

Directions for EarSketch Effects

EarSketch 2

Description:

In music production we can use effects such as Volume, Pan, Distortion, Delay, and Pitch to change the properties of the sounds on tracks. With these effects we can add color and variety to the musical samples. This lesson will describe the use of the `setEffect()` function and demonstrate the effects of Volume, Pan, and Distortion.

More information on effects can be found at the EarSketch API at (<http://ears sketch.gatech.edu/category/learning/intro-to-effects>)

The complete effect list can be found at:

<http://ears sketch.gatech.edu/category/learning/reference/every-effect-explained>

Vocabulary

Effect: A tool to manipulate, process, shape, and change the sound of tracks.

Parameter: The particular value of the effect changed by the envelope. Examples include GAIN, LEFT_RIGHT, and MIX

Envelope: The values of the Effect parameter as measured over time. This controls the change of effect over time.

Function for setting effects:

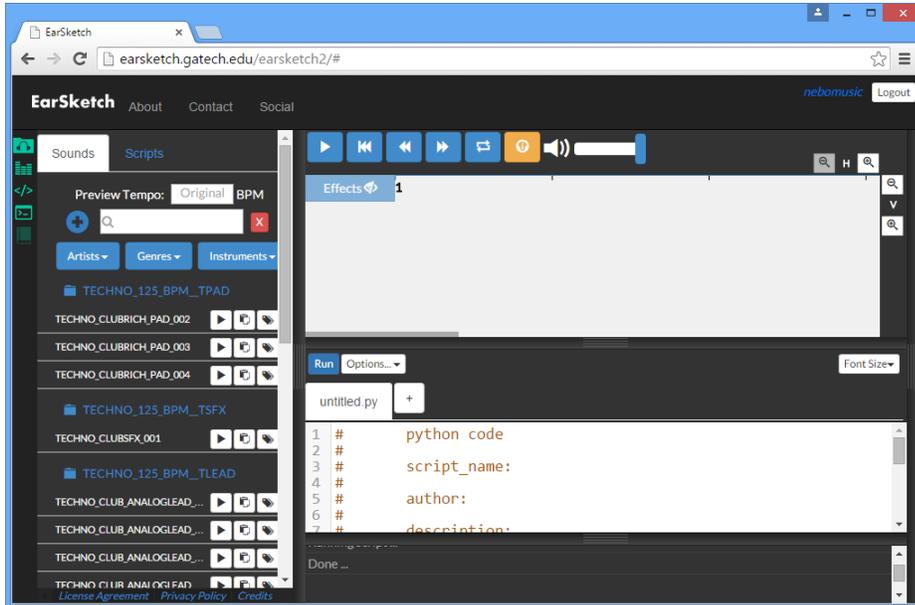
`setEffect(track, effect, parameter, startValue, startMeasure, endValue, endMeasure)`

Example:

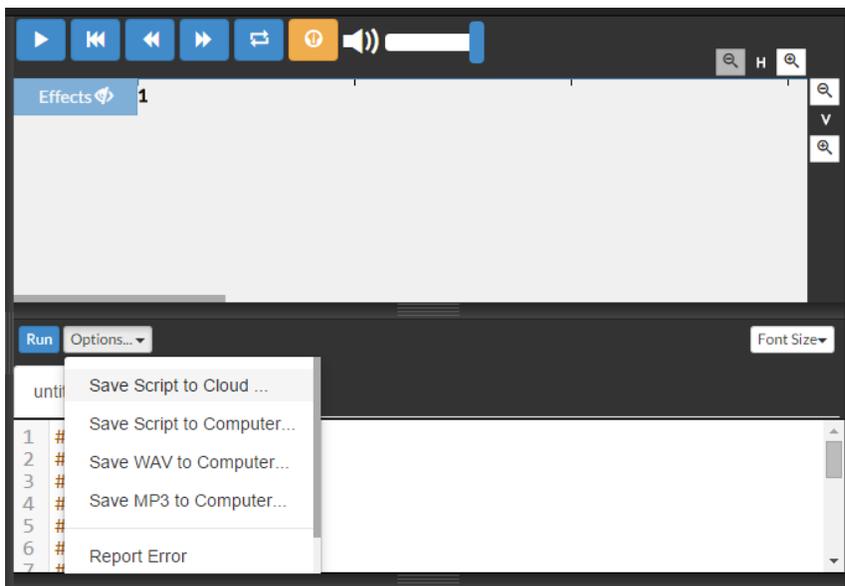
```
setEffect(1, VOLUME, GAIN, -40, 1, 5, 5)
```

Process:

