**Moving Circle Program Documentation**

**Overview**

The Moving Circle program is a simple application built using the SFML library in C#. It allows you to simulate the movement of circles on the screen with basic physics interactions, such as gravity and bouncing off the walls.

**Classes**

**Circle**

The `Circle` class represents a circle object in the program. It has the following properties and methods:

**Properties:**

- `circle`: A `CircleShape` object from the SFML.Graphics namespace that represents the graphical representation of the circle.

- `radius`: The radius of the circle.

- `position`: The current position of the circle.

- `velocity`: The current velocity of the circle.

Methods:

- `Circle(float radius, Vector2f origin, Color color)`: The constructor of the `Circle` class. It creates a new circle shape with the specified radius, origin, and fill color.

- `SetPositionOfCircle(int index, Vector2f position)`: Sets the position of the circle at the specified index in the list of circles.

- `GetCircles()`: Retrieves the list of circles currently present in the program.

**Game**

The `Game` class is the main class of the program that handles the game loop and rendering.

**Methods:**

- `GameLoop()`: The main game loop that runs indefinitely. It updates the circles' positions and handles user input.

- `Update()`: Updates the positions of the circles based on their velocities and applies gravity. It also handles bouncing off the walls.

- `Render()`: Renders the circles on the screen using the SFML RenderWindow.

**Program Flow**

1. The program starts by creating an instance of the `Game` class.

2. The `GameLoop` method is called, which sets up the SFML window and enters the main game loop.

3. Inside the game loop, the `Update` method is called, which updates the positions of the circles based on their velocities and applies gravity. It also handles bouncing off the walls.

4. The `Render` method is called to draw the circles on the SFML window.

5. The game loop continues until the program is closed by the user.

**Adding a Circle**

To add a new circle, you can create an instance of the `Circle` class and customize its properties such as the radius, origin, and color. The circle will be automatically added to the list of circles in the `Circle` class and rendered on the screen.

**Modifying Circle Movement**

To modify the movement behavior of a circle, you can access the list of circles using the `GetCircles` method in the `Circle` class. You can then iterate over the circles and modify their positions or velocities as desired. By changing the velocities or applying different forces, you can create various movement patterns and interactions between circles.

Conclusion

The Moving Circle program provides a basic framework for simulating the movement of circles with physics interactions. It demonstrates the usage of the SFML library in C# and can serve as a starting point for further exploration and development of interactive graphical applications.

I hope this documentation helps you understand how the program works. If you have any further questions, feel free to ask!