Java Fundamentals

Using Sound and Keyboard Control

Overview

This lesson covers the following topics:

- Write programming statements to include sound in a program
- Write programming statements to include keyboard movements in a program

Keyboard Controls

- Games are controlled by a human or computer player using a remote control or keyboard controls.
- To make a scenario behave like a true game, program statements that include keyboard controls so the player can control one or more objects in the game.

The isKeyDown Method

- The isKeyDown method checks if a key on the keyboard has been pressed.
  - Located in the Greenfoot class.
  - Is a Static method (associated with a class).
  - Returns true or false value.
  - Expects a String argument in the parameter list.
  - Can be used as a condition in an IF statement.
- Method signature:

```
public static boolean isKeyDown(String key)
```

String Parameter in isKeyDown Method

- A String is a piece of text (word or sentence) written in double quotes. For example:
  - “This is a String”
  - “A”
  - “name”
- The String parameter in the isKeyDown method expects the name of the key to press on the keyboard.
- Find a key’s name by looking at your keyboard. Sometimes the name isn't evident (right cursor key is called “right”).

Using the isKeyDown Method Example

This code in the act method uses the left and right keys on the keyboard to allow the player to control the Duke object's direction as he moves.

```
/**
 * Act - do whatever the Duke wants to do. This method is called whenever
 * the 'Act' or 'Run' button gets pressed in the environment.
 */
public void act()
{
    move(1);
    if (Greenfoot.isKeyDown("left"))
    {
        turn(-3);
    }
    if (Greenfoot.isKeyDown("right"))
    {
        turn(3);
    }
```

Include Sound in Your Game

- Sounds can enhance your game.
  - Give feedback sounds to the player when they win, lose, or achieve minor victories throughout the game.
  - Include background sounds in a game.
- The playSound method is used to play sounds in a game.
  - Method is located in the Greenfoot class.
  - Parameter list expects the name of a sound file (as String) as an argument.
  - The method does not return data.

Sound Example

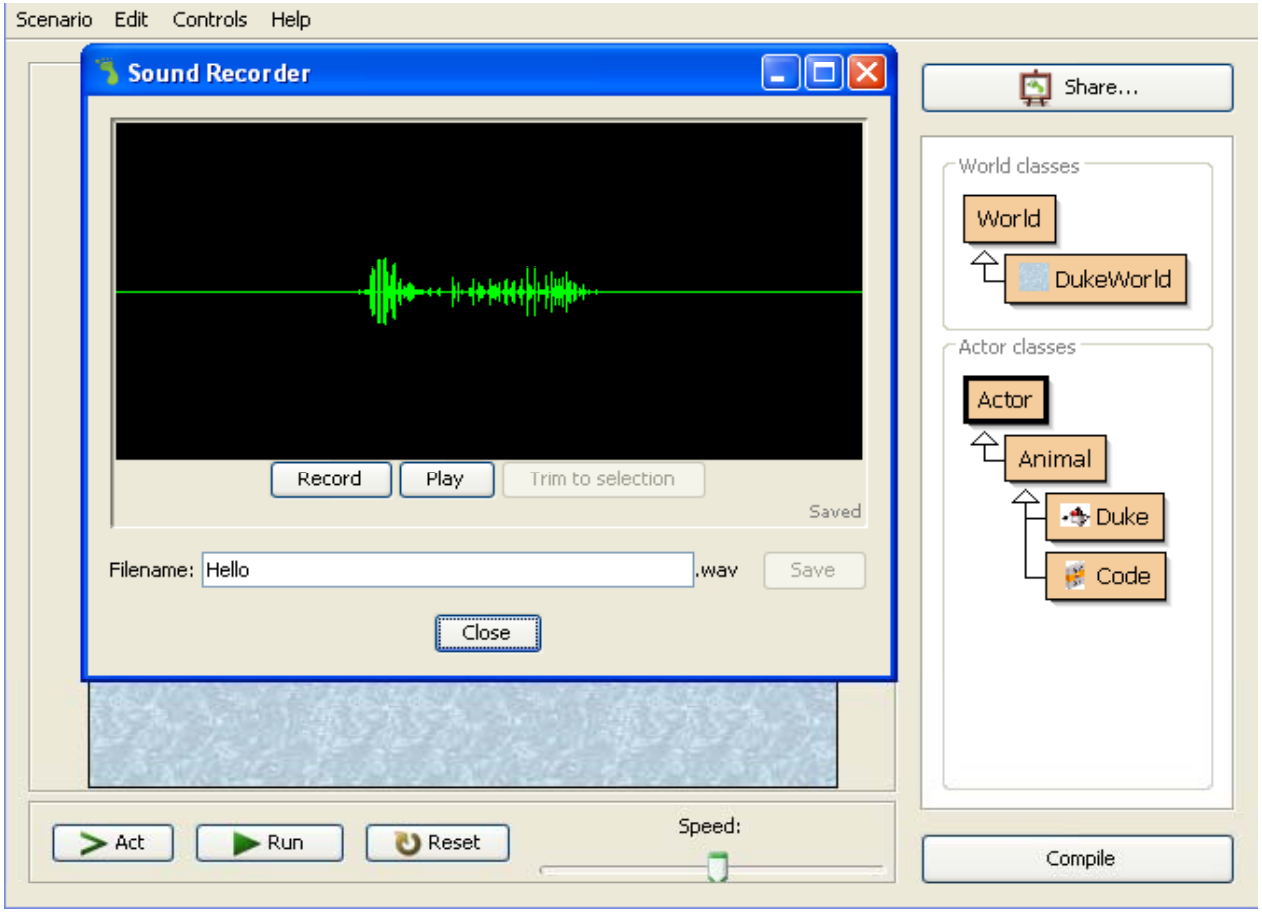
The playSound method is called using dot notation in the body of the lookForCode method. Whenever the Duke object eats code, he makes a sound.

```
/**
 * Look for Code. If Duke finds code, he eats it. If Duke doesn't find code, he does nothing.
 */
public void lookForCode()
{
    if (canSee(Code.class))
    {
        eat(Code.class);
        Greenfoot.playSound("Chomp.wav");
    }
}
```

Steps to Record Original Sounds in Greenfoot

1. In the Controls menu in the environment, select Show Sound Recorder.
2. Press Record, then talk into your computer's microphone to record sound.
3. Press Stop Recording when finished.
4. Press Play to play back the sound.
5. Re-record if necessary.
6. Enter a file name, then click Save to save the file to your scenario. The file is now ready to reference in your code.

Greenfoot Sound Recorder Display



Summary

In this lesson, you should have learned how to:

- Write programming statements to include sound in a program
- Write programming statements to include keyboard movements in a program

Practice

The exercises for this lesson cover the following topics:

- Enhancing programs with sound and keyboard movement
- Concept summary review