1. Go to <http://earsketch.gatech.edu/earsketch2/#/viewport> and login with your EarSketch Account and password.



2. Select 'Options -> Save Script to Cloud'



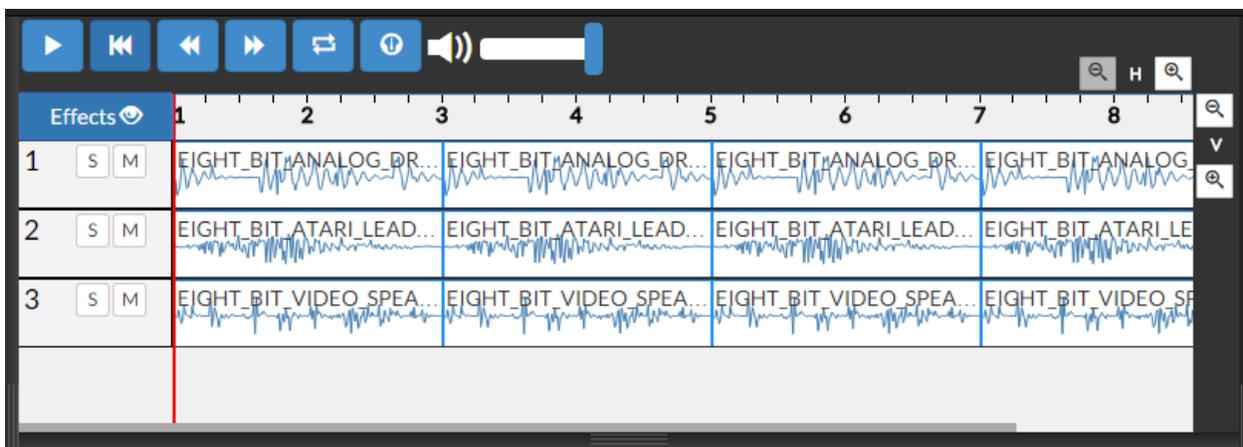
3. Name the script 'lastname_effects_practice'

4. We need 16 measure of music to experiment on. Select 3 clips and use fitMedia() to place these clips on tracks 1 to 3 for 16 measures. Here is my example:

```
Load Script ▾ More options... ▾ Font Size ▾
7 # description:
8 #
9 #
10 #
11
12 from earsketch import *
13
14 init()
15 setTempo(120)
16
17 # Music for Effects practice:
18 drums = EIGHT_BIT_ANALOG_DRUM_LOOP_004
19 keys = EIGHT_BIT_ATARI_LEAD_003
20 speak = EIGHT_BIT_VIDEO_SPEAKNSPELL_BEAT_007
21
22 fitMedia(drums, 1, 1, 9)
23 fitMedia(keys, 2, 1, 9)
24 fitMedia(speak, 3, 1, 9)
25
26
27 finish()
28
```

