



SLOTS DESIGN REPORT

Competitive Research and Data Insights for Slots Designers

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DECEMBER

2019

NEW INNOVATIONS



CASINO > CONTENT > SOCIAL

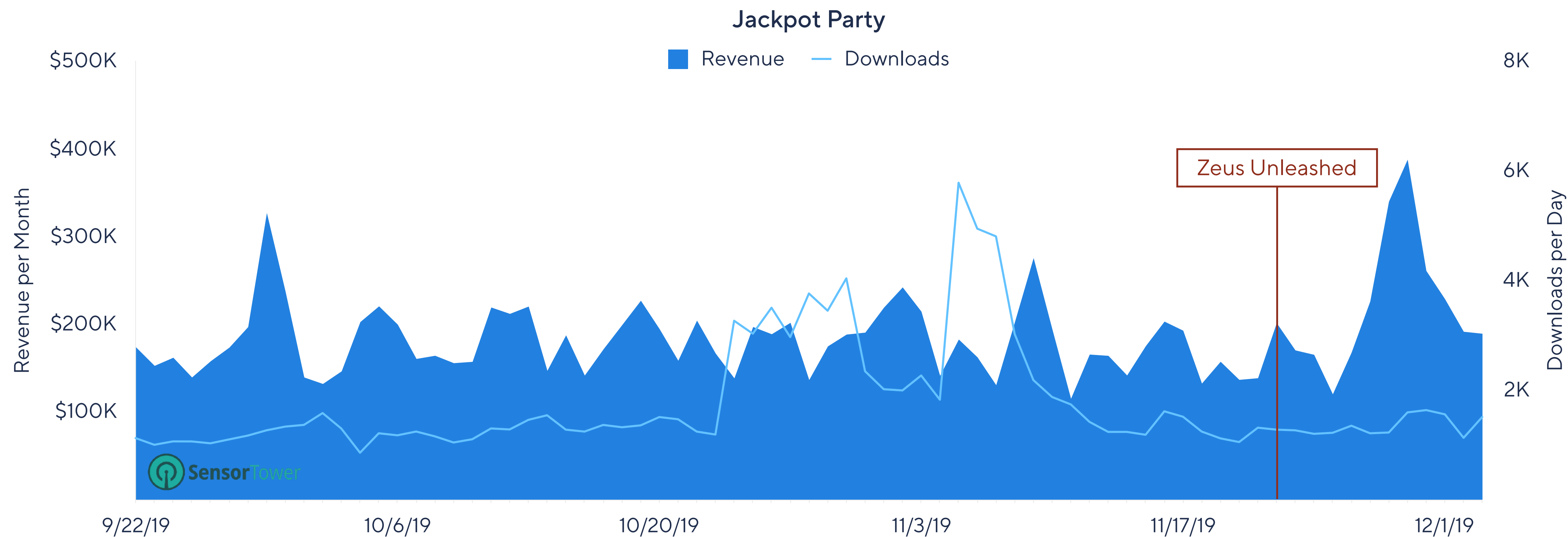
BOXING & BOOST MECHANICS

Zeus Unleashed in *Jackpot Party*

REVENUE ANALYSIS

Revenue was -7% 4Do4D immediately following the release of the Zeus Unleashed machine in *Jackpot Party* but spiked to +22% WoW during Thanksgiving.

Releases
11/22: Zeus Unleashed content release
11/22: Bingo Balls accelerator event (FB)
11/22: Jackpots Hitting 2x Faster accelerator event (FB)
11/22-11/23: Fall Sale purchase event (FB)



Graph data is iOS U.S. only.
WoW = this week over last week.
4Do4D = four days over the same four days from the previous week.

MECHANIC TEARDOWN

This social port of an RMG machine uses a "boxing" system to calculate the number of free spins to be awarded. During respins, players can trigger four different power-ups.

Free Spins Bonus

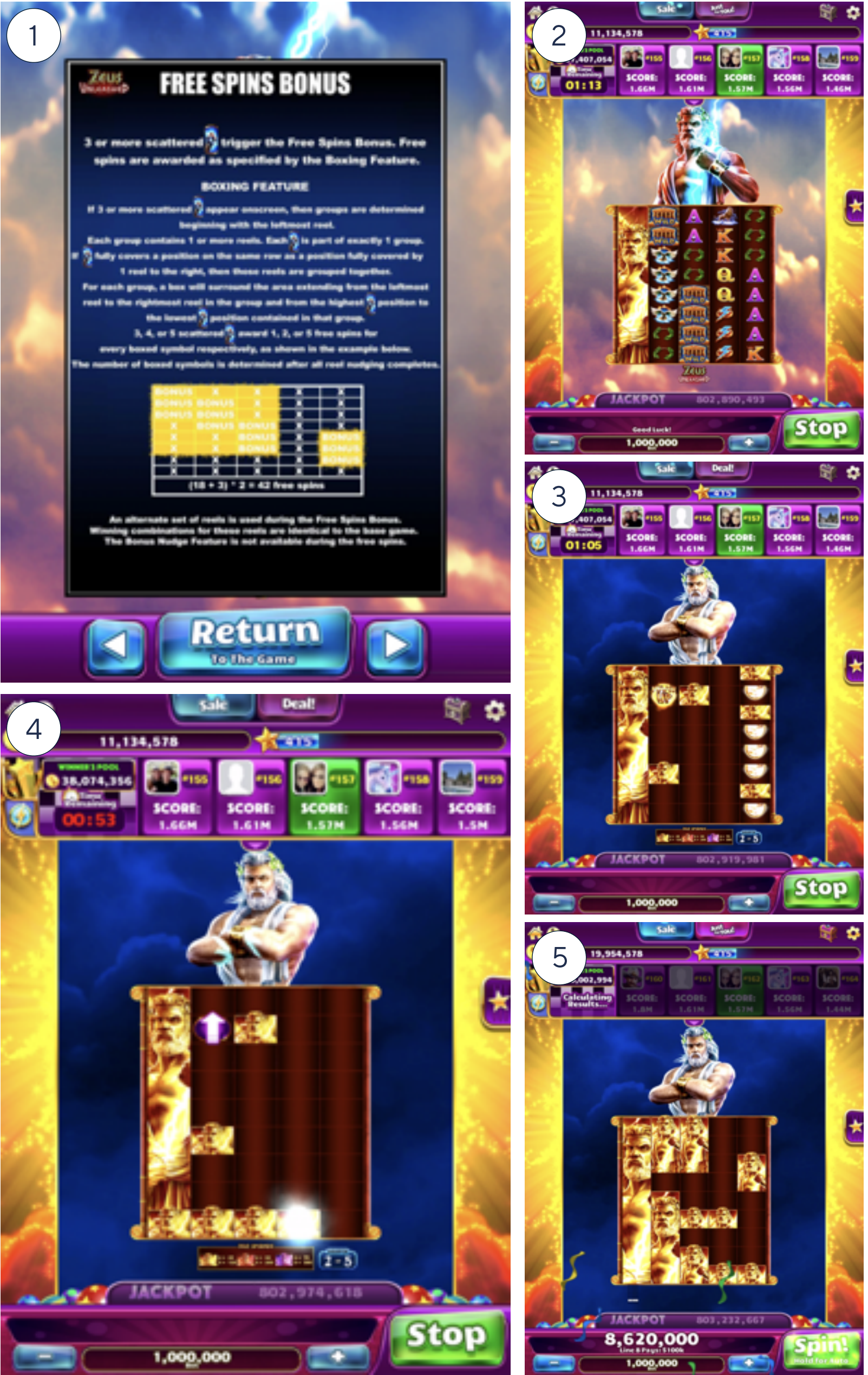
- Lightning symbols that land partially off-screen are nudged to a full position.
- Landing three or more lightning symbols activates free spins.
 - Boxes are drawn around all adjacent sets of lightning symbols.
 - Free spins are awarded for each symbol covered by these boxes (1).

