Project: Music Recommendation Using Reinforcement Learning

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Data Used:

1. Million Song Data list[http://millionsongdataset.com/blog/11-2-28-deriving-genre-dataset/] contain 6568 songs and has following features for each song:

•duration

•key

•mode

•genre

•loudness

•tempo

•time signature

•avg timbres

•var timbres

1. User data history obtained from LastFm API: Data is stored in the data/last\_fm\_songs\_with\_features.csv

Model:

An Multi Arm Bandit approach is used for Music recommendation. Each Song is considered as possible action i.e s belongs to Set A. Approach used here is epsilon greedy method with epsilon =0.2 which balance between exploration and exploitation. Total of 30 Songs are generated based on Epsilon greedy method.

Theta represents user preference of different music features. Rating and Regrets are based on the reference paper [1]. Higher the rating better is the recommendation. It can be seen Rating increases.

Output:

Plot are generated in folder “Output” when simulation.py is executed.

[1] Wang, Xinxi, et al. "Exploration in interactive personalized music recommendation: a reinforcement learning approach." ACM Transactions on Multimedia Computing, Communications, and Applications (TOMM) 11.1 (2014)