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State of freemium mobile game monetisation in 2025

Turku School of Economics
Master's Thesis

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This thesis explores contemporary monetisation practices in freemium videogames in 2025, motivated by the growing importance of in-game purchases and increasing prevalence of live service games. The research investigates how successful free mobile games monetise their content and retain players by focusing on games available on Apple's App Store—the highest-grossing mobile app marketplace globally.

This thesis is guided by three research questions: (1) What are the dominant monetisation strategies used in successful freemium games on Apple's App Store in 2025? (2) How are monetisation strategies integrated into game design? (3) How are players encouraged to keep engaging with the game in multiple sessions over a long time?

Previous research has typically examined isolated elements of game monetisation, such as in-game items, content, advertising, incentivised actions or subscriptions. This study expands on prior work by combining these elements into a holistic framework of freemium monetisation and using it to apply a qualitative content analysis approach, supported by a quantitative genre analysis, to systematically examine monetisation features in mobile games. Empirical data was collected by playing and documenting monetisation and retention features of 52 top-listed free games on Apple's Finnish App Store.

The study finds the sale of functional items, incentivised actions and retention mechanics to be the most prevalent features of freemium games. Surprisingly, traditional advertising, lootboxes and the sale of in-game content are in relative decline, while hybrid monetisation strategies using multiple monetisation features simultaneously are increasingly common. Periodic gifts and limited-time content are identified as key retention mechanisms. Furthermore, the study finds a lack of automated renewing subscriptions in the face of increasing prevalence of subscription services. The thesis expands existing literature by introducing a new holistic framework and by providing a timely description of contemporary monetisation practices. It also guides practitioners by informing about suitability of monetisation strategies for game genres and the mobile platform in general.

Key words: Monetisation, Video games, Free-to-Play, Freemium games, Game design, In-game purchases, microtransactions, Game-as-a-Service (GaaS), App Store

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Tämä Pro gradu tutkielma tarkastelee vallitsevia ansaintatapoja ilmaispeleissä vuonna 2025. Tutkimusta motivoi pelinsisäisten ostojen kasvava merkitys sekä ”live service”-pelien yleistyminen. Tutkimuksessa selvitetään, millaisia ansaintamenetelmiä menestyneissä ilmaisissa mobiilipeleissä käytetään ja miten ne sitouttavat pelaajiaan keskittyen erityisesti maailman tuottavimpaan mobiilisovellusten kauppapaikkaan, Applen App Storeen.

Tutkielmaa ohjaa kolme tutkimuskysymystä: (1) Mitkä ovat yleisimmät ansaintastrategiat Applen App Storen menestyneissä freemium-peleissä vuonna 2025? (2) Miten ansaintastrategiat ovat yhdistetty pelisuunnitteluun? (3) Miten pelaajia kannustetaan palaamaan pelin pariin useissa pelisessioissa pitkällä aikavälillä?

Aiempi tutkimus on tyypillisesti tarkastellut pelien ansaintatapoja erillisinä osa-alueina, kuten pelinsisäisiä esineitä, sisältöä, mainoksia, kannustettuja tehtäviä tai tilauspalveluita. Tämä tutkimus laajentaa aikaisempaa näkökulmaa yhdistämällä nämä osa-alueet kokonaisvaltaiseksi freemium-ansaintamallien viitekehykseksi ja käyttämällä sitä määrällisen genreanalyysin tukeman laadullisen sisällönanalyysin tekemiseen. Empiirinen aineisto kerättiin pelaamalla ja dokumentoimalla 52 suosituimman ilmaispelin ansainta- ja sitouttamistapoja Suomen App Storesta.

Löydösten mukaan freemium-pelien yleisimpiä ansaintatapoja ovat toiminnollisten esineiden myynti, kannustetut tehtävät sekä pelaajien sitouttamiseen liittyvät mekaniikat. Yllättäen perinteinen mainonta, ”lootboxit” ja pelisisällön maksullinen myynti ovat suhteellisen harvinaisia, kun taas hybridimallit, joissa yhdistetään useita eri ansaintatapoja samanaikaisesti, ovat yhä yleisempiä. Toistuvat lahjat ja rajoitetun ajan saatavilla oleva sisältö nousevat keskeisiksi pelaajien sitouttamisen keinoiksi. Lisäksi löydöksissä havaitaan, että automaattisesti uusiutuvat tilaukset ovat harvinaisia, vaikka yleisesti tilauspalveluiden suosio onkin kasvussa. Tutkielma täydentää olemassa olevaa kirjallisuutta esittelemällä uuden kokonaisvaltaisen viitekehyksen sekä tarjoamalla ajankohtaisen kuvauksen nykyisistä pelien ansaintakäytännöistä. Se tarjoaa myös käytännön hyötyä pelialan toimijoille tuomalla esiin, millaiset ansaintastrategiat soveltuvat eri peligenreihin ja mobiilialustalle yleisesti.

Avainsanat: Kaupallistaminen, videopelit, mobiilipelit, ilmaispelit, ansaintamallit, pelisuunnittelu, pelinsisäiset ostot, mikrotransaktiot, videopelipalvelut, App Store

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1 Introduction

1.1 Evolving business models in the video game industry

Global consumer spending on in-game purchases is projected to reach record high 74,456 billion USD in 2025 (Juniper Research, 2021b). With much of the industry taking a turn towards a model less focused on single releases and more on continuous support in a game-as-a-service model or a live service game, the character of game development takes a more service oriented character (Dubois & Weststar, 2022). For example, the Japanese games giant Sony is projected to spend 60% of its game development investments on games using the live service model, a considerable leap from 12% in 2020 (Sony, 2023). Instead of collecting revenue from a single big release, game companies now increasingly produce additional content or in-game goods accessible for a fee. These purchases are commonly known as microtransactions. This change in business logic has required game developers to be more considerate about their revenue model to integrate it in their game design. The revenue model is an important part of the overall value creation of a company (business model), focusing on *"how revenue is appropriated by the firm through the sale of its goods or services"* (DaSilva & Trkman, 2014). The ongoing change means that video game monetisation has become an important process in commercial game design. Monetisation has been identified as an area of specialisation, and some firms even hire a separate monetisation designer or specialist. As time goes on, it can be expected that monetisation design and implementation become more sophisticated. Thus, the purpose of this research is to expand the existing literature by providing a description of the state-of-the art in "freemium" game monetisation in 2025. This research contributes to the existing literature by providing an analysis on the monetisation of the most popular free games on Apple's App Store.

1.2 Research questions

Many previous studies focusing only on a single point of monetisation, such as lootboxes (Chen et al., 2019), virtual goods (Hamari & Lehdonvirta, 2010) or microtransactions in general (Gusmão et al., 2019; Neely, 2021). This study aims to explore the current monetisation and retention trends in the domain of mobile games. In total, this study is guided by three research questions, which are introduced here one by one. The purpose of the first research question is to explore the key revenue-generating mechanisms

employed by successful mobile games. The focus is placed on Apple's App Store, as it is the highest-grossing mobile app marketplace (TechCrunch, 2024) and ranks second in terms of the number of available applications (42matters, 2024). This makes it a well-established and successful platform, offering a robust foundation for the study:

RQ1: What are the dominant monetisation strategies used in successful freemium games on Apple's App Store in 2025?

To discover more refined insights for designing commercially successful games, the second RQ of this study aims to explore the relationships between monetisation and in-game economy, player progression and encouraging players to make purchases. It is also interested in how different monetisation features affect with each other:

RQ2: How are monetisation strategies integrated into game design?

For monetisation design to be effective, players must play and keep playing the game. Studies show that more time spent playing a game correlates with more microtransactions pending (Costes & Bonnaire, 2022). Some monetisation mechanics are known to agitate players (Gusmão et al., 2019) and might drive them away. To explore the this, the third research question seeks to explore relationship between monetisation and player retention:

RQ3: How are players encouraged to keep engaging with the game in multiple sessions over a long time?

To answer the research questions, this study conducted a mixed-methods content analysis using a framework based on previously known monetisation methods. First, a literature review was conducted to gain an overview of the known monetisation practices. Then, a framework was constructed for carrying out the mixed methods content analysis. Data collection was done by playing 52 mobile games from the App Store. The data was analysed first through qualitative interpreting and coding and then quantified for quantitative analysis of game genres. The findings show current trends in freemium mobile game monetisation, revealing dominant strategies, emerging techniques, and genre-based monetisation preferences. The findings also provide valuable insights for both scholars and industry practitioners, suggest practical applications for game design and strategic planning, and identify several avenues for future research, including cross-platform comparisons, developer perspectives, and ethical implications.

2 Key concepts and related literature

2.1 Software pricing

Before the advent of more sophisticated monetisation approaches, software was typically sold via perpetual licences (Ojala, 2016) for a single user or a machine (Lehmann & Buxmann, 2009). In the 2010s another model began gaining prevalence: renting out access to the software in a pay-per-month or usage model, often called "Software-as-a-service" or SaaS. The adoption of this new model has allowed for new, more dynamic pricing strategies. (Ojala, 2016) Kopalle et al. (2023) define dynamic pricing *"as price changes that are prompted by changes or differences in four key underlying market demand drivers: (1) People (i.e., individual consumers or consumer segments), (2) Product configurations, (3) Periods (i.e., time), and (4) Places (i.e., locations)"*. They also note that the practice has become more prevalent due to new ways of collecting and processing data, such as machine learning. Food delivery couriers, online shoppers and gamers can already witness dynamic pricing algorithms in action. Buxmann et al. (2013) recognize multiple dynamic pricing strategies for software vendors: penetration, follow-the-free and skimming: The "penetration" pricing strategy involves first selling the product for a low price or even free to attract a large portion of the market. When a "critical mass" of network and lock-in effects have been reached, the vendor increases the price. The "follow-the-free"-strategy involves giving out a product for free to sell upgraded versions or complementary products instead. The "skimming" strategy is particularly common in the gaming industry. It involves releasing the product for a high price and then reducing the price over time to capture value from customers willing to pay less. Bundling is another common strategy for selling software. It involves selling multiple, clearly separate products for a single price. Bundling is especially attractive to software vendors due to low to non-existent variable costs of replicating digital products. It can also help homogenising prices when consumers would be willing to pay a lot for one item for one part of the bundle, but only little for another. (Buxmann et al., 2013)

Microtransactions are increasingly common across genres and platforms. Many kinds of microtransactions exist. Gusmão et al. (2019) divide them to cosmetics, advantageous items, time savers, lootboxes and in-game currency. Designing the correct microtransactions for your game depends on the genre and the player base (Gusmão et al., 2019). Chen et al. (2019) categorize microtransactions from a more economic

perspective: “unique boxes” which are lootboxes where the player is guaranteed to receive a new in-game item, “Traditional (loot)boxes” where the player just gets a random item out of a selection with a possibility of duplicates, “Grand bundle” where the player receives every purchasable in-game item with a single purchase, and “Separate Selling” where every in-game item is sold separately. Out of these, the “unique box” strategy seemed to capture the most revenue for the seller. However, the growth of item catalogue over time might make a more “traditional box” strategy desirable.

Hamari and Lehdonvirta (2010) describe the techniques for selling of virtual goods in MMOs detail in their article. They note that segmentation is a key approach, that manifests itself through multiple features, like having multiple styles of play, increasing difficulty, item levels and restrictions. They also noticed other patterns to drive virtual goods sales, like item degradation, purposefully inconvenient gameplay mechanics and special events.