Lightning Respins

- Landing six or more Zeus symbols on the first reel triggers three respins (2 and [video](#)).
- Only Zeus symbols, power-up symbols, and blanks appear on the respin reels.
- All symbols that land remain for the duration of the respins (3).
- When a power-up symbol lands, the symbol spins to transform into one of four power-ups:
 - An "X" symbol converts all adjacent spaces to Zeus symbols.
 - A lightning bolt awards a jackpot spin.
 - An arrow adds a full row of Zeus symbols to the bottom of the reels (4).
 - A plus sign upgrades the value of all Zeus symbols.
- At the end of the bonus, all power-ups turn into Zeus symbols for a final payout (5).

Additional Information

- See more images and videos in the [Zeus Unleashed](#) Library.



EXPERT INSIGHTS

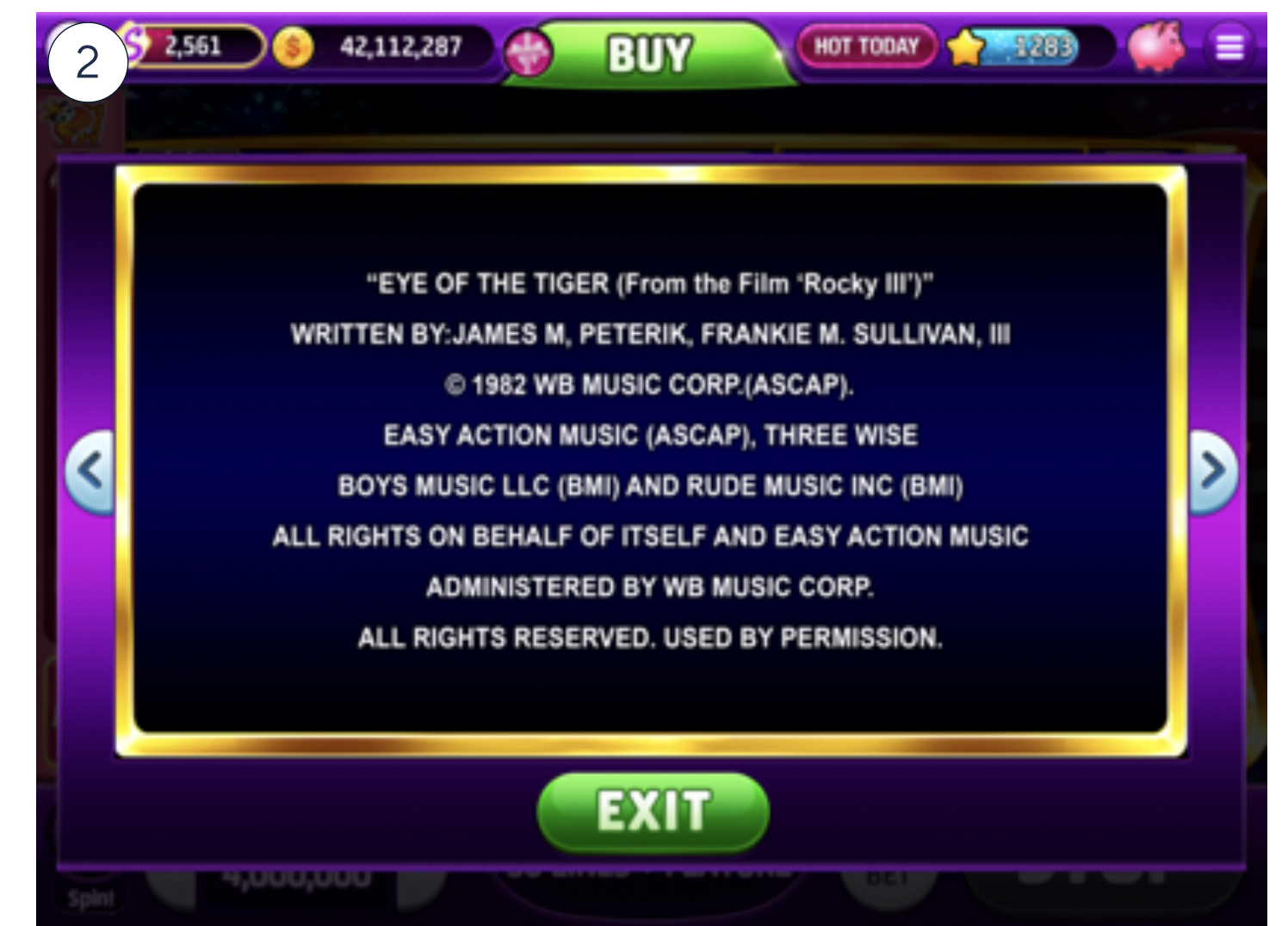
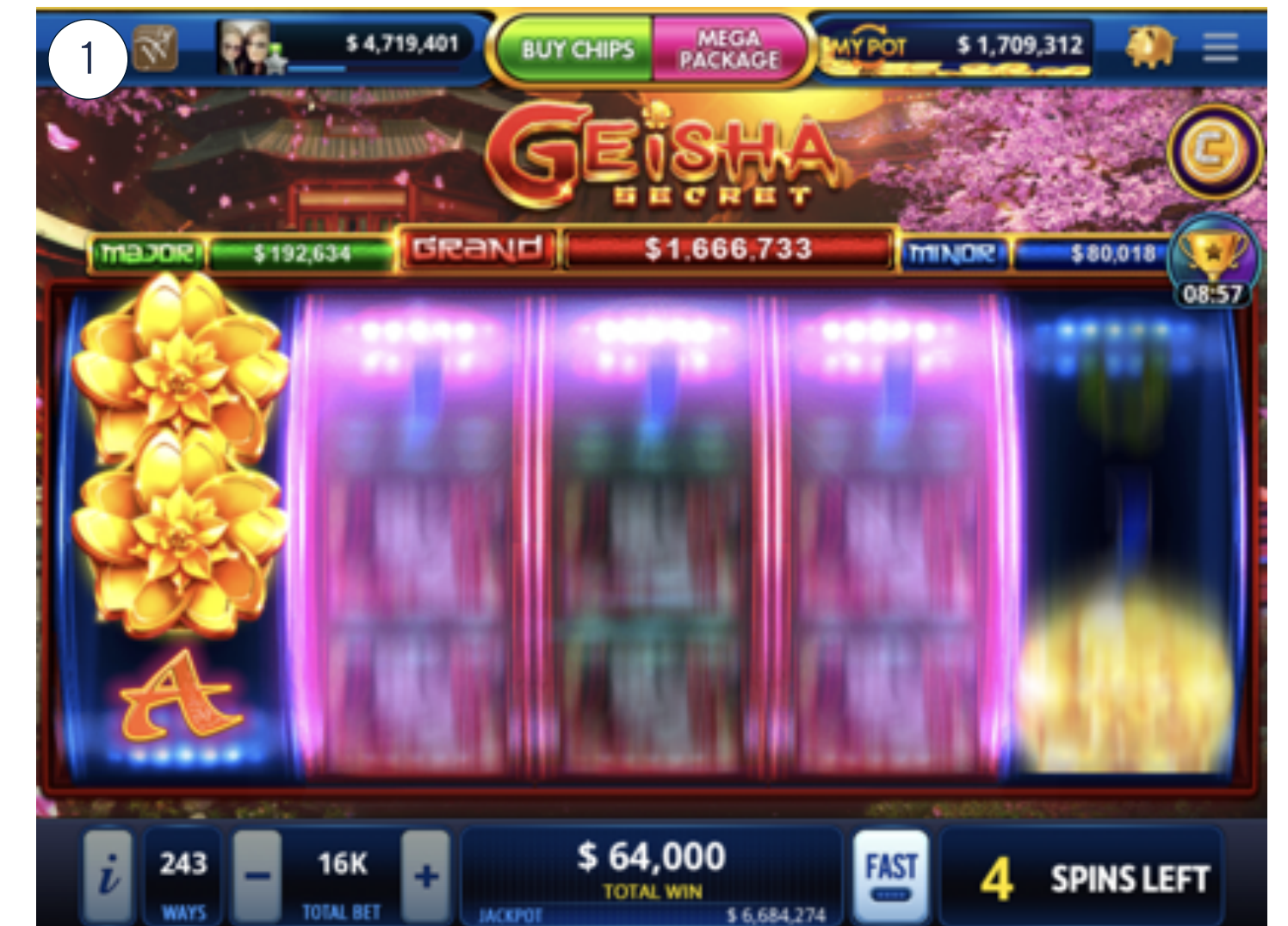
Increase player satisfaction by keeping machine hit rates close to 50% and testing more frequent anticipation modes.