Run Script

5. Click 'Run Script' and listen to the result.



6. In my example, I want track 3 to 'fade in' from the beginning. I am going to use the following effect and parameter:

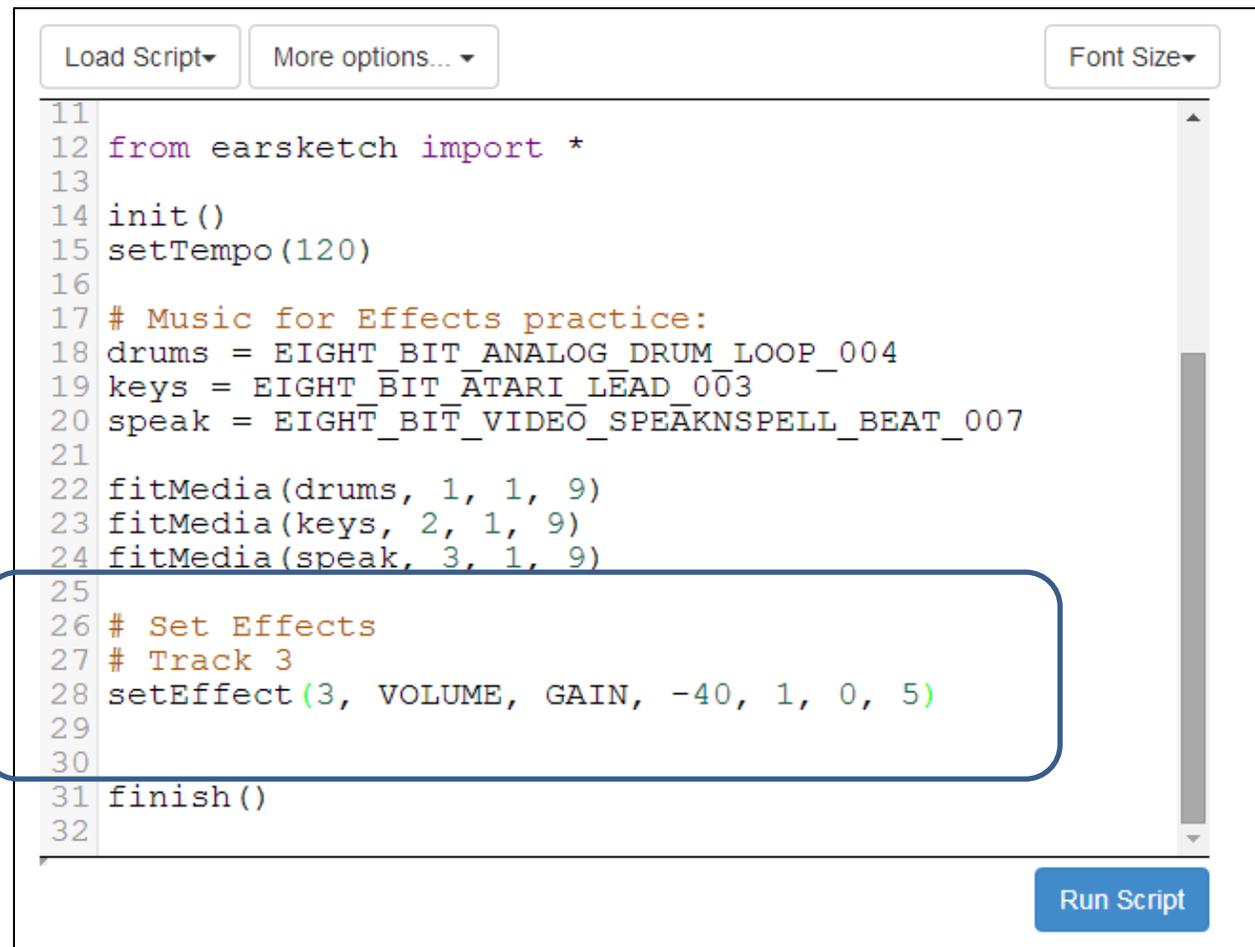
Effect: VOLUME

Parameter: GAIN

Values: -60 (all the way quiet) to 12 (all the way loud) (I will use -40 to 5)

(Note that 0 is 'unity' or standard volume gain setting)

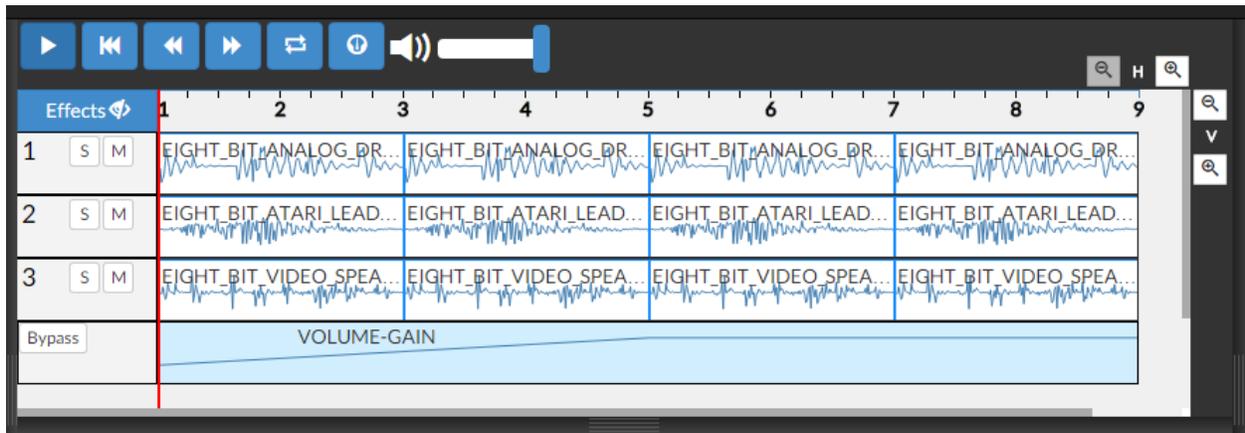
Add the following code to call this effect:



```
11
12 from earsketch import *
13
14 init()
15 setTempo(120)
16
17 # Music for Effects practice:
18 drums = EIGHT_BIT_ANALOG_DRUM_LOOP_004
19 keys = EIGHT_BIT_ATARI_LEAD_003
20 speak = EIGHT_BIT_VIDEO_SPEAKNSPELL_BEAT_007
21
22 fitMedia(drums, 1, 1, 9)
23 fitMedia(keys, 2, 1, 9)
24 fitMedia(speak, 3, 1, 9)
25
26 # Set Effects
27 # Track 3
28 setEffect(3, VOLUME, GAIN, -40, 1, 0, 5)
29
30
31 finish()
32
```

