

## User Interface Programming – Project Research Workbook

---

This workbook will help you focus your research for your project.

Once you have answered these questions, use this information in your GUI Design Document.

Briefly describe the application or game you will design and create the user interface for.

The graphical user interface you design may be just a piece or sub-section of a larger application.

This is your initial idea to focus your research. The application described in your design document, or your final build, may end up being different from this description.

Keep in mind that you may want the project you develop in this subject to integrate with the project you create for the subject *Cross-Platform Development*.

The application will be a sort of music creation app, where the player can spawn in different objects that all have separate musical functions. The main focus is that they would all be operating on a loop at the same rate so they can all play in time with each other. Some objects could play a drum noise, some could play a keyboard noise, etc... There could also be some blocks that apply an effect on top of the playing audio.

We would allow the player to “go into” these various objects opening up their UI to let the player interact with them.

Identify any industry best practices, standards, codes of practice, or similar requirements or frameworks that may be applicable to the graphical user interface you are designing.

You may want to consider developer guidelines for app or game stores, video game rating regulations, and industry best practice reflected in online blogs, guides, or conference recordings.

One important practice I will need to implicate is for the options sliders. (Eg. Master volume level, FX level, etc...) Since these will be interacting with audio they will need to be converted to output logarithmically instead of linearly, otherwise they will not work properly.

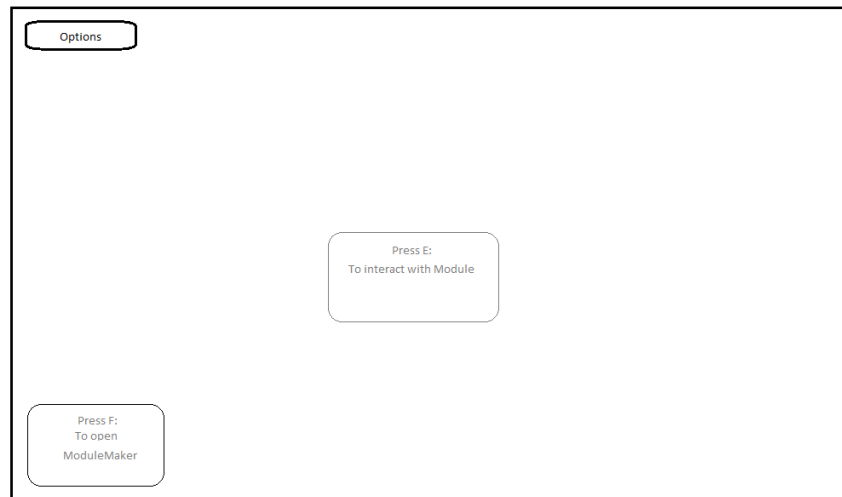
The UI should also be very pleasant to work with in terms of user feedback. So having the buttons highlight themselves and provide some sort of audio feedback when pressed to satisfy the user is important, as well as attach some small animation to the feedback. This would also make interacting with the various audio objects a lot more enjoyable and intuitive. (Knobs + Switches having click sounding feedback)

Describe the functionality of your GUI.

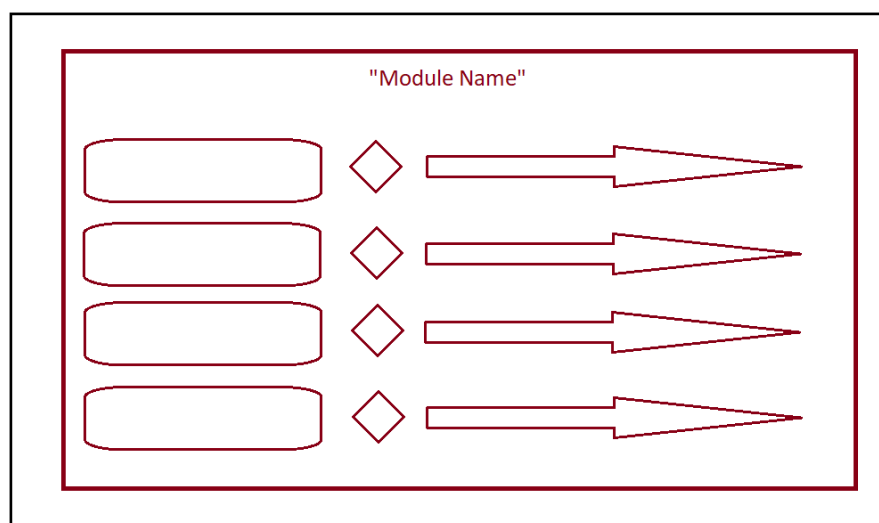
Use diagrams or mock-ups to detail the front-end interface (what the user sees).

Describe the events or processing that occurs in response to actions the user performs using the interface (i.e., the back-end processing).

The basic GUI will be extremely simple. Having an options tab for the player to open and edit the audio levels with. As well as some controls for interacting with an object and opening its interface. It should look something like this:



The individual modules would have their own unique interface that would pop up after being interacted with. Below is a mock-up of the “LoopModule” that would allow the user to, enable and disable different loops, as well as changing the volume levels of the loops. (The rounded rectangles signify a dropdown list to choose a loop to play, the diamonds are used to signify the toggles, and the arrows to signify a volume slider)



What prototyping tools are available to you? Which one(s) will you use?

To get my first mock-ups done for the UI I used both a pen & paper as well as Microsoft Paint. The physically drawing was just to get a few rough ideas together so I could decide on the best looking one. I then used Microsoft Paint to do a neat and proper layout for how I want the UI to look.

What resources are required for the development of the user interface?  
Include both software, and assets.

All programming and game building will be done within Unity and Visual Studio.

Assets:

-Art

Assets from Kenny will be used for all the art

-Music:

Music assets will mostly come from myself, all in the form of .wav files that can be slotted in easily within the unity environment. I will also be experimenting a bit with Unitys own procedural audio generation. Most likely this will come in the form of a single module with use of Unitys "OnAudioFilterRead" function to fiddle with the audio.

List and describe the information that is contained within a design document used to describe the design of a graphical user interface.

In how much detail is each piece of information typically described?

What diagrams may be included?

One of the key pieces of information that should be included is the wireframe mock-ups. These should be polished wireframes of UI elements that will be implemented and will serve as a reference when designing and implementing all the functions within the separate UI elements.

It should also have a list of features relevant to the UI. Things that are completely necessary in their function and the UI would not be able to function without them. These things should also be described in some detail to the point where anyone reading would be able to understand how these features contribute to the final UI.

A final useful feature is to include how stressful this UI would be to run on the computer and what should be required (in terms of specs) to run it smoothly.