Increase Pleasure

- **Use 50% hit rates to maximize dopamine release.** Dopamine levels are higher when primates are rewarded 50% of the time for performing tasks. This is because a 50% reward rate creates the greatest uncertainty of outcome ([Dopamine Jackpot! Sapolsky on the Science of Pleasure](#)).
 - Rewarding primates 25% or 75% of the time produces lower dopamine levels due to the increased predictability of either receiving a reward or receiving no reward. The study stated that a 100% reward rate corresponded with the lowest dopamine levels.
- **Test the type, duration, and frequency of anticipation modes.** The same study found that dopamine levels rise more from the *anticipation* of a reward, rather than the reward itself ([Dopamine Jackpot!](#)). When jackpot symbols land on any reel in *DoubleU Casino's Geisha Secret*, the next reel or reels are highlighted for an extra long spin with a special sound effect to heighten anticipation ([1](#) and [video](#)).

Improve Perceived Hit Rates

- **Incentivize players to keep sound on.** A study found that the presence of audio in slots play causes players to overestimate the number of times they win by 24%, compared to 18% for those who play without audio ([The Impact of Sound in Modern Multiline Video Slot Machine Play](#)).
- **Test more innovative sound and music associations.** *Slotomania* combines the well-known song “Eye of the Tiger” with more traditional slots sound effects in the Rise of the Tiger machine ([2](#) and [video](#)).



CASINO > CONTENT > SOCIAL

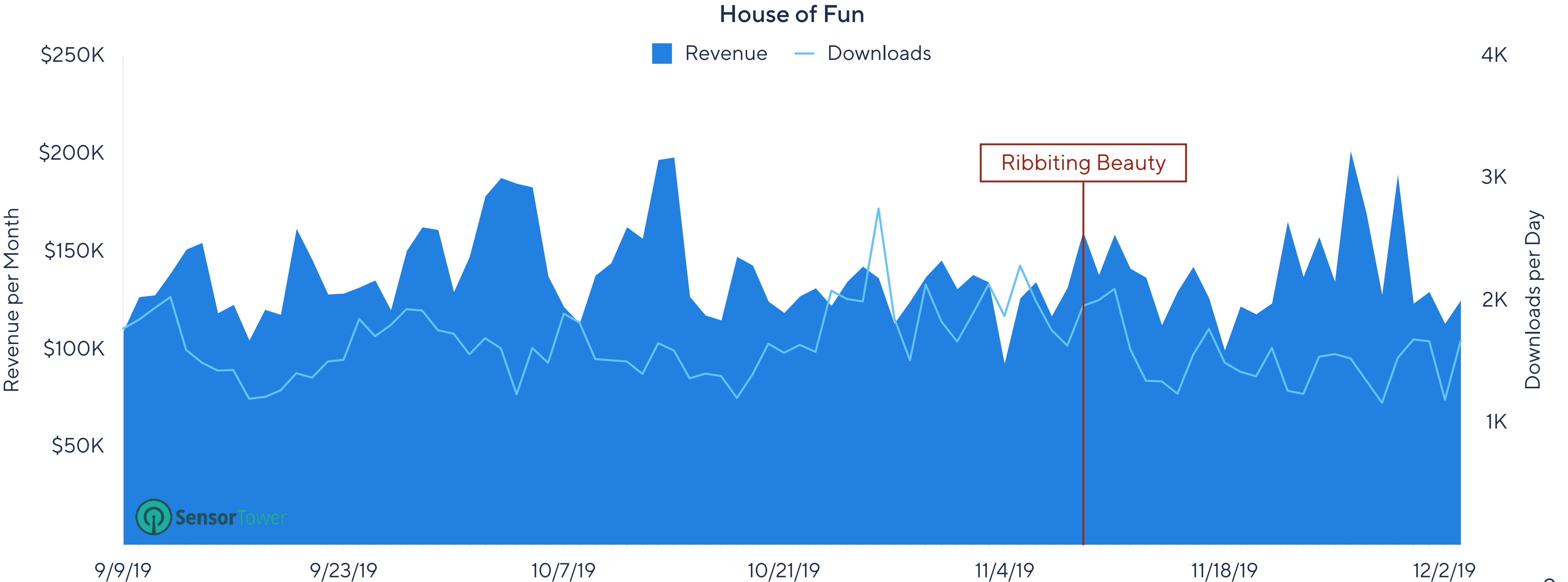
IN-MACHINE COLLECTIONS

Ribbiting Beauty in *House of Fun*

REVENUE ANALYSIS

After the release of Ribbiting Beauty, *House of Fun's* revenue was +12% WoW and +4% 2Wo2W.