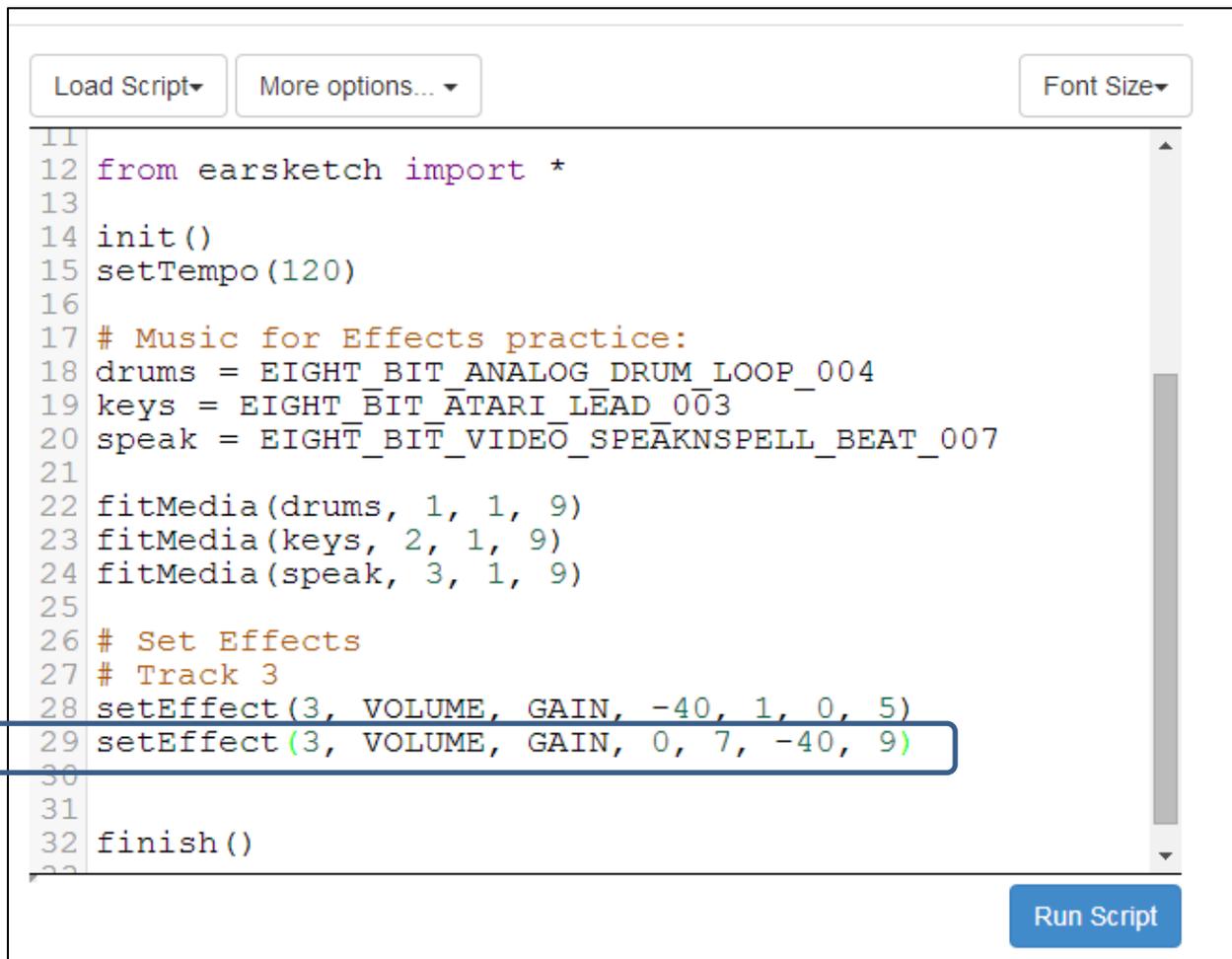
Run Script

7. Click 'Run Script' and note how on track 3 you now see the envelope representing the increase in the gain value of volume.



8. If you click the 'Bypass' button while the music is playing, the effect will mute and it will not change the track. If you click the 'Effects' button at the top, the envelope visuals will hide, but you will still hear the effects.

9. Let us say we want the volume to decrease from measures 7 to 9 on track three. Write this code to decrease the volume:



```
11
12 from earsketch import *
13
14 init()
15 setTempo(120)
16
17 # Music for Effects practice:
18 drums = EIGHT_BIT_ANALOG_DRUM_LOOP_004
19 keys = EIGHT_BIT_ATARI_LEAD_003
20 speak = EIGHT_BIT_VIDEO_SPEAKNSPELL_BEAT_007
21
22 fitMedia(drums, 1, 1, 9)
23 fitMedia(keys, 2, 1, 9)
24 fitMedia(speak, 3, 1, 9)
25
26 # Set Effects
27 # Track 3
28 setEffect(3, VOLUME, GAIN, -40, 1, 0, 5)
29 setEffect(3, VOLUME, GAIN, 0, 7, -40, 9)
30
31
32 finish()
```

Buttons: Load Script, More options..., Font Size, Run Script

10. Another effect we will experiment with is the PAN. This controls the audio mix between the left and right channels. We will write an effect envelope for track 2 that will do the following:

Effect: PAN

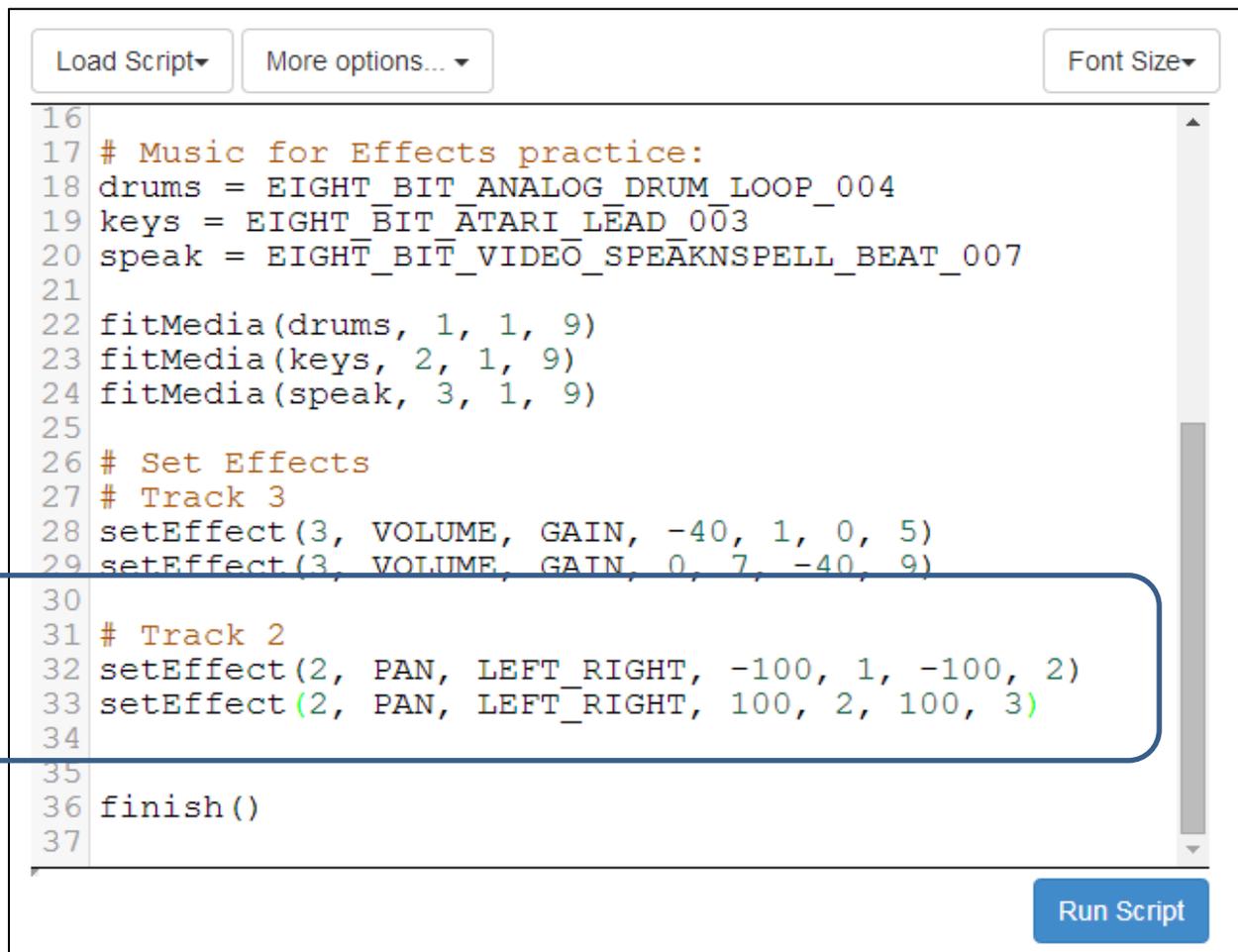
Parameter: LEFT_RIGHT

Values: -100 (all the way left)

100 (all the way right)

0 (evenly balanced)

