AI Music Generation

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| Report name | AI Music Generation |
| Author (User ID) | Joe Thomas (jot38) |
| Supervisor | Richard Jenson (RKJ) |
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# 1. Project description

This is a project where the user (me) will need to write a program which will use artificial intelligence or machine learning techniques which will take an input of MIDI files or a singular MIDI file and be able to output a MIDI file which is in the same 'style' as the inputted track. I will be using the machine learning technique of Bayes learning which will use probability to 'compose' this piece of music.

I will do this by making various tables which will contain such things as the probabilities of intervals between notes, the probability of how loud the notes are played, the speed of the notes and other things as well. I will also need to work out how to read the MIDI files into the program itself and extract the data from it.

I am unsure at this stage of how to test it however I will try to use Junit tests for different parts of the project but I may need to use human or user testing to ensure that my code is correct and I am able to achieve the outline that I set up to achieve my targets.

# 2. Proposed tasks

These are the tasks that I will need to achieve by the end of the project.

Research

> I will need to make sure that all of the areas that I need to research have been so that I am able to understand any issues that I may be having from this assignment.

Input of MIDI file to Java program

> I will need to load a singular MIDI file or a collection of MIDI files into the program that I will be writing.

Usage of agile principles

> I will use an agile method that will make use of sprints which I will use to do my work. Sprints will ensure that I continue to get all of my work done to the correct schedule.

Attend all project meetings

> To be able to keep on track with my project and make continuous progress with it I will need to ensure that I continue going to my meetings so that I don't fall behind.

Version control

> As this is a coding project I will need to make sure that I can have a note of the most current bit of code is used. I would use different versions so that I can have input of previous versions in case any parts of the code ends up not working.

Tables

> I need to ensure that I completely understand how to organise, implement and manipulate the probability tables that I will be implementing in order to fulfil this project as they are a major part of it.

Development and implementation

I will need to make sure that my coding is at a high level and uses efficient and intelligent algorithms in the code and am able to develop regularly so that the code is always improving.

Demos of project

I will need to prepare for two demonstrations of my assignment as there is a demonstration mid way through the semester and also one at the end which I will hopefully have a complete product to describe to an assessor.

# 3. Project deliverables

Working Software

This will be a build that can be compiled and also to fulfil the main objective of the project which is to be able to produce MIDI files in the same style as the inputted files.

Documentation

This will be a write up of how I achieved the code and may possibly contain instructions for the proposed target to use in order to clear up any confusion that may occur when the software is used.

# Bibliography

[1] G. H. F.-D. P. Jean-Pierre Briot, Deep Learning Techniques for Music Generation – A Survey, 7th August 2019.