

# Coin grid

## Overview

Our game is inspired by our gambling passion. Every day we gamble. Some people might call it an addiction, but we call it a dedication. For the people that want to get into gambling, this is the perfect gateway to learn how to gamble without losing real money.

When starting our game, each user will have to create profile, and will be assigned \$5,000. This data will be saved in our database. From there, the user can access the game by clicking their profile. The objective of our game is to try and click on every tile that contains a coin without clicking on a mine (bomb). User wallet will get updated in real time after each game, depending on whether the user wins or loses. The user will also have a chance to play a redemption game if they click on a mine, which gives them the chance to not lose any money. Money won or loss is determined by the amount of mines selected before starting the game.

## Goals

Our first goal was to find a database that can store all the profiles created by the user(s). Our next goal was to also create a working 5x6 grid, that will store bomb(s) and coin(s) underneath each tile so when the user taps on the tiles, it displays what's underneath. Then, we wanted to assign a wallet to each user so they have an incentive to play. We also added functionality to the wallet to update after each win and/or loss. Finally, we wanted to give the users a chance to keep their money after losing by providing a redemption question game.

**Database Implementation:** Our initial and most critical goal was to identify and implement a robust database solution capable of handling large volumes of user data securely. This database not only stores the user profiles but also tracks the wallet balances associated with the profile. The choice of database was driven by the need for high reliability and the ability to scale as more users join the game.

**Game Grid Development:** We set out to develop a 5x6 grid that is the central element of our game interface. Each tile on the grid is dynamically generated to conceal either a bomb or a coin, determined randomly at the start of each game session. The grid design needed to be intuitive for users, allowing for easy interaction while maintaining a sleek and engaging aesthetic. This grid is critical for the gameplay experience, as it challenges players to guess the locations of bombs to avoid them while seeking out coins.

**Mine Selection Mechanism:** We implemented a user-friendly dropdown menu that allows players to customize the difficulty of the game by selecting the number of mines in the 5x6 grid. Players can choose from 1 to 29 mines, providing flexibility and control over the game's challenge level. This feature ensures a tailored gaming experience, accommodating both beginners and experienced players looking for a tougher challenge.

**Wallet Assignment and Management:** Assigning a virtual wallet to each user was designed to simulate a real gambling experience without the financial risk. Starting with a virtual \$5,000, the wallet's balance updates in real time, reflecting wins when a coin is uncovered and losses when a bomb is triggered. This system required careful integration with the database to ensure accurate and timely updates to balances. Additionally, we designed the wallet interface to be user-friendly, displaying balance changes clearly and providing easy access to game winnings and history.

**Redemption Feature:** To mitigate the disappointment commonly associated with gambling losses and to add an educational component, we introduced a redemption game. Triggered when a player hits a bomb, this feature presents a question or challenge that, if answered correctly, allows the player to avoid any financial penalty. This aspect of the game not only provides a second chance but also encourages learning and strategy over mere chance. It required developing a separate module of contextually relevant questions that are both challenging and entertaining, thereby enhancing player engagement and satisfaction.

## User Interaction

When starting the app, the user is welcomed by a “select profile” screen. If no profiles have been created, the screen will look like Figure 1.

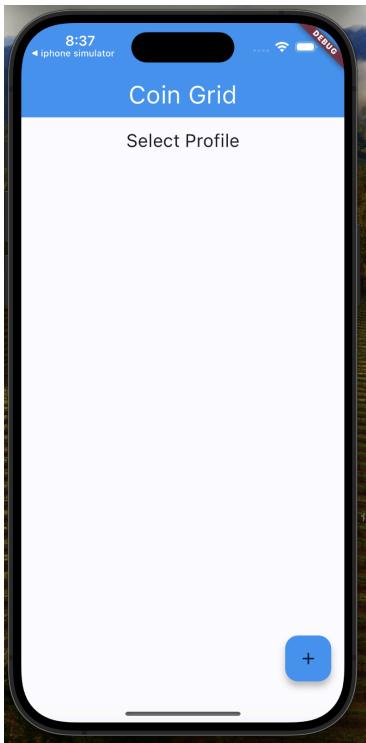


Figure 1: Initial

Then users will have the option to add their profile by pressing the blue button on the bottom right, where it'll look like Figure 2.

