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This essay is based on my D2(a) assignment, which was to create an instrument. In this essay, I will discuss my approach to creating the instrument, the entire process of making, comparison and contrast of my instrument to existing commercial instruments, user feedback of my instrument and my evaluation.

Among the options given, I made up my mind to create a sampler instrument with the AU sampler feature in the software, Logic Pro. (Cavar, 2022) The instrument that I create is an original creation that fulfills the assessment requirement, which is an interactive and playable sampler instrument. The reason that I did not choose making an analogue electronic instrument is owing to the fact that I was aware that my lack of experience would make it difficult for me to overcome complex applications like Max MSP, Pure Data and HISE. (volunteer, n.d.) Moreover, as this is my first time making my own sampler instrument, I decided to start with the software that I am most familiar with, which is Logic Pro.

My initial plan for this project is to get a couple of instrumentalists and then create a sampler for strings instruments, including violin, viola, cello and bass. However, I came across that this is very common as there are numerous strings sampler options in the market and professional cellist such as Tina Guo, who also has her own cello libraries. (Guo, n.d.) As a result, I made up my mind to create a traditional instrument and create some sound that people could hardly get on the market.

After careful consideration, I have decided to create an angklung sampler instrument. Angklung is a traditional Indonesian musical instrument, and it is traditionally made of two to four bamboos tubes and then being joined to a bamboo frame and bound with rattan cords. Thus, when the bamboos are being shaken, it will produce a distinct sound. Not to mention, angklung is classified as a percussion instrument, and since it can only produce single note, it cannot stand as a solo instrument. Therefore, it requires several players to play together to perform a complete song. (volunteer, n.d.)

This instrument excites me as it is a traditional instrument and I realize that there is only one option available on the market for people to select from. I personally think that traditional musical instrument sampler has a huge potential in the commercial market as there are more music producers worldwide, and they now enjoy sharing their own cultures in their music. Thus, traditional instrument should be emphasized more when it comes to the creation of new sounds.

Presently, there are numerous pre-designed sampler instruments and loops available on the market, which makes it easier for musicians to manipulate their music and projects. (volunteer, 2023) Even though there are many sample instruments available, it is still advantageous for me to have my own instrument because it enables me to build my sound library gradually. This is my first time creating a sampler instrument and it is undeniable that I have gained a great deal of useful knowledge in this field during the creation process. In the future, I intend to expand my sound library by creating more types of sampler instruments. In my opinion, having own sampler instrument helps me to save some time as I can obtain the voice that I want immediately. With my own voice, I can also create a song demo more quickly as I no longer need to look for the sound on another site. Moreover, I choose to create an angklung sampler as it offers me a more immersive experience when composing a Malay music. After this, to make my Malay musical compositions sound more distinctive, unique and complete, I can now incorporate not only modern instruments like accordion, flute, and oboe, but also the traditional ones.

In addition, for those who wish to compose a Malay song, they are encouraged to include the angklung as an additional layer. By incorporating this instrument, the piece is going to sound more accomplished and dynamic. Other than that, it also makes the music more recognizable as a Malay song as the angklung is a traditional Malay musical instrument. This would be like how composers would add drums or horns in Western music to enhance its distinctiveness. Not to mention, traditional Malay instruments normally employ pentatonic scales to convey the mood of the Malay folk music, so the users are encouraged to play only the notes on the scales.

Now, I would like to explain on how to play on this creation. As this instrument is being created on the Logic Pro, therefore the players must possess the software in order to play this sampler instrument. Firstly, the player has to open the prepared file on the logic pro and then simply inserting the notations on the laptop keyboard or midi controller to produce the sound and then feel the excitement and tension in their tracks. Later, he can start to modify the sound using Logic Pro's mixing and editing plugins, such as adding reverb or experimenting with different compressors. (volunteer, n.d.)

Even though this sampler instrument seemed simple, but it took me nearly 60 hours to complete the entire project as I had exposed to numerous minor flaws. As a new person in sampler instrument-making, I believe that it is crucial to devote more time to planning. Therefore, I divided my creative process-in-making into seven major part, which I will describe in the following paragraphs. (Laoyan, 2022) By doing so, I was able to take each step with greater clarity, and I hope that my experience can work as a reference for those who wish to create their own sound in the future.

