Requirements

# Non-Functional Requirements

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| **No.** | **Requirement** | **User Story/Stories** |
| **1.0** | The system should be able to open a stream to interpret incoming audio data. | 1. *As a musician, I want to be able to record myself playing so I can have the sheet music automatically transcribed for me.* |
| **2.0** | The system should be able to store a stream of sound data as appropriate for internal processing. | 1. *As a musician, I want to be able to record myself playing so I can have the sheet music automatically transcribed for me.* 2. *As a musician, I would like the system to accurately understand the notes I’m playing so they can be transcribed correctly.* |
| **3.0** | The system should be able to analyse sound data by distinguishing individual note fundamentals from identified frequencies. | 1. *As a musician, I would like the system to accurately understand the notes I’m playing so they can be transcribed correctly.* |
| **4.0** | The system should be able to identify the correct pitch for (monophonic) notes played on a standard piano. | 1. *As a musician, I would like the system to accurately understand the notes I’m playing so they can be transcribed correctly.* |
| **5.0** | The system should be able to distinguish the length and duration of individual notes. | 1. *As a musician, I would like the system to accurately understand the notes I’m playing so they can be transcribed correctly.* |
| **6.0** | The system should be able to translate identified notes into a MIDI file format. | 1. *As a musician, I want to be able to see my transcribed sheet music in common notation software so I can use it in the future and edit it if I need to.* |
| **7.0** | The system should provide a simplistic GUI to allow the user to input details (key signature/tempo/time signature). | 1. *As a musician, I want to be able to tell the system what tempo, time signature and key signature I’m playing in so I can be sure the sheet music will be accurate.* |
| **8.0** | The system should be able to use the obtained pitches to calculate an estimate of the key signature the played melody is in, taking into account the accidentals and repetition of potential tonic/dominant notes. | 1. *As a musician, I want the option to let the system estimate the key I’m playing at when I don’t want to disrupt the compositional process and manually work it out while composing.* |

# Functional Requirements

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| **No.** | **Requirement** | **User Story/Stories** |
| **9.0** | The system should allow the user to commence and stop recording. | 1. *As a musician, I want to be able to choose to start and stop recording so that I know when to begin and stop playing.* |
| **10.0** | The system should allow the user to specify the time signature, key signature and tempo they intend to play at. | 1. *As a musician, I want to be able to tell the system what tempo, time signature and key signature I’m playing in so I can be sure the sheet music will be accurate.* |
| **11.0** | The system should be able to alternatively estimate the key signature being played in. | 1. *As a musician, I want the option to let the system estimate the key I’m playing at when I don’t want to disrupt the compositional process and manually work it out while composing.* |
| **12.0** | The system should be able to generate a file from the analysed sound data that can be imported directly to popular notation software, such as MuseScore or Sibelius. | 1. *As a musician, I want to be able to see my transcribed sheet music in common notation software so I can use it in the future and edit it if I need to.* |
| **13.0** | The system should be able to allow the user to specify where they would like their outputted MIDI file. | 1. *As a musician, I would like to be able to specify where I can store the system’s output so I can access the results easily.* |