TAP AND SHOOT

Tap And Shoot - the ultimate Carnival Shooting Game that brings the excitement of a classic shooting game with a modern twist. Immerse yourself in a dynamic and vibrant carnival atmosphere as you take aim, tap, and shoot your way to the top of the leaderboard.

Concept

"Tap and Shoot" is a lively and addictive mobile game inspired by the classic shooting gallery found in carnivals. Take on the role of a sharpshooter as you aim, tap, and shoot your way through various targets, including ducks, sharks, cows and other carnival-themed targets and immersive sound effects. Compete against your friends to reach the top of the leaderboard in this dynamic and fun-filled shooting experience.

Target Audience	Target Platform
• Ages 8-24 • Carnival Game Players • Shooting Game Players • Completive Game Players	• Android Mobile Devices

Game Mechanics

Players use simple tap controls to aim and shoot at various targets that appear on the screen, such as ducks, cows, sharks, and bullseye targets. Successfully hitting a target earns points or sometimes plus in time, while hitting the wrong target deducts points or deduction on time. Players aim to achieve the highest score possible within a 60-second time frame.

Targets move linearly and bouncing and randomly appearing alongside the specific area where you're allowed to shoot them, adding to the challenge. Each round provides a total of 160 bullets, with 8 bullets in your magazine. You'll need to reload whenever your magazine runs out. Additionally, targets may randomly require two shots to be taken down.

As you earn high points, the game gradually increases the speed of the targets, keeping the challenge fresh. Compete against friends on the leaderboard to showcase your sharpshooting skills and see who reigns supreme.

Interfaces & User Input

The interface of "Tap and Shoot" is intuitive and user-friendly, designed for seamless gameplay. Players interact with the game primarily through touch input on their mobile device screens.

Before starting, the system will prompt users to indicate if they are new players or existing ones. New players will input a 10-character name without spaces or special characters, which will be saved to the offline database using SQLITE. The system validates the input to ensure the player's name is unique; otherwise, the game won't start.

For existing players, the system validates the input against the database. If the player's name is not found, it prompts that the player does not exist. However, if the player exists, they can continue their high score data and play the game again.

The main interface displays the carnival scene with targets appearing at various intervals. To shoot, players simply tap on the screen where they want to aim. Aiming is precise and responsive, allowing players to target their shots quickly and accurately.

Alongside the shooting area, the interface includes a score display showing the player's current score and a timer indicating the remaining time for the level. Additionally, there are buttons for accessing settings, muting background and SFX sounds, viewing the leaderboard, or accessing gameplay information.

Sound Effects & Background Music

"Tap and Shoot" features immersive music and sound effects (SFX) that enhance the gaming experience. The background music is a catchy and upbeat tune that loops throughout gameplay, setting the mood for the carnival atmosphere.

At the start of the game, players are greeted with the ringing of a bell, signaling the beginning of the timer. Similarly, at the end of the game, another bell rings to indicate that the game is over.

During gameplay, players encounter various targets, including ducks, cows, sharks, and bullseye targets. Each target type has its own distinct sound effect when hit or missed.

- Ducks emit a playful "kwack" sound when shot or hit mistakenly.
- Cows produce a hearty mooing sound when shot or hit mistakenly.
- Sharks make a splashing sound when shot or hit mistakenly.
- White bullseye targets create a sound of a bullet hitting a hard metal surface when shot mistakenly.
- When you run out of bullets it creates a sound of a gun firing a blank bullet.

When players successfully hit targets that need to be shot, such as those with a target icon or a red flag icon, they all produce the sound of a bullet hitting a **Tin can**. This consistent sound effect adds to the satisfaction of accurate shooting and reinforces gameplay feedback.

Overall, the combination of looping background music and interactive sound effects immerses players in the carnival shooting experience, making "Tap and Shoot" both engaging and enjoyable.

Game Animations:

"Tap and Shoot," animations are carefully crafted to enhance the gameplay experience and provide visual feedback to players.

