A summary of 'JazzBot'

In November 2021 I decided to take a career break in order to travel around Asia and work on an algorithm to generate MIDI jazz melodies. This was an exciting opportunity to see and experience new cultures and landscapes whilst continuing to work closely with software. I have previously explored this concept for my my final year project in university, and although I was awarded a high mark for this, I wasn't completely satisfied with the results and was aware that there was much more I could achieve. After working professionally for three years and having a deeper understanding of software, I was eager to attempt a new approach. The goal of the project is to output jazz melodies using MIDI data. This can either be achieved by analysing inputted data, or writing predefined rules to create a jazz melody. The latter has potential to achieve some very convincing results because there are clear ways that we can model and define the properties of a jazz solo. Instead I was eager to write a program to make melodies based on pre existing data instead of fixed instructions, which could potentially lead to some more surprising and exciting results. I fortunately came across a large dataset of MIDI files, collated by blah and blah, which is the basis of the entire project. Due to the fixed length of my trip and my inconsistent schedule whilst travelling, the approach I chose was limited but has resulted in creating a solid foundation for the project. The main menu of the application leads to two different options. The first option "Generate Sequence Data" allows the user to view a MIDI file in a custom built GUI and the option to view the result of an algorithm on the selected file. The default algorithm extracts groups of consecutive eighth notes which are a fundamental part of improvised jazz melodies and are also simple to work with as it eliminates rhythm and timing information. The "Generate Sequence Data" button applies this algorithm to all MIDI files in the dataset and saves these groupings to an SQL database. The second option from the main menu "Generate Sequence" uses the the saved database file to generate random jazz melodies over a selected chord sequence. Currently these melodies are stitched together sequences of eighth notes which produced unconvincing results. Although a musician has played these melodies over the selected chord and are in theory "correct", they are devoid of all context which is a fundamental part of a real improvised jazz solo. This output was expected but proved to be an interesting experiment and implementing this was an important process to lay the ground work for future approaches. Currently the melodies are saved as MIDI files and to hear them

in the context of a song they can be combined with provided backing tracks in a Digital audio workstation. Future plans for the project include audio playback, investigation into a AI approaches, more note algorithms, improvements to existing algorithms and cross platform functionality.