2.2 Video game monetisation

2.2.1 Overview and a short history of game monetisation

Historically, the earliest video games were introduced in arcades with the release of Atari’s *Pong* in 1972 (Kent, 2001), where they could be accessed for a small fee per play. Soon after, the development of the home console in the late 70s and the first boom in 1977-1981 meant a significant change in the business logic as games could be sold directly to consumers (Zackariasson & Wilson, 2010). This gave rise to the classical business model of developing a game and then shipping it to customers as a one-time purchase. During the era before internet, physical copies were the main form of distribution. The rise of internet in the 90s and the release of popular video game marketplace Steam in 2003 (Steam, 2023) paved way to a new distribution channel, and as online payments became more commonplace new forms of products could be sold to consumers. Game firms could expand the classical business model by producing additional content for a game and selling it as an add-on or downloadable content (DLC). Although physically distributed expansions to games existed, internet as a distribution channel can be thought to have made making expansions more convenient for game developers. The mid-2000s can be considered to be point when DLCs became mainstream and institutionalised into large game studios’ business models (Nieborg, 2014). Whilst

earlier iterations of the business model existed in the 1990s in form of demos and shareware (Alha, 2020), internet's increasing popularity and performance in the 2000s also helped the so called *freemium* or *free-to-play (F2P)* games to gain popularity. The approach mirrors the "follow-the-free" strategy observed in the wider software industry: The game is given to customers for free, but to access additional content or to advance faster, the player can buy the content or virtual goods with real money (Roessel & Švelch, 2021). For example, the *Habbo Hotel (2000)* Massive Multiplayer Online game (MMO) was one of the early adoptions of the model. Sometimes showing advertisements to players can replace or substitute purchases, especially on the mobile games industry. In the game *World of Tanks Bliz* by Wargaming for example, the player can watch advertisement videos to obtain in-game currency. Game-as-a-service (GaaS) models can be thought to be somewhere between a premium and a pure F2P game. In a GaaS model, consumers pay for access to a game product which is continuously developed further, like in W*orld of Warcraft (2004*) or *Elder Scrolls Online (2014).* From 2019 onward, an increasing number of publishers and platforms offer subscription access to multiple games in a bundle, like the *Xbox Game Pass Ultimate (Banfi, 2024)*. The industry has recently taken a general shift towards F2P and GaaS models (Bernevega & Gekker, 2021; Dubois & Weststar, 2022; Roessel & Švelch, 2021). Practically this means that game development is no longer a project with a defined endpoint (Roessel & Švelch, 2021). Actual monetisation schemes can include "season passes" in which the player pays for multiple upcoming DLCs at once or for access to content for a certain period. Game firms can also employ hybrid approaches where some parts of the game content can be sold under a classical model, while having "battle passes" and microtransactions for other bits of content. A complete overview of developments in game monetisation can be found in Table 1.

Table 1 An overview of monetisation solutions based on previous works introduced in sections 2.2.1 and 2.2.4

Monetisation solution	**Popularisation**	**Description**
Arcade games	1972	Games accessed through machines at arcade halls, paid per play session
Home consoles	late 1970s	Games and game consoles sold directly to consumers
Demos and Shareware	1990s	A limited version of the game is given to the player for free, with an option to buy a complete version.

Digital distribution	2000s	Games sold and distributed via the internet under a perpetual licence
Free-to-play, freemium	2000s	The game is free, revenue is made by selling additional in-game content or to speed up progress or advertising.
Advertising	2000s	Player is shown advertisements whilst playing, the developer gains money from players clicking the advertisement link
DLC	Mid-2000s	Additional game content for an existing game sold in different sizes
GaaS	2019 onward (wider industry shift)	Players pay for access to a continuously developed game or games

2.2.2 Free-to-Play and freemium

The "Freemium" business model became to prominence in the late 1990s and early 2000s (Alha et al., 2014) in the wake of the internet age. Free-to-play (F2P) is often used to describe the model implemented to the domain of video games. The F2P or freemium model has multiple potential sources of income. Perhaps the simplest of these is the sale of in game content, which follows in the footsteps of the 1990s shareware demos. Selling game content can mean restricting the players progression or access to certain levels and storylines (Gusmão et al., 2019). Selling in-game items is another way to gain revenue. They can be separated into *functional* and *cosmetic* items depending on how they affect the game (Gusmão et al., 2019; Neely, 2021). Järvinen (2012) differentiates 2 approaches to F2P design: the "Surface"- and the "Core" models. In the Surface model, additional content relating to a specific game functionality is sold, such as new attempts or new player capabilities. In the Core model, a more diverse selection of virtual goods is sold like resources, time or in-game items. The Core model requires the careful management of the in-game economy with player resource sinks and sources, making Core design and management a more complex task. Time is an important aspect in F2P design, as these games often have wating periods for progressing or time pressure to buy a certain virtual good (Evans, 2016). Freemium games can also use subscriptions (Mai & Hu, 2023), random reward mechanics (lootboxes) (Chen et al., 2019) and bundles (Buxmann et al., 2013; Chen et al., 2019) to design and personalise their offers further.

2.2.3 Monetisation professionals

Monetisation design or monetisation management is a new field of expertise in video game development. In their exploratory study, Roessel and Švelch (2021) note that game monetisation is closely tied to the field of design. They also note that the task of monetisation is often integrated as a part of an existing role like a producer or designer. However, separate role for monetisation does exist in larger firms. In some cases, game studios opt to involve external monetisation professionals as freelancers. The choice between integration and specialisation depends not only on resource availability, but having the role integrated also brings monetisation closer to the design of a game. Game studios with a separate role for monetisation can be expected to face a special challenge in collaboration between the monetisation expert and the rest of the game development team. Moreover, monetisation is also related to the players and other stakeholders like regulators, whose possible reactions must be considered when designing the monetisation model for a game. Of the practical skills required to succeed in monetisation tasks, analytical skills and market knowledge are emphasized. University education was required in most of the job postings analysed by Roessel and Švelch (2021), most often in the fields of Computer Science or Business.

2.2.4 Advertising in video games

Advertisements or ads are another way for game developers to gain revenue. Wang and Chou (2019) recognise three kinds of video games advertising in academic literature: Advergames, in-game advertising and interstitial ads. Advergames are games that are made from the start with the purpose of promoting a brand or a product, while in-game advertising means embedding advertisements as a part of the game world. Interstitial ads are completely separate from the game world and are displayed to the players "on top" of the game experience, such as banners occupying a certain area of the players' screen. Interstitial ads are the easiest to implement, as they don't require changing an already existing game much. Intermediaries, such as the *Unity Ads* platform often help game developers and advertisers in finding each other. Games generate ad revenue from players clicking the ads (Appel et al. 2020). Players react to interstitial ads more frequently and positive the more the advertised products are relevant to the context of the game being played (Wang & Chou, 2019). From a strategic perspective, advertising can help

developers gain revenue and drive the sales of a “premium” version of an app (Appel et al., 2020).

In addition to often immersion-breaking and forced advertisements, players can also be encouraged to watch an ad out of their own will through incentivised actions. Incentivised actions are a more general group of non-game related things the player can do to receive a reward. Whilst often advertisements, incentivised actions can also be some other tasks, such as filling questionnaires (Sheng et al., 2022). Longer and more intensive player engagement has been known to increase players likelihood of taking IAs (Sheng et al., 2022), whilst the handing out rewards can help players engage more with a challenging game (Deng et al., 2024). However, whilst players carrying out actions for in-game rewards increased participation, the quality of actions such as survey answers is likely to drop (Dejonckheere et al., 2024).

2.3 The role of Retention and Engagement in video game monetisation

A successful monetisation requires a large enough number of players actively engaging with the game. Time spent playing the game and the number of sessions over a period of time both positively correlate with increased player purchasing behaviour (Costes & Bonnaire, 2022). Thus, retaining and having players engage with the game is especially important for freemium games, as they are completely reliant on players making in-game purchases. Much of research has gone to retention and engagement research for both predicting churn and for evaluating driving factors. Hadiji et al. (2014) developed a universal model for predict player churn based mostly on playtime and frequency of sessions. Fu et al. (2017) introduce a model for clustering MMORPG players based on three dimensions: engagement, performance and social interaction. Using this framework, 5 clusters of players emerged, from which developers can predict players who are likely to leave and the needs and behaviour of different kinds of players. Runge et al. (2014) also developed a model for detecting churning players and attempted to intervene by gifting players in danger of leaving in-game currency. According to their results, handing out free rewards was not an effective way to prevent churn. Despite this result, daily bonuses and rewards are rather common in freemium games, although many rewards are behind at least some efforts, such as daily challenges and limited time in-game events. In a more recent paper Frommel & Mandryk (2022) studied the player perspective on rewards being used to drive engagement. They define engagement rewards as “*a positive*

return in a videogame for completing a time-restricted, trivial task aiming to entice players to engage with the game" This includes daily login rewards, periodic challenges and seasonal events, for example. In general, their study demonstrated that engagement rewards do have an impact on player behaviour. However, their study revealed that players playing the game for the rewards in general had a more positive experience than players playing just to get a specific reward. While engagement rewards motivate and facilitate play, the negative experiences include the fear of missing out that could even lead to players leaving if they missed out on an important reward. Finally, they rose ethical concerns over some players experiencing an obligation to play the game. Bergström et al. (2024) demonstrate the link between ethics, engagement and monetisation. According to their study, taking players psychological needs into account increases engagement and that ethical monetisation models make players are more willing to spend money on in-game purchases.

2.4 Ethics in game monetisation

Some monetisation mechanisms have drawn criticism and ethical scrutiny. Lootboxes especially have recently drawn the ire of regulators due to them having gambling-like features, with Belgium being the first country to ban the practice altogether (Xiao, 2023). The controversies have attracted many game researchers and ethicists to the topic. Macey and Hamari (2019) recognized multiple Points of convergence between gaming and gambling in the literature (Table 2). Neely (2021) describes the randomness of in-game purchases as "inherently problematic" due to their proximity to gambling and the problems that come with it. Indeed, King et al. (2014) link even "simulated gambling" with no chance of winning money directly to an increased chance of real-money gambling later. The connection between gambling and random in-game rewards becomes very apparent if the winnable in-game items are tradeable for real-world money afterwards.

Table 2 Points of convergence between gaming and gambling, adopted from Macey & Hamari, (2019)

Point of convergence	Description
Free-to-play (F2P) games	Game mechanics which blur boundaries between gameplay and gambling
Social network games	Gambling is integrated into social media platforms
Online practice sites	Gambling-like experiences are offered, but with no chance to withdraw 'winnings'

Virtual economy	Use of virtual items linked to player's game accounts as stakes in gambling activities
eSports	The 'sportification' of video games facilitates increased social penetration of gambling

Regulation affecting lootboxes has often come from the domain of gambling laws. Disclosing the probabilities of receiving items in a loot box is a step to make them more ethical (Neely, 2021). However, Chen et al. (2019) writes that the even if the probabilities are disclosed, the seller still has an incentive to cheat the players by disclosing fraudulent probabilities to coax the player into buying more. Regulators have begun to mandate probability disclosures in many countries (Xiao, 2023). Xiao and Newall (2022) suggest further rules to make loot boxes more ethical, taking issue with how loot box complexity can cloud players decision making even if probabilities are disclosed. To reduce this complexity, they suggest limiting amount of loot boxes, available rewards and allowing players to unlock all rewards after spending some amount of money.

Random rewards from monetary transactions are not the only ethical issue related to in-game items. From a fairness perspective, items that affect the gameplay to others can be problematic, especially in multiplayer games where spending money can give an unfair advantage (Neely, 2021). Some in-game items also help to accelerate players' progress. Both cases of functional items are ethically problematic, especially in the case that the game developer keeps making the game progress slower or adding more and more items needed to keep up with other players (Kimppa et al., 2016; Neely, 2021).

3 Methodology

Previous research has often focused on isolated monetisation elements in games, like loot boxes (Chen et al., 2019), virtual goods (Hamari & Lehdonvirta, 2010), microtransactions (Gusmão et al., 2019), subscriptions (Mai & Hu, 2023), advertising (Wang & Chou, 2019) or retention (Runge et al., 2014) without examining how these elements function together. This study investigates current monetisation trends in mobile games, specifically within the freemium model on Apple's App Store in 2025. It addresses three research questions:

RQ1: What are the dominant monetisation strategies used in successful freemium games?

RQ2: How are monetisation strategies integrated into game design, particularly in relation to the in-game economy, player progression, and purchase incentives?

RQ3: How do monetisation strategies influence player retention and sustained engagement over time?

These questions aim to capture the complexity of modern mobile game monetisation by examining not only individual mechanics but also their integration into broader gameplay and player experience.

3.1 Approach

To answer the research questions, this master's thesis adopts qualitative content analysis approach with some quantitative elements. Whilst originally developed for analysing text (Kripendorff, 2004; White & Marsh, 2006), content analysis is a very flexible methodology and has been successfully used to study video games in multiple studies (Lynch et al., 2016; Lyons & Hatkevich, 2013; Malliet, 2007; Taylor & Liew, 2024). Content analysis produces data through a phase Kripendorff (2004) calls "data making". First, to focus researchers' data collection effort, a systemic description of the desired observables is made called the unitisation scheme. The unitisation scheme used in this study is based on categorisations and descriptions of monetisation methods from previous game monetisation literature, such as the loot box and bundle designs of Chen et al. (2019). Data collected using the scheme is rich, descriptive text on how each monetisation and retention element was implemented in each game. Then, a sample is collected, and the data is recorded. In the final phase of data making, the data is reduced to answer the needs of the analysis. In this study, the reduction phase included turning descriptions into

1/0 representations for analysis. After "data making" phase, content analysis applies the research context to the data using an "analytical construct" to draw inferences from it (White & Marsh, 2006). In practice, the analytical construct means viewing the data through the lens of the research questions. In this study, both qualitative and quantitative approaches were used for extracting findings. Firstly, a round of qualitative coding was carried out on each category of monetisation, which resulted in the detailed descriptions of each monetisation method. Secondly, resulting categories were counted displayed as a proportion. Lastly, an exploratory quantitative analysis using both detailed and general monetisation codes was carried out to determine differences between different game genres. The resulting final insights were drawn from all three types of artifacts produced from the study: the general table, detailed tables and the genre analysis.