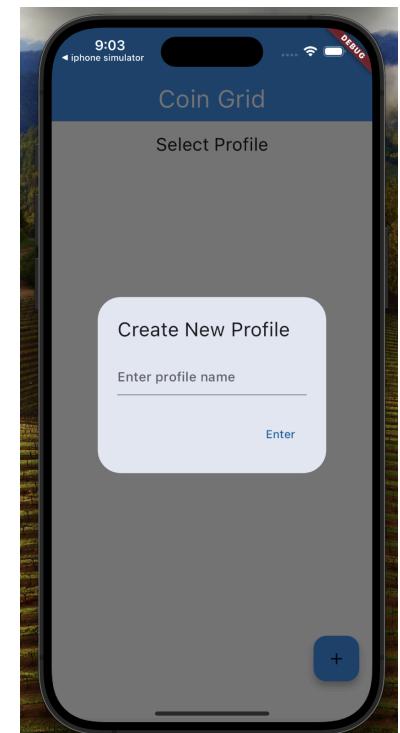


Figure 2: Creating a profile

After you create a profile, the user can then click their profile on the profile list to access the game.

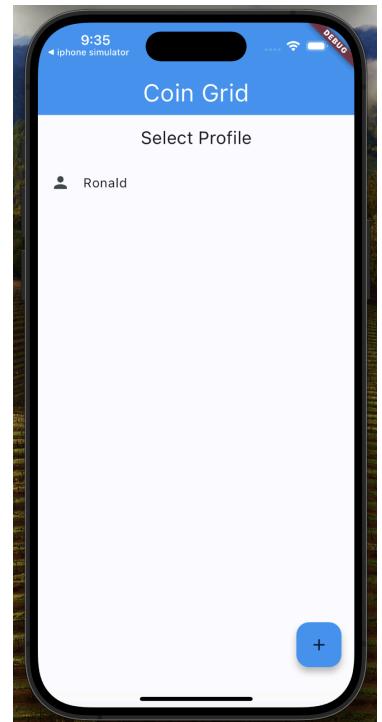


Figure 3: Profile added

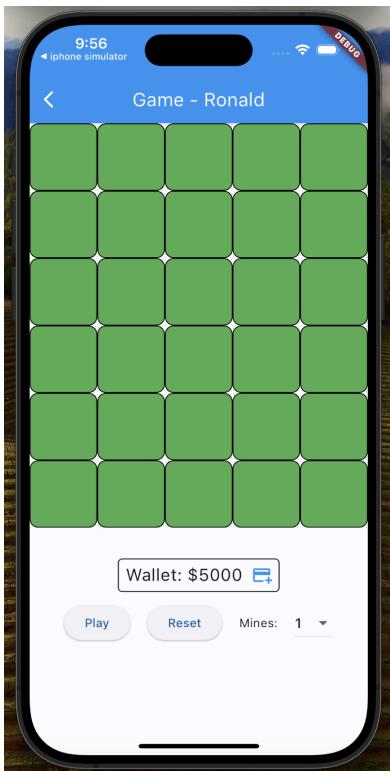


Figure 4: Game Tab

Once the user selects their profile they are directed to the game tab. This is where the user can interact with the game. On the bottom right, the user can click on the drop down menu to select the amount of mines wanted in the grid, to make the game more or less challenging. To start the game, the user will simply click on "Play", which will lock in the mine selection and allow the user to start tapping on tiles.

Once the game begins, users can start clicking on tiles. They can continue to interact with the grid, uncovering tiles until they either successfully uncover all the coins, resulting in a win, or until they click on a mine, which ends the game. This process is illustrated in figure 5.