The first step was to think about it. In this process, I ensured that I understood the assignment's requirements and spent time researching on each option. As this is my first time constructing an instrument, I spent nearly 30 hours studying the various software. Moreover, I also spent considerable time to study what interactive music is and how to make my work playable so that the user can interact with it. Then, I considered what instruments I should create and began to consider whether traditional or modern instruments have a greater market value.

Proceed to the second step, it was to explore it. At this stage, I have installed different software and tried each one-by-one. Then, I started looking and evaluating at the existing ideas and some ways in creating the voice. As previously stated, I decided to create my own instrument on Logic Pro. Therefore, I spent extra time to do more research on the similar works by watching YouTube videos and reading pertinent articles so that I can gain a deeper understanding before starting.

The third step that I worked on was to sketch it. In this process, I started to figure out angklung's characteristics and start outlining its' patterns and articulations. The reason that I jotted everything down is to avoid missing out anything when doing live recording for the instrument. Besides, this also gave me a clearer view of what I would need to play for it.

The fourth step was to create it. At this stage, it was all about preparing equipment and doing live recording. After finalizing the voice that I would like to record, I started to prepare the necessary equipment for live recording. Firstly, I had to get a real Angklung to do sampling. As this is a traditional instrument, it is not easily accessible, so it took me a while to look for the item online. During the process, I spent a lot of time and effort in finding the actual instrument for sampling. Lady luck was by my side, after a while, I came across that a website was selling Malay traditional instruments, but then I was told that all items would be hand-

made and would take approximately two months to receive a whole set. (volunteer, n.d.) The angklung has multiple ranges but due to time constraints, I made up my mind to purchase only the C2 and C3 ranges. To avoid other ranges from sounding a semitone up or down, I planned to spend more time to adjusting the notations for the other ranges to make them sound more realistic.

While awaiting the angklung's arrival, I spent more time to study about the instrument and went to YouTube and searched for some helpful references and gained some insights from there. Then, I explored about what effects could be added to the angklung, to make it more unique. Moreover, I studied some Malay traditional instruments such as gamelan, seruling and kompang to learn about their special effects, so that I could possibly enhance my angklung with the same effects with the mixing tools on Logic Pro. (Airline, n.d.)

Then, I also studied about microphones and looked for which mic is appropriate for the recording. As I rarely engage in live recording, therefore it took some time to learn about different microphones and doing live recording. In the end, I selected the MSL condenser microphone for this project as this microphone is suitable for recording purpose. (volunteer, n.d.) Then, I borrowed it from my friends and then proceeded to the studio to prepare for the recording once the angklung had arrived.

During the recording session, I encountered a couple of difficulties. As it was my first time doing a live recording and I was unfamiliar with the tools and equipment, I spent nearly 45 minutes setting up the microphones. Then, there was environmental factor: I realised that I could barely hear what I was playing during the live recording. After this, I was aware that before entering the recording studio, I needed to prepare my headphones ready so that I could listen to what I was playing. Moreover, as I was nervous, my playing was not as good as I expected. Consequently, the audio tracks that I have recorded had a major flaw, which was that some patterns went a little bit awry – the instrument's characteristic is not being performed nicely.

Then, I spent another day to the studio again. As a result of my prior experience, this time I spent only 20 minutes setting up everything. I took a few good takes and saved them all, so I got a few selections to choose from. I ensured that all audios were rhythmically and pitch correctly, then bounced and transferred them to my DAW. Then, I experimented with various mixing effects such as reverb, echo, and EQ into my audios to make my track sound more interesting. When working on it, I also marked down the questions and started to look for the solutions patiently. I did my best to maintain a positive attitude throughout this process so that I could persevere.

The fifth step was to test it. This process was essential as I had to test my creation. I had to ensure that the sound produced was of high quality and compatible with Logic Pro software. Other than this, I also tested the sampler instrument on different ranges and determined which range provides the best performance for it. Moreover, I was aware of some notes were not on pitch, so I spent time to tune one-by-one immediately. Besides, when demonstrating the sampler instrument to others, I also had to tell them on how to use the track and perform well with it.

The sixth step was to modify it. At this point, everything was done and all I could do was to look for ways to improve it. Therefore, I presented my work and explained my ideas to my professors and musicians' friends for their kind comments and feedback.

Last but not least, it was to sell it. This step was crucial for my upcoming assignment, as I need to do presentation to demonstrate the marketing of my instrument. Therefore, in this stage, all I did was brainstorming strategies for promoting my work and considered who might be interested in purchasing and using this invention. Other than that, I also considered the selling point of my product, what distinguished my work from others and the cost of this sampler instrument.

