹
- **Discount annual subscriptions based on monthly churn rates and Apple's one-year subscription discount.** Apple reduces their cut from 30% to 15% after one year. Factor in player churn rates along with this discount when calculating annual subscription fees (see this link for [calculating annual discounts based on churn](#)).

Revenue – Subscription Conversions

- **Give players a free subscription trial period.** *Polysphere* was a breakout puzzle app in 2019 that currently averages \$130K in U.S. iOS revenue (although revenue is trending downward). To increase conversion, players can sign up for a free three-day trial that automatically converts to a weekly subscription at the end of the trial (2).
- **Convert weekly and monthly subscribers with well-timed annual subscription offers.** At the point in player lifecycles where retention rates level out, upsell annual subscriptions to weekly and monthly subscribers.²

Retention – Limit Negativity

- **Ensure that players can earn all non-cosmetic items through gameplay.** [IAP bundles with event-exclusive items](#) are proven revenue drivers, but make sure that all non-cosmetic items are also attainable through free gameplay. A case study on loot boxes found that players felt far more negatively toward *Star Wars Battlefront II*'s practice of requiring purchases for key in-game progressions, than *Overwatch*'s purely cosmetic loot box rewards.³



¹ [Why Annual Plans Are Crucial for Reducing Your Churn](#)

² [We Studied 6,452 SaaS Companies. The Findings Will Make You Grow.](#)

³ [A Case Study on Loot Boxes in Two Video Games](#), p. 37

MARKET TRENDS



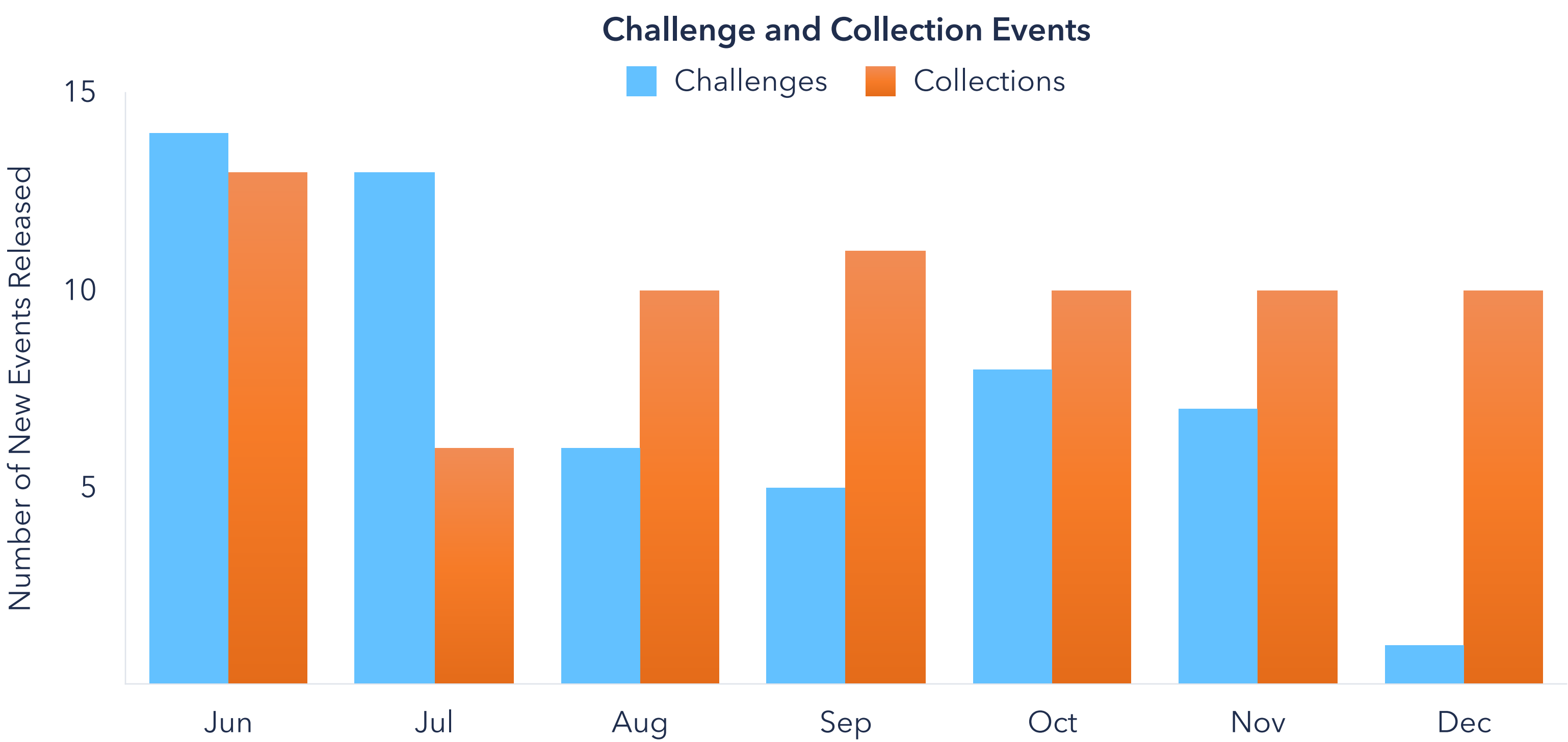
Tracked apps:

Angry Birds 2, Best Fiends, Bubble Witch 3 Saga, Candy Crush Jelly Saga, Candy Crush Saga, Candy Crush Soda Saga, Cookie Jam, Disney Emoji Blitz, Farm Heroes Saga, Fishdom, Gardenscapes, Gummy Drop, Home Design Makeover, Homescapes, June's Journey, Lily's Garden, Lost Island: Blast Adventure, Matchington Mansion, Panda Pop, Pet Rescue Saga, Solitaire Grand Harvest, Solitaire TriPeaks, Toon Blast, Toy Blast, Wizard of Oz Magic Match

CHALLENGE AND COLLECTION EVENTS

Collection and challenge events make up 31% of all new events in tracked puzzle apps. Collection events have become more prevalent, while challenge events have decreased in popularity.

- *Disney Emoji Blitz*, *Cookie Jam*, and *Wizard of Oz Magic Match* released the most challenge and collection events in 2019.
- *Solitaire Grand Harvest* released 18 challenge and collection events in the second half of 2019—the third most of any app after *Disney Emoji Blitz* and *Cookie Jam* (data not shown).



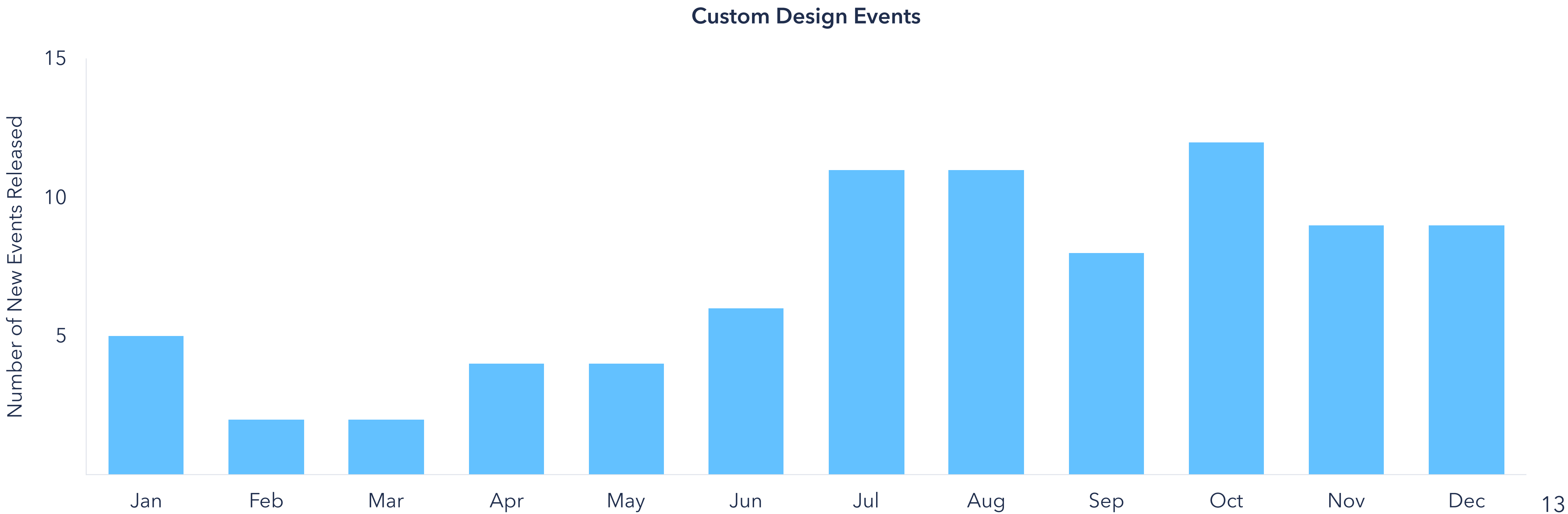
Challenge and Collection Events in 2019	
Disney Emoji Blitz	79
Cookie Jam	43
Wizard of Oz Magic Match	30
Best Fiends	29
Candy Crush Saga	23
Solitaire TriPeaks	20
Solitaire Grand Harvest	18
Matchington Mansion	14
Fishdom	10
Bubble Witch 3 Saga	9
Gardenscapes	8
Angry Birds 2	7
Farm Heroes Saga	7
Panda Pop	7
Candy Crush Jelly Saga	5
Gummy Drop	5
Homescapes	5
Pet Rescue Saga	5
Candy Crush Soda Saga	4
Home Design Makeover	3
Toon Blast	3
June's Journey	1
Lily's Garden	1
Lost Island: Blast Adventure	1
Toy Blast	1