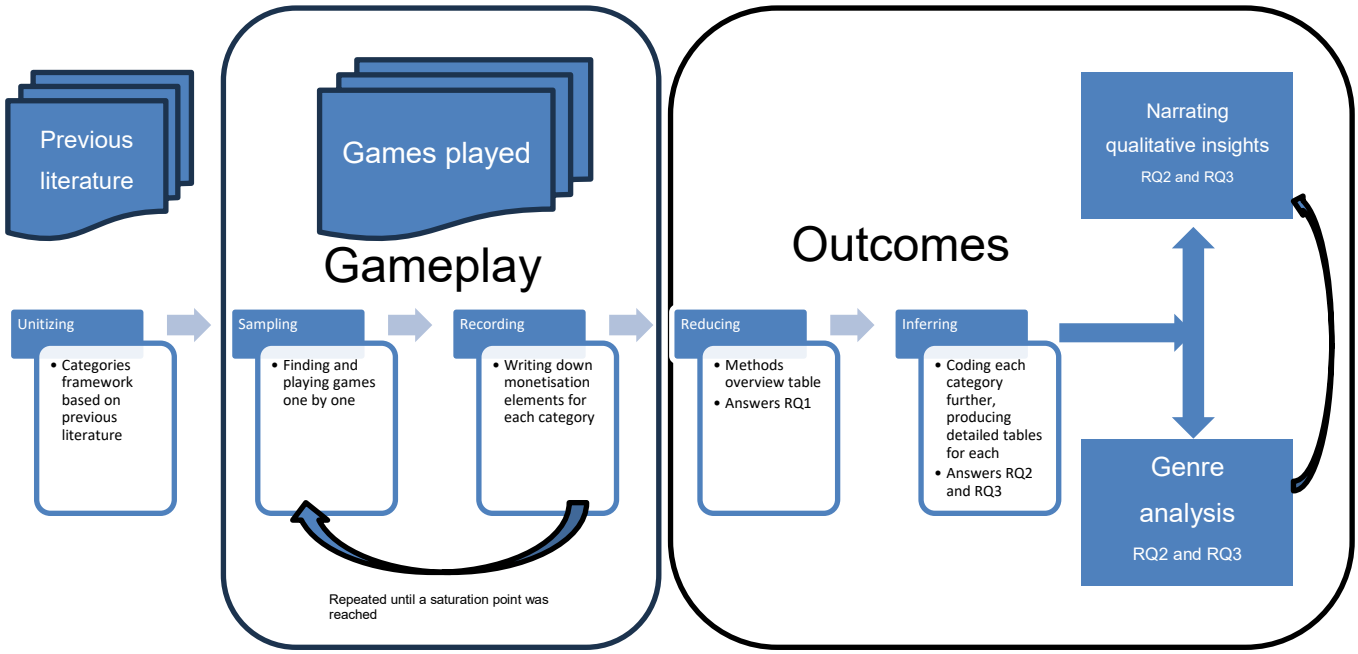

Figure 1 Components of this study. Adapted from Kripendorff *(2004) Components of Content Analysis*

For analysing games in particular, Daneels et al. (2022) have recently developed the Digital Game Analysis Protocol (DiGAP) to help researchers make researcher bias visible, transparent and topic-sensitive reporting on video games. The DiGAP reads like a checklist of 31 items, collected from analysing previous studies. This study adopts DiGAP by addressing relevant items from it. The completed list can be found in the Appendix.

3.2 Unitization Scheme

To analyse monetisation and retention elements, a scheme for recording them was constructed based on previous literature. Freemium games monetisation can come from selling in-game items (Chen et al., 2019; Gusmão et al., 2019; Hamari & Lehdonvirta, 2010; Neely, 2021), content (Gusmão et al., 2019). subscriptions (Mai & Hu, 2023) by showing in-game advertisements (Appel et al., 2020; Sheng et al., 2022) or other player actions such as filling surveys (Sheng et al., 2022). Most often freemium games use multiple methods to generate revenue. For the scheme of this study, a nuanced categorisation of these methods was provided. Data collected for each category was short text descriptions on the implementation of each monetisation method. In addition, a description of the game and its genre was provided, including its App Store release date, version and developer. Each category of the scheme is described and justified below.

3.2.1 Sale of game content

Selling in-game content can make a freemium game feel close to a premium model. Game content is sold to enhance the game experience through new levels, story and game modes (Gusmão et al., 2019). This can sometimes mean that the player might encounter a paywall and their progress in the game is stopped. In such cases, the game might seem more like a free sample to sell the premium content. The game *Plague inc. (2012)* for example, leaves additional game modes behind paywalls that can be unlocked separately or in a "bundle" together. Whilst some in-game items can be considered to be "game content", they are treated as a separate category in this study to provide a more nuanced picture due to their diversity and many ways to sell them.

3.2.2 Sale of In-game items

Sale of in-game goods is well discussed in monetisation literature. Gusmão et al. (2019) and Neely (2021) describe two main types of "game features" or "microtransactions" that refer to in-game items: *cosmetic* items that only change appearance of game features and *functional* or *consumable* items that have an impact on how the game is played. A very common consumable item that is mentioned by both authors is some kind of in-game currency, which can be used to buy other in-game items. Whilst Gusmão et al. (2019) emphasises that consumable items are removed from the game after use, this study considers items that do not degrade to be included in this category. Whilst the sale of

some permanent in-game items might seem similar to the “sale of in game content”-category, this study draws a line between them by defining that in-game items are not mandatory for accessing a level, game modes or story. For example, an in-game key that is the *only* way to access a level in the game, is considered to be “content” in this study.

This thesis also considered the method how the in-game items are sold, such as “grand” or separate selling strategies for bundles and “unique” and “traditional” loot box types described by Chen et al. (2019) or game mechanics that promote virtual goods purchases from Hamari & Lehdonvirta (2010).

3.2.3 Advertising

Displaying third party advertisements is another popular way of monetisation for freemium games. Advertisements can be shown to players in one-time pop-ups or longer time banners. Game developers are often paid based on how many times their advertisement is clicked or a link is opened (Appel et al., 2020). Additionally, advertisements are often linked to the “incentivised actions”-category, because an incentivised action might mean making the player view an advertisement. In this study, any kind of advertisement that is not related to the game world is considered to be within this category of the scheme and is described in relevant detail. Product placements within the game world are not considered for the study. Advertisements aimed at selling in-game items are discussed within the in-game items category as a sales strategy.

3.2.4 Incentivised actions

Players can be encouraged to engage with advertisements or other non-game tasks through incentivised actions. These incentives can boost participation and help players stay engaged in challenging games. Longer and more involved gameplay increases the likelihood of players taking part in these actions. This study defines incentivised actions (IAs) as non-game world related actions that the players are encouraged to take. These actions most usually entail viewing or clicking an advertisement or completing of a survey (Sheng et al., 2022). Players are given in-game rewards in exchange for taking these actions.

3.2.5 Subscriptions

Subscriptions are a way for the consumer to commit into purchasing some of in-game items, content, accelerated progress or the removal of advertising periodically. Subscription rewards can also be a mix of these three. In multiplayer games, elevated status of the subscribers also motivated players to subscribe (Mai & Hu, 2023). Subscriptions can come in many forms, such as "content passes" or "premium accounts", however in this study their defining feature is that the purchase happens periodically over a week, a month or a year etc. They are paid special attention as a separate category due to their closeness to the GaaS model and the prevalence of similar offers in non-game contexts such as entertainment services. Ability to disable in-game advertising by a purchase or a subscription is also counted amongst this category.

3.2.6 Retention mechanics

The number of overall players is crucial for maintaining a substantial number of paying players. It is crucial for game companies to retain the paying player base of their games. Thus, many studies have focused on how to predict (Fu et al., 2017; Hadiji et al., 2014; Runge et al., 2014) player churn. Actions to stop player from leaving depend on the game. Sometimes, player churn is inevitable so game developers might aim for second-best solutions such as diverting them to play another game by the same company or making sure players find a new 3 party game by clicking an ad (Runge et al., 2014). Engagement rewards are a common approach to keep players engaging with the game, even if the actions taken in the game are trivial (Frommel & Mandryk, 2022). For this study any incentives and interventions that clearly aim to increase played time and to keep the player coming back to the game are considered for this category. They can be offerings, features, rewards, messages etc.

3.3 Data collection

The author played 52 video games to collect the data by marking down the encountered monetisation and retention elements. The data was collected and logged into a spreadsheet, where each column represented one monetisation element, as described in chapter 3.2. Each row of the spreadsheet represents a different game. The games were played for roughly 1-3 hours to determine the presence of all monetisation methods used. A detailed description was provided for each category when encountered using text and

screenshots from the game. In addition to the after mentioned monetisation and retention methods, information on game version, genre and basic description of the game were collected for the analysis.

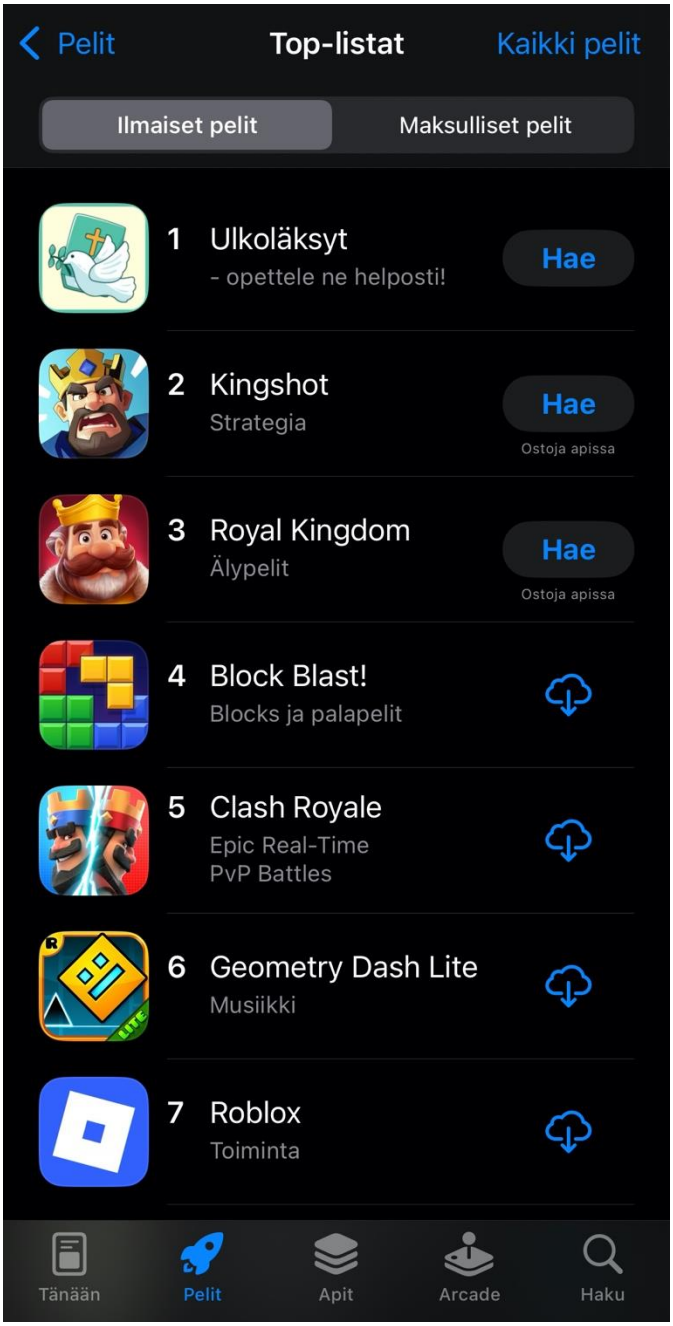

Figure 2 Top list of free games in the Finnish App Store. Screenshot taken by the author in June, 2025

Apple's App Store was selected due to it being a popular marketplace for free games. Studying freemium mobile games is especially interesting because players tend to use more money on microtransaction when playing mobile games (Neely, 2021). In practice, the games were searched by visiting the "top lists" view on App Store games tab (figure 2). Then, a few games at a time would be downloaded and played starting from the top of

the list. When the list was revisited, it was explored downwards until a new game was encountered. This was repeated until a satisfactory number of 52 games were played for the study. The App Store's top free games seem to be a dynamic list, guided by a recommendation algorithm. While its exact function is not known to the public, the games on top can be expected to represent the most played and trending games at a time. While the exact order of the list changed often throughout the data collection period, most games played remained close to the top of the list when visited month after the survey.