Releases
10/15–11/26: Legends All-Stars collection feature
11/8: Rise to Fame Raffle purchase event
11/8: Triple Diamond Raffle purchase event
11/9: Ribbiting Beauty content release



MECHANIC TEARDOWN

During the base game, players spin to collect diamonds. Diamonds are used to purchase gifts for a frog prince and trigger that frog prince's Super Spin bonus. Activating the Super Spin bonus unlocks the next frog prince.

Collectible Store

- Landing a diamond ball awards the number of diamonds indicated on the ball (1 and [video](#)).
- Players spend diamonds on gifts for a frog prince (2).
- Gifts include coin awards, multipliers, extra spins, wilds, and a Super Spin symbol.
 - Obtaining the Super Spin symbol triggers the frog prince's bonus (3 and [video](#)).

Super Spins

- Each frog prince awards Super Spin free spins on a unique reel with sticky wilds ([video](#)).
- All purchased boosts enhance Super Spins.
- Triggering the Super Spin completes that frog prince's page and unlocks the next page (4).
- Completing all seven frog princes awards a pick'em bonus.
- In the pick'em, players choose a frog prince to reveal a final prize.

Free Spins

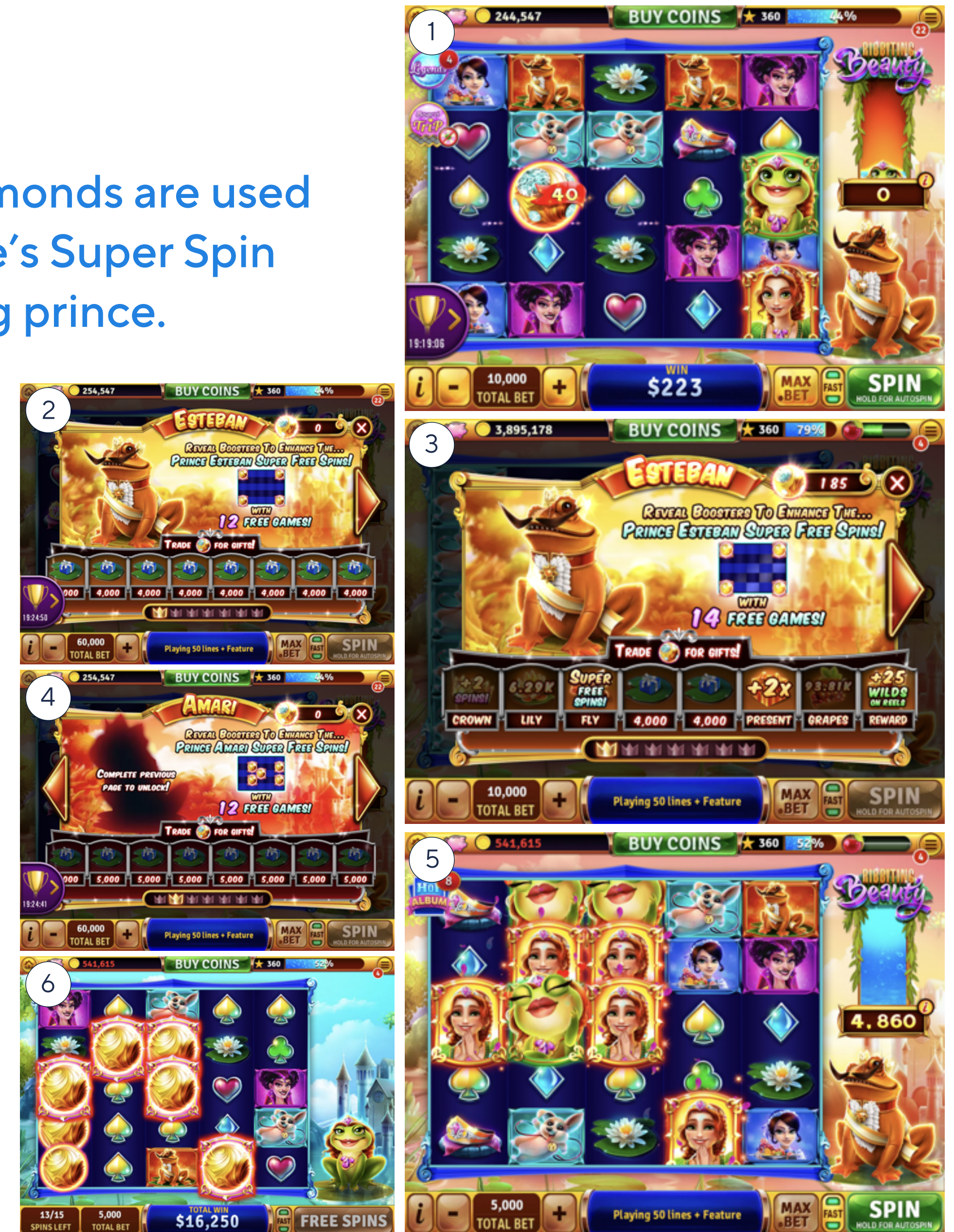
- Landing six princess and/or princess frog symbols triggers five free spins.
- Each extra triggering symbol adds 5 free spins, up to a maximum of 100 (5 and [video](#)).
- During free spins, all triggering princess symbols are replaced with sticky wilds (6).

Fly Bonus

- A fly randomly buzzes across the screen.
- Tapping on the fly awards coins or diamonds ([video](#)).

Additional Information

- See more images and videos in the [Ribbiting Beauty](#) Library.



EXPERT INSIGHTS

Preview upcoming elements at key points to increase spins on machines with progressive goals.

