Idea Proposal

Group members: Azamat Erzhanuly, Erman Bekzat, Sanzhar Amanzholov

Problem or Idea Description:

The project aims to create a music generation system that produces music based on the user's mood input. Music has a profound impact on emotions, and this project seeks to leverage machine learning to generate music that aligns with specific moods, offering a personalized and immersive musical experience.

Background Information:

Music has the power to evoke emotions and enhance various experiences.
Existing music platforms often lack the ability to dynamically generate music based on a user's mood, leading to a missed opportunity for a more tailored and engaging user experience.

Available Solutions:

Yandex Neuromusic: https://t.me/yandex/1090

The Yandex Music service launched Neuromusic. This is an endless melody for concentration, unique to each user.

“Neuromusic” is generated in real time by Yandex algorithms, and the Yandex Music recommendation system makes it unique for each user of smart speakers with “Alice” or the Yandex Music mobile application. In addition to Yandex Stations, the project works with JBL smart speakers with Alice. Neuromusic will not run on older models of DeXp and Irbis speakers.

The developers explained that “Neuromusic” is rhythmically adjusted: there are no words or pauses in it that could distract the user. The project has three available modes: calm, inspiration and vigor. They can help you focus on creativity, study, work including programming, working out, reading and any other activities that require high concentration.

How to Get the Data?

To implement a mood-based music generation project, we'll need a dataset that includes music samples labeled with corresponding moods. Since music datasets specifically labeled for mood-based generation might be limited, we may need to curate or create a custom dataset.

Here is some datasets that we may consider in future:
Datasets like the DEAM (Dynamic and Emotional Analysis of Music) dataset or datasets from the Music Emotion Recognition (MER) task in the MIREX competition include annotations related to emotion in music. You can use these datasets and interpret the emotion labels as moods.

Last.fm Dataset:

Last.fm provides datasets that include user listening habits, tags, and other metadata. While it might not have explicit mood labels, you can explore user-generated tags that might indicate the mood of a song.

Of course, we can also make manually datasets

Brief Description of the Solution:

Our solution involves training a machine learning model, possibly using a combination of recurrent neural networks (RNNs) or transformers, to learn the relationships between musical features and mood labels. Users input their current mood, and the model generates music that corresponds to that specific mood.

Tech Stack (Possibly can be changed during the implementation)

Programming Language: Python
Machine Learning Frameworks: TensorFlow, PyTorch
Data Processing and Analysis: pandas, NumPy
Web Development (User Interface): React, Node js, HTML, CSS, JavaScript
Version Control: Git, GitHub