CUSTOM DESIGN EVENTS

Custom design events are on the rise, driven in part by *Home Design Makeover*, which released the most custom design events in 2019. *Home Design Makeover* was added to the tracked apps list in June.

- *Home Design Makeover* (34 events), *Matchington Mansion* (18 events), and *Fishdom* (16 events) released the most custom design events during this period.
- Review [Event Currencies with IAP Bundles](#) and [Custom Design Expansion Events](#) for recent custom design revenue drivers.

Custom Design Events in 2019	
<i>Home Design Makeover</i>	34
<i>Matchington Mansion</i>	18
<i>Fishdom</i>	16
<i>Gardenscapes</i>	11
<i>June's Journey</i>	11
<i>Homescapes</i>	9
<i>Lily's Garden</i>	1



LEVEL MECHANICS



NEW LEVEL DESIGNS I

Beagle Kwincy – *Best Fiends*

- Players unlock this alternate version of Kwincy by purchasing all five limited-time Beagle Kwincy's Bundle packages (1).
- The first package is free.
- Beagle Kwincy permanently adds 50 attack power to Kwincy.

Tabby Tantrum – *Best Fiends*

- Players unlock this alternate version of Tantrum by purchasing all five limited-time Purr-fect Offer packages.
- The first package is free.
- Tabby Tantrum permanently adds 50 attack power to Tantrum (2).

Merrymaker Moose – *Best Fiends*

- Players unlock this alternate version of Moose by completing the Fiendmas Eve event (3).
- Merrymaker Moose permanently adds 50 attack power to Moose.

Gift Box Bob – *Best Fiends*

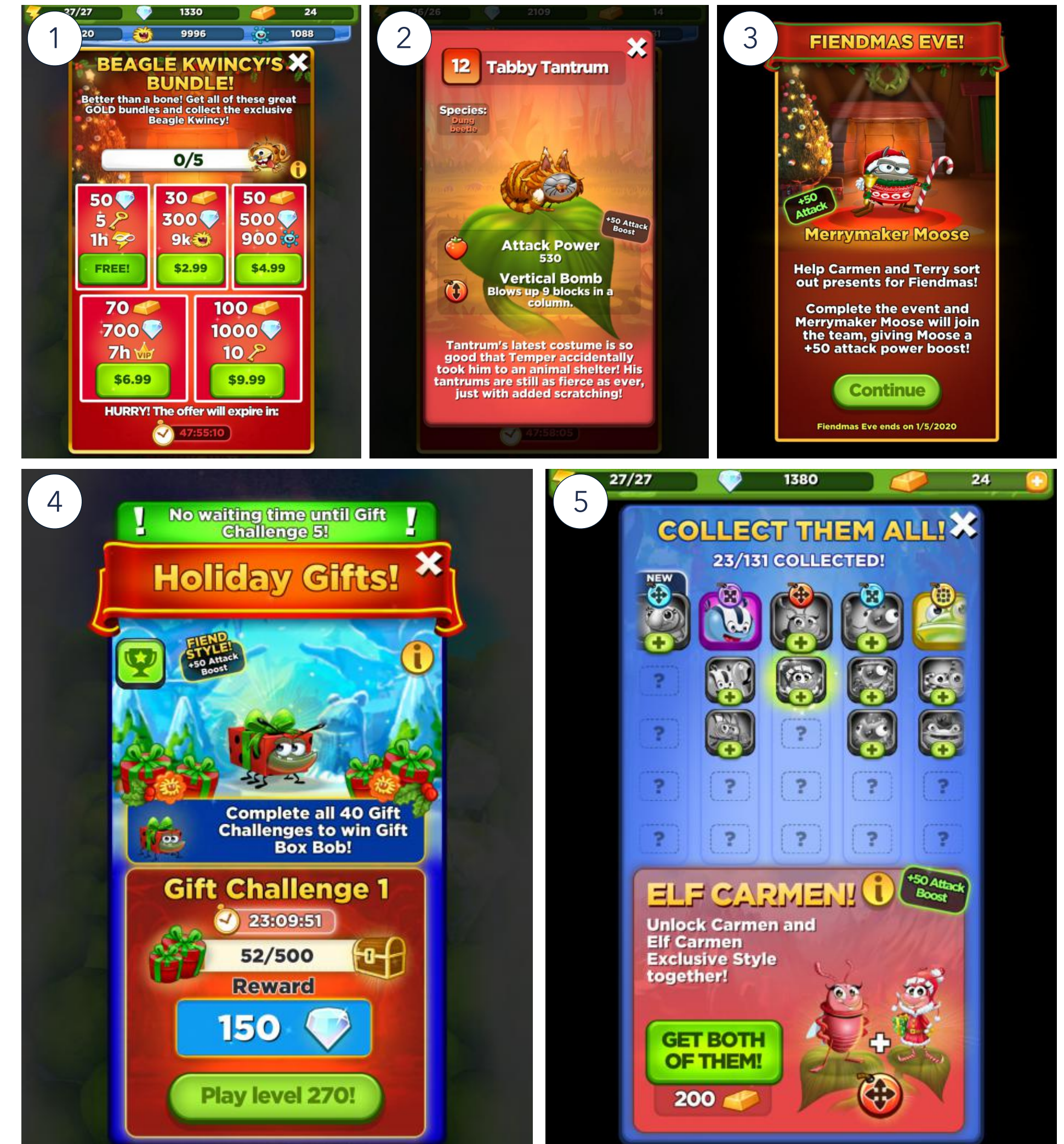
- Players unlock this alternate version of Bob by completing all Holiday Gifts Challenges (4).
- Gift Box Bob permanently adds 50 attack power to Bob.