Increase Machine Engagement

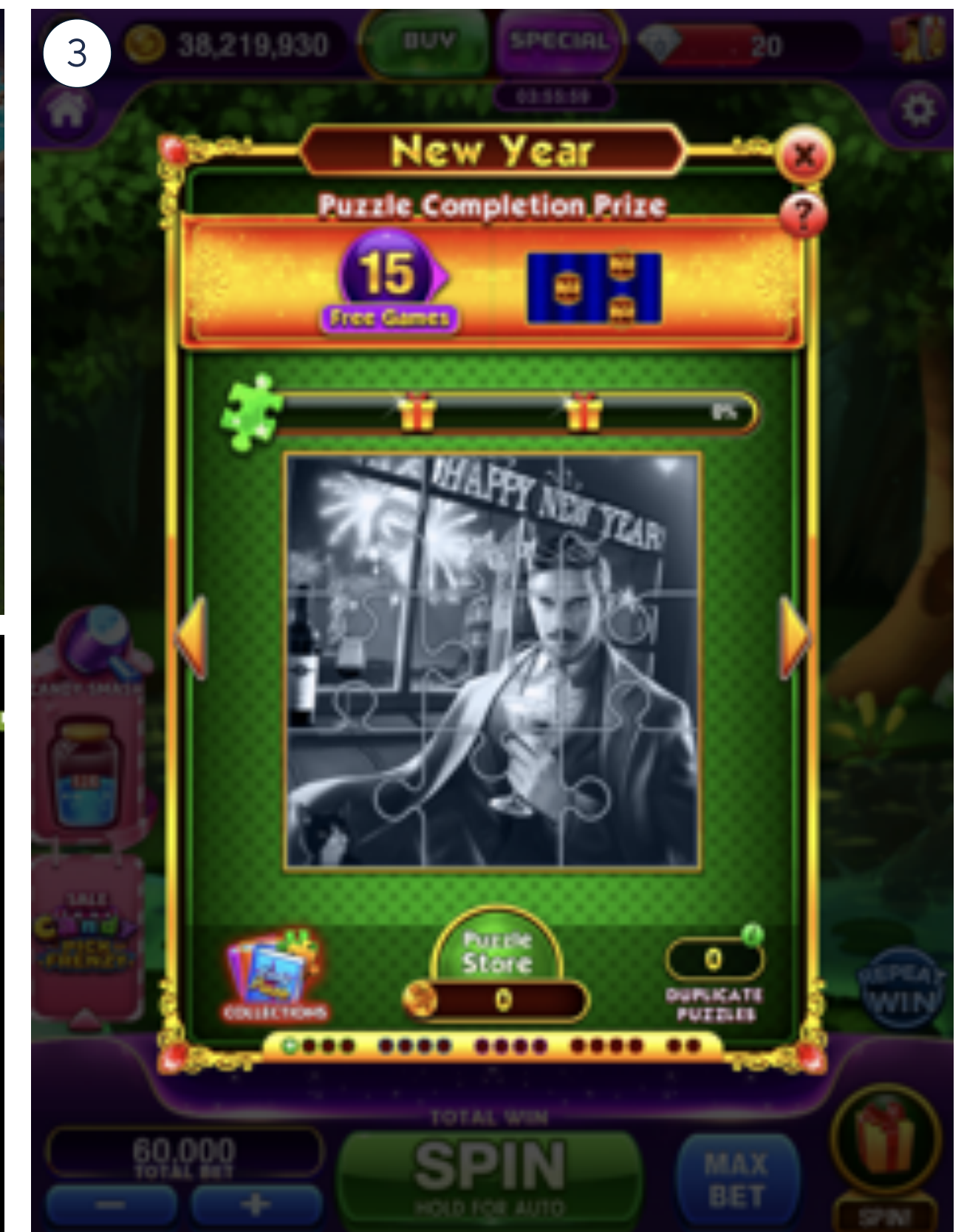
- **Exhibit bonuses on the loading screen or next to the reel set.** During custom design events in top-grossing puzzle apps, players can preview the completed design (1). In *GamePlay's Wilds and the Beanstalk* machine, upcoming wild arrangements are shown to players on a mini-grid next to the reel set (2).

Reduce Roadmap Risk

- **Swap out costly design elements.** The frog prince collection feature in *Ribbiting Beauty* appears to be a less design-intensive version of the card collection system in *House of Fun's Gaze of Fortune Monsterpedia*. *Cash Frenzy's* Monsterpedia-like *Prince Charming* replaces characters with puzzles—a less expensive alternative (3).
- **Mix effective elements from different machines.** *Ribbiting Beauty* combines aspects of *House of Fun's Charming Frog*, which has a similar spin-to-collect sticky wilds design, and *Gaze of Fortune Monsterpedia*, which has an in-machine collection feature with card sets and characters.

Take Advantage of Recency Bias

- **Snowball free spin values to save the best spins for last.** *DoubleU Casino's Inferno Empress* stacks wilds during free spins to make the final spins the most exciting. In a 2014 study on recency bias (the tendency to favor recent memories), subjects who enjoyed the end of a meal returned to that food sooner than those who enjoyed the start of the meal (*Interference of the End*, p. 1471).



SLOTS TRENDS

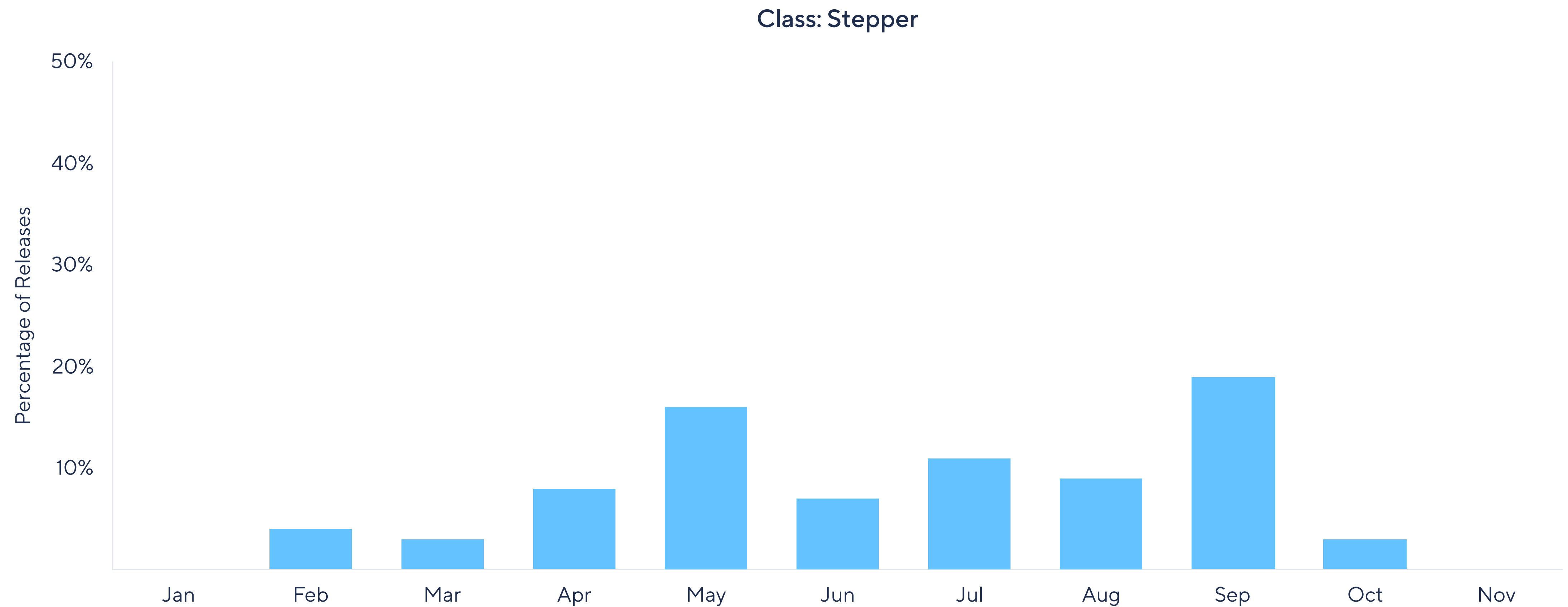


Featured apps this month:

Big Fish Casino, Caesars Slots, Cash Frenzy, Cashman Casino, DoubleDown Casino, DoubleU Casino, Heart of Vegas, Hit It Rich!, House of Fun, Huuuge Casino, Jackpot Magic Slots, Jackpot Party, POP! Slots, and Slotomania

CLASS

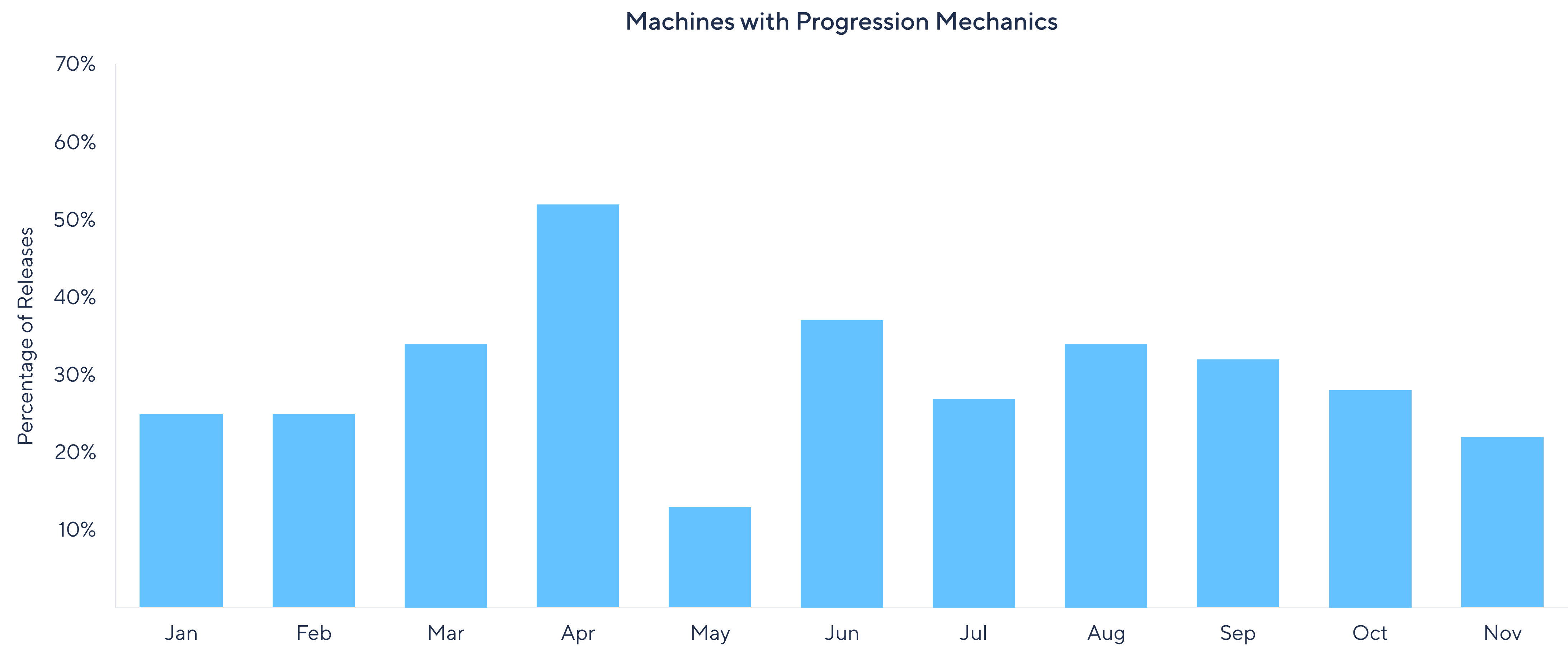
Stepper machines appear to be falling out of favor in featured slots apps, making up just 3% of all machines released in October and 0% in November—a notable drop from the previous six months.



PROGRESSION MECHANICS



Machines with progression mechanics, like fill-meters or stand-alone collections, are trending down in featured slots apps.