3.4 Qualitative analysis and coding

Although the unitisation scheme was constructed before the data collection took place, it acted as the first phase of analysis. After all the data was collected, entries each category was revisited and the first artefact, the monetisation methods overview table was constructed by determining whether the game really included the method in question. Based on its results, games that included a certain category were isolated and a coding round was carried out to discover more insight into the implementation and integration of each monetisation or retention method. Each category was isolated and coded this way, resulting in the 7 tables that describe findings in each category in more detail. Coding was done by considering the whole row of the entry and paying special attention for details relevant for RQ2 and RQ3. Finally, by combining the overview and detail tables with a simplified genre description, an exploratory numeric analysis was carried out to find possible relations between genre and monetisation.

3.5 An exploratory analysis of genre

To study if game genre affects monetisation, a rich genre description was made during the data collection by using typical keywords used to describe game genre. The multiple-word descriptions were distilled down to a single word "simplified genre" in the analysis phase by selecting and refining the most descriptive keyword(s) amongst the ones in the rich description. Genres are dynamic and difficult to comprehensively describe. The classification was done using the researcher's personal knowledge and experience in games. From these genres, "puzzle"-games were the most numerous with 19 simplified descriptions containing the keyword. 8 games were labelled simulation, 8 Strategy, 5 Action, 4 party and 11 held other, unique keywords with 1 or 2 entries. Some games had multiple genres assigned to them (see Appendix 3 for a list of games and simplified

genres). From these descriptions it can be said that the puzzle, simulation and strategy games dominate the App Store's freemium games market. Then an exploratory analysis by comparing the proportion of a monetisation method present in a certain genres games with the general proportion of the genre out of all the games was carried out using the following formula where m means the number of genres games that contain the monetisation method, M is the number of all games that contain the monetisation method, G is the number of games in a category, and N is 50, number of all games studied excluding the 2 "casino" games.

$$difference = \frac{m}{M} - \frac{G}{N}$$

A threshold of +10 or -10% was chosen to filter out too small differences. In addition, a Fisher-Irwin statistical test on the absolute difference between a genre and the rest of the games was carried out to determine statistical significance for each feature. All observations that passed the threshold were not statistically significant. In the findings of the analysis, the statistically significant cases are marked with a *.

4 Findings

Table 3 gives an overview of the findings in terms of how many relevant entries each column had. It gives an overall answer for the first research question *"What are the dominant monetisation strategies used in successful freemium games on Apple's App Store in 2025?"* Sale of functional items was the most common monetisation method, with 40 games (77%) using functional items in its monetisation. Subscriptions category was second largest with 37 (71%) entries, closely followed by retention mechanics with 36 (69%) entries. Incentivised actions had 33 (63%) entries and traditional bundling had 31 (60%). Perhaps surprisingly, advertisements were less popular with only 23 (44%) entries. Sale of cosmetic items and traditional lootboxes had 18 (35%) and 17 (33%) entries respectively. The 3 least popular monetisation methods were the sale of in-game content with 7 (13%) entries and "special" cases of lootboxes and bundling, the unique box and grand bundle strategies with both featured in only 2 games (4%). The categories are further analysed in the following tables and subchapters to reveal nuances relevant for answering *RQ2: "How are monetisation strategies integrated into game design, particularly in relation to the in-game economy, player progression, and purchase incentives?" and RQ3: "How do monetisation strategies influence player retention and sustained engagement over time?"* The analyses contain information about the implementation of each feature, and how it relates to other monetisation features (cells in a row) based on the data collected for each game (row in the data).

Table 3 Overview of the monetisation methods

Monetisation	Description	Game	Count
Sale of Items - Functional	In-game Items that affect play are sold for money directly or indirectly	2, 3, 4, 7, 8, 9, 10, 11, 13, 14, 16, 17, 18, 20, 21, 22, 23, 25, 26, 27, 28, 29, 30, 31, 33, 34, 35, 36, 37, 38, 29, 40, 41, 42, 43, 44, 46, 47, 48, 51	40
Subscription	Purchases with their effects tied to a time frame, such as VIP-status or "season passes". Removal of advertising is also considered for this category	3, 5, 8, 9, 11, 12, 14, 15, 16, 17, 18, 19, 20, 21, 23, 25, 26, 27, 28, 30, 31, 32, 33, 34, 37, 38, 39, 40, 42, 43, 44, 46, 47, 48, 49, 50, 51	37
Retention mechanics	Incentives and interventions that aim to increase played time and to encourage the player to engage with the game often and frequently	1, 3, 4, 6, 7, 9, 10, 11, 13, 14, 15, 16, 17, 18, 20, 21, 23, 25, 26, 27, 28, 29, 30, 31, 33, 34, 35, 37, 38, 39, 41, 42, 43, 44, 47, 48, 51	36

Incentivised Actions	Non-game world related actions that the players are encouraged to take	1, 2, 4, 5, 7, 9, 10, 12, 13, 18, 19, 20, 21, 23, 25, 26, 27, 28, 29, 31, 33, 34, 35, 37, 40, 41, 43, 44, 46, 47, 48, 50, 51	33
Bundle (single)	In-game purchases are sold together in an offer	2, 3, 4, 7, 10, 14, 16, 17, 18, 20, 23, 25, 26, 27, 28, 29, 30, 31, 33, 34, 36, 37, 38, 38, 39, 40, 41, 42, 43, 44, 47, 51	31
Advertisements	Player is shown 3rd party advertisements when playing the game	1, 2, 7, 8, 12, 13, 18, 19, 21, 25, 26, 28, 29, 31, 35, 37, 40, 43, 44, 46, 47, 48, 50	23
Sale of Items - Cosmetic	In-game items that affect appearance but not play are sold indirectly or directly for money	7, 9, 10, 16, 18, 20, 22, 28, 29, 31, 33, 34, 36, 37, 38, 39, 46, 47	18
Lootbox - Traditional	Game features that include a chance to get a specific reward	7, 9, 11, 13, 14, 16, 17, 18, 20, 23, 25, 27, 30, 33, 38, 43, 51	17
Sale of in-game content	Game content, such as new levels or game modes are accessible only by paying	5, 13, 22, 30, 32, 42, 49	7
Lootbox - Unique	A special case of lootbox, where each outcome of a random reward mechanic is guaranteed to be unique with no duplicates	17, 46	2
Grand Bundle	A special case of bundling strategy where all possible in-game purchases are sold together at once	22, 49	2

4.1 Sale of in-game content

Out of the 52 games, only 7 (13,5%) could be considered to have sold in-game content. Of these, *Geometry Dash Lite* and *Grand Mountain Adventure 2* can be considered to completely "paywall" player progression, whilst *Geoguessr* limited the access to additional game modes but didn't cut the player off them completely. Noticeably, the fully "paywalling" games did not sell any in-game items separately for money despite an item system being present. The rest of the games sold content that was additional to the core gameplay, such as additional game modes. Forced advertisements were surprisingly absent from these games, with pop-ups or banners forced on the player only in 2. Only 2 of the games combined sale of some kind of in-game items into their monetisation

scheme. Periodic subscriptions were present for 2 games, with 2 others offering ad removal and 1 “season passes”. 3 games had any kind of retention mechanics.

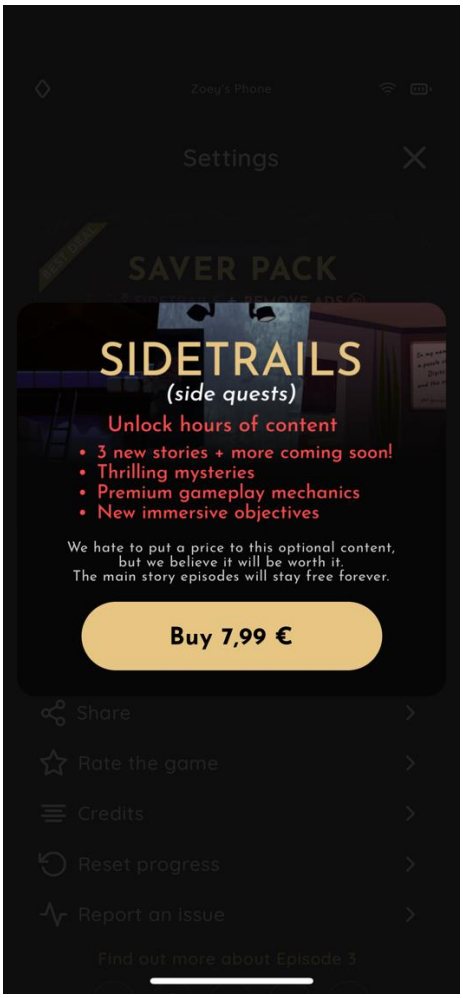

Figure 3 A screenshot of a prompt to buy additional game content. Taken by the author in February, 2025.

4.2 Sale of in-game Items

4.2.1 Cosmetics

Cosmetic items were present in 26 games. Out of these, 8 games left cosmetics entirely outside of monetisation, leaving 18 games with monetized cosmetic items. Most common way of monetizing cosmetics was to include them as a part of a bundle in 12 games. Direct purchases were not popular, as only 3 games sold cosmetics directly for real-world money. However, 10 games had cosmetics available for an in-game currency that was available for purchase. Inclusion of cosmetics in lootboxes or subscription was not a popular method either, with only 2 and 2 games having such features. All games that had

monetized cosmetics also included functional items as a part of their scheme. See table 4 below for a detailed overview.

Table 4 Monetisation of cosmetics in detail

Cosmetics Method	Description	Game	Count
Cosmetics in a bundle	The “Cosmetics” cell mentions that the cosmetics are sold as a part of a bundle, or the bundle cells mention that cosmetics are included	10, 18, 20, 22, 28, 29, 31, 33, 36, 38, 39, 47	12
Cosmetics sold for a purchasable currency	The “Cosmetics” cell mentions that the cosmetics are accessed by using in-game currency AND that at least one in-game currency is sold for real-life money in the “Currency” cell	7, 9, 10, 16, 33, 37, 38, 39	8
Cosmetics only as a reward	The “Cosmetics” cell mentions that the cosmetic items are given out exclusively free or that cosmetics are not mentioned in any other cells relating to monetisation	11, 13, 17, 23, 26, 27, 34, 43	8
Cosmetics sold directly for money	The “Cosmetics” cell describes the cosmetics being sold directly for real-world money	10, 36, 46	3
Cosmetics in a subscription	The “Cosmetics” cell mentions that the cosmetics are accessed through a subscription or that a cosmetic item is mentioned in the “subscription cell”	16, 37	2
Cosmetics for advertisements	The “Cosmetics” cell mentions that the cosmetics are accessed through an IA or that a cosmetic item is mentioned in the “Incentivised actions” cell	34, 46	2
Cosmetics in a lootbox	The “Cosmetics” cell mentions that the cosmetics are a possible reward from a random rewards feature, or a cosmetic item is mentioned in the lootbox cells	7, 46	2

Figure 4 Decorations sold in an in-game store. Screenshot taken by the author in February, 2025.

4.2.2 Functional items

Out of all games in the sample, 40 games had any kind of functional items as part of the monetisation scheme. The most common item to sell for money directly was in-game currency, with a purchasable currency present in 35 games (87,5% of the games that had functional items, FI-games), with only two games (games 13 and 35) having a currency system that was not monetized. Whilst none of the FI-games sold items that were not currency separately, bundling them with other things was a popular, with 33 (82,5%) FI-games using bundles. Items given as gifts were also a popular retention tool, with 29 FI-games handing out some kind of item gift to make the player return. Implementing advertisements to FI-games was noticeably less popular, with only 18 choosing to impose ads on the player. Rewarding the player with items from incentivised actions was more popular with 26 FI-games practicing it. Lastly, lootboxes were relatively unpopular feature even for FI-games, with only 16 (40%) having them, with most offering random rewards only for in-game actions. All the findings regarding functional items are listed in table 5 below.