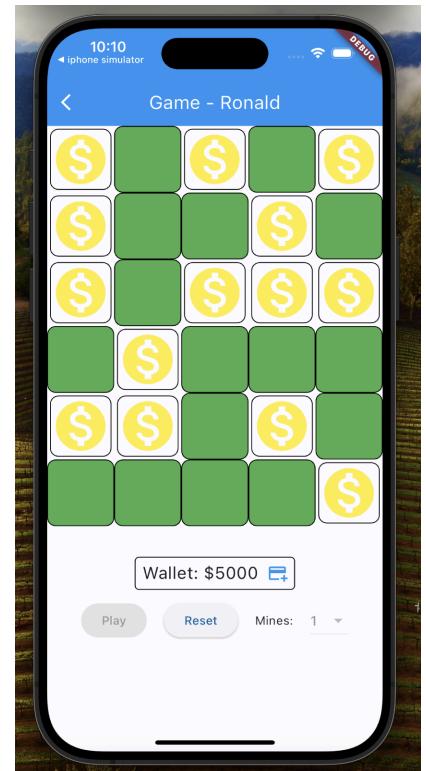


Figure 5: Tile Clicking



Figure 6: Win Screen

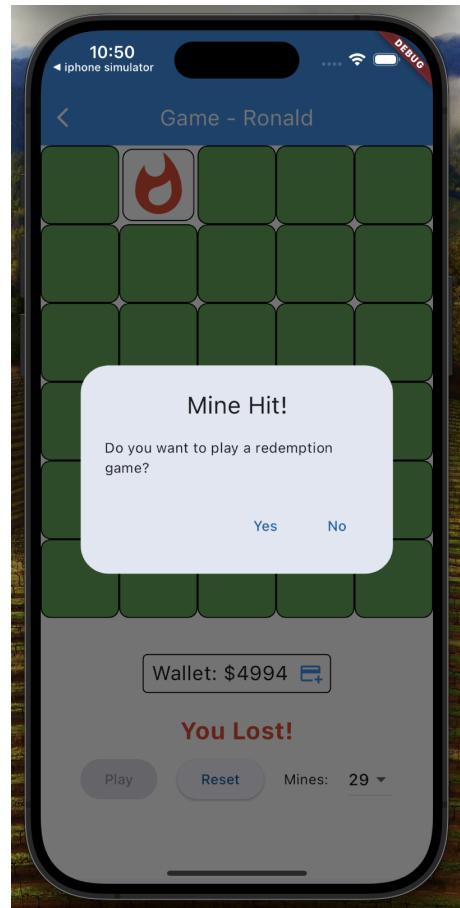


Figure 7: Lose Screen

In Figure 6, if the user successfully taps all the tiles without triggering any mines, a "You Win!" message will appear, and their wallet balance will be updated in real time as soon as they press the "Reset" button.

Conversely, as shown in Figure 7, if a user taps on a mine, the game ends, and a "Mine Hit" dialog will pop up. This gives the user the opportunity to engage in a redemption game, potentially saving them from losing their wager.

Finally, if the user selects to play the redemption game they will get prompted a question where they have 5 seconds to respond. If they get the right answer it takes them back to the Game Tab And they get to keep their wallet balance. If they answer Incorrectly, they lose the redemption game and their wallet Is adjusted accordingly and directed back to the Game Tab.

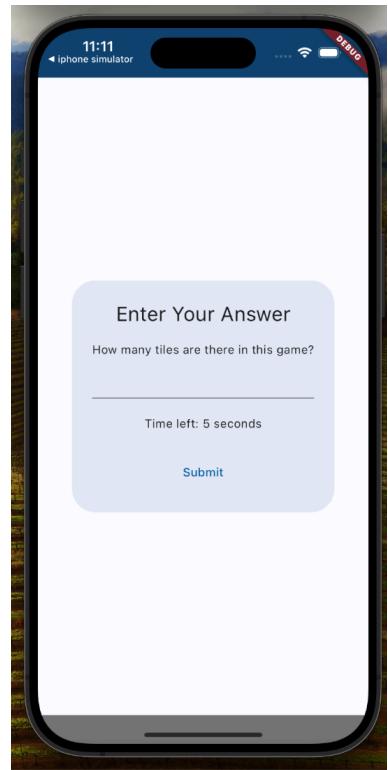


Figure 8: Redemption Game

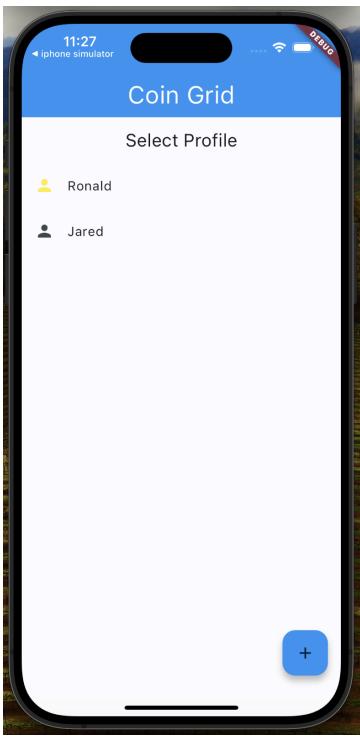


Figure 9: Vip Profile

As a little addition, we added a VIP status, where if the user wallet contains more than \$10,000, the profile icon will turn gold (yellow) representing that they are doing significantly well in the game.

## Development Process

During our class project brainstorming session, our group came together to explore various app ideas that would be fun and engaging. Initially, we toyed with the idea of creating a classic "snake game" akin to the one offered by Google, which many of us had enjoyed playing before. We also considered developing a game inspired by "Break Out," where players aim to eliminate all blocks by bouncing a ball without letting it touch the ground. After weighing our options, we ultimately decided on a familiar gambling game called "Coin Grid," which resonated with all of us due to its excitement and strategic gameplay. Once our idea was solidified, we began crafting our project outline, detailing our goals and the milestones we hoped to achieve, which we submitted for approval.

Upon receiving approval, we launched into the first milestone of our project. Our initial task was to develop a profile tab that allowed users to log into and access their game profiles, personalizing each player's experience. We also faced the significant challenge of setting up an online database. This database was essential for storing user information such as wallet balances and profile names and needed to be capable of updating and managing data in real time. This task proved to be the most time consuming and complex, as finding an appropriate database service that met our requirements was difficult.

