Simple Flash Animation Language 2.0 (Concept Proposal)

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Introduction

The Simple Flash Animation Language[1] (SFAL) is a tiny scripting language that allows users to quickly and easily create animations of basic shapes and text in Adobe Flash. SFAL generates ActionScript, to be compiled into a Flash animation SWF file, in addition to an HTML file for publishing the animation to a Flash-enabled web browser.

Motivation

The Adobe Flash GUI tool is relatively expensive and can be overwhelmingly complex for a beginner. In addition, the power of Flash's scripting language, ActionScript, can come with a considerable learning curve. SFAL offers a solution to these complications, enabling a programming novice to produce "quick-and-dirty" animations.

Features

- Simple
  - o Small size of the language makes it easy for beginners to learn
- Concise
  - o Condenses several lines of ActionScript by removing unnecessary complexities
- Dynamic
  - o Variable declaration is not required and data type can change at runtime
- Flexible
  - o Addition operands can be more than traditional numbers:
    - ■ Shapes: + adds shape entities to form a group
    - ■ Text fields: + concatenates the text strings of multiple text fields
    - ■ Strings: + concatenates multiple strings

Data Types

- `int`
- `uint`
- `string`
- `Shape`
- `Circle`
- `Rectangle/Square`
- `TextField`

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1 Based on Antonio Cruz's SFAL 1.0 from Fall 2007

Sample program

```
/**
 * Animates a group of shapes
 */
void animateShapes() {
        //create a group of some shapes to animate
        shapes = new Square(SIZE_SMALL, COLOR_RED) +
                new Circle(SIZE_SMALL, COLOR_ORANGE) +
                new Square(SIZE_MEDIUM, COLOR_YELLOW) +
                new Circle(SIZE_MEDIUM, COLOR_GREEN) +
                new Square(SIZE_LARGE, COLOR_BLUE) +
                new Circle(SIZE_LARGE, COLOR_INDIGO) +
                new Square(SIZE_SMALL, COLOR_VIOLET);

        //if index is odd, bounce shape horizontally to left
        //side; otherwise, spin shape clockwise in place
        x = 0; y = 0;
        loop(0, shapes.length, i)
        {
                shapes[i].move(x, y);
                x += 10;
                y += 5;

                if (i & 1)
                        shapes[i].bounce(DIR_LEFT);
                else
                        shapes[i].spin(DIR_RIGHT);
        }
}

/**
 * Scrolls a short message across the screen
 */
void scrollText() {
        //create static text fields of different fonts
        txt1 = new TextField(SIZE_LARGE, COLOR_RED, FONT_ARIAL);
        txt2 = new TextField(SIZE_SMALL, COLOR_ORANGE, FONT_TAHOMA);

        //concatenate the strings; font of lvalue has precedence
        //over that of string operands
        txt1 = "Hello";
        txt2 = "World";
        txt1 += " " + txt2 + "!";

        //scroll "Hello World!" with large, red, Arial font
        txt1.scroll(DIR_LEFT);
}

//animate the shapes and scroll some text
animateShapes();
scrollText();
```