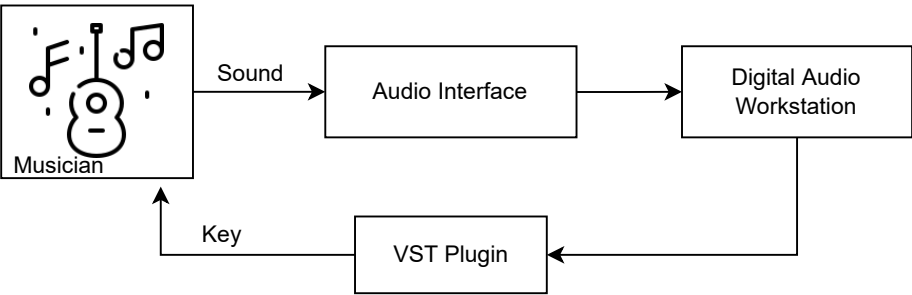


D0:

# Musical Key Identification

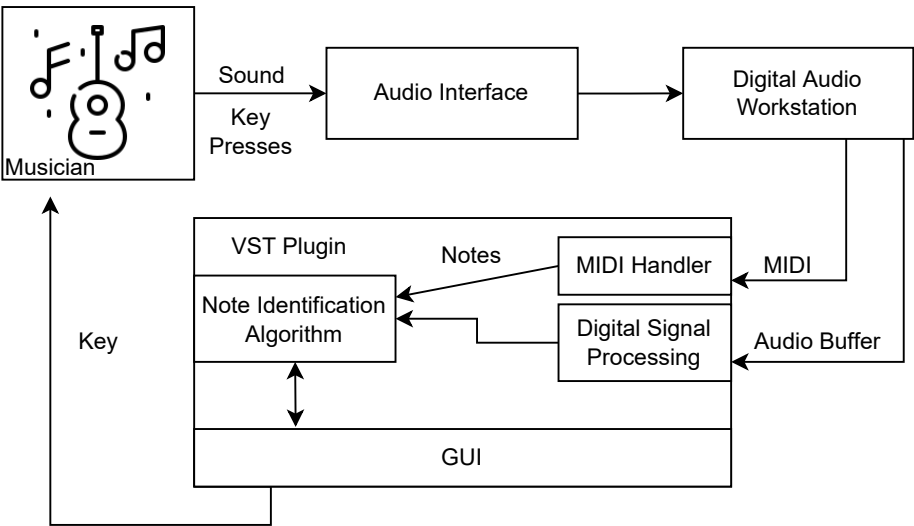
Goal: Analyze audio played by a musician and return the closest identified key in real time.



## D0

In this diagram, the user as represented by the guitar and notes, records music into an audio interface of their choosing. The Digital audio workstation or DAW receives the input from this piece of hardware. The DAW host our plugin, which takes the form of a Virtual Studio Technology or .VST plugin. Our VST then analyses the music to display a key back to the user.

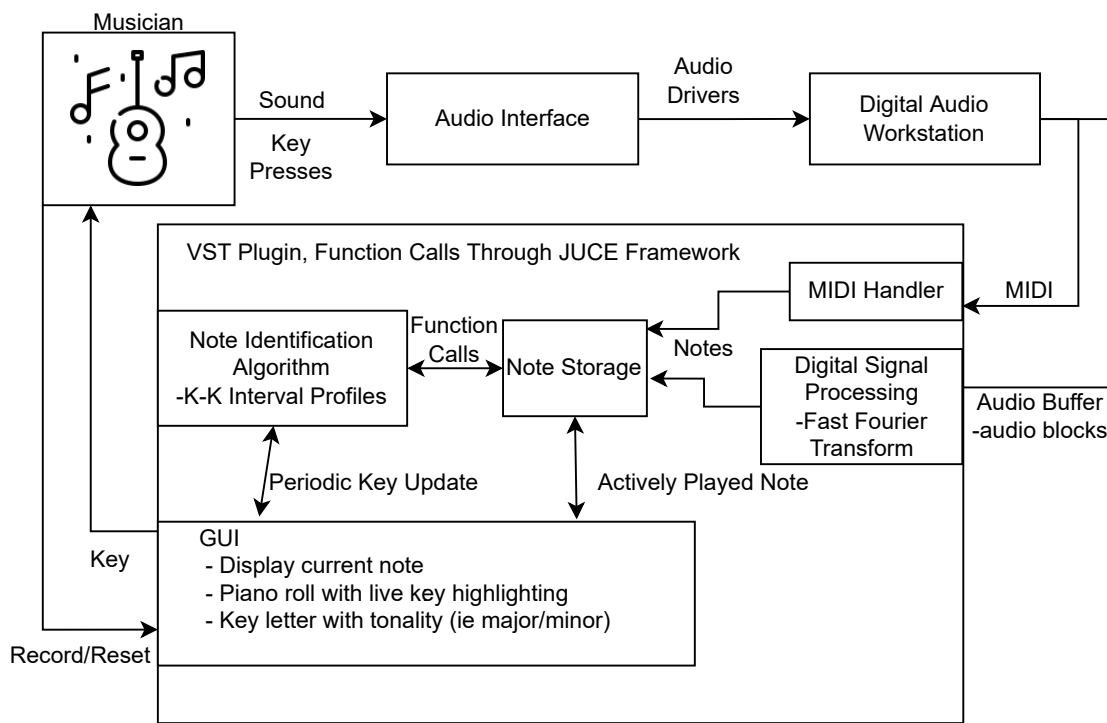
D1



## D1

In this diagram, the plugin is broken into its component parts in more detail. The music can take the form of either audio or or key presses. The audio is a placed in a buffer to analysis and the key presses deliver notes in the MIDI format. Notes are identified from either MIDI or with Digital Signal Processing and delivered to a Note Identification algorithm. The GUI interface provided by the JUCE framework will make periodic calls to the underlying algorithm to update the key in real-time.

D2



## D2

In this diagram, specific implementations are shown. The Digital Signal Processing algorithm is likely to be a Fast Fourier Transform and accept a "block" of audio from the buffer. A certain amount of notes are needed to identify a key so they will be stored in Note Storage. One algorithm under consideration is the K-K Interval Profile Algorithm. The GUI will feature note highlighting on a virtual piano roll according to the key. The GUI will accept basic, record and reset clicks from the user which will clear the note memory.