- **Button Press Animation:** When buttons are pressed, they visually appear as if they've been pressed down, providing tactile feedback to the player.
- **Transition Animation:** Pressing the Play button triggers a smooth transition where the Play, Leaderboard, and Gameplay buttons slide to the left while the "Insert Player Name" and buttons slides in from the right, ensuring a clean and seamless transition between menu screens buttons.
- **Clock Shake Animation:** As the timer starts, the clock subtly shakes, adding a small detail animation to the gameplay.
- **Bullet Depletion Animation:** Bullets are animated to disappear one by one as they are used. When the player runs out of bullets, an animated "Tap to Reload" prompt pops up, indicating the need to reload the gun.
- **Gun Recoil and Gun Flash:** Every time the screen is tapped to shoot, the gun recoils, accompanied by a muzzle fire animation and the ejection of gun shells, adding realism and immersion to the shooting experience.
- **Moving Waves Animation:** Waves are animated to move continuously, creating a more immersive and realistic environment for the player.
- **Moving Target Animation:** Moving targets slide down when shot, accompanied by a green-colored text indicating score or time increase, or a red-colored text indicating score or time deduction. These texts briefly slide up and fade away, providing clear feedback on the player's sharpshooting performance.
- **Game Over Transition Animation:** When the game ends, there is a smooth transition to the game over page where players can view their Personal Best score or high score along with the score obtained from the previous game.
- **Menu Options Animation:** On the game over page, players can choose to return to the home/menu, view the leaderboards, or retry the game. These options are animated to provide a seamless and intuitive user experience.

Game Logics:

"Tap and Shoot," several game logics are employed to create an engaging and challenging gameplay experience:

- **Target Spawning Logic:** Targets randomly spawn within a specific area of the screen. The system selects from a set of targets and determines their direction of movement based on their position relative to the center of the screen. For example, if a target spawns on the far right of the screen, it will move towards the left, and the appropriate target drawable facing or moving to the left will be selected.
- **Probability Filter:** Targets are spawned with a probability filter that favors shoot targets over avoid targets. For example, for every 10 targets spawned, 7 may be shoot targets and 3 may be avoid targets, ensuring a balanced gameplay experience.
- **Target Respawn:** Targets automatically respawn if they are hit by the player or reach the end of the screen. This ensures that players have ample opportunities to hit targets and maintain engagement.
- **Hitbox Logic:** The hitbox of targets corresponds to the side of the target image itself, ensuring accurate shooting mechanics and rewarding precise aim.
- **Bullet Logic:** Players cannot hit targets if they have no bullets left in their magazine. They must reload before they can shoot again.
- **Reload Animation:** When reloading, players must wait for the animation or timer to complete before they can shoot again. The reload time is dependent on the number of bullets remaining in the magazine. For example, reloading after losing only 1-3 bullets will be faster than reloading after losing 8 bullets, adding a strategic element to gameplay, and encouraging efficient ammo management.
- **Target Speed Scaling:** Moving targets gradually increase in speed as the player's score rises. This escalation in difficulty adds a layer of challenge and excitement to the game, requiring players to adapt and react quickly to hit their targets.

Development Plan:

Conceptualization:

The game draws inspiration from a web-based game where players use a mouse or console to hit targets. To meet our time constraints, we utilized open-source templates and sprites available on the internet for much of the design work. Our primary focus was on designing the game in portrait mode, allowing users to easily tap and reach the specific area where the targets are located. This approach ensures accessibility and user-friendliness for our target audience.

