Marist EarSketch Lesson 1
Music Remixing, Python, and EarSketch
Student Directions

EarSketch is a scripting language for musical remixing that is based on the Python programming language. Python is a serious language that is used by many large companies, particularly Google. Here you’ll make your first EarSketch project.

EarSketch scripts are executed on the REAPER Digital Audio Workstation (DAW). The REAPER DAW allows the user to organize, edit, playback, and render musical sounds organized in tracks and measures.
Essential Elements we will use in Python:

**Comments**
# This is a comment – meant for Humans

**Includes** – loading preset methods or data
from earsketch import *

**Functions** – telling the computer “what to do”
fitMedia(drums, 1, 1, 5)

**Variables** – Names for information stored by program
Beat1 = “0+++0+++0+0+0+++”
drums = HIP_HOP_DRUMS1_2M

**Functions and Arguments:**

**Function** - Tells the computer what to do
**Arguments** - Details for the Function

Human Example:

```
doExercise(JumpingJacks, 5)
```

**Function**  **Arguments**
Selected EarSketch Python Functions:

```python
init() - Starts a new EarSketch Remix

setTempo() - Sets the beats per minute of the music. Sets the “speed.”

println() - Prints to the REAPER Console. Good for troubleshooting.

insertMedia() - Places complete musical sample at track and measure

fitMedia() - Places and loops or trips the musical sample to a track within a range of measures.

makeBeat() - Takes “slices” of musical samples and allows the programmer to set these slices in rhythmic patterns.

finish() - Completes the effects envelope process and puts the cursor at the beginning of the musical composition.
```

Detail for fitMedia() Function:

```
fitMedia(file, track, start, end)
```

- **Location of Media Sound**: Points to the location of the media sound file.
- **Which Track in Reaper**
- **Start measure.**
- **End Measure**

**Example:**

```
fitMedia('HIP_HOP_DRUMS1_2M', 1, 1, 9)
```
Objectives for Lesson 1:

Use the fitMedia() function along with EarSketch music constant library, track, and measure arguments to make a two track 16 measure musical composition.

Process:

1. Start REAPER - Click on the REAPER Icon:

2. Select Actions -> Edit ScratchPad
The Komodo Text Editor will open and show the ScratchPad document. The ScratchPad is a quick way to test out short musical ideas and practice programming essentials.

![ScratchPad.py](C:\Users\michaol\Documents\EarSketch Projects) - Komodo Edit 7.0

```python
# Scratch Pad
# For trying out short ideas
from earsketch import *
init()
setTempo(120)

# <----- Put Ideas Here ------->

# <----- Finish --------------->

finish()
```

**Line 4:** Imports the EarSketch Library of Functions allowing REAPER and EarSketch to work together.

**Line 6:** Will start a new REAPER Project

**Line 7:** Sets the Tempo for the music

**Between Lines 9 and 14:** Type Python and EarSketch functions to create music.

**Line 16:** The finish() function prepares the code for executing by REAPER.
3. Type the following code on lines 11 and 12:

```
# Fit Drums on Track 1
fitMedia(SOUL_DRUMS4_2M, 1, 1, 5)
```

Note that line 11 is a comment. The computer will ignore this line and not execute any text within a comment. Comments are meant for human readers to help make the code easier to understand.

4. Save your work. Select “File -> Save” on Komodo.
5. It is time to execute your music on REAPER. Go to the REAPER program and select “Actions -> Run ScratchPad” If the computer asks you to save, select “No”.

You should see one track of music from measures 1 to 5:

Click the Play Button to hear your drum track.
6. Now add the following lines of code start on line 14. This will add a keyboard track:

```python
# Fit Drums on Track 2
fitMedia(SOUL_KEYBOARD1_2M, 2, 1, 5)
```
7. Save the work in Komodo and Select “Actions - > Run ScratchPad” in REAPER. You should now see and hear two lines of music.

8. The Music tempo is set to 120 on the ScratchPad. This is too fast for this soul style music. So, go to the ScratchPad and change the tempo on line 7 by typing the following on line 7:

```
setTempo(92)
```

9. Save in Komodo and Execute in Reaper. Now the tempo compliments the style of music.
10. How do I add different sounds? EarSketch has a library of about 400 sounds. To access this library, on REAPER select “Actions -> EarSketch Audio Loop Browser.” You will now see a webpage with the constants. You may copy and paste the constant names to put them in your EarSketch Code.

![EarSketch Sound Library](image-url)
Exercise:

Using the fitMedia() function and EarSketch music constants. Create 16 measures of music with at least 2 two tracks. The music should be divided into two sections (A and B) and have tracks that work well together.

Example:

```
# Scratch Pad
# For trying out short ideas

from earsketch import *

init()
setTempo(92)

# <------ Put Ideas Here -------->

# A Section: Measures 1 to 9

fitMedia(SOUL_DRUMS4_2M, 1, 1, 9)
fitMedia(SOUL_KEYBOARD1_2M, 2, 1, 9)

# B Section: Measures 9 to 17

fitMedia(SOUL_DRUMS4_2M, 1, 9, 17)
fitMedia(SOUL_KEYBOARD4_2M, 2, 9, 17)

# <------ Finish ------------------>

finish()
```