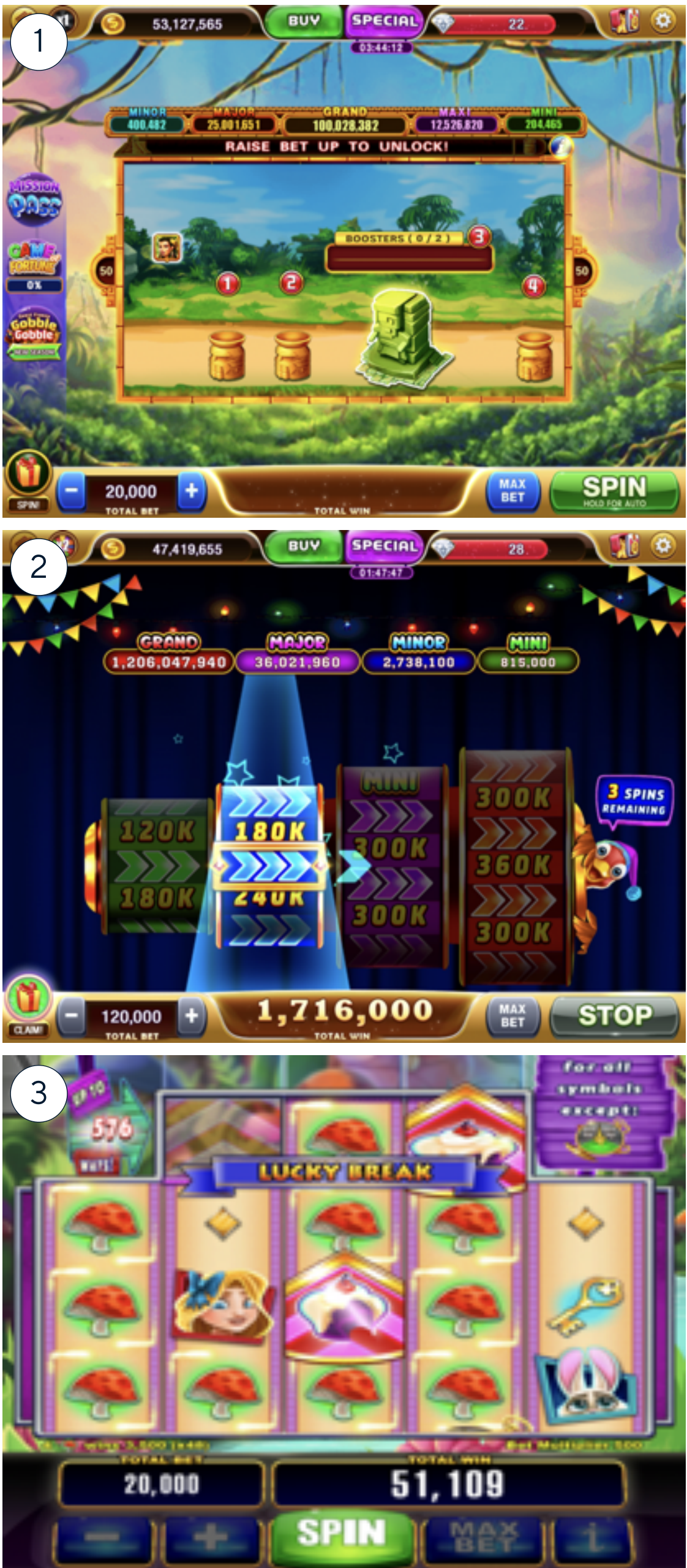


MARKET WATCH



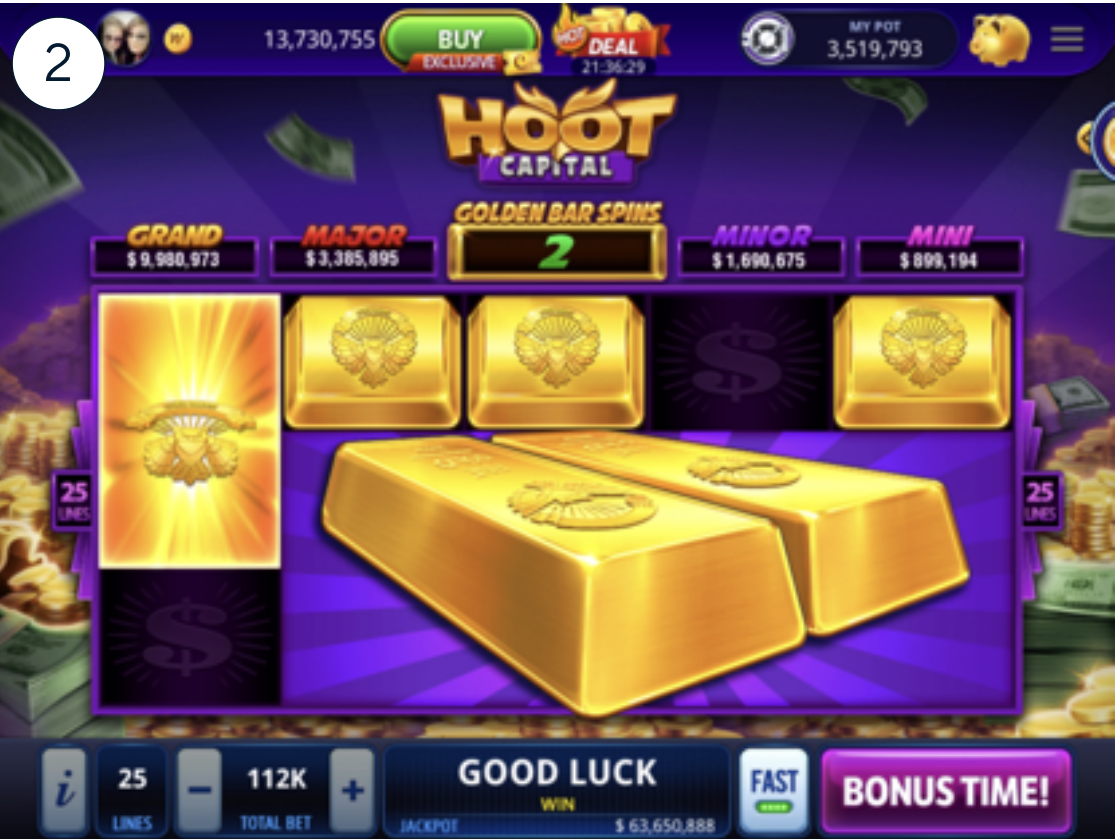
NOTABLE RELEASES I

App	Machine	Description
Cash Frenzy	Glory of the Maya	<ul style="list-style-type: none">• Players spin to collect bonus symbols and fill a meter.• Filling the meter triggers a spin on a prize wheel and advances players on a map (video).• Map checkpoints award boosts that enhance a free spin bonus (1).
	Thanksgiving Holiday Frenzy	<ul style="list-style-type: none">• Landing 3–5 turkey symbols triggers 7–13 free spins.• Players pick two plates to reveal symbols that will be removed during free spins (video).• Landing three wheel symbols triggers five spins on a horizontal wheelset.<ul style="list-style-type: none">• Landing an arrow symbol advances players to the next wheel (2 and video).• Landing arrow symbols on all four wheels activates a final jackpot wheel.
Cashman Casino	Winning in Wonderland Eat Me Drink Me	<ul style="list-style-type: none">• Landing a cupcake symbol grows that reel by 1–3 positions (3).• Landing a potion symbol shrinks that reel by 1–3 positions to reveal wild symbols (video).• The number of positions added or subtracted is determined by the size of the bet.



NOTABLE RELEASES II

App	Machine	Description
DoubleU Casino	Master of Olympus	<ul style="list-style-type: none">• Landing three scatter symbols triggers a bonus.• Players choose between 10 free spins or a dice jackpot mini-game.• In the mini-game, the sum of three dice determines the jackpot size (1 and video).
	Hoot Capital	<ul style="list-style-type: none">• Players trigger five respins by landing six or more golden bars.• During respins, players spin to collect more golden bars.• Adjacent golden bars combine to form bigger bars (2).• At the end of the respins, bars above a certain size convert into a giant wheel bonus (video).
Gold Fish Casino	Battleship Floating Fortress	<ul style="list-style-type: none">• Landing a cannon on the third reel fires shells at the Battleship game board (3 and video).• Shell symbols that land at the same time as a cannon award one additional shot each.• Cannon shots that hit battleships are marked with red pegs.• Once the cannon is done shooting, all red pegs drop down to the reels as wilds.• If the cannon sinks a ship, the board is reset, and two wilds are added to the reels.



