Bouncing Fish (CMPM 120 – Project 4)

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Game Overview

Bouncing Fish is a single-player, physics-based arcade game made in Phaser.
You control a fishnet paddle that bounces the player fish upward. Eat smaller fish to grow, avoid larger fish that damage you, and reach Size 7 to win.

How to Play

Controls

- Move paddle: **Left/Right** or **A/D**
- Start: **Click** or **SPACE**
- Restart after Game Over: **ENTER**

Rules

- Start at **Size 1**, **50 HP**
- Fish moves automatically and bounces off the paddle, walls, fish, and powerups
- Eating smaller fish = score (size × 10); same-size fish count toward leveling
- Hitting a larger fish = damage + brief invincibility
- Falling off bottom or reaching 0 HP = lose
- Reaching **Size 7** triggers a win sequence and transitions to Game Over

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Technical / Design Highlights

Physics & Collisions

- Arcade Physics used for player, enemies, paddle, and powerups
- Paddle is immovable, has a widened hitbox, and only collides from above
- Bounce direction depends on hit position
- Higher size = higher bounce speed

Enemy Fish

- Spawn randomly from left/right at random heights
- Six sizes (each with distinct sprites)
- Smaller fish swim faster; larger fish slower
- Horizontal wraparound

Progression

- Size 1 → Size 7
- Each level requires a small number of same-size fish to grow
- Level-up feedback: scaling, particle flash, popup text, sound
- Size 7 = win condition

Powerups

- Slowdown powerup periodically spawns
- On pickup: plays sound + slows all enemy fish temporarily

Feedback & Polish

- HUD shows HP, Size, Score, and "X more to eat"
- Eat effect (flash), damage popup, camera shake, level-up animation
- Two-layered BGM + SFX for bounce, eat, damage, level-up, and powerup
- **Scenes:** Start Scene → Game Scene → Game Over Scene

General 7-Point Evaluation

1. Interaction (1 pt)

The player directly controls the paddle, influencing bounce angles, avoiding enemies, and collecting powerups.

2. Look & Feel (2 pts)

Clear instructions on the Start Scene, readable HUD, distinct fish sizes, obvious bounce behavior, and consistent feedback for eating, leveling, and damage.

3. Technical Execution (2 pts)

Three well-structured scenes with meaningful variable/function names. Physics, spawning, collisions, and transitions work without bugs or crashes.

4. Individual Execution (2 pts)

Liya (2pts):

Added sprites assets and background music, implemented a paddle and player physics, fish spawning and movement, rough growth and health systems, rough hud, rough gameover condition. Polished on refined bounce/level-up behavior, speeds and level requirements, Hud, added more effects, and implemented GameStartScene.

Alex (2pts):

Added sound effects and slow-down power-up. Adjusted player health, speed, levelup and collision box, implemented end game conditions and GameOverScene. Polished & added effects on the health & damage system and hud.

Self-Evaluation

1. Gravity & Physics (2 pts)

Arcade Physics for player, paddle, enemies, powerups.
Custom paddle bounce logic scales with size level.

2. Collision (1 pt)

Player vs fish determines eat vs damage; bottom world bound triggers lose condition.

3. Path Following (2 pts)

Enemy fish follow simple horizontal paths, spawn at random heights, and wrap around horizontally.

4. Powerups (1 pt)

Slowdown powerup: timed spawning, bounce behavior, pickup feedback, temporary enemy slow, full restoration afterward.

5. Win/Loss Conditions (1 pt)

Win at Size 7; lose at 0 HP or fall off bottom. Both transition cleanly to Game Over.

6. Individual – Liya: Art / Visual (1 pt)

Integrated all sprites, HUD framing, and level-up visual effects.

7. Individual – Alex: Collectible SFX (1 pt)

Slowdown powerup triggers a distinct pickup sound.

8. Individual – Alex: Visual & Audio Feedback (1 pt)

Eat flash + sound, damage popup + sound + slight camera shake.

9. Individual – Liya: UI Element – Score (1 pt)

Main scene layout + hud bar, start scene UI.

10. Individual – Alex: Level Completion Shake (1 pt)

Camera shake + banner on reaching Size 7.

11. Individual – Liya: Increasing Difficulty (1 pt)

Bounce speed increases per level, making the fish harder to control as it grows.

Assets

All visual and audio assets sourced from Kenney and Pixabay.com.