Signals & Systems in Music
ASSIGNMENT: Record a Drum Beat in GarageBand

A solid drum beat is the backbone of song so it is important you understand how to record a decent drum track in GarageBand.

Turn on your MIDI controller (the Axiom 49).

Create a new GarageBand session with tempo 112 bpm in 4/4. Remember the trick for slowing down the tempo so it's easier to record, if you need.

Now add a new MIDI track (Track->New Track) and select a rock or pop drum kit in the 'Browse' tab to the right.

Make sure the metronome icon is 'on' (it will be lit up blue). It is located to the right of the transport area at the bottom.

Check to see if the Axiom is triggering the drum hits in GarageBand (you should be at octave 0 on the Axiom). The furthest key to the left is C1, which should be the kick drum. The kick, or bass, drum is tuned very low and creates the low frequency 'bump' of the rhythm track. Next is the snare drum, which should be on note E1 (the first white key to the right of the set of two black keys). The snare is the 'pop' of the drum track and contrasts with the kick drum. The third major component of a drum kit are the hi hats. These create some consistency across the measure and are typically played faster than the snare or kick pulses.

Now that you know a little about the basic components of a drum kit, you can play one and make a basic drum beat! Since you are in 4/4, you know that each measure or bar is 4 quarter notes long. The metronome click will pulse at this rate, 4 times per measure. The metronome is your 'perfect guide' for timing. Make sure you can hear it clearly (if not turn up the volume).

We want to layer the drum track so that we only have to play one of the drums at a time (it makes it much easier). To make sure we don't overwrite anything, we have to goto GarageBand>Preferences>General and make sure "Cycle Recording" is checked. You also need to enable the "Cycle Recording button." This button is located directly to the left of the metronome button and has two circular arrows (like a loop or something). You will notice a yellow bar pop up on top…. make sure this bar is about 10 or more measures long and starting at beat 1 of measure 1.

For a basic rock/pop beat, you can start by placing the kick drum on beats 1 and 3 (quarter notes, remember!). Let's record them in. With your hand ready to go on the C1 key, press the record button in the transport (the bottom of GarageBand). You will hear the 4 beat count-in first to prep your ear to the tempo so count with it… 1, 2, 3, 4, 1, 2, 3, … and so on. On the 2nd '1' you count, GarageBand will actually start recording (remember the count-in is just for you… nothing is recorded in this time). You only need to get one good measure with a kick on the 1 and 3. If it's not perfect, that's ok, we can fix it later… but try your hardest to get the two beats right on the 1st and 3rd metronome pulses. If you want an even cooler rock beat, put a kick on the 1, 3, and another on the 'and' of 3. You've heard this countless times!

Press the space bar to stop recording and crop your region so that it is only 1 measure long. If you need to, move the region to beat 1 of measure 1. Make sure snapping to grid is on!

Great! So we have the kick recorded. Awesome, lets add the snare drum. Move the little scrubber (the red line with the upside down triangle) to the beginning if your region. With your hand ready on the snare key (E1), press record, wait 4 beats for the count-in, and add a snare to beats 2 and 4.

The hi hat is an interesting part of a drum kit because there are actually 3 'actions' of a hi hat that can create or mute sound. The hi hats consist of a pair of two cymbals with a pedal that moves the upper cymbal up and down. This allows you to have an open hi hat sound (where they ring like cymbal - chhhhh chhhhh chhhhh), a closed hi hat sound (where the sound is very staccato and precise - tick tick tick), and a pedal sound (which is very much like the closed hi hat sound). The keys for each of these actions are A# (open hi hat), G# (pedal), and F# (closed hi hat). Keep in mind that the pedal or closed sounds, if hit while or after the hi hats are open, will 'choke' them very quickly (like chhhheeeew). Enough babble… let's add a closed hi hat sound on the eighth notes of our drum beat.

You may be freaking out about now since you have only been counting 1, 2, 3, 4 on the quarter note pulses of the metronome and don't know how to count eighth notes. Well, it's easy… just add an 'and' between each 1, 2, 3, 4 pulse…. like this… 1 & 2 & 3 & 4 & 1 & 2 and so on. The 1, 2, 3, 4 will still line up perfectly with the metronome pulse since it's in 4/4. The ' & ' will be said between the metronome pulses (evenly spaced of course!). Other note durations are counted in similar ways… triplets like: 1 trip let 2 trip let 3 trip let… 16th notes like 1 e & a 2 e & a…

So now record a eighth note closed hi hat pattern over your kick/snare track. If you want to get fancy, you can make the 'and' of the 4 open hi hat. WHOA NELLIE!

Quantize if needed.

Make sure the original region is only 1 measure long, then loop the drum beat so that it is a total of 4 measures long (but looped!). Remember to loop a region in GarageBand, you grab the upper right side of the region and drag. To crop, you grab the lower right (or left) side of the region.

Also, if you slowed the tempo down, speed it up to the proper song tempo before submitting.

Submit the GarageBand file via email to both "traub@rowan.edu" and "mease@rowan.edu" with subject line: SSMS12 - Drum Beat Assignment

You may have to zip the project if your email client complains about the format (you may also just be able to change the extension… whatever works for you).