

Sound

Sound and Processing

- Processing 3 has a sound library!
- Must add it to Processing
 - Sketch->Import Library->Add Library
 - Select “Sound”, click “Install”
- Does not appear stable!!! ☹
- Can use Movie objects to play wav and other sound files
 - Probably sufficient for A6

Sound Using the Movie Class

```
import processing.video.*;
//allocate a sound sample
Movie ring;
void setup()
{
  size(400, 400);

  ring = new Movie(this, "dingdong.wav");
}
void mouseClicked()
{
  ring.stop(); //to reset
  //play the sound when the mouse is clicked
  ring.play();
}
```

Other Sound Options

- Option 1: Use Open Sound Control (OSC) protocol to communicate with third party apps
 - Max/MSP
 - PureData
- Option 2: Third party libraries available in Processing
 - Shiffman focuses on Sonia and Minim

Simple Example with Sonia

- Must first install library on your computer
 - <http://sonia.pitaru.com/>
 - Follow instructions
 - Download zip file, add contents to “libraries” directory
- Import library into sketch
- Must also install JSyn
 - <http://www.softsynth.com/jsyn/>
 - Sonia relies on it

Simple Example with Sonia

```
import pitaru.sonia_v2_9.*;
//allocate a sound sample
Sample ring;
void setup()
{
  size(400, 400);
  //start the engine
  Sonia.start(this);
  //load a sound clip
  ring = new Sample("dingdong.wav");
}

void mouseClicked()
{
  //play the sound when the
  mouse is clicked
  ring.play();
}

void stop()
{
  Sonia.stop();
  super.stop();
}
```

Processing Sound Library

- Processing is incorporating sound
 - Work in progress?
 - Test it on your machine
- Must install library
 - Sketch->Import Library->Add Library
 - Select "Sound"

Processing Sound Library

- Many new classes
 - SoundFile
 - Playing sound files
 - AudioIn
 - Your machine's recording device
 - WhiteNoise, BrownNoise, PinkNoise
 - Generate the "color" of noise
 - Oscillators
 - SinOsc, SawOsc, SqrOsc, Pulse, etc.
 - Effects
 - LowPass, HighPass, Reverb, etc.

Processing Sound Library

■ Simple Example:

```
import processing.sound.*;
//allocate a sound sample
SoundFile ring;
void setup()
{
  size(400, 400);
  ring = new SoundFile(this, "dingdong.wav");
}
void mouseClicked()
{
  //play the sound when the mouse is clicked
  ring.play();
}
```

Input example

```
import processing.sound.*;

Amplitude amp;
AudioIn in;
void setup() {
  size(800,800);
  background(255);
  // Create an Input stream which is
  // routed into the Amplitude analyzer
  amp = new Amplitude(this);
  in = new AudioIn(this, 0);
  in.start();
  amp.input(in);
}

void draw()
{
  background(0);
  float sz = amp.analyze();
  println(sz);
  sz *= width*1.4;
  fill(200,0,200);
  ellipse(width/2, height/2, sz, sz);
}
```