Add these lines of code for PAN on track 2

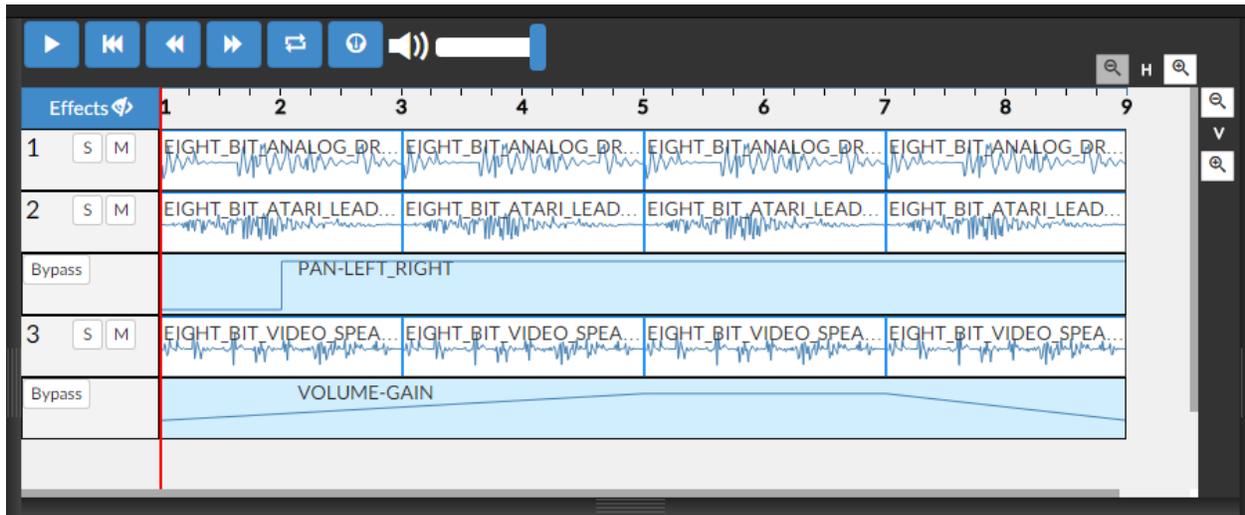


```
16
17 # Music for Effects practice:
18 drums = EIGHT_BIT_ANALOG_DRUM_LOOP_004
19 keys = EIGHT_BIT_ATARI_LEAD_003
20 speak = EIGHT_BIT_VIDEO_SPEAKNSPELL_BEAT_007
21
22 fitMedia(drums, 1, 1, 9)
23 fitMedia(keys, 2, 1, 9)
24 fitMedia(speak, 3, 1, 9)
25
26 # Set Effects
27 # Track 3
28 setEffect(3, VOLUME, GAIN, -40, 1, 0, 5)
29 setEffect(3, VOLUME, GAIN, 0, 7, -40, 9)
30
31 # Track 2
32 setEffect(2, PAN, LEFT_RIGHT, -100, 1, -100, 2)
33 setEffect(2, PAN, LEFT_RIGHT, 100, 2, 100, 3)
34
35
36 finish()
37
```

Load Script ▾ More options... ▾ Font Size ▾

Run Script

11. Run the script and note the change in the envelope on track 2:



12. We want the pattern of LEFT on measure 1 and right on measure 2 to continue for the 9 measures. Change the code to use a for loop to repeat this pattern.

```
25
26 # Effects
27 setEffect(3, VOLUME, GAIN, -40, 1, 0, 5)
28 setEffect(3, VOLUME, GAIN, 0, 7, -40, 9)
29
30 #Track 2
31 for measure in range(1, 9):
32     if (measure % 2 == 1):
33         setEffect(2, PAN, LEFT_RIGHT, -100, measure, -100, measure+1)
34     else:
35         setEffect(2, PAN, LEFT_RIGHT, 100, measure, 100, measure+1)
36
37
```

13. Run the script and note the change in the track 2 PAN.

14. We will now set distortion for track 1. Distortion adds color to the sound by creating more 'edge' to the sound. The values are:

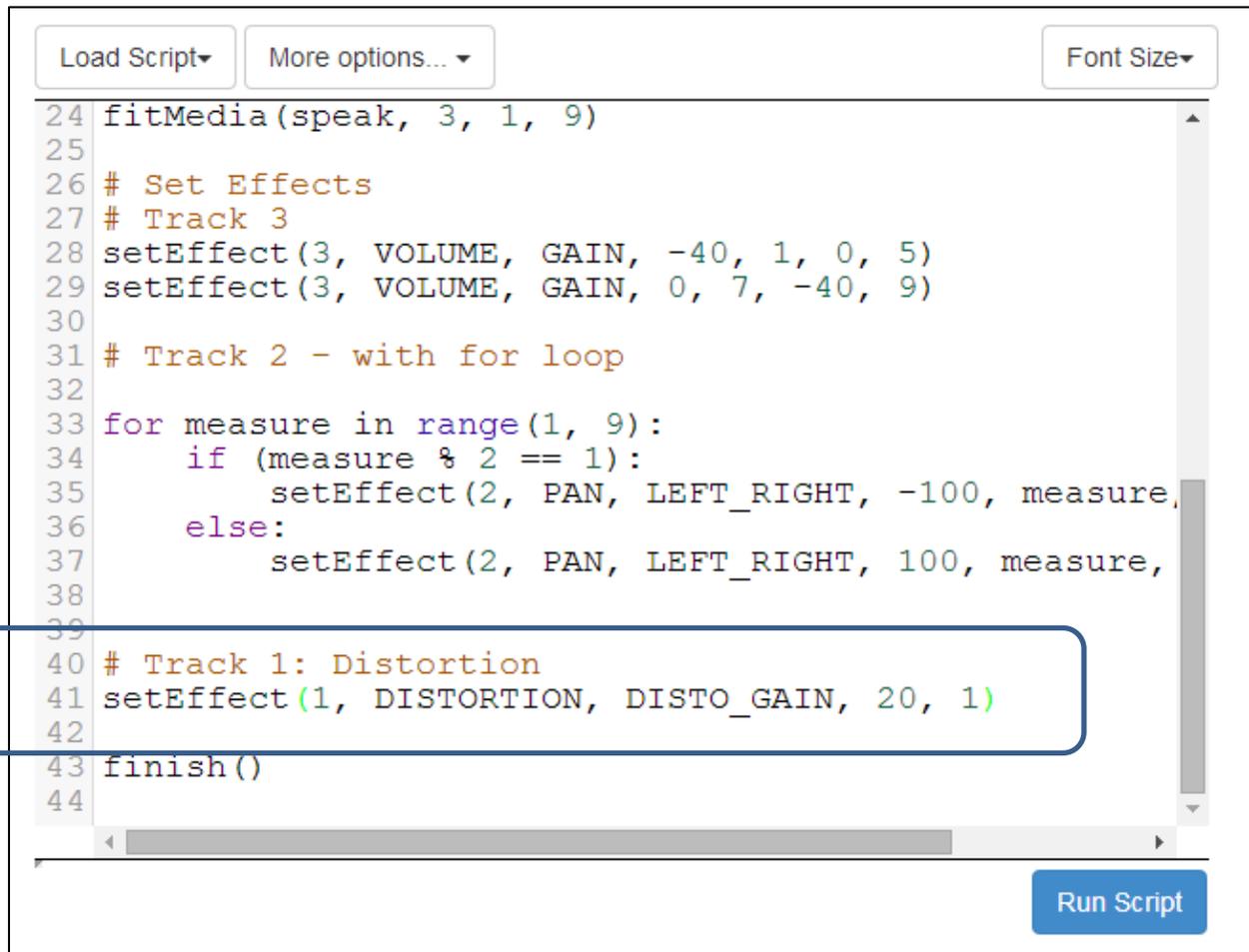
Effect: DISTORTION

Parameter: DISTO_GAIN

Value: 20

Range: 0 to 50

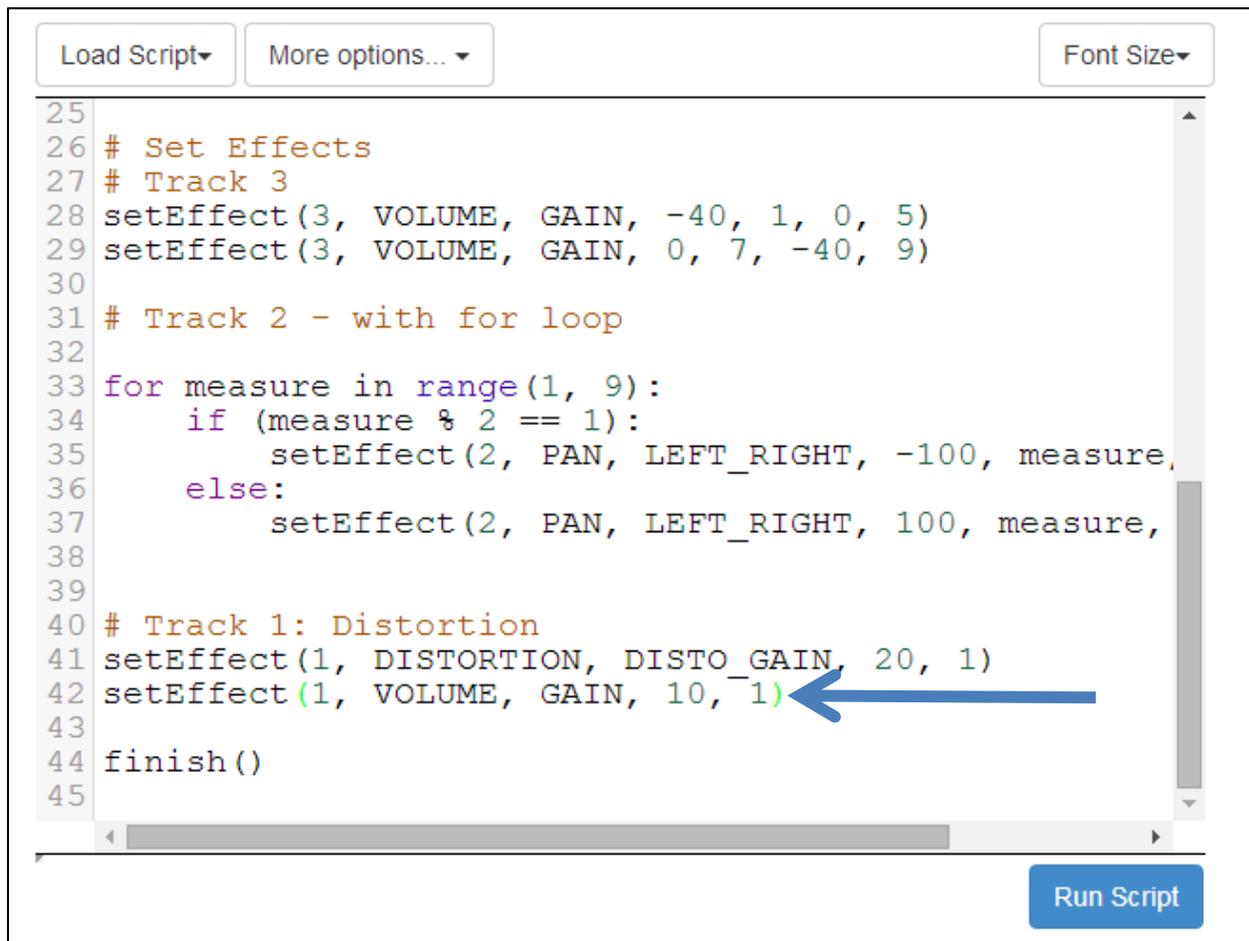
Write this code to add distortion:



```
24 fitMedia(speak, 3, 1, 9)
25
26 # Set Effects
27 # Track 3
28 setEffect(3, VOLUME, GAIN, -40, 1, 0, 5)
29 setEffect(3, VOLUME, GAIN, 0, 7, -40, 9)
30
31 # Track 2 - with for loop
32
33 for measure in range(1, 9):
34     if (measure % 2 == 1):
35         setEffect(2, PAN, LEFT_RIGHT, -100, measure,
36     else:
37         setEffect(2, PAN, LEFT_RIGHT, 100, measure,
38
39
40 # Track 1: Distortion
41 setEffect(1, DISTORTION, DISTO_GAIN, 20, 1)
42
43 finish()
44
```

