Music Recommendation System with RL

Inputs:

The user’s mood: happy/sad/normal/calm/mix

Style: jazz/melody/instrumental/…/mix

Year: old/mid/recent trending/mix  
  
Dataset:

List of all songs with descriptions.  
  
MAB Model:

The agent is a nlp based model, which can directly take in the song description and user inputs. The inputs can be one hot encoded (or) some pretrained embedding model can be used. The agent will take a weighted similarity between the input and all the songs.

The action is the model’s choice from the list of all songs.

The choice of the song could be exploration/exploitation choice.

Initial reward: Based on the given input, the model must recommend the initial song. The reward will be given based on the similarity between the user input and the song description.

Recurrent reward: Here the model’s selection will be rewarded based on the similarity with the user input and the previously suggested song. Some randomness will be added so that the model does not suggest songs of same type.

End rewards: more weightage will be given to relevance of the song with the previous song than the user input.

The model will be highly penalized for suggesting previously suggested song.