

# Game Design Document (GDD)

**Game Title: Grabbix**

**Genre: Arcade, Casual, Skill-Based**

**Platform: WebGL (Playable in Browser)**

**Engine: Unity**

**Target Audience: Casual players, retro pixel art enthusiasts, high-score chasers**

---

## 1. Game Overview

**Grabbix** is a fast-paced arcade-style game where players catch falling objects in a bottomless basket. As objects drop from above, players must react quickly to catch beneficial items while avoiding harmful ones. Over time, the game increases in difficulty by adjusting spawn rates and fall speeds, testing the player's reflexes and precision.

---

## 2. Core Gameplay Mechanics

### 2.1 Objective

- Catch as many objects as possible while avoiding penalties.
- Maintain at least one life to continue playing.
- Achieve the highest score possible and save it to the leaderboard.

### 2.2 Controls

- **Move Left:** A / Left Arrow
- **Move Right:** D / Right Arrow
- **Confirm (UI):** Mouse Click / Enter

### 2.3 Game Flow

1. **Main Menu (MM)** → Start the game or view High Scores.
2. **Game Scene (GS)** → Countdown → Objects start falling → Player catches them.

3. **Game Over (GO)** → Player can enter their name (6-character limit) and save their score.
4. **High Score Scene (HS)** → Displays top 5 scores.

## 2.4 Difficulty Scaling



- The **spawn rate** of objects decreases by **0.1x** for every object caught but stops reducing after reaching **50% of the initial value**.
- The **fall speed** of objects increases at the same rate but caps at **double the initial value**.





## 2.5 Scoring System

- Each caught item increases score based on its type.
  - Special items (like rotten eggs) penalize the score.
  - High scores are recorded and displayed in a leaderboard.
- 

# 3. Game Elements

## 3.1 Objects

Falling Items		
Object Name	Effect	Art
Regular Egg (Must never be dropped)	+5 Points	
Golden Egg (catch if needed)	+10 Points	

Health Egg (catch if needed)	+1 Life	 
Rotten Egg (Avoid)	-5 Points	 

### Future Objects (Planned)

- Tomatoes
- Nuts
- Bolts
- Coconuts

## 3.2 Player Character



- Basket (player-controlled, moves left/right to catch items)

## 3.3 User Interface (UI)

- **Main Menu (MM):** Start, High Scores
- **Countdown Timer:** 3...2...1... Start! before gameplay begins.
- **Game Over Screen (GO):** Score display, Name entry (6 characters max), Save button, Message system (Score Saved or Already Saved).
- **High Score Screen (HS):** Displays top 5 high scores.

# 4. Technical Details

## 4.1 Object Spawning System

- Objects spawn randomly across the upper width of the screen.
- Spawn rate dynamically adjusts based on player performance.
- Ensures fair but challenging gameplay with a mix of beneficial and harmful objects.

## 4.2 High Score System

- **High Score Manager (Game Over Scene)**
  - Prevents duplicate saves in the same session.
  - Saves score, object count, and player-entered name.
  - Allows only one save per game session.
- **High Score Display (High Score Scene)**
  - Loads and displays the top 5 scores in descending order.
  - Uses a **Vertical Layout Group** for structured UI.

## 4.3 Scene Structure

Scene Name	Purpose
Main Menu	Start Game / View High Scores
Game Scene	Gameplay Occurs
Game Over	Save Score / Retry
High Score	Displays Leaderboard

---

## 5. Future Improvements

- Additional levels introducing **new objects** (Tomatoes, Nuts, Bolts, Coconuts, etc.).
- More diverse animations and **pixel art enhancements**.
- Advanced difficulty scaling (adaptive AI to adjust spawn rates dynamically based on player skill).
- Power-ups and special effects for **more engaging gameplay**.
- Local and global online leaderboard integration.
- Background variations and multiple themes.

---

## 6. Conclusion

**Grabbix** is a simple yet engaging arcade game that tests reflexes and strategic decision-making. With expanding levels, unique pixel art, and competitive leaderboards, it

has the potential to grow into a full-fledged skill-based casual game. Future updates will introduce **new objects, levels, and graphical improvements** to enhance replayability and player engagement.

## 7. ArtWork