Throughout doing this project I realized my strengths and weaknesses in creating a sampler instrument. It was my first experience in creating a sampler instrument and I found that it was simpler to understand the characteristics of the instrument but a little bit challenging to express them out. When doing recording, I had to keep in my mind that the quality of the sampler instrument had to be on par with the actual instrument in order for people to find it useful. Not to mention, I watched a lot of videos as a resource and took notes on each one to make sure that I did not miss out or forget anything important during the recording session.

After this, I realized that it is very important to expand my social circle, to know more people in the music industry. Thus, I will try to become more extroverted and spend more time meeting new people and maintaining friendships with them. Moreover, I am ecstatic that this project has allowed me to meet and appreciate the instrument makers and their efforts to preserve the traditional music culture.

Now, I would like to discuss about the comparison and contrast of my sampler instrument to existing commercial instruments. There is currently only one Angklung sampler instrument available on the market and it was developed by Soundiron for the Native Instruments Kontakt platform. (volunteer, n.d.) The Soundiron angklung instrument is available to all users on various software such as Logic Pro, Pro Tools, and FL Studio as long as they have the full retail version of Native Instruments Kontakt plug-in installed. (volunteer, n.d.) However, my sampler instrument was created using the AU Sampler, which is the internal software of Logic Pro, so this creation is only available to Logic Pro users.

It is always beneficial to comprehend what my competitors are doing so it helps me to perform better. In order to gain a deeper understanding of the sound of angklung sampler instrument, I purchased the Soundiron voice and explore about their voice and functions. I attempted to listen to the voice produced and comprehend their mixing tools. For price wise, Soundiron sampler instrument costs \$49 and it is slightly less expensive than other brands, as the majority of samplers on Kontakt costs \$99. It is undeniable that this Angklung sampler instrument may be more affordable for the musicians to purchase but I have studied that the price is slightly lower as it has fewer functional features than the Kontakt instruments. For instance, the offered mixing and editing features on Soundiron's angklung sampler instrument are simple, such as giving the voice an attack and release effect, doing EQ and so on. I personally think that the Logic Pro plugin features could also provide nearly the same functionality. Not to mention, based on a comparison between my sampler and Soundiron's, Soundiron's raw sound has a slight echo, whereas mine is clean. This was owing to the reason that when designing my own sampler instrument, I ensured the live recording environment was as quiet as possible so that the audio quality would be good, and I could preserve the sampler's raw sound so that the user could add on additional effects as their wish for their own track. Overall, Soundiron's angklung sampler and features are simple, but I think it attracts people as it is the only angklung sampler instrument available on this market. Therefore, for those who desire to play or use the instrument but could not obtain a real one, they have no other choice but choosing this sampler.

In a money-making point of view, Soundiron is able to sell their Angklung sampler to the public, but I am unable to do so as I am using Logic Pro's internal software to create my product, which is not considered as my own brand. For now, my primary objective is to promote the traditional instrument, so I created my work using the AU Sampler. However, after acquiring more sampler instruments and gaining more knowledge, I will seek help from the relevant engineer for assistance in creating my own sampler page and promote it to the public.

After creating this sampler instrument, I realized that having my own sampler library is a fun thing to do as collecting personal sound allows me to have my personal library and create my own unique sound. So, I hope that in the future I will be able to create my own sound library on Kontakt with my exist knowledge and share them with more music creators. For now, my samplers only allow the players to do their own mixing and editing using Logic Pro plug-ins. I hope that soon I can create an instrument with my own dynamics and mixing effects to the tracks so that the players do not have to make their own adjustments and can just simply use the preset ones instead. In additional to making sampler instruments, I also hope to create my own sound effects library with natural voices such as bird chirping, forest sounds and water flow sounds.

It was truly undeniable that I enjoyed learning throughout this entire process. I felt super happy to have the opportunity to utilise my musical knowledge and create my own sampler instrument. Moreover, I wish that by crating this sampler, it will not only help the musicians in making their music but also help the non-musicians to develop interest in music. Therefore, I shared the tracks to a couple of my musicians and non-musicians' friends to get different responses and feedbacks from them. Not to mention, in order for the users to have a good experience in playing the instrument, I guided them step-by-step and provided them with some useful tips on how to make the sampler sounds engaging.

