\*\*Design and Usage Document for "Flappy Circle" Game\*\*

\*\*1. Overview:\*\*

"Flappy Circle" is a simple 2D game where the player controls a bird, represented as a colorful circle, that tries to navigate through a series of moving pipes. The player's objective is to guide the bird through the gaps between the pipes and accumulate points by passing through them successfully. The game ends when the bird collides with a pipe or goes off the screen. The player can earn bronze, silver, or gold medals based on their score.

\*\*2. Gameplay Mechanics:\*\*

- The bird automatically falls due to gravity, and the player can make it flap by pressing the Space key.

- Each flap counteracts gravity and makes the bird move upwards.

- The player can change the bird's color by pressing the 'C' key and also change the background color by pressing the 'B' key during gameplay.

- The player can pause and resume the game by pressing the 'P' key.

- If the bird collides with a pipe or goes off the screen, the game ends, and the player can press the 'R' key to restart.

\*\*3. How It Works:\*\*

- The game is built using C# and the SplashKitSDK library, which provides essential functions for game development, such as drawing shapes, handling input, and managing graphics.

- The game consists of several classes: `Bird`, `Pipe`, `HighScore`, `Medal`, and `Game`. Each class has specific responsibilities:

- `Bird`: Represents the player-controlled bird and handles its movement, gravity, color, and rendering.

- `Pipe`: Represents the moving pipes that the bird needs to navigate through. It handles their movement and rendering, as well as checking for collisions and successful passages.

- `HighScore`: Manages and updates the player's high score during the game.

- `Medal`: Represents the medals earned by the player based on their score. It handles the drawing of the medals and displays them on the screen.

- `Game`: Serves as the main game class that orchestrates the gameplay. It contains the game loop and manages user input, updates the game state, and renders everything on the screen.

- The `GameObject` abstract class is used as a base class for game objects, ensuring consistent behaviors and providing common properties for position and rendering.

- The `ExtensionMethods` static class provides an extension method `IsBetween` for the `double` data type, which is used to simplify the range checks in the game.

\*\*4. Getting Started:\*\*

- The player runs the "Flappy Circle" game executable.

- The game starts with a menu screen, displaying instructions and options to play or view high scores.

- Pressing the 'P' key starts the game, and the bird starts falling automatically.

- The player can control the bird's flapping with the Space key to avoid the pipes and earn points.

- The game ends when the bird collides with a pipe or goes off the screen.

- If the player earns a score of 20 or more, they earn a bronze medal; 40 or more, a silver medal; and more than 40, a gold medal.

- The high score is displayed on the screen during gameplay, and the player can see their earned medal when the game ends.

- The player can restart the game by pressing the 'R' key, or return to the main menu by pressing the 'P' key again.

\*\*5. Additional Features:\*\*

- Implement score increments to enhance the gaming experience.

- Add additional obstacles to increase the game's difficulty and replayability.

- Include a user-friendly GUI for menu navigation and options settings.

- Add a leaderboard system to save and display high scores of different players.

\*\*6. Conclusion:\*\*

"Flappy Circle" is a fun and addictive game where players can test their reflexes and skills in guiding a bird through moving pipes. With colorful visuals, simple mechanics, and the potential for earning medals, the game promises an enjoyable gaming experience for players of all ages.