Table 5 Monetisation of Functional items in detail

Functional item Method	**Description**	**Game**	**Count**
In-Game Currency for money	The “functional” and “Currency” cells mention that at least one in-game currency is available for real-life money.	2, 3, 4, 7, 8, 9, 10, 11, 14, 16, 17, 18, 20, 21, 23, 25, 26, 27, 28, 29, 31, 31, 33, 34, 36, 37, 38, 39, 40, 41, 42, 43, 44, 47, 51	35
Functional items as a part of a bundle	The “functional” cell mentions items and “bundle – single” or “bundle – grand” mention items bundled. In cases where bundling contents are not explicitly mentioned but bundle offers are described to be plentiful, it is assumed that they contain functional items	2, 3, 4, 7, 10, 11, 14, 16, 17, 18, 20, 22, 23, 25, 26, 27, 28, 29, 30, 31, 33, 34, 36, 37, 38, 39, 40, 41, 42, 43, 44, 47, 51	33
Functional items as a retention reward	The “functional” cell mentions items and the “retention mechanics” cell mentions a gift, reward or a recharging resource	3, 4, 9, 10, 13, 11, 14, 16, 17, 18, 20, 21, 23, 26, 28, 29, 30, 31, 33, 34, 37, 38, 39, 41, 42, 43, 47, 48, 51	29
Functional items as an incentivised action reward	The “functional” cell mentions items and the “incentivised actions” mentions some kind of rewarded action. The reward is assumed to be some kind of in-game item if not specified	2, 4, 9, 10, 13, 18, 21, 23, 25, 26, 27, 28, 29, 31, 34, 35, 37, 40, 41, 43, 44, 46, 47, 48, 51	26

Functional items in a lootbox	The “functional” cell mentions items and the lootbox cells “traditional” and “unique” mention that the game contains lootboxes. The lootbox rewards are assumed to be in-game items if not specified	7, 9, 11, 13, 14, 16, 17, 18, 20, 23, 25, 27, 30, 33, 38, 43, 46, 51	18

Figure 5 In-game currency for sale. Screenshot taken by the author in February, 2025

Note: game 13 is a line drawing case, it’s difficult to say if functional items truly play a part in its monetisation

4.2.3 Lootboxes and bundling

18 games featured some kind of lootbox or similar random rewards mechanics, such as spinning wheels or roulette games. The “unique box” was remarkably unpopular with only 2 (11,1%) games having them. The traditional box with a possibility of duplicates clearly dominant with 17 (94,4%) games featuring them. 1 game had both kinds of lootboxes. All of these games offered lootboxes for free as a reward, and 10 (55,6%) used gifting them to encourage player retention. Selling lootboxes directly for money was rare, with only 3 (16,7%) games choosing to sell them. Instead, selling lootboxes intermediately for in-game currencies that were then available for money was over twice as popular than the direct way with 7 games. It should be noted that only 1 game had both intermediate and direct lootbox selling. Another way to sell lootboxes was to include them as a part of a bundle alongside other in-game items. This method was used in 5 (27,8%) games. Overall, 6 (33,3%) offered lootboxes exclusively for free, 9 (50%) by only intermediate means and 3 (16,7%) directly plus other means. Table 6 shows findings regarding lootboxes and bundling in detail.

Table 6 Lootbox access in detail

Lootbox Method	Description	Game	Count
Lootboxes sold through an intermediary	The lootbox cells “unique” and “traditional mention that the random reward features can be accessed by using in-game currency and that the “Functional” or “Currency” cells mention that in-game currency is sold for real money OR that the “bundle – single” or “bundle - grand” cells mention that lootboxes are included in a bundle	7, 11, 14, 17, 18, 30, 33, 38, 51	9
Lootboxes exclusively free	The lootbox cells “unique” and “traditional mention that the random reward features are only encountered through free means, like rewards and gifts	13, 16, 20, 25, 27, 43	6
Lootboxes sold directly	The lootbox cells “unique” and “traditional mention that the random reward games can be accessed by paying real world money in addition to rewards or intermediate means	9, 23, 46	3

Figure 6 An in-game "spinning wheel" available for an in-game currency. Screenshot taken by the author in February, 2025.

Bundling was a more popular strategy in monetisation with 33 games using the method. Only 2 games had an option for a “grand bundle” with all purchases with no more purchases offered. The other 31 games had bundles of purchases that did not include everything, were consumable or perished over time. Bundling in-game currencies and items together was very common occurrence, but the scale and contents of the bundles varied a lot in general.

Figure 7 In-game items and currency bundled. Screenshot taken by the author in February, 2025.

4.3 Season passes and subscriptions

37 games had some kind of a subscription model for sale. Out of these, removal of advertising was present in 19 (51,4%), making it the most common subscription feature. Out of these, 13 (35,1%) ad removal only and no other subscription features. Ad removal was often single-payment and not a "true" repeating subscription. VIP or other elevated player status and rewards was present in 11 games (29,7%). Only 3 (8,1%) of these had a multi-tiered system with different kinds of "levels" of special status. A "season pass" or a similar feature allowing time-sensitive access to increase in-game rewards was relatively popular with 14 (37,8%) games having them. "Season passes" and similar features often had a time limit of a month and were tied to a themed in-game event. Table 7 shows findings regarding subscriptions in detail.

Table 7 Subscriptions in detail

Subscription	Description	Game	Count
Ad removal	The "Subscriptions" cell mentions a purchase to remove in-game advertising	5, 12, 18, 19, 21, 25, 28, 31, 34, 37, 40, 43, 44, 46, 47, 48, 49, 50, 51	19
Season pass	The "Subscriptions" cell mentions a subscription that's tied to an in-game "season" or an event, often called a pass.	3, 9, 11, 14, 16, 17, 20, 23, 26, 27, 30, 33, 39, 51	14
VIP-status	The "Subscriptions" cell mentions an ability to gain an elevated status that may grant access	8, 15, 28, 32, 37, 38, 42, 43, 44, 47, 51	11

	to additional game features or rewards, not tied to any specific event		

Figure 8 Multiple kinds of season passes for sale. Screenshot taken by the author in February, 2025.

4.4 Advertising in freemium games

23 games had in-game advertising. Most advertisements were “pop-ups” that would fill the whole screen for a pre-determined time and “banners” that would occupy a part of the screen at the top or bottom. 14 (60,9%) games featured both pop-ups and banners, 2 (8,7%) only banners and 5 (21,7%) only pop-ups. Of the games that had advertising, 6

were noted to show advertisements especially frequently. 3 (13%) games had advertising that did not fit the usual pop-up or banner categorization. These features were a link in the in-game store to buy real life game themed merchandise, a static advertisement space as part of the starting menu and the integration of advertisements by 3rd parties making content for a platform.

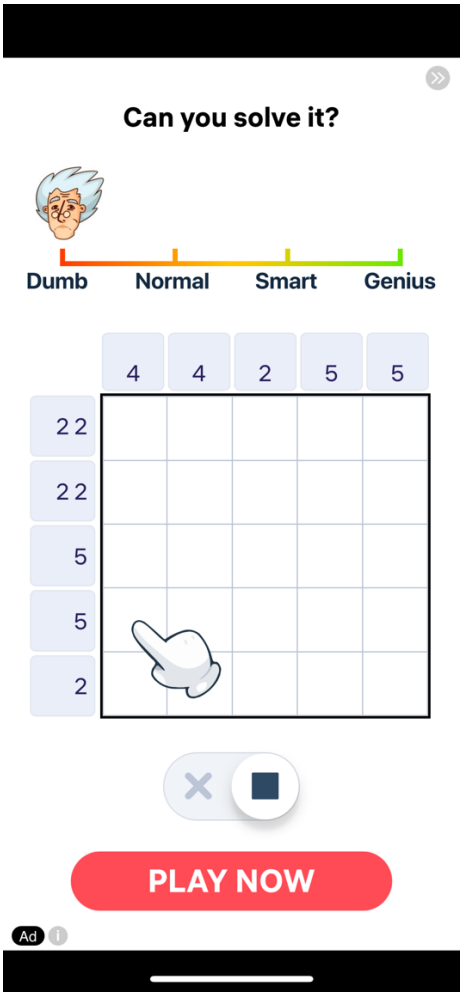

Figure 9 A pop-up advertisement. Screenshot taken by the author in February, 2025.

4.5 Incentivised actions: viewing advertisements and social media

33 games included incentivised actions as part of the gameplay. Making player watch ads to receive a reward was a very common occurrence with 28 (84,8%) of the games having it. Interestingly, this included games that did not have mandatory advertising like pop-ups and banners. Other incentivised actions were to log in to a social media account or to make a specific account for the game (7 games, 21,2%). Actions in social media, such as

following the developers or sharing game progress had 6 games (18,2%) rewarding them, while only 3 (9,1%) games rewarded inviting friends. As an interesting outlier, 1 game rewarded players for agreeing to data collection. Lastly, the played games often prompted the player to interact with other players and to turn on notifications for the game but did not reward them for it. Table 8 shows findings regarding incentivised actions in detail.

Table 8 Incentivised actions in detail

Action	Description	Game	Count
Watch an ad	The "Incentivised actions" cell mentions the viewing of advertisements or "ads"	1, 2, 4, 5, 7, 9, 10, 12, 13, 18, 19, 21, 25, 28, 29, 31, 34, 35, 37, 40, 41, 43, 44, 46, 47, 48, 50, 51	28
Log in to app	The "Incentivised actions" cell mentions logging in to the app by making an account or by connecting a social media profile, like Facebook account	20, 21, 23, 26, 27, 33, 51	7
Social media interaction	The "Incentivised actions" includes an action that happens exclusively in 3rd party social media platforms, such as following the developers Instagram profile	13, 18, 27, 28, 44, 47	6
Invite friends	The "Incentivised actions" cell includes the player to sending an invite to their friends to play the game	20, 28, 41	3

4.6 Mechanics to drive player retention and engagement

Retention mechanics were present in 36 games. Most common ways to keep players returning to play the game were periodic rewards such as daily log-in gifts and rewards and periodic content such as in-game events available only within a limited time frame. Both ways counted 23 (63,9%) different games having at least either approach. More subtle ways of game design were to add a resource that would limit the player from playing all the time but would recharge over time. This was noted to exist in 8 (22,2%) games. Lastly, noticeably games requiring noticeably high time commitments in terms of waiting to progress were noticed in 4 games (11,1%). Game 6 can be also considered closely related as its aim is to increase amount of people visiting the movie theatres regularly. Table 9 shows findings regarding retention mechanics in detail.

Table 9 Retention mechanics in detail

Retention mechanic	Description	Game	Count

Periodic gifts	The “retention mechanics” cell mentions a reward that the player receives for trivial effort periodically, such as a daily log-in bonus	3, 9, 10, 11, 13, 14, 16, 17, 18, 20, 21, 23, 26, 28, 30, 31, 34, 37, 39, 43, 47, 48, 51	23
Periodic content	The “retention mechanics” cell includes a reference to game content that is available only for a period, such as in-game events, daily quests or competitions	1, 7, 9, 11, 15, 16, 17, 18, 21, 25, 26, 27, 28, 29, 33, 35, 37, 39, 42, 44, 47, 48, 51	23
Recharging resources	The “retention mechanics” cell mentions a feature hindering the player from playing continuously, such as a recharging “energy” resource.	4, 23, 29, 31, 38, 41, 42, 51	8
Time commitments	The “retention mechanics” cell mentions that progressing in the game is spread over a long period of time by timers, “grind” or waiting.	3, 17, 33, 39	4

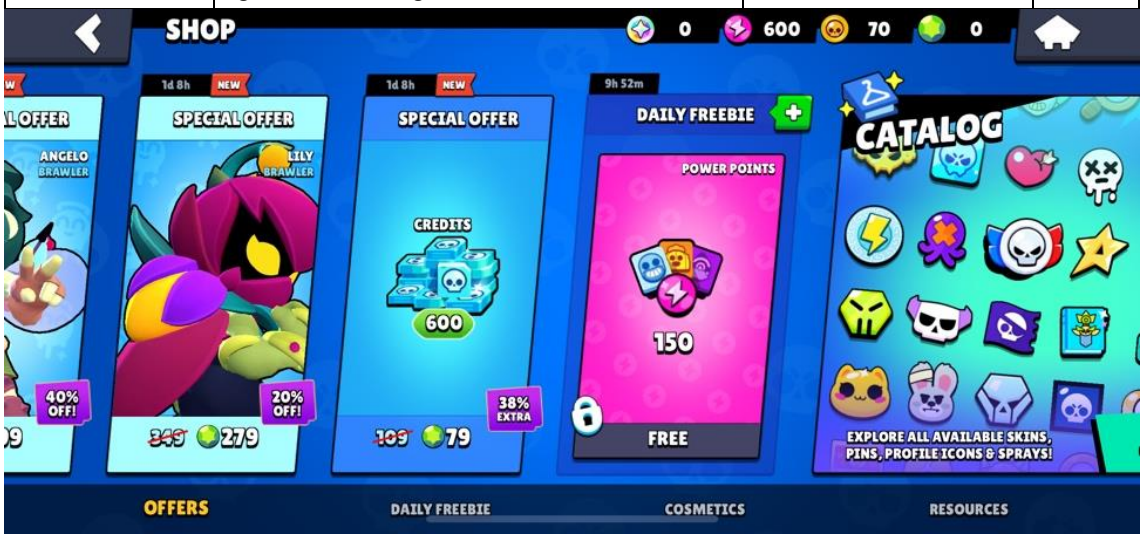

Figure 10 a daily gift in an in-game store. Screenshot taken by the author in February, 2025.

