Flappy Bird Game

Project Documentation

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Abstract

This document presents a comprehensive implementation of an enhanced Flappy Bird game developed in Godot using C#. The game builds upon the classic mechanics while introducing advanced features and multiple game modes to provide an engaging player experience.

Core Gameplay Features

The game implements dynamic difficulty scaling where pipes gradually converge as the player's score increases, creating progressively challenging gameplay. Additionally, the game speed increases every 10 points, requiring players to adapt their reflexes and timing continuously. Colored pipes introduce strategic elements by offering bonus points, encouraging players to take calculated risks.

Visual Enhancements

The game features a dynamic day-to-night cycle that transitions from day through sunset to night, providing visual variety throughout extended play sessions. Weather effects including rain, snow, and fog add atmospheric depth and additional visual complexity to the gameplay environment.

Power-ups and Collectibles

Three distinct power-ups enhance gameplay strategy:

- **Shield**: Provides protection from a single collision, allowing recovery from mistakes
- **Slow-motion**: Grants 2 seconds of reduced game speed for precise maneuvering
- **Magnet**: Automatically collects coins within range, maximizing score potential

Stars serve as achievement markers, providing goals and milestones for player progression.

Game Modes

The implementation includes three distinct game modes:

- **Endless Mode**: Classic Flappy Bird gameplay with progressive difficulty
- **Time Attack**: Challenge players to achieve maximum score within 60 seconds
- **Survival Mode**: Features progressively harder pipe configurations, testing player skill limits

This enhanced implementation demonstrates modern game design principles while maintaining the accessibility and addictive nature of the original Flappy Bird concept.