Progressing to milestone 2, we designed the core feature of our app; the games tab. This included implementing a 5x6 grid where the game's main action would take place. We added a crucial functionality called "tap tile," where players tap on tiles to reveal what is hidden underneath. The suspense of uncovering either a mine or a coin added a thrilling element to the game. If a player tapped a mine, the game would end immediately, but if all coins were uncovered without disturbing a mine, the player would win. Additionally, we integrated a user wallet system within the app to track each player's money, updating balances according to wins and losses, which added a realistic gambling feel to the game.

For milestone 3, we introduced a mine drop-down menu, giving players the option to increase the game's difficulty by adding more mines to the grid. This feature allowed for customizable gameplay, letting players challenge themselves as they saw fit. We also implemented a redemption feature, activated when a mine is tapped. This mini game provided players with a chance to save themselves from a loss by correctly answering a question within five seconds. This addition was aimed at giving players a sense of hope and a second chance, which is often lacking in traditional gambling games.

Throughout the project, our group committed to regular weekly meetings where we compiled and reviewed our progress reports. These meetings were pivotal in ensuring we stayed aligned with our project timeline and avoided any last-minute scrambling to meet deadlines. The discipline of maintaining detailed reports and adhering to a strict schedule demonstrated the importance of teamwork and effective communication.

In response to feedback from the professor and our observations, we made a strategic decision to enhance the game's complexity by introducing the redemption game. This

feature was designed to offer an additional layer of engagement and a way for players to potentially reverse their fortunes, diverging from the typical binary outcome of winning or losing found in many gambling platforms.

Additionally, we incorporated a VIP status into our game, designed to reward players who excelled at the game. Players whose wallet balances reached \$10,000 or more would see their profile icon change from basic black to a distinguished gold color. This status not only acknowledged players' success but also served as an incentive for others to aspire to VIP status, thereby encouraging further gameplay and interaction with the app.

In conclusion, the collaborative nature of this project taught us the invaluable lessons of teamwork, planning, and the impact of innovative features on user engagement.

Through our collective efforts, we managed to turn a simple idea into an intricate and enjoyable game that offers multiple layers of interaction and excitement for users.

## **Future Directions**

As we look toward the future development of our Coin Grid game, we have several possible enhancements planned to further enrich the gaming experience and make our app more engaging for our users. One of our main priorities is to add increased functionality to the app. This means introducing new features that allow users to do more within the game, such as interacting with other players and accessing new types of gameplay options.

One significant update we're considering is adding password protection for each user profile. This security feature will help ensure that all user data, especially information about wallet balances and gaming history, remains safe and private. With the added

security, users can feel more confident and secure when engaging with the app, knowing that their personal and financial information is well-protected.

We also plan to incorporate a leaderboard tab within the app. This tab will display the rankings of each user based on the amount in their wallets, offering a fun and competitive element to the game. Players will be able to see how they stack up against others and strive to improve their ranking by playing more and becoming more skilled at the game. We're also thinking about adding a global chat feature allowing users from all over the world to interact with each other. By giving players a spot to talk freely, we're hoping to make our gaming community more lively and welcoming, turning it into a fun hangout spot as well as a place to play. This feature is designed to encourage ongoing engagement and foster a sense of community among the players.

In an effort to keep the game challenging and interesting, we intend to introduce harder redemption questions. These questions will appear when a player hits a mine and enters the redemption phase of the game. By making these questions more difficult, we aim to enhance the educational aspect of the game, pushing players to think critically and quickly under pressure. This not only makes the game more unpredictable but also helps in teaching players how to make smart decisions quickly, a skill that can be beneficial beyond the game.

One of our more ambitious goals is to try publishing the game, which would allow us to potentially enable users to deposit real money. This move would transform our game from a virtual currency model to a real money gambling platform, opening up new opportunities for monetization and user investment. However, this change would require careful planning and compliance with legal regulations, which we are prepared to handle with diligence and attention to the details involved in such a transition.

Furthermore, we're committed to making our game accessible to everyone, including those with disabilities. To this end, we plan to add accessibility tools to the app. These tools might include features like text-to-speech for visually impaired users or simple interface modifications to make the app easier to navigate for those with motor disabilities. By incorporating these tools, we aim to ensure that everyone, regardless of ability, can enjoy Coin Grid and engage with the gaming community we are building.

Lastly, we have plans to create more games and potentially turn the app into a full fledged gambling game platform. This expansion would not only diversify the gaming options available to our users but also potentially attract a broader audience. With more games to choose from, users can find something that suits their interests and skill levels, making the platform more appealing to a wider array of players.

These enhancements and expansions are guided by our ongoing commitment to improve user experience and maintain the excitement and engagement that Coin Grid offers.