For musicians, a few of them mentioned to me that this is their first time seeing and playing with angklung instrument and they expressed their astonishment on their faces. Moreover, they told me that after this, they will begin to explore Malay songs and learn more about the Malay music culture. Besides, they told me that they found this sampler instrument is great as the voice is clean and this makes them easier to mix and edit on the track. However, they also stated that this sampler instrument is not user-friendly for the new Logic Pro users, as the player ought to have basic knowledge or familiarity with the mixing and editing features in order to perform well with the instrument and create a better outcome with the sample instrument.

For non-musicians, all of them found it interesting as they no longer need to understand the music theory or technique in order to play with it. They were also overjoyed as they could now play an instrument without having a professional keyboard; a laptop would suffice. For instance, they can enable the musical typing on the Logic Pro and then play with it by simply pressing a key. (volunteer, n.d.)

Regardless of whether the users are musicians or non-musicians, I felt happy to have the chance to share my musical experiences and knowledge with people when they are testing on the tool. Besides, I found it extremely satisfying when to see the joy and excitement on their faces as they played with my sampler instrument. I am pleased that I am able to provide the musicians a new perspective on a Malay traditional instrument. On the other hand, I am glad as I can use my little effort in helping the non-musicians in achieving a sense of accomplishment when they are playing on my instrument as some of them told me that they found my work very interesting

and started having interest in composing own music. I was very happy to hear that as I can help them to gain enthusiasm and get a good start in learning DAW.

It is undeniable that I enjoy the entire process of completing this project. this project. Firstly, I learned how to create my own sound and also explored that logic pro has many features that I have never tried before, like doing own sampling with the AU sampler. After this, I will spend more time to study the hidden features and unique tools on Logic Pro so that I can explore more on music production field. Besides, I also learned how to differentiate the microphones and choose the correct mics for live recording. Even though I made a few errors throughout the process, it was still a good learning experience as I learned how to interact with different people and solve unexpected problems immediately. Moreover, I learned to step out of my comfort zone to express myself such as sharing my work to other people and also presenting it to my tutors and professors.

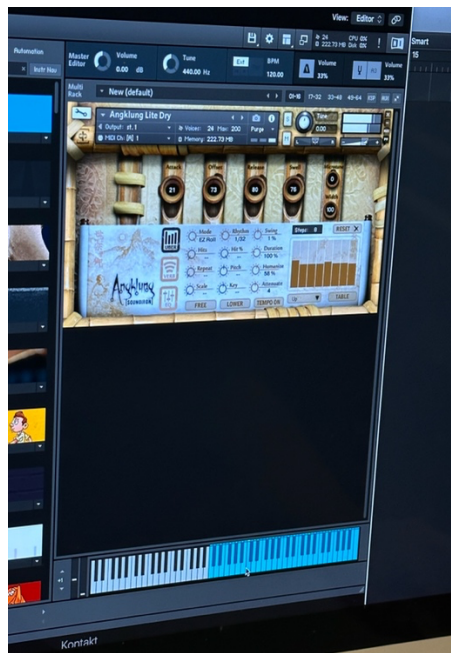
Before I started working for the project, I expressed my thoughts to one of my lecturers, Mr Ciaran. I explained my ideas to him what I intend to create and how to manipulate the instrument with the track so that I could ensure that everything is on the right track before starting my work. He is a very patient person and during tutorials, he strives his best to provide me with some useful comments. Furthermore, we also discussed on any additional points that I could include in my essay. Then, he provided me with some useful advice and overall, I was grateful to have such an amazing tutor in helping me to achieve a great work for myself. Not only this, I am also proud as I was given an opportunity to promote a traditional musical instrument and culture to the public. When people see this instrument, the angklung, they will wonder about the history and how to play it. Then, they will eventually an appreciation for Malay folk song and begin to compose their own Malay music.

In a nutshell, I feel grateful and thankful for the opportunity to express my artistic ability and creativity through the creation of this original sampler instrument. However, at the moment, I feel that I am still new in doing this and am still learning how to develop more voices for myself in different software. Therefore, I am still exploring what is truly unique to me and my voice in this field.

