**Feasibility Report**

**1. Product**

Our product looks to offer computer generated music that has been synthesized to invoke a chosen emotion. The system, through machine learning via a large musical database will offer a wide array of genres/emotions. The user will be able to add their own songs that the computer will then turn into its own synthesised music. The program will primarily be on laptops, but if there is time, then the system could be put as an app on iphone, android, and other IOS devices.

**2. Technical Feasibility**

The machine learning model may require a substantial amount of data to generate quality results. The system, although will need to take up much storage space for the large amount of music files it will need along with a decent amount of computational power for processing. Large cloud databases and computational services that already exist for a price can be easily utilized for such large systems. Although depending on the size of power needed, this could end up needed something larger which in turn is a demanding constraint.

**3. Social Feasibility**

The introduction of computer generated music may see an initial social backlash from music creators. This backlash will come from music being made artificially via an AI/machine learning system. Despite this backlash, in the long term, our product seeks to facilitate music production. Computer generated music may be a valuable tool for music artists in the future allowing for inspiration and help with music production. Widespread adoption of the product could cause a shift in how music is produced.

**4. Economic Feasibility**

A substantial amount of research will be required to develop a functional product. There is not enough concrete evidence that music may elicit emotional response. Along with research large amounts of storage and possibly cloud processing could become costly. This is likely to lead to a high development cost for the product. Our product is most likely to be sold as a subscription service with multiple tiers in order to have a positive cost benefit system as opposed to offering a one time buy premium service. Given that there is a significant adoption rate, our product could become profitable.

**5. Market Research**

Several similar products offering computer generated music have emerged, notably: <https://www.aiva.ai/>, <https://boomy.com/>, and <http://computoser.com/>. The market for computer generated music is young and growing rapidly, thus a demand or interest in it should arise fairly soon. Our product will compete with similar products by offering a better comparative value. We may offer better deals to studios looking to utilize our product for profit. As our product is intended to be provided as a service we may offer separate personal and professional service packages.

**6. Alternative Solutions**

The program can be used for music artists that want to give their music a new rhythm/melody. Like a rap artist can look up the songs that they downloaded to the program and see if they can use it to create a new beat. The program can also be used for music therapy to aid therapists to see how their patients are doing. For example, when the patient gets angry, the therapists can prescribe them calming music from the product. The base system though, can let other people listen to songs that they like and don’t have to worry about the system’s therapeutic applications.

**7. Project Risks**

Project risks could result from the various cloud services that would need to be used for getting song information from a music database like Discogs; or the use of a server like Google Cloud. Databases, like Discogs, can have corrupted, incorrect, or missing information that is needed for the system. Cloud services are not always secure and can suffer the same issues as databases could, especially with any needed internet connection via packet loss or faulty connections. Music file formats are vast in number and vastly different in codecs and general formats; this needs to be considered as the project is made. Storage space can also be an issue since music files can get large; the mixing and parsing of said files can spread memory throughout the operating system and eventually build up taking up memory. Consideration for copyrighted music and where the music is coming from can also be an apparent issue. An issue to consider more towards the final, completed project, is to formulate on how to handle music that is copyrighted for development and client use.