**PROJECT REPORT**

Project Title: Music Recommendation System

**Objective**

Our objective is to recommend songs based on similarity of interests with other users and characterstics of songs he/she likes.It can also predict songs in trending based on ratings and listen count of the songs.

**Overview**

There are generally 3 types of recommendation systems – popularity based, collaborative and content based.

Popularity based works with the trend. It basically uses the items which are in trend right now.It is same for all the users.

A Content-based recommendation system tries to recommend items based on features of items that user has purchased(goods) or listened(songs) earlier.

Collaborative filtering is based on the assumption that people who agreed in the past will agree in the future, and that they will like similar kinds of items as they liked in the past.

**Tools used**

*Dependencies(can be found in Anaconda)*

1. pandas
2. scikit-learn
3. numpy
4. scipy

*IDE used:* Jupyter Notebook(Included in Anaconda)

**Working of our project**

Dataset: we used 2 files as dataset. We used **pandas** library for reading and integrating data.

Data Transformation: Subset of data