Elf Carmen – *Best Fiends*

- Players unlock this alternate version of Carmen by completing the Fiendmas Eve event.
- Players can also purchase Carmen and Elf Carmen together for 200 gold bars (5).
- Elf Carmen permanently adds 50 attack power to Carmen.

Santa Terry – *Best Fiends*

- Players unlock this alternate version of Terry by completing the Fiendmas Eve event.
- Players can also purchase Santa Terry with gold bars.
- Santa Terry permanently adds 50 attack power to Terry.



NEW LEVEL DESIGNS II

Costume Token Booster – *Cookie Jam*

- Players can add up to three epic costume tokens to the start of a level ([1](#) and [video](#)).
- Tokens are only collected if the level is completed.

Vacuums – *Homescapes*

- Players charge a vacuum by collecting pieces that match the vacuum's color.
- Once charged, the vacuum moves toward a station, clearing all tiles and obstacles in its path ([2](#)).
- The vacuum disappears when it reaches the final station.

Ropes – *Fishdom*

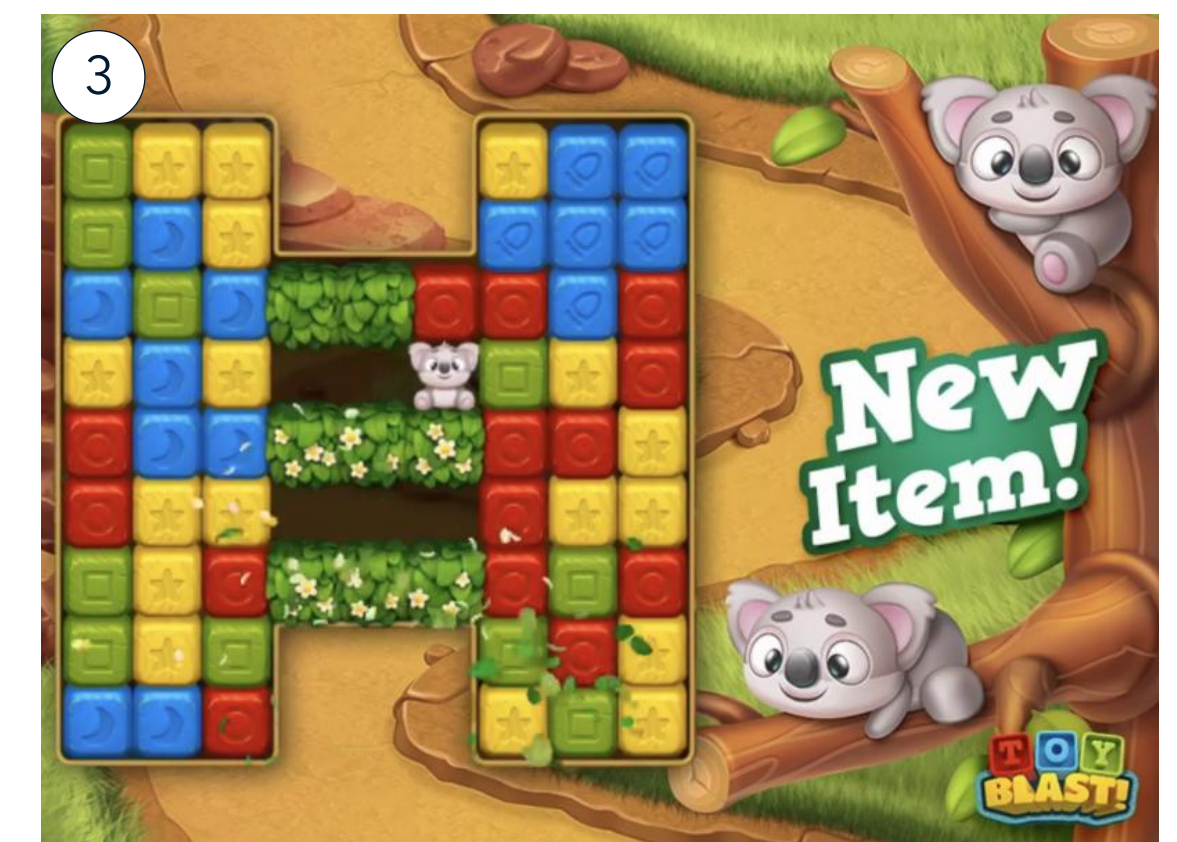
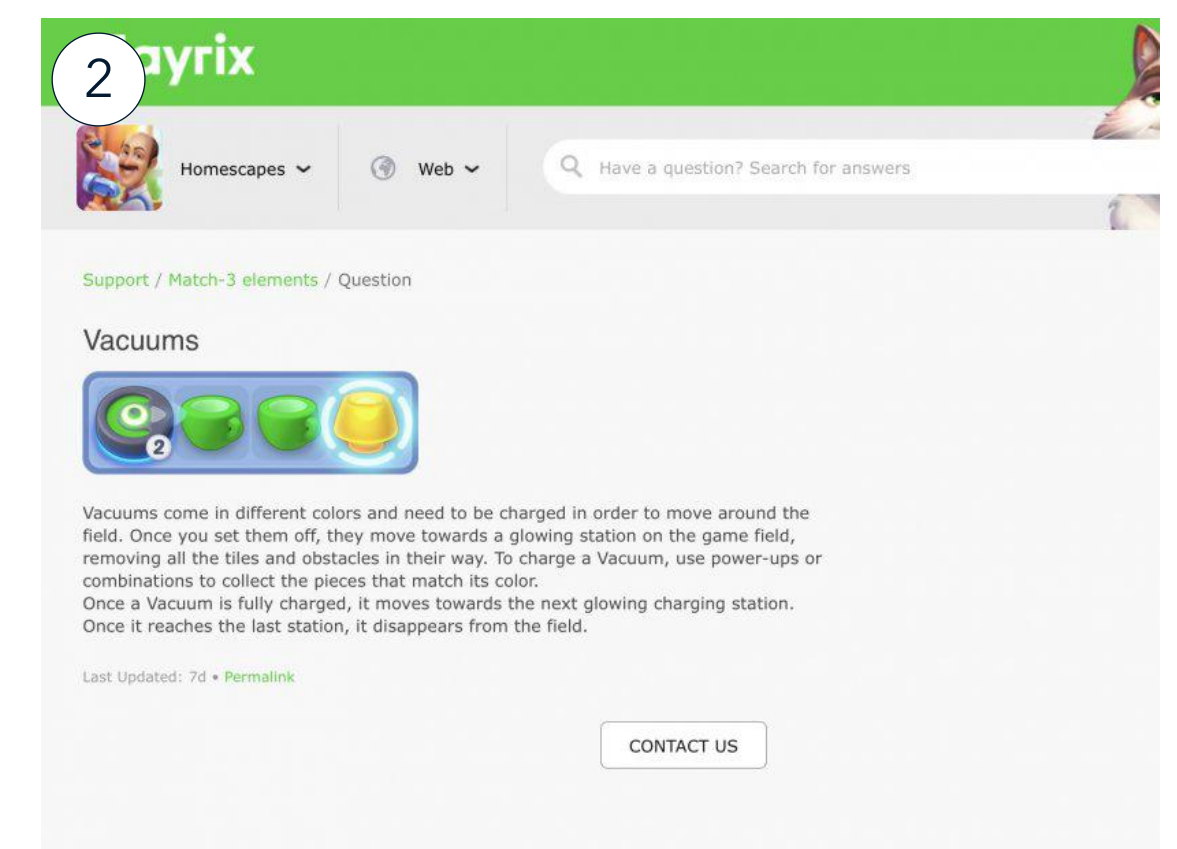
- Pieces cannot move through ropes.
- Players clear ropes by making matches above or below them or by triggering power-ups on adjacent tiles.
- Some ropes have knots that must be removed before the ropes can be cleared.
- Players clear knots by making matches or triggering power-ups on adjacent tiles.