Appendix



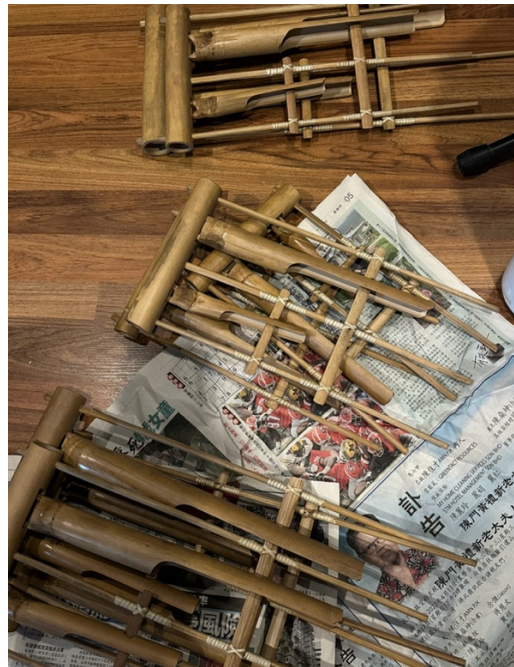
Appendix A: MSL Condenser Microphone – we use this to do the live recording.



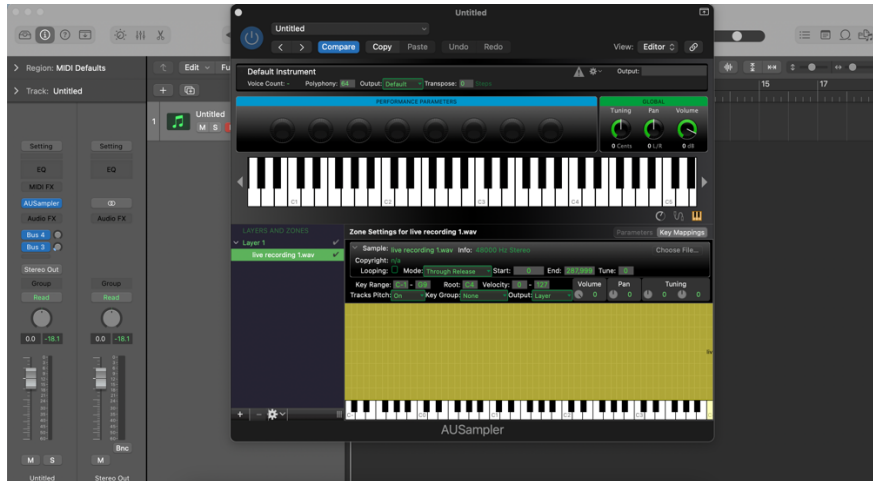
Appendix B: We explore about Soundiron's angklung instrument.



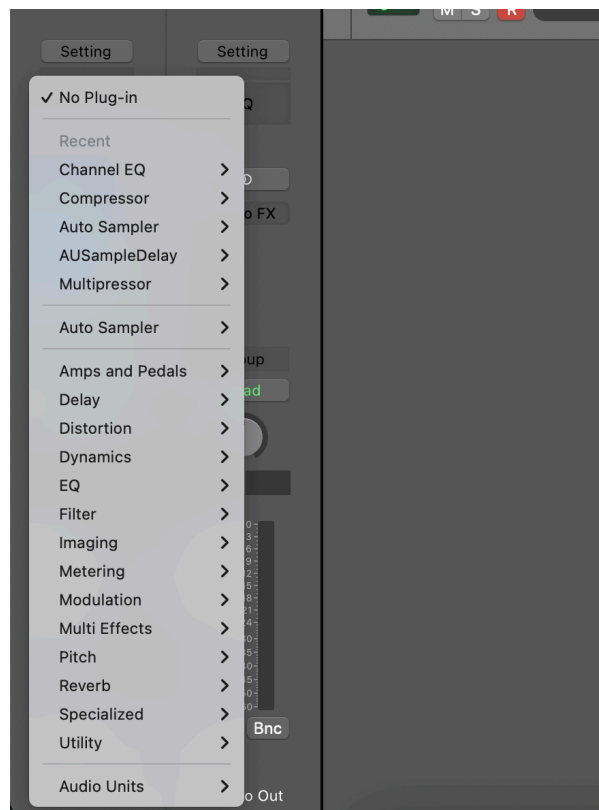
Appendix C: Single note on angklung. (Will produce sound when you shake it)



Appendix D: Each note produces a unique tone.



Appendix E: AU Sampler, the internal software that I used to create my work.



Appendix F: Logic internal plugins - users can use to do mixing for their tracks.

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