1. **Finding a phenomenon and a question to ask about it**

Machine Learning models can be trained on EEG data to find what emotion the user is experiencing with decent accuracy [1]. Can such models be used to find the genre of music the user is interested in?

### Understanding the state of the art

### Read a paper [2] that can predict users music taste with 86% accuracy with ANNs.

### Determining the basic ingredients

### Data must me collected using headsets and exposing the subject to a variety of songs from different genres and recording EEG data.

### Formulating specific, mathematically defined hypotheses

### Selecting the toolkit

### Once the data is collected, models can be built and trained with the help of pytorch, a python framework for deep learning.

### Planning the model

### A simple ANN can be used initially but depending on the accuracy it can be upgraded to CNN. The EEG data can also be converted to Mel-frequency Cepstral Coefficients [3] using DSP methods.

## **Implementing the model**

### Completing the model

### Testing and evaluating the model

### Publishing models

### [1] <https://www.sciencedirect.com/science/article/abs/pii/S0925231213009867#:~:text=Chanel%20et%20al.,70%25%20for%20Fisher%20discriminant%20analysis.&text=Their%20study%20achieved%20a%20recognition,93.5%25%20for%20two%20emotional%20states>.

### [2] <https://www.diva-portal.org/smash/get/diva2:1352566/FULLTEXT01.pdf>

### [3] https://haythamfayek.com/2016/04/21/speech-processing-for-machine-learning.html