4.7 Monetisation mechanics by genre

The exploratory genre analysis revealed that Puzzle games (G=19) had noticeably less bundled cosmetics (-13,5%) but more general advertising (+16,6%)*, specifically using both banners and pop-ups (+14,1%)*. Most noticeably, the genre had significantly more incentivised actions (+21,7%)*, most often viewing advertisements for rewards (+17,7%)*. Puzzle games contained often both mandatory and incentivised advertisements (+10,6%). This might indicate that the general flow puzzle games facilitate having advertisements more. Puzzle games feature often short levels, and showing ads between them could break the flow of the game less. Puzzle games also sold more in-game currency for money (+14,2%) and featured more bundling (+11,7%) and periodic content (+11,9%). Puzzle games often feature “powerups” as rewards and

purchasable items that help the player solve the puzzles. These findings are in line with the previous notion that items that give advantage are desirable in puzzle games (Gusmão et al., 2019). The popularity of in-game currencies, bundles and IAs for items indicates that they are important for the monetisation of the game. By controlling the difficulty of the game through difficulty spikes and lows, the developers can design the game in a way that burns players powerups and encourages the purchase of more through currency or IAs.

Strategy games (G=8) were a very distinct category despite being only 8 total games. First off, none of the strategy games contained any sales of content or a recharging resource limiting play, but all of the retention done by time-taking progression was featured in strategy games. Strategy games often contain a resource management aspect, and part of the gameplay is to recognize value and how to best use said resources. Strategy games also featured the highest average number of different in-game currencies, 2,25 currencies per game, compared to the general average of 1,34. The use of in-game currency for monetisation seems to be central for the strategy games. All of the strategy games featured more of the sale of currency for money (+30%)*, traditional bundling (+38%)*, lootboxes for currency (+11%) and cosmetics sold for currency (+17,5%). Strategy games seem to be meant to be played over a long time. To keep the players invested it seems to be common to have Items as retention reward (+42%)*, most often as periodic gifts (+41,5%)* and retention gift lootboxes (+17,5%). Advertising was significantly less popular with only 1 strategy game featuring both voluntary and mandatory advertisements (-29,5%) whilst the rest of the games had no mandatory advertising at all, whilst voluntary advertisements were significantly less featured (-18,5%). This could indicate that advertisements break the flow or retention of a strategy game in some way. In addition, cosmetics were more often featured in strategy games bundles (+26%). Season passes (+34,5%)*, intermediately sold lootboxes (+19,5%) and traditional bundling (+38%)* were also more common. The prominence of bundles, lootboxes and season passes can be related back to the resource management aspect where recognition of value can be considered a part of the gameplay. Strategy game players likely find valuating more complex offers appealing, resulting in the popularity of such features.

Simulation games (G=8) are often about simulating some kind of real-life activity. Their retention strategy seems to rely on getting the player “hooked” on the gameplay itself, as they limit player access to the game through a recharging resource (+21,5%) more often,

whilst shunning away from periodic gifts (-21%) and content (-21%). Whilst featuring an average number of advertising in general, selling ad removal was more common for simulation games (+11,5%). Lootboxes were more common in simulation games, with 3 games featuring them in general and 2 selling them directly (+19%). A previous analysis of genre and monetisation by Gusmão et al. (2019) found that lootboxes were favored by players of simulation games. While bundles were less popular in simulation games overall (-12%), bundles featuring cosmetics were surprisingly more common when simulation games had them (+13,5%). Overall, Simulation seems to be a very average genre in terms of monetizing. The inconclusive results might be due to the genre being more heterogeneous, making it more in line with general averages.

Other games (G=16) featured a selection of genres mentioned only a few times, making their individual analysis rather unreliable. By analysing them altogether, we can get hints on features being possibly more exclusive for the larger categories. Features noticeably less common in other games were bundling (-24,5%)* and sale of in-game currency (-26,3%)*. Other games featured sale of content as a more common category (+11%) which might hint that genres uncommon for the mobile freemium games market might end up relying in unconventional monetisation approaches.

Although done with a relatively small sample size and arbitrary genre designation, it can be said that there are noticeable hints of some monetisation methods being more suitable for different genres. Moreover, industry reporting also hints at differences in the significance of advertising throughout genres (Unity, 2024). In the end, choice of monetisation methods relies on the features of the game and how they can be implemented without breaking the flows whilst remaining enticing for the players. Whilst interpretation of a single method from this analysis might be unreliable, a more a general picture of a genre might be. A summary of genres and general monetisation approaches can be found in table 10.

Table 10 Key monetisation features by genre

Genre	Central for monetisation	Potential reasons
Puzzle	Advertising, Incentivised actions, currency, bundling, periodic content	Game flowing through short levels allows displaying ads without disruption. Advantageous items accepted by the players

Strategy	Complex in-game economy, currency, value offers, player investment	Managing resources and making valuations in a complex environment is a core gameplay feature
Simulation	Removing distractions and limits from the gameplay	Unusually “hooking” gameplay
Other	Unconventional choices	Unusual monetisation choices working only in niche genres

5 Discussion

5.1 Auxiliary and Fraudulent Games

Throughout the study, 4 games were significantly different from the other games. These came in two kinds: Scams and Companion apps. Games 24 and 45 were very similar: both were based on the unity game engine, were released to the App Store during January of 2025 and were introduced as relatively simple puzzle games. The games were discovered from the top list and downloaded in February and March of the same year. However, neither opened to a game at all, instead taking the player to a landing page of an online casino. As of April 2025, both games are no longer accessible via App Store. Companion apps made the other category of outliers. Games 6 and 52 were clearly of complementary nature, being an apps to be used in a movie theater or when playing a board game respectively. These games were clearly meant to drive the sale and value of a real-life product or a service instead of selling things directly to the player. Whilst a part of a commercial scheme, their monetisation mechanics clearly were outside of this study.

These outlier cases demonstrate that games can also be an auxiliary feature of a monetisation scheme instead being at the centre of it. Additionally, the fact that dishonest apps can feature at the top of a list in App Store highlight a potential loophole existing in the ranking algorithm, moderation and quality control of the marketplace.

5.2 On playing games as a research method

When playing games, a lot of information is thrown at the player. A researcher cannot choose to experience only the features relevant to their research as everything is thrown at them. Thus, a few observations unrelated to the research question have been made. They are included in the discussion when relevant. Future researchers looking to analyse game content or features through gameplay should plan and prepare their study well beforehand to avoid the study losing focus during the data collection phase. The phases for content analysis introduced by Kripendorff (2004) were found to be especially useful in for structuring a study. It is especially important to ensure that the data collected sufficient for the analysis. In addition, starting new games repeatedly is cognitively exhausting. Future researchers opting to play great numbers of games for a relatively short time should aim to phase and time their playing sessions accordingly. This study relied solely on the authors skills and capabilities for interpreting game content. Subjectivity of

playing games remains a significant challenge for research, as individual players might take completely different choices in their gameplay (Schmierbach, 2009). To gain the maximum interpretive depth, Jørgensen (2012) advocates for including multiple players as co-researchers.

5.3 Hybridisation of freemium monetisation strategies

When looking at the monetisation features present in individual games, it can be seen that modern freemium games rely on a combination of them to generate revenue. Reflecting against the historical overview in Table 1 and the wider insights from Chapter 2, it can be said that contemporary freemium monetisation strategies are a product of hybridisation, adaptation, and sophistication. The emergence of free-to-play (F2P) and freemium models in the 2000s introduced a paradigm shift: from selling games to selling content, progression, and virtual goods. Out of these, the sale of virtual goods and progression in the form of in-game resources such as currency, have remained most prominent. Alongside retention mechanics such as login bonuses and periodic content this reflects that the design principles of the "Core" model by (Järvinen, 2012) introduced in section 2.2.2 apply to more and more games. Similarly, the Games-as-a-Service (GaaS) model, which gained widespread adoption from 2019 onward, appears in mobile freemium games through subscriptions and season passes. While many of these do not constitute full GaaS ecosystems, they mirror the underlying logic of monetising ongoing player engagement through periodic content delivery. On the other hand, the decline in direct lootbox sales and advertising alongside the rise of indirect random reward mechanics and incentivised advertisements illustrates how monetisation has responded to both ethical concerns and regulatory pushback. For example, lootboxes gained widespread notoriety after 2017 (Alha, 2020).

5.4 Monetisation trends

The findings of the study have explored multiple topics in game monetisation. To answer RQ1 and RQ2: *What are the dominant monetisation strategies used in most downloaded freemium games on Apple's App Store in 2025? and How are monetisation strategies integrated into game design?* several insights have been made:

5.4.1 Monetisation of game content is far from simple

Sale of in-game content is not a popular strategy for mobile freemium games, with only 7 games using the strategy. This could be due to freemium game content being challenging to expand in a manner that the consumer would be willing to pay for, and that the purpose of adding content to a freemium game is to keep the player invested and a paywall would break the flow of the game. It is possible, that sale of in-game content is simply incompatible with the increasingly prevalent "Core" monetisation model. In comparison, content updates seem to be more common in the premium PC market, such as in the case of the strategy game *Hearts of Iron 4 (2016)*, where new DLC releases usually coincide with increased concurrent player amounts (Steamcharts, 2025) likely due to players returning to the game after exhausting the previous game content. In the intensely contested freemium games market where switching a game is easy and free, developers might not be able to expect such loyalty from their player base. Comparing with a more prevalent method, the sale of functional items was featured in 40 games. Reasons why monetising of freemium games is so often done using the in-game item system might be the flexibility of such a system, as it was present across all genres. In addition, updating in-game stores with new offers and adding new items to the game might be cheaper and less risky than risking development time on big content updates.

5.4.2 Functional items are more central to monetisation than cosmetics

In general, functional items were more common than cosmetic ones. This could mean that mobile game players are less interested in cosmetic items. This could be due to many of the games played having less opportunities to show them to other players, such as a lack of a distinct player character or multiplayer in many puzzle games. Games with an omnipresent player perspective especially struggled with finding a use for cosmetics, sometimes having just a customisable player profile. The finding that having cosmetics as a part of a bundle was the most common method for monetisation (see Table 4) also could imply the auxiliary role for cosmetics as an extra product to boost the implied value of a bundle. In multiple cases, bundles used a value-centric marketing strategy with taglines advertising a savings percentage or total value of items in in-game currency. In 8 cases cosmetic items were used exclusively to reward player progression without monetary gain for the developers, which could mean that cosmetics could be an acceptable way to reward the player while keeping purchasable functional items rarer and

more valuable. Finally, the low number of cosmetics monetisation could also imply the presence of better options, such as functional items that give the player an advantage in the game. Cosmetic items are often seen as more ethical, especially in a more competitive setting (Gusmão et al., 2019; Neely, 2021). A more competitive setting can make developing functional items more difficult, as game developers would need to focus more on balance to avoid being branded “pay-to-win”, making cosmetics a more ethical and easier choice. Seven of the played games (games 7,9, 16, 28, 33, 36 and 39) featured both cosmetics and a considerable element of competing against other players.

5.4.3 Relative absence of lootboxes and advertisements

Commonly disliked features, such as advertising and lootboxes were less popular than one could expect based on the continued revenue growth for both features (Juniper Research, 2021a; Statista Market Insights, 2025). Most games running obligatory advertisements have an option to remove them. This is reasonable considering that an in-app purchase of any kind brings in more revenue than a viewing of a single advertisement (Sheng et al., 2022). Advertisements are attractive to game developers due to the ease of implementing them using built-in features of game engines such as Unity Ads. Ads can also help developers extracting value from even a declining player base by channelling the leaving players when they find their next game through an advertisement (Runge et al., 2014). Relying solely on showing advertisements is likely not an optimal monetisation strategy. Instead, most games offering advertisements used some kind of mixed strategy to extract value from both paying and free players.