Run Script

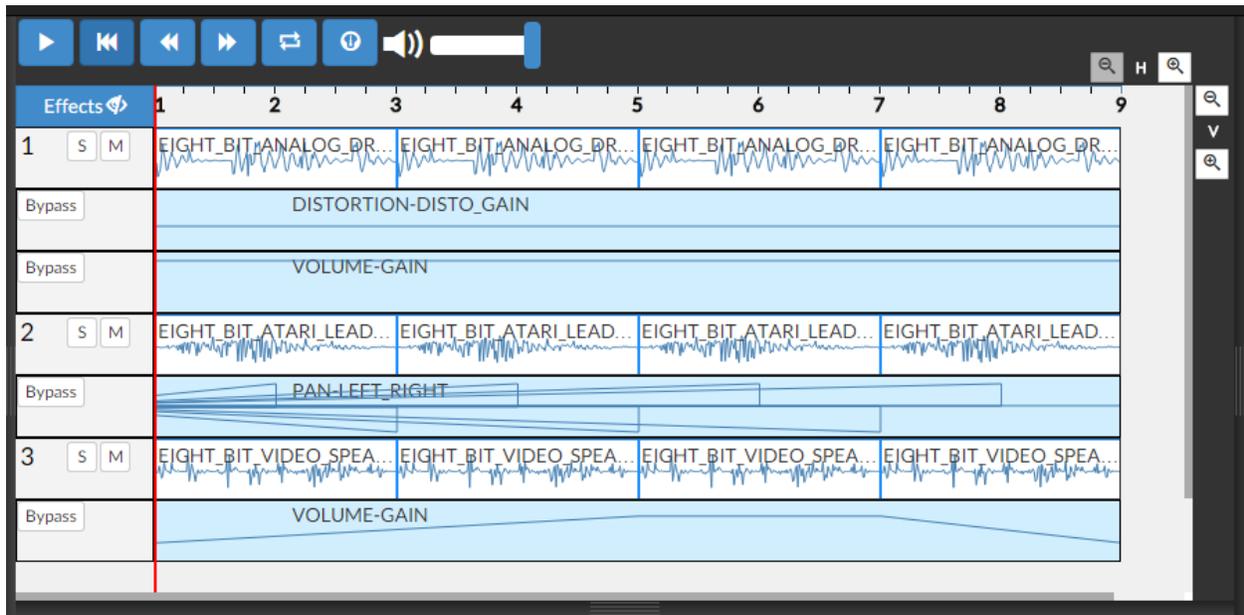
15. Run the Script. In my example Track 1 is not loud enough in the mix. So, I am going to add a volume setEffect to make track 1 louder:



```
25
26 # Set Effects
27 # Track 3
28 setEffect(3, VOLUME, GAIN, -40, 1, 0, 5)
29 setEffect(3, VOLUME, GAIN, 0, 7, -40, 9)
30
31 # Track 2 - with for loop
32
33 for measure in range(1, 9):
34     if (measure % 2 == 1):
35         setEffect(2, PAN, LEFT_RIGHT, -100, measure,
36     else:
37         setEffect(2, PAN, LEFT_RIGHT, 100, measure,
38
39
40 # Track 1: Distortion
41 setEffect(1, DISTORTION, DISTO_GAIN, 20, 1)
42 setEffect(1, VOLUME, GAIN, 10, 1)
43
44 finish()
45
```

Run Script

16. Notice that in lines 41 and 42 we only set the starting value for the effect. If you want the entire track to be at one specific effect, you can specify only a start value and measure.



Assignment: Create a section of music from measures 9 to 17. This section should use at least one effect on each track.

Requirements:

1. Measures 9 to 17 have at least 3 tracks of music.
2. Each track must have at least one effect with parameters that change over time.
3. You must use at least 2 effects other than VOLUME, PAN, and DISTORTION. (Consult the Effects and Parameters found at:

<http://earsketch.gatech.edu/category/learning/reference/every-effect-explained>