Design Phase:
- Create concept graphical/vector art and sketches for game mascots, targets, backgrounds, and interface elements.
- Design the user interface, ensuring it is intuitive, visually appealing, and responsive.
- Develop and design detailed animations for button presses, transitions, target movements, and other visual effects.
- Plan the sound design, including background music, sound effects for shooting, hitting targets, reloading, and button pressed effects.
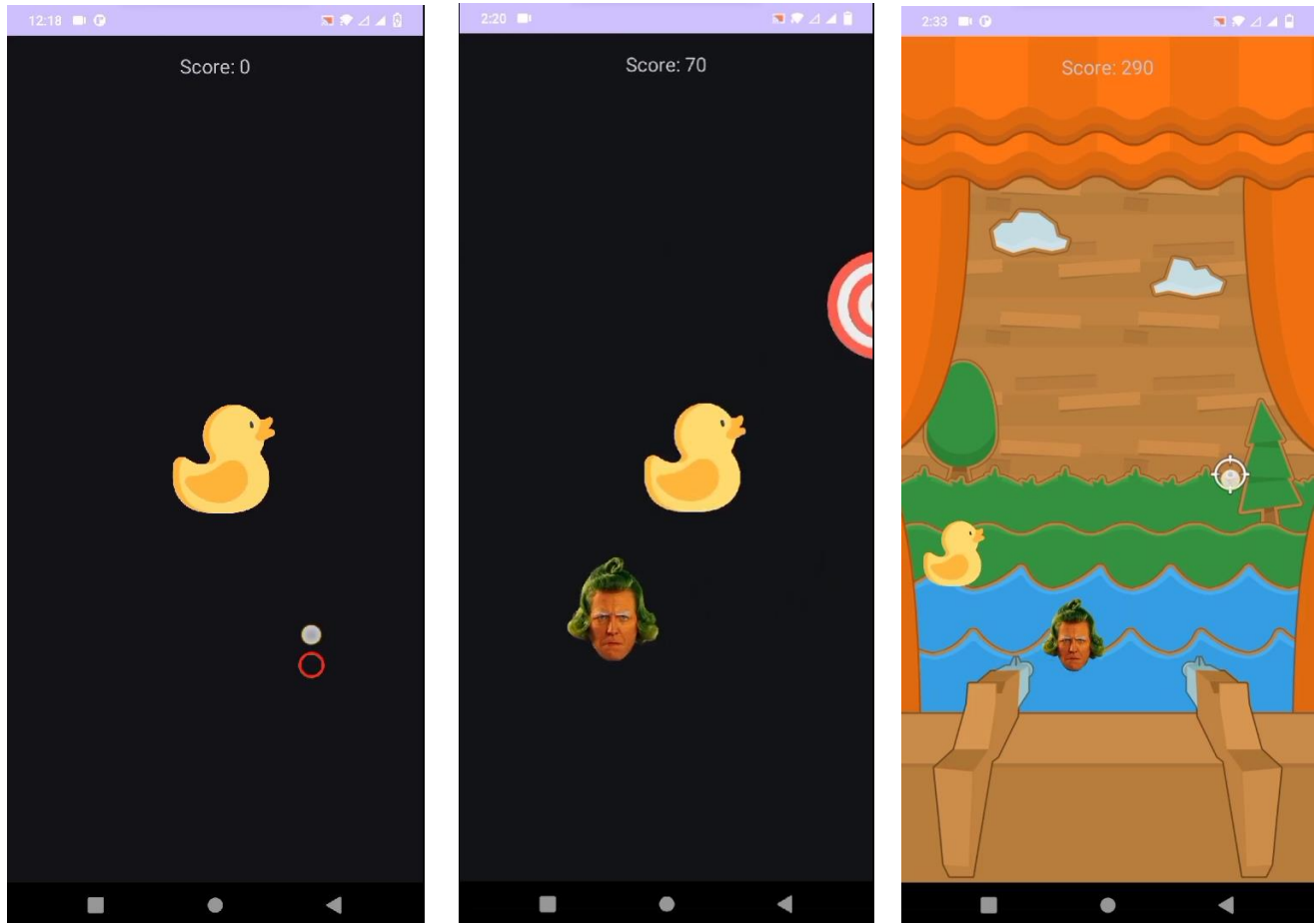
Game Flow Diagram
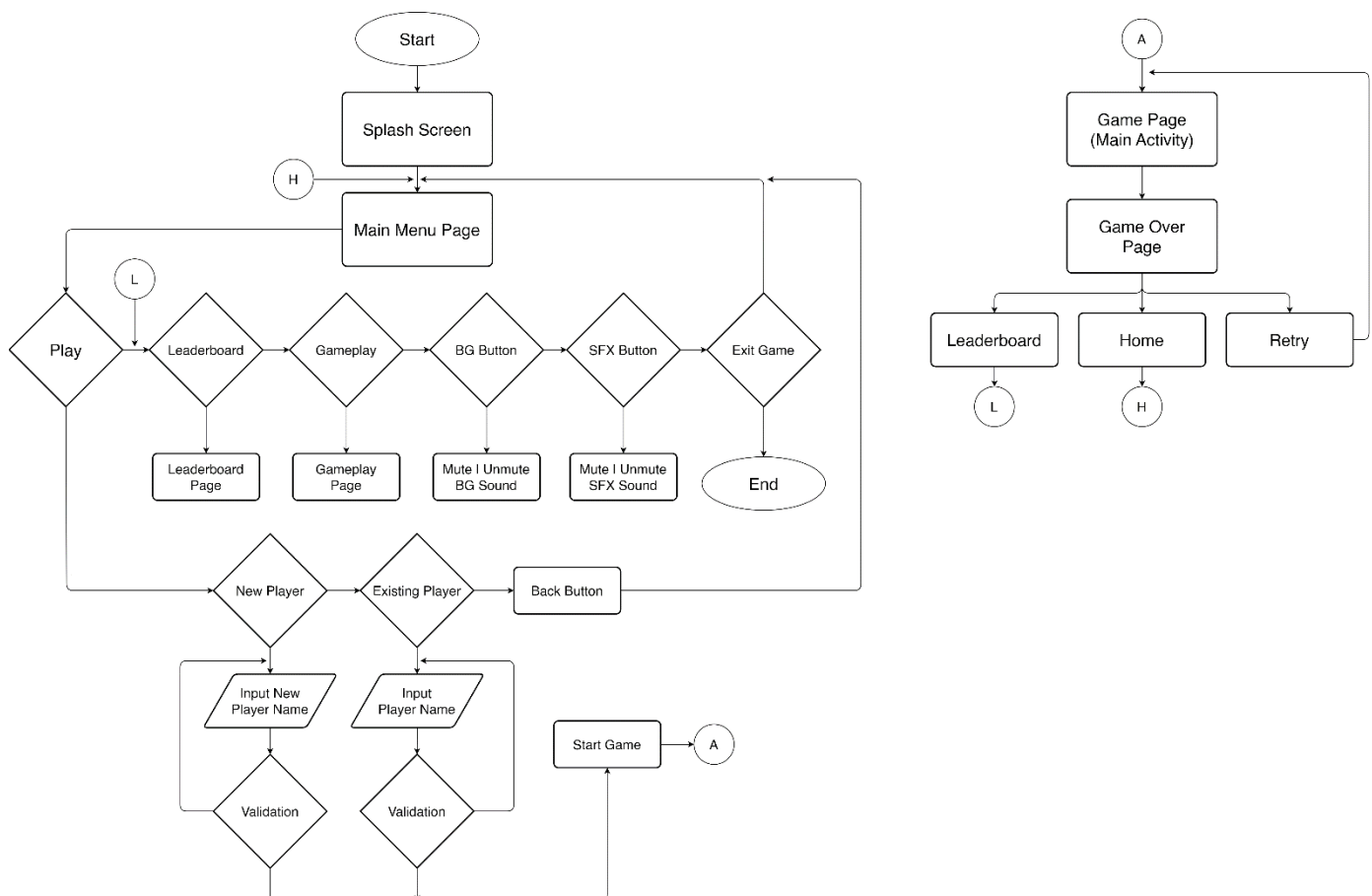
Project Game Timeline:

Official Start Date: January 12, 2024

Date Accomplished: March 2, 2024

First Meeting – App Conceptualization/Brainstorming: January 12, 2024

First prototype – Targetable Image and Scoring System
January 24 – 25, 2024

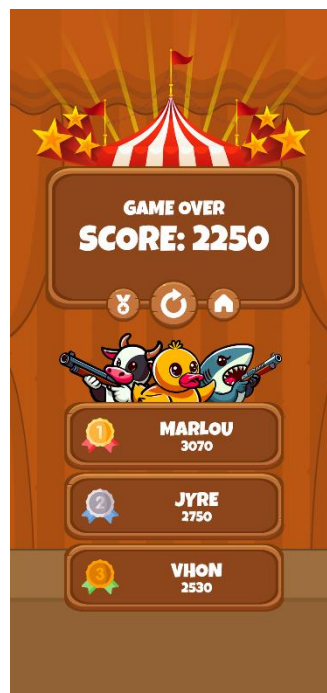**Second Meeting** – Booth preparation and Budgeting: February 22, 2024
Materials Discussed:

- Cardboard
- Sticker Paper
- Glue
- Scissors
- Standee

- Poster and Banner
- Table
- Table Curtain
- Wood
- Prices

Second prototype
New UI Design + Timer + Mute/Unmute Buttons
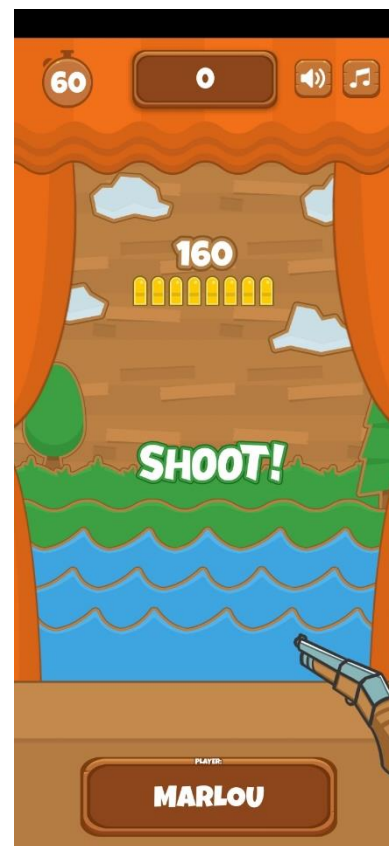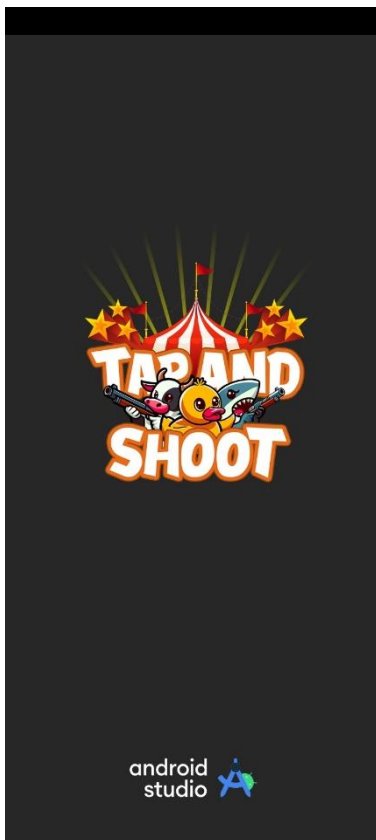February 18, 2024

Milestone 1 – Menu Page + Leaderboard Page + Game Over Page + UI Design
February 21 - 25, 2024

Final Design and Logic –
Revision of other UI design, implementation of new Logics and Game
Mechanics/Gameplay. Finalization of Game Design + Debugging
February 26 – March 1, 2024

Booth preparation:

Group Name: Ducksyders
Section: INF227

Members:

Abastillas, Jyre Irvine
Cervantes, Lhara Judea
Cruzada, Maureen Jae
Ebitner, Paul Christian
Enriquez, Azrylle Unix
Garcia, Axcel Bryan
Liquigan, John Vhon
Pepito, Khebird
Santiago, Kit Nicholas
Tobello, Jhon Marlou

Roles for the App and Game Exhibit:

Programming Team	
Tobello, Jhon Marlou	Backend | Frontend Design | Database
Abastillas, Jyre Irvine	Database | QA Backend Developer

Documentation Team	
Liquigan, John Vhon	Documentation Head
Tobello, Jhon Marlou	Documentation

Designing Team	
Enriquez, Azrylle Unix	Designing Head | Printables | Vector graphic designs
Ebitner, Paul Christian	Templates | Printables | Design Concepts
Tobello, Jhon Marlou	Graphic Design Editor | Printables
Liquigan, John Vhon	Templates | Printables Materials

Game Exhibit Booth Team	
Cervantes, Lhara	Booth Head | Budgeting Head
Cruzada, Maureen Jae	Booth preparations | Materials | Budgeting
Santiago, Kit Nicholas	Booth preparations | Materials | House preparation Venue
Garcia, Axcel	Booth preparations | Booth Assembly
Pepito, Khebird	Booth preparations
Abastillas, Jyre Irvine	Booth preparations

We all worked together for the Game Exhibit Booth

Sample demo:
https://drive.google.com/drive/folders/1Tov1KHnJG5zCLZrEiyI6cHboblI-t6QL?usp=sharing

Tools and References:

Procreate®
Canva Pro
Google Drive | Git-Hub Repositories
Adobe Photoshop (Beta)
Android Studio (Iguana)
Virtual Device: Pixel 4 API 33 | Android 13 "Tiramisu"
Personal Device: Samsung Galaxy A32 | Vivo Y12s

Main Design Template Reference – https://kenney.nl/games (KENNEY PUBLIC DOMAIN)

Main Design Sprites -
https://kenney.nl/assets/shooting-gallery?fbclid=IwAR3We9RUDnvbOyp1lJ8Srgeu3SeoEfZ-wQhDerx8rrWEeRwWGrnilwl0f1M

Complete Tap and Shoot Assets -
https://drive.google.com/drive/folders/1mZNcPmST4tgD7Y0qxG94NvZy0U3ZNgkF?usp=sharing

Other Elements:

Medals
https://www.flaticon.com/

Button Sprites
https://depositphotos.com/vector/wooden-game-buttons-98624684.html

Tutorials
https://www.youtube.com/@StevdzaSan

Documentation Prepared By:
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Tobello, Jhon Marlou