Lootboxes also help with value extraction as they imitate gambling which can hook players in. Despite this attractiveness, only 19 games had any kinds of lootboxes, 6 having them exclusively for free. Most monetised lootboxes were sold using an intermediary. From the findings of the study, it seems that lootboxes remain a sensitive issue and that most freemium game developers wish to be very careful when implementing them. This might be due to player pushback, game developers being ethically opposed to them or wishing to avoid regulatory attention. Advertisements were more common with 23 games having them. Ads disrupt gameplay and might drive players away if not implemented correctly. It seems that real care is being put to implement advertisements to avoid disrupting the players too much. Their unusual popularity within the puzzle genre might be explained on ads being fitting for the often stage-based design of the genre.

Implementing voluntary advertisements through incentivised actions was also more popular, with some games forgoing mandatory advertisements completely. This implies that when players have more control over when to watch ads, they are also more kneen on tolerating them in a game. However, rewards from incentivised actions can cannibalise in-app purchases if not considered carefully (Sheng et al., 2022). In addition to player pushback, cannibalisation, ethics or retention worries, games working with a 3rd party intellectual property might have pressure to handle controversial features delicately in order to avoid upsetting the original rights holders. This could be the case with the 2 "Pokemon" titles, with the game 38, *Pokémon TCG Pocket* featuring special disclaimers that the game could be played completely for free despite prominent lootbox mechanics featured. Contrary to the recommendations of Chen et al. (2019) to use "Unique box" design to maximize sales, most of the lootboxes encountered in the study were of the "traditional" type. This could be due to games constantly expanding their item catalogues or that most in-game items were consumed upon use.

5.4.4 Mobile gamers do not wish to commit to subscriptions

Another noticeably less prominent feature was the lack of automatically repeating subscription services (i.e. the subscription repeats automatically until cancellation by the player). Out of the items in the table 7, only the 11 games having a "VIP-status" could feature an automatically repeating purchase. Upon a second review of the collected data, at least games 43 and 51 would also require completing a new purchase to continue the expired VIP-status. The lack of automatic subscriptions is surprising as subscription services are a recent and ongoing trend in game monetisation (Alha, 2020) and have experienced a continued growth between 2019 and 2023 with gaming being reportedly the most common category of mobile apps using subscriptions (Statista, 2023). This could be due to consumers being hesitant to buy subscription services, or that game developers are yet to come up with enough appealing offers or technical implementations to make a subscription repeat automatically. The "season pass" offering time-sensitive access to increase in-game rewards seems to be an appealing substitute for repeating purchases, with 14 games having them and only game 51 featuring both. The appeal of the season pass might be due to players not wanting to commit to playing the game for a long time or that a battle pass is more appealing due to it being more integrated to the games reward system. A season pass also increases retention as the game must be played during a specific time to receive the rewards (Heikkinen, 2022). The season pass could also be

more attractive due to a sense of uniqueness due to them having a limited time availability as they are often tied to an in-game event. Season passes started to gain popularity in 2019, especially in top grossing games (Heikkinen, 2022). One last reason to explain their popularity could be that they have simply became an industry standard in 2025.

5.4.5 Periodic gifts and content at the heart of retention

Retaining a continuous player base is important to the most common monetisation strategy, the in-game items system. Periodic gifts and content, such as daily log-in bonuses and in-game events were the most common ways to boost retention and engagement. The popularity of periodic gifts is surprising, as handouts were not considered an effective intervention in the study by Runge et al. (2014). However, gifts can help with progression, thus increasing engagement, similarly to rewards from incentivised actions (Sheng et al., 2022). Periodic content on the other hand can be seen as a natural extension of the freemium strategy: The game must always remain fresh and attractive to attract new users and to keep the old ones. In-game events often used a lot of thematic graphics and skins, which is likely a cost-effective alternative to adding completely new gameplay features. They give an impression that something new and interesting was available right at that moment in-game. Periodic content can also be linked to season passes as a monetisation method, acting as a thematic background to set a time frame for obtaining enhanced rewards from the season pass. However, more research is required on the actual effectiveness of periodic rewards and content.

5.4.6 Psychological tricks to encourage spending

Some games used a previously unrecorded techniques for driving in-app purchases. The “offer trail” mechanic features a list of in game rewards that are unlocked in an order. To reach the next reward, the player must first acquire the previous one. The trail often featured both free and paid unlocks, with a paid unlock often preceding multiple free ones. This approach draws on key psychological principles. First, loss aversion, a concept from behavioural economics, suggests that individuals perceive losses more intensely than equivalent gains (Novemsky & Kahneman, 2005). By placing desirable future rewards behind a paid unlock, the game creates a perceived risk of loss if the player chooses not to purchase. Second, the Endowed Progress Effect posits that people are more motivated to complete a task when they feel they have already made progress toward it,

even if that progress is artificially constructed (Nunes & Drèze, 2006). In the offer trail, the visibility of upcoming rewards and initial free progress fosters a sense of momentum, encouraging continued engagement and spending.

Figure 11 An offer Trail. Screenshot taken by the author in February, 2025.

The "Savings box" method similarly involves the player receiving in-game rewards that are inaccessible unless the player pays a fee, often displayed as a "box" or "piggy bank". The purpose of this approach is to again use the endowment effect and loss aversion to make the player perceive not receiving the reward more negatively.

Figure 12 A Piggy bank in-game. Downloaded from Candy Crush Saga Wiki (2024)

Thirdly, some periodic gifts were receivable only by visiting the in-game store. This could be a way to psychologically entice players to visit the store and view its catalogue through

a strategy called operant conditioning, where a reward is given periodically according to a set rule (Staddon & Cerutti 2003). Visiting the store regularly triggers another psychological trick called mere exposure effect, where repeated exposure to a brand increases "liking" or preference to it (Grimes & Kitchen, 2007). While an in-game store has no competing brands present, the players familiarity with it might still reduce the psychological threshold for making a purchase, as if the competition was between making and not making a purchase at all.

Lastly, a handful of puzzle games had a noticeable change in difficulty in the form of sudden difficulty spikes, where passing a level required multiple attempts and the use of powerups. Recent article linking monetisation and game difficulty generally advocated for decreasing difficulty and describes users stuck on a level as "frustrated". Frustrated players respond more strongly to the game difficulty being reduced by engaging more with the game. However, frustration did not drive purchases in the study. (Ascarza et al., 2025) The purpose of these difficulty spikes for monetisation could be to make the player spend in-game resources, such as powerups, increasing their perceived value. However, the effect of difficulty spikes on monetisation remains unclear.

5.5 Contribution, future research and limitations

The purpose of this study was to explore recent trends in freemium video game monetisation. The findings contribute to the wider theoretical work on games monetisation by providing a recent and rich description on how top freemium games are monetized. Whilst prior research focused on specific monetisation features (Appel et al., 2020; Chen et al., 2019; Gusmão et al., 2019; Hamari & Lehdonvirta, 2010; Mai & Hu, 2023; Runge et al., 2014; Sheng et al., 2022), this study contributes by combining previous theory into a framework and then applying it to a sample of real games. The decision to use App Store's top free games list ensures the study's relevance to the current market landscape. The findings give a wide overview of the dominant strategies and a more detailed analysis of each monetisation method. In more detail, they underscore the importance of functional items as the dominant monetisation approach. In contrast, the often-discussed lootboxes and cosmetic items turned out to be less prevalent. Furthermore, the study deepens the understanding of subscription models, showing a lack of automated renewing subscriptions despite general growth of app-based subscription revenues in the software industry. This study also adds novel insights on player retention

mechanisms, particularly the widespread use of periodic gifts and events, and introduces new monetisation “tricks” like offer trails and savings boxes. The nuanced genre analysis also offers early evidence that different game genres may support or discourage certain monetisation approaches, a subject which could be studied further. Additionally, the genre analysis also demonstrates that the framework is suitable for both qualitative and quantitative studies.

For practitioners in the mobile game industry, this study offers developers insight into current trends for monetisation design. The findings on the popularity of certain monetisation features can help inform the strategic decisions of game studios and publishers when planning a monetisation strategy. Key observations like content and cosmetics not being common monetisation methods in the mobile games or that mobile players seem averse to repeating subscriptions can have a real impact for early monetisation planning. The notion of genre-based monetisation preferences encourages developers to tailor the monetisation approach for their game already from an early stage. For example, puzzle games may benefit more from implementing incentivised advertisements, whereas strategy games should take advantage of the complexity of their resource-based economies. Lastly, the unitization schemes categorizations could be adapted into design documentation, monetisation audits, or strategic planning sessions. The frameworks can also serve as a diagnostic tool for mapping existing monetisation strategies or benchmarking against competitors.

The study has also revealed multiple avenues of potential future research. These could be comparative studies using the same framework over a different a) time b) location c) platform d) business model (e.g. premium) to discover new trends, insights, similarities and differences. Secondly, there is a need for more extensive quantitative studies with a larger sample size to confirm findings in this study. Exploring the developer-side views on monetisation and retention also could also contribute significantly to current literature as many studies have focused on game monetisation as an outcome. Further research is also needed to better understand the effectiveness and underlying mechanisms of the 'savings box' and 'offer trail' strategies, as well as the impact of frequent in-game store visits and difficulty spikes on monetisation. Lastly, ethical consideration of the findings of this study could meaningfully contribute to designing regulation and consumer welfare in the future.

Despite the quantitative elements included in this study, the findings should be viewed as qualitative due to the size of the sample and the lack of previous studies on general freemium game monetisation design. To assess and improve the quality of this work further, the classical dimensions for evaluating scientific research shall be used as recommended by Morse (2015). They are *reliability, validity* and *generalizability*. Validity means how close to reality the research is. For this work, the main question will be if the results of the analysis are in line with the reality of games monetisation. For valid analysis of qualitative data, Morse 2015) recommends using a coding system. Coding for this study was done in 2 phases: first for developing a general overview, and then when each category was analysed further. The basis for labelling a game to contain a feature is included in the resulting tables' "description" column, which acts as a codebook for each analysis. In addition, peer review debriefing can enhance the validity of analysis. Peer debriefing was done through active engagement with seminar opponent and thesis supervisor. Reliability deals with replicability of the study (Morse, 2015). This means disclosing data collection, analysis and interpretation in detail. These phases of the study have been described in the methodology chapter and further discussed in the discussion chapter. Other recommendation is "thick description" which means collecting a rich dataset and to keep collecting data until a saturation point is reached. The data for this game was collected until no new information such as monetisation features was coming up from playing the games. In addition, the sample of 52 games can already be considered somewhat quantitively representative, at least in for games that reach the top of the list in App Store. Finally, generalizability means the extent to which the results of this study can apply outside the study itself. The results of this study can be considered applicable to the wider freemium mobile games industry. In addition, the findings may have relevance for the wider games industry and software monetisation in general. However, the following issues with the data collected might limit generalizability: The games played might be monetised differently due to them making it to the app store recommendations list, and thus they might not represent wider freemium games monetisation. In addition, the games were downloaded from the Finnish version of App Store, which might mean that some features can differ to the software versions released in other countries and continents. For example, in a preprint of a recent similar study focusing on Korean mobile games, lootboxes were considerably more prominent (Lee et al. 2025), indicating a geographical difference in monetisation methods used.

To reveal researcher bias and to ensure transparent disclosure of potential issues when researching games, the Digital Game Analysis Protocol (DiGAP) list of topics was addressed in its entirety. The complete list can be found in the appendix of this study. Several topics on the list may have affected this study in its data collection and analysis phases. First off, the researcher's personal game knowledge, genre preference and prior experience with games may have influenced data collection by focusing researcher attention based on researcher expectations instead of approaching each game from a truly blank state. However, general familiarity with games has likely also helped to carry out the study in an efficient manner due to prior knowledge of game design conventions, and thus less time has been spent being confused or unfamiliar with a game. The games selection poses another potential risk to the generalizability of the study. In addition to the previously mentioned potential geographic and bias towards successful games, the algorithm used to form "top" list used in App Store is totally unknown. In this study, it was simply assumed that the games making it to the top of the list are truly successful. However, the 2 "casino" games making it to the top list indicate that manipulating the algorithm might be possible. Thirdly, the gameplay time of roughly 1 to 3 hours per game might not have been enough to reveal all monetisation elements. To ensure experiencing as much as possible, the games were played over multiple short sessions on multiple days. Some games took longer than the estimated average of 1 to 3 hours to confidently determine that no more new monetisation methods being added. Despite this flexible game-by-game approach, it is possible that some monetisation features might have remained undetected due to not enough time spent with the game or due to actions taken in the game failing to trigger their introduction. Lastly, the complex methodology used to analyse the data might in fact be flawed and that a simpler, purely qualitative or quantitative approach could have increased the rigor of the study. However, the approach has allowed a more exhaustive use of the rich dataset.

