

Mood Prediction of a Spotify User based on The Music Streaming Sessions Dataset

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Abstract—Recommender systems play an essential role in music streaming services, prominently in the form of customized and personalized playlists. Exploring the user interactions within listening sessions can be beneficial to understanding the user preferences in the context of a single session. Also, the music providers are motivated to offer songs that users like in order to create a better user experience and increase the session duration. An important challenge to music streaming is determining what kind of music the user would like to hear. The skip button is a feature instance on these music services which empowers a user to skip a song that is out of his interest. Skipping behavior serves as a powerful signal about what the user does and does not like. For instance, in the afternoon, a user might be looking for classical study music, and thus skipping hip-hop. Later that evening, the user might skip classical for hip-hop. Being able to use skip behavior in the context of an entire listening session is key to recommending relevant content. Thus, this button plays a large role in the user experience and helps to identify what a user likes. In this project, we will build machine learning models that identifies if a user will skip a particular song or not based on the given dataset information about the user's previous actions during a listening session along with acoustic features of the previous songs; and further predict the user's current interest or mood based on the song choices.

I. PREVIOUS WORK

Spotify released the Music Streaming sessions data set as part of the Spotify Sequential Skip prediction Challenge. The task of the challenge is to predict whether individual tracks encountered in a listening session will be skipped by a particular user. The MSSD consists of 160 million streaming sessions with associated user interactions, audio features and metadata describing the tracks streamed during the sessions, and snapshots of the playlists listened to during the sessions. The data was split into various sessions. Each session is divided into two nearly equal halves, with the information about tracks available for both halves of a session. However, the user interaction features are available only for the first half. The main task is to predict if the user skipped any of the tracks in the second half.

II. PROPOSAL

Our proposed work intends to predict the mood of the user based on the tracks that were not skipped during second half. The models would classify the users mood as Happy, Sad, Energetic, Calm and Anxious

III. MILESTONES

1. Preprocessing of data set
2. Model implementation
 - LTMS
 - Bi-LTMS
 - RNN
 - CNN
 - Linear Regression

Analyze the output predicted by each algorithm and compare the results and choose the optimal model.

3. Train the model
4. Test the model
5. Compare the efficiency of different models
6. Conclusion

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