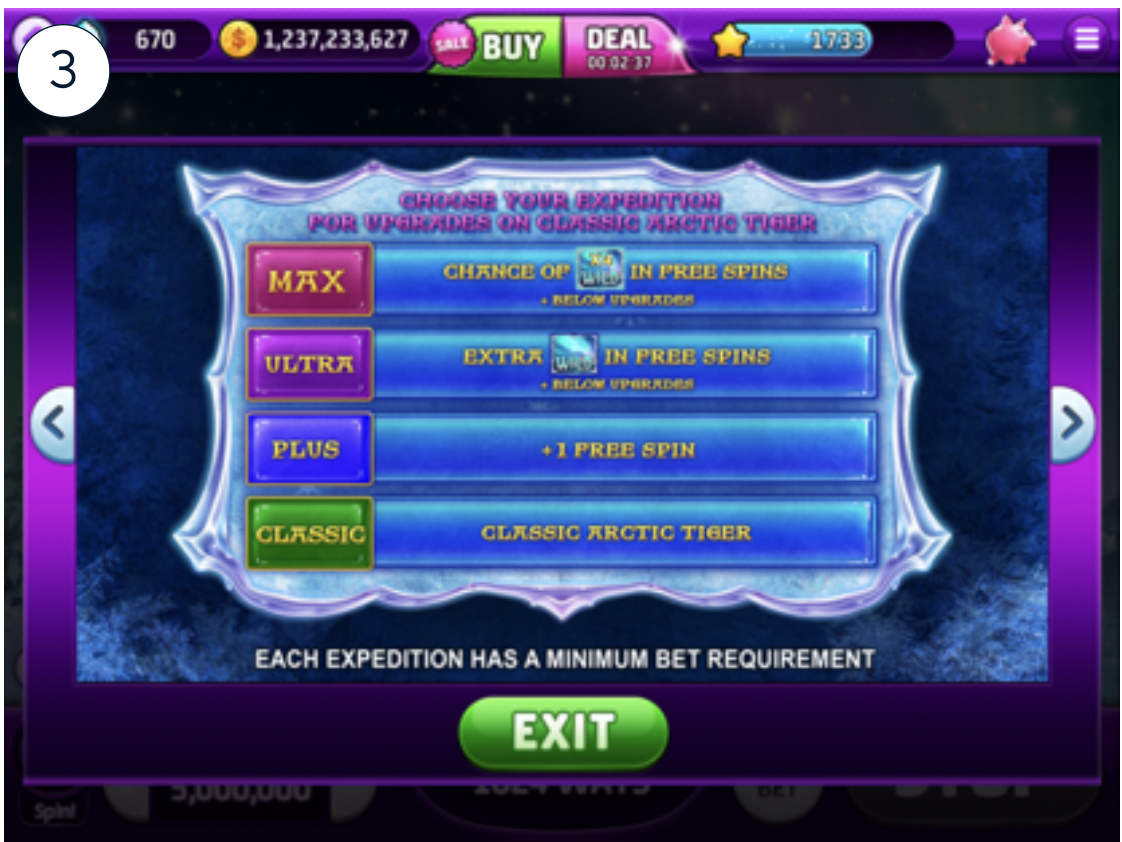
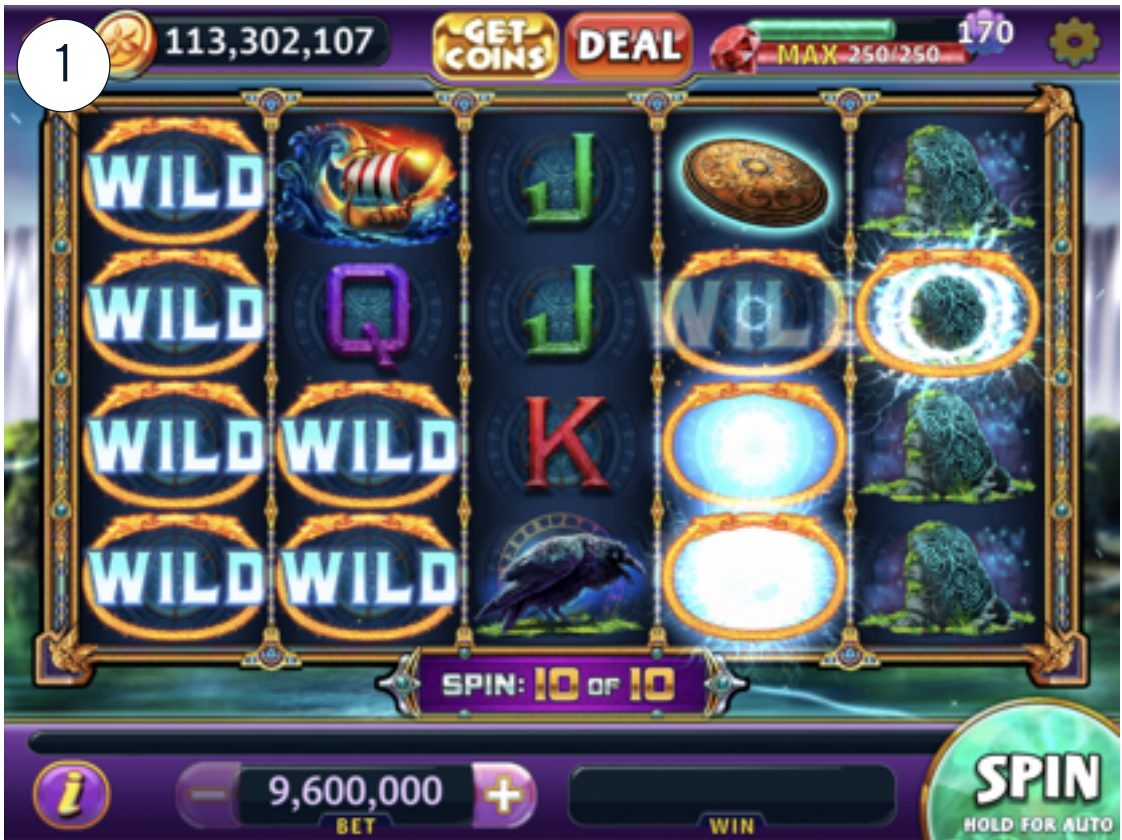
NOTABLE RELEASES III

App	Machine	Description
Gold Fish Casino	Thor's Return	<ul style="list-style-type: none">• All spins are counted in sets of 10 on a global counter.• Landing a hammer marks that position with a circle for the duration of the 10 spins (video).• All marked positions turn wild for the 10th spin, after which the reels reset (1).• During free spins, players place between 5 and 10 roving wilds on the board.• The more wilds players choose, the fewer free spins they receive.
POP! Slots	Bubble Madness	<ul style="list-style-type: none">• Lionfish symbols leave sticky bubbles where they land (2).• Landing a lionfish on a bubble converts that bubble, and any chains of adjacent bubbles, into wilds (video).
Slotomania	Arctic Tiger Max	<ul style="list-style-type: none">• Upon machine entry, players choose an Expedition.• Each Expedition has a bet minimum and offers a unique free spin boost (3).• High-tier Expeditions include the boosts from all the lower tiers.



Quickly review all features and machines

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



APPENDIX



LIQUID AND GRIT SLOTS PERSONAS

Participants from the U.K. and U.S. were surveyed about their mobile gaming use. The data produced five personas with distinct patterns of game choices, slots preferences, and playing habits.

	Demographics				
	Fame Frank	Money Mike	Daydreamer Denise	Gambler Gail	Sensation Serena
Size	21%	22%	27%	19%	11%
Women	50%	51%	66%	60%	55%
Age	32 mean / 30 median	34 mean / 32 median	35 mean / 34 median	35 mean / 33 median	35 mean / 32 median
Education	3.5	3.3	3.5	3.2	3.3
Money Spent	4.2	4.9	3.5	5.4	5.8
Play Time	5.0	4.5	5.0	4.9	6.5



* The education, money spent, and play time numbers represent the relative value of each category compared to other player personas.

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 website</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 website</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 website</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.



“The richness I achieve comes from nature, the source of my inspiration.”

– Claude Monet

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