6 Summary

This study has investigated the current state of monetisation strategies in freemium mobile games, focusing on the most downloaded titles on Apple's App Store in 2025. A framework based on previous game monetisation studies was constructed and used to collect data and study 52 games using qualitative content analysis and a supplementary quantitative analysis. The study sook to answer three research questions:

RQ1: What monetisation strategies dominate in successful freemium games?

RQ2: How are these strategies integrated into game design?

RQ3: How do monetisation strategies affect long-term player engagement and retention?

The findings revealed that functional in-game items are the most common monetisation method, appearing in 77% of games. These items are often sold via bundles or in-game currencies, which are themselves typically purchasable. In contrast, cosmetic items are less central, often appearing as free rewards or bundle add-ons rather than standalone purchases. Subscription models, particularly season passes and VIP statuses, are used frequently but tend to avoid automatic renewal, possibly due to player hesitancy. Advertisements are less prevalent than expected and appear more often in the form of voluntary incentivised ads rather than forced pop-ups. An exploratory genre analysis suggests that monetisation strategies vary by game type. For instance, puzzle games favour incentivised ads, while strategy games rely more on complex economies, bundling, and retention-linked purchases. The study identifies periodic gifts and limited-time content as key retention mechanisms. These features aim to keep players engaged daily and often support monetisation indirectly by nudging players toward the in-game store. Novel techniques like "offer trails" and "savings boxes" leverage behavioural psychology to increase purchases, highlighting the continuous development of new features to improve monetisation.

In sum, the study provides a detailed and timely overview of monetisation practices in freemium mobile games, offering theoretical insights, design recommendations, and considerations for future research.

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Appendices

Appendix 1: A disclosure statement on use of generative AI

Artificial intelligence tools *ChatGPT* and *Scopus AI* have been used during the writing process. They have been used for

- Formulating suitable ideas for research topic and questions
- Generating ideas for insights based on the findings
- Explaining concepts later used in the thesis
- Searching for academic articles and other source material
- Generating text, especially for summarising sections
- Pointing out grammar mistakes and typos
- Criticising and evaluating the thesis based on quality criteria
- Re-formulating sentences

All text written by AI has been reviewed and corrected by the author.

Appendix 2: Full DiGAP list with answers

Item	Comment
1. Rationale	To expand current literature on freemium game monetisation
2. Objective(s)	To explore game monetisation methods used in App Stores most successful games, to discover how monetisation methods interact with game design. To study features aiming to increase retention and engagement
3. Research Question(s)	RQ1: What are the dominant monetisation strategies used in successful freemium games? RQ2: How are monetisation strategies integrated into game design, particularly in relation to the in-game economy, player progression, and purchase incentives? RQ3: How do monetisation strategies influence player retention and sustained engagement over time?
4. Hypothesis	This is an exploratory study, no prior hypothesis or expectations
5. Orientation/Motivation	The researcher has long history with games starting from childhood. His personal game preferences favour strategy, simulation and role-playing games on PC. In a classical Bartle taxonomy of players, the Explorer type describes him the best.
6. Prior game experience	Experience in playing games across multiple genres and platforms, such as first-person shooters, real time strategy, historical simulations, sports, platformers, role playing games, puzzles and MMOs across PC, Nintendo Wii and Mobile. Also experience in game research through bachelor's thesis, university game design courses and literature. Also, knowledge of the video game business through active investing in game company shares, industry news and reports.
7. Socio-demographic background	Male, 26, Native Finnish background. Master's thesis writer.
8. Multiple Researchers	The writer is the sole researcher
9. Chosen games	See Appendix 3 for ludography
10. Rationale for game selection	Iterative visits to App Store's top list for free games. Chosen due to their apparent success and ease of access through the list. Top games are likely to be the most commercially successful, and thus most relevant for the topic of monetisation.

11. Sample type	52 games that were featured in the top free games list on App Store during the time of data collection
12. Date and place	3.2.2025-9.3.2025 Turku, Finland
13. Software version	See Appendix 3 for ludography
14. Platform	Mobile, iPhone XS
15. Difficulty level	None of the games had an adjustable difficulty
16. Mode(s) played	Many games had only one game mode. If multiple game modes were encountered, they were explored for additional monetisation elements
17. Engagement level	Superficial play of around 2-3 hours per game through multiple sessions, until all feasibly accessible monetisation elements were discovered
18. Mode of completion	Partial, max 3 hours per game
19. In-game choices	If choices were presented, the most generic seeming option was selected. In-game choices seemed to have very little effect on monetisation elements
20. Unitizing	Categorical (monetisation and retention)
21. Use of meta-ludic texts	A website called https://appadvice.com was used for determining release dates. Some information was obtained through store page descriptions, a commentary video and games website
22. Qualitative or quantitative	Both?
23. Analytical framework	A framework was constructed based on previous monetisation literature
24. Analysed dimensions	Sale of Items – Functional Subscription Retention mechanics Incentivised Actions Bundle Advertisements Sale of Items - Cosmetic Lootbox - Traditional Sale of in-game content Lootbox - Unique Grand Bundle
25. Analysis example	-
26. Type of data	A descriptive text written for each dimension of monetisation if encountered in a game. Screenshots for illustration
27. Coding method	First, Codes/categories/dimensions were made before conducting the study based on previous monetisation literature. Afterwards,

	when each category was investigated more closely, new codes were made based on repeating themes on the descriptions or in relation to other categories
28. Method of data extraction	Content analysis through direct gameplay
29. Software for data extraction	Microsoft Excel
30. Intercoder reliability	Irrelevant for solo research
31. Open science transparency	Raw data table will be released on XZY Thesis will be made available on utupub.fi

Appendix 3: List of games with genre descriptions

Game	Pseudonym	Description	Genre - Simple
Block Blast!	Game 1	The player drags shapes made of squares to connect 8 vertically or horizontally which makes the bocks disappear, player is rewarded points	Puzzle
Screwdom	Game 2	The player must unscrew coloured screws from objects to coloured chests in correct order to get them all	Puzzle
Township	Game 3	The game has the player taking care and growing a town by planting and harvesting crops, manufacturing products and managing resources	Strategy
Color block jam	Game 4	Player must drag coloured blocks in 2D grid to correct spots to remove them from play and to clean the whole area under time pressure	Puzzle
An Elmwood Trail	Game 5	A story-driven detective game played through interacting with different smartphones	Puzzle, Point-and-click
Leffapeli	Game 6	Companion app for movie theatres. Competitions with the other visitors in AR style	Party
Paper.io 2	Game 7	The player guides an avatar in a 2D plain to expand their colour and absorbing other players. Multiple gaming influencers have pointed out that the same line of .io games merely pretend to be multiplayer. Ex. (https://www.youtube.com/watch?v=QjOKVUfWtGw)	Puzzle
Roblox	Game 8	A platform where users can play and develop games. Content driven by many kinds of user made game modes and creations	Creation platform
8 Ball Pool	Game 9	A game that simulates the real-life game of 8 ball billiards	Simulation
Hay Day	Game 10	the game has the player in charge of a farm, where he can build buildings, feed animals, harvest crops, sell products, manage resources	Strategy
Candy Crush Solitaire	Game 11	A card game where player attempts to remove all the cards from the table, following some of the real-life solitaire rules	Puzzle
Perfect Tidy	Game 12	Player must clean various scenes using the touchscreen	Simulation
Geometry Dash Lite	Game 13	Player must guide an avatar through stage of challenging obstacles in a 2D plain. Music playing helps the player time their actions	Platformer
Last War: Survival	Game 14	In the game the player manages a base and fights hordes of zombies in a post-apocalyptic setting	Strategy

Shakki - pelaa ja opi (chess.com)	Game 15	A mobile app version of Chess.com. A game app for playing, learning and competing in the classical game of chess	Board Game
Brawl Stars	Game 16	A top-down game where the players collect, improve and control hero characters that fight and compete in different game modes	Action
Enigma of Sepia	Game 17	A game where the player manages multiple resources to develop and collect their team of characters who fight in simulated battles	Strategy
Subway Surfers	Game 18	The player controls a character running in an endless 3-line space dodging obstacles and collecting coins	Action
Offline Games - No WIFI Games	Game 19	A collection of classic board and card games	Collection, Casual
Gardenscapes	Game 20	The player completes match-3 and physics puzzles in order to restore their mansion garden	Puzzle
Word Search	Game 21	classical word searching game where the player has to find words from a grid of letters	Puzzle
Grand Mountain Adventure 2	Game 22	Open world ski and snowboard game, the player explores a ski resort mountain completing various challenges	Simulation
World Series of Poker - WSOP	Game 23	A multiplayer game for playing Texas hold em, Omaha, video poker, poker quiz, and other casino games for virtual chips	Simulation
Grappler Ball	Game 24	Game did not function, instead the app took the player to an online casino landing page right away	Casino
Goods Sorting	Game 25	The player sorts goods in slots to make groups of 3	Puzzle
Candy Crush Saga	Game 26	A match 3 puzzle game with candy theming	Puzzle
Royal Match	Game 27	A match 3 puzzle game with medieval theming	Puzzle
UNO!	Game 28	Online version of the UNO! -card game, where players bet coins on matches, they play	Board Game
Good Coffee, Great Coffee	Game 29	the player takes the role of a barista filling various orders of coffee	Simulation
Pokémon GO	Game 30	An Artificial reality game, where players collect "Pokémon"- characters from their surroundings. Most actions are tied to players geolocation	Artificial Reality
That’s My Seat - Logic Puzzle	Game 31	Player must drag characters to correct seats according to text hints	Puzzle
Exposed - Who’s Most Likely To	Game 32	A party game - needs multiple people to join via game code	Party
Clash Royale	Game 33	A multiplayer game where players attempt to destroy the towers of their opponent by deploying troops to the field. A player can affect what troops are available by assembling the deck from which the troops come available. An established game with a competitive element	Strategy, Action

Girl Rescue: Dragon Out!	Game 34	A tower defence -style game where the aim is to send coloured turrets to position in the correct order to defeat a dragon	Puzzle, Strategy
Math Crossword - Number Puzzle	Game 35	player adds numbers to complete equations in a crossword pattern	Puzzle
Among Us!	Game 36	A multiplayer deception game where a group of players try to figure out who is the "impostor" among them while completing tasks	Action
Words of Wonders: Sana & Pulma	Game 37	A word puzzle game, where the player tries to make up words from a number of letters	Puzzle
Pokémon TCG Pocket	Game 38	A game simulating the act of collecting Pokémon cards, with opening of Pokémon card packs at the centre	Simulation
Clash of Clans	Game 39	A strategy game about managing your own village, production and troops, attacking other villages	Strategy
Epic Plane Evolution	Game 40	The player flies and upgrades a plane to fly it incrementally further.	Simulation
Travel Town - Merge Adventure	Game 41	A puzzle game where the player merges items to make improved items over and over again. The player also buys upgrades the game word to get better things to merge	Puzzle
GeoGuessr	Game 42	A game where players try to guess their location based on google street view imagery. Multiplayer but also solo challenges	Puzzle
Bus Escape: Traffic Jam	Game 43	A game where the player must send coloured busses out of a traffic jam in correct order	Puzzle
Brain Test: Tricky Puzzles	Game 44	Puzzle game where the players solve visual riddles	Puzzle
Obelisk ascent	Game 45	Game did not function, instead the app took the player to an online casino landing page right away. Unity engine	Casino
Tap Tap Dash	Game 46	A game where the player navigates a fast-moving character through a stage only by tapping to turn and jump	Platformer
Pizza Ready!	Game 47	A simulator where the player manages a pizza restaurant	Strategy
Vita Mahjong	Game 48	A virtual edition of the traditional mahjong game	Board Game
Photo Roulette	Game 49	A party game involving guessing people based on their personal photos from their devices - needs multiple people to join via game code	Party
Skincare Time: Makeover ASMR	Game 50	Player must clean and makeup various characters and body parts	Simulation
Archero 2	Game 51	A top-down action game where the player controls an archer character through multiple stages of enemies and bosses	Action

Hitster	Game 52	A companion app for the "Hitster" board game. Not monetized	Board Game, Party