Swamps – *Fishdom*

- Swamps have three layers: reeds, algae, and water.
- Pieces cannot land on reeds.
- Reeds are removed by making matches or triggering power-ups on adjacent tiles.
- The next two layers are removed by making matches or triggering power-ups on the swamp tile.
- Removing all three layers clears the swamps.
- Uncleared swamps regenerate one layer per turn.

Bushes – *Toy Blast*

- Players clear bushes by making three matches on adjacent tiles ([3](#) and [video](#)).
- Clearing bushes reveals koalas.
- Players clear tiles to allow koalas to fall to the bottom of the board.
- Moving all koalas to the bottom of the board completes the level.

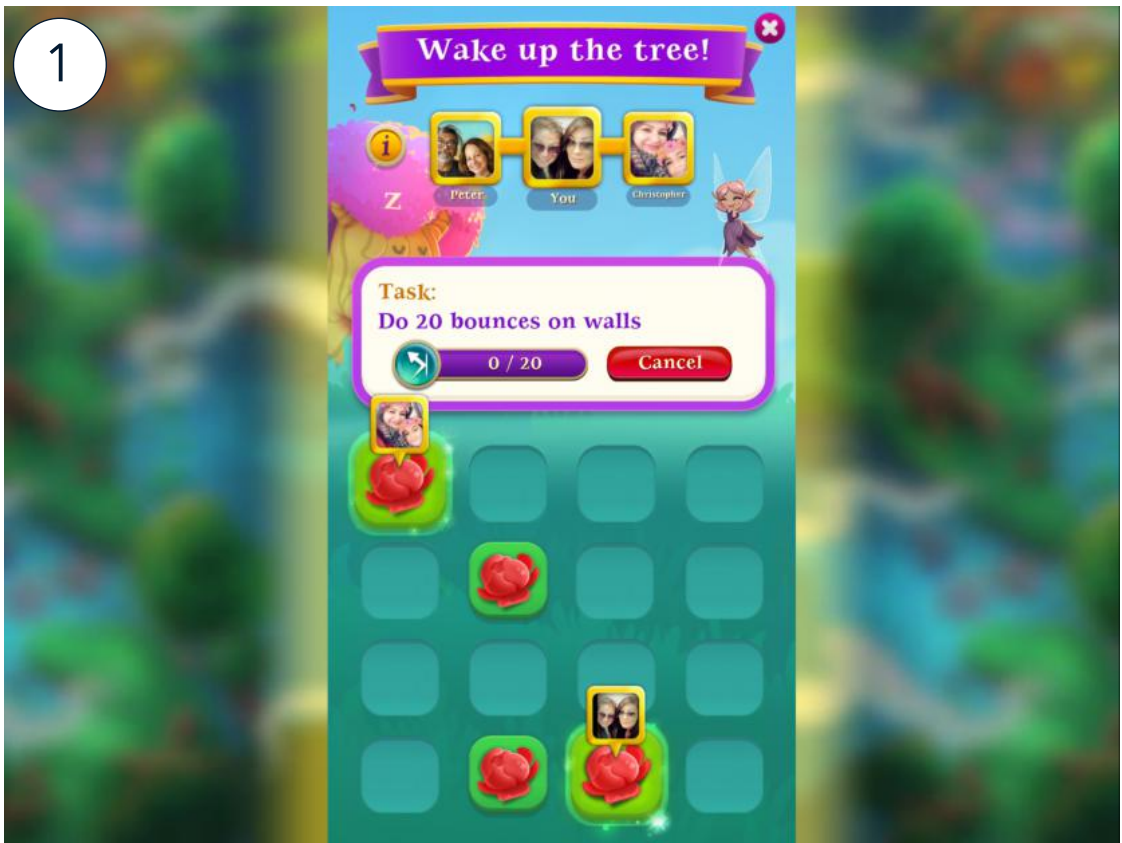


MARKET WATCH



NOTABLE RELEASES I

App	Library	Description
Bubble Witch 3 Saga	Wise Tree challenge feature	<ul style="list-style-type: none">• Players are randomly placed into teams of three.• Teams complete challenges to wake up a tree.• Sixteen challenges are divided into four types of flowers.• Players can claim one challenge at a time.• Completing a challenge eliminates all other challenges for that flower.• Completing one challenge for each type of flower wakes up the tree (1 and video).• Only players who participate earn rewards.
Candy Crush Saga	Candy Quest challenge feature	<ul style="list-style-type: none">• Players choose between two daily challenges (2).• Once chosen, the challenge cannot be switched.• Completing a challenge awards boosts.
Candy Crush Soda Saga	Weekly Contest competition feature	<ul style="list-style-type: none">• Players are randomly placed into groups of five.• During the week, players compete to complete the most levels.• At the end of the week, the top three players earn rewards (3).



NOTABLE RELEASES II

App	Library	Description
Fishdom	Season Adventures mission feature	<ul style="list-style-type: none">• Players complete challenges to collect season points and fill a meter.• Challenges are divided into two smaller daily tasks and three larger ongoing tasks (1).• Filling the meter advances players to the next stage and unlocks that stage's rewards.• Purchasing a Gold Pass unlocks a second tier of rewards for each stage.
Homescapes	Jackpot rewards event	<ul style="list-style-type: none">• Beating the specified number of levels triggers a jackpot spin (2).• Spins award boosts or a coin jackpot.• Each spin increases the jackpot value—up to 500,000 coins.
Lily's Garden	Christmas Calendar rewards event	<ul style="list-style-type: none">• Players complete a series of 25 levels in an Advent calendar for rewards.• One level unlocks each day.• Levels must be completed in order, but can be completed anytime after unlocking (3).• Every 5th level gives larger rewards, with the biggest reward on the 25th.
Panda Pop	Daily Challenges challenge feature	<ul style="list-style-type: none">• Players complete daily and multi-day challenges for rewards (4).



NOTABLE RELEASES III

App	Library	Description
Pet Rescue Saga	Friends interaction feature	<ul style="list-style-type: none">• Players can send lives to friends (1 and video).
Solitaire TriPeaks	Rescue Mission challenge event	<ul style="list-style-type: none">• Players collect tikis from event-specific levels.• Players must collect tiki cards before they fill up with water (video).• Hitting goal, streak, or speed targets during levels awards additional tikis.• Tikis fill a reward meter.• Filling the meter advances players to the next reward (2).• New rewards unlock each day.
Breakout App		
EverMerge by Big Fish Games	EverMerge puzzle game	<ul style="list-style-type: none">• This merge-3 app soft-launched on 12/19/19.• The app was released in Belarus, the Netherlands, New Zealand, and the Philippines.• Players combine objects to make new objects, clear land, and discover new recipes.• Other mechanics include collections, daily quests, and leveling.

Quickly review all features and events

- Filter the [Library Tool](#) by month and year to see all the new releases.



APPENDIX



L&G PUZZLE PERSONAS

Using the motivational buckets developed by Liquid and Grit, five distinct puzzle personas emerge: Gamer Gary, Escapist Emily, Trainer Tracy, Challenger Chris, and Casual Carol.

Table: Player personas by demographics, monetization, engagement, and motivational buckets.

Input	Gamer Gary	Escapist Emily	Trainer Tracy	Challenger Chris	Casual Carol
Demographics					
Size (N)	24%	15%	22%	18%	21%
Female (%)	53%	68%	73%	59%	66%
Age (mean)	35	36	42	40	34
Monetization					
Propensity to spend across all platforms	15.0	7.0	4.8	7.0	4.3
Propensity to spend on F2P games	1.8	1.1	0.7	0.6	0.7
Engagement					
Weekly play hours	6.6	7.4	7.6	7.8	6.7
Puzzle motivation	3.1	2.9	2.6	2.7	2.4
Motivational Buckets					
Engrossment	0.7	-0.3	-0.2	-0.2	-0.2
Escape	0.0	0.6	-0.3	-0.1	-0.1
Utility	-0.2	-0.3	0.7	0.0	-0.3
Challenge	-0.2	-0.1	0.1	0.7	-0.3
Boredom	-0.3	0.0	-0.2	-0.3	0.9

PUZZLE PRODUCT COUNCIL

To boost our Expert Insights, Liquid and Grit gathers recommendations and intelligence from industry-leading product experts.

Helen Grabarchuk	Florian Steinhoff	Florian Ziegler
<p>Co-Founder and COO of PuzzleMove Inc.</p> <p>LinkedIn Profile</p> <p>Helen is a level design expert. At PuzzleMove Inc., Helen develops new puzzle products for different platforms, focusing on mobile devices.</p> <p>Helen spent over two years at Zynga as a puzzle content creator.</p> <p>After Zynga, Helen created concepts, puzzles, testing, and puzzle content in dozens of iOS and Kindle apps.</p> <p>Helen’s comments can be found predominately in the Level Mechanics section.</p>	<p>Mobile F2P Consultant</p> <p>LinkedIn Profile</p> <p>Florian has built and led teams that created top-grossing mobile casual games.</p> <p>For the last 10 years, he has overseen game projects during all phases—research, concept, prototyping, pitching, pre-production, production, and live-ops.</p> <p>His most successful title is Jelly Splash, which reached a monthly player base of +30M.</p> <p>To find out more, check out his GDC talk on casual puzzle games, difficulty curves, and the importance of randomness here.</p>	<p>Consultant in Mobile Gaming</p> <p>LinkedIn Profile</p> <p>After over a decade of making games, Florian now advises game studios and companies on improving their game products through his own consultancy, Lava Lake Games Consulting.</p> <p>Before launching his own consultancy, Florian worked at Electronic Arts on flagship titles, such as <i>Need for Speed: No Limits</i>. He also spent time at King as a Principal Designer.</p> <p>At Mind Candy, he was the Lead Game Designer on titles that include the mobile hit <i>World of Warriors</i>. This gained Apple’s Editor’s Choice Award and scaled the charts to the No. 1 game position in most major markets.</p>

PREMIUM PARTNERSHIPS

Liquid and Grit partners with these premier market research and analytics companies to infuse our reports with the most relevant and detailed gaming user personas, data, and statistics available.

Quadrant Strategies	Kinrate Analytics	Sensor Tower
<p>Market Research</p> <p>Quadrant Strategies</p> <p>Quadrant Strategies is a market research consultancy that uses research to help the world’s most prominent technology, gaming, and entertainment companies develop strategies for building their user base, increasing user engagement and spend, and strengthening their marketing and brand plans.</p> <p>We do that using a range of quantitative and qualitative methodologies, including gamer segmentation and persona development, feature testing, message creation, and loyalty and engagement modeling. The work of our senior leadership goes back many years, and includes long-term engagements for console and gaming-PC hardware-makers, individual games in a range of genres, and across consoles, PCs, and mobile, and for some of the top game franchises.</p>	<p>Player Personas</p> <p>Kinrate Analytics</p> <p>Kinrate Analytics offers game developers, consultants, publishers, and cloud gaming operators the best cross-platform game recommendation engine for targeted marketing, as well as a novel profiling-as-a-service solution for intelligent market segmentation and social networking.</p> <p>Other services include advanced market prediction analyses for identifying emergent gaming trends and access to unique AI-enhanced data of 140 thousand game titles and 48 million game players.</p> <p>The products of Kinrate Analytics have been developed in university-led research projects in collaboration with economists, psychologists, game scholars, and data scientists.</p>	<p>Mobile App Store Intelligence</p> <p>Sensor Tower</p> <p>Sensor Tower is relied upon by financial analysts, VCs, and publishers who need to leverage data to identify the fastest-growing apps, emerging markets, and more.</p> <p>Clients harness Sensor Tower’s suite of app intelligence tools to:</p> <ul style="list-style-type: none">▸ Evaluate app economies and app vitality.▸ Drive organic growth with the leading App Store Optimization platform.▸ Get the best global download and revenue estimates for the App Store and Google Play.▸ Discover top creatives and better shape user acquisition strategy.



PUZZLE MECHANICS TAXONOMY

Family	Definitions
Accelerators	Increases the power, impact, or efficiency of play
Banks	Saves a % of spend that can be unlocked later
Bonuses	Free bonuses given to players (e.g., retention or W2E)
Challenges	Players must play, complete, and win
Clubs	A group accomplishing goals or competing with other groups
Collections	A set of items players collect (often for a completion prize)
Competitions	Players competing against other players
Cosmetics	Improvements or updates to the app or a feature
Currencies	Changes to currencies, economies, stores, and items
Custom Design	Options to customize the look
Expansions	Additional rooms, worlds, play modes, VIP lounges, etc.
Flows	Specific flows, like the NUX, ratings, and surveys

Family	Definitions
Hazards	Level elements/blockers that increase difficulty
Interactions	Any social feature with direct or indirect interaction
Leaderboards	Stand-alone leaderboards
Levels	Anything to do with leveling
Mini-Games	Smaller, shorter games within a game (e.g., scratcher cards)
Missions	A linear set of tasks that players must accomplish
Notices	Feature or product announcements
Other	Miscellaneous features and outliers
Profiles	Related to a player's setup, profile, settings, and controls
Purchases	Anything to do with purchases
Quests	Completing tasks to progress along a map or map-like feature
Rewards	Any reward players receive for engagement or spend (other than the bonuses family)

“Our most important aim is to develop definite personalities in our cartoon characters. We don't want them to be just shadows, for merely as moving figures they provoke no emotional response from the public. We invest them with ... a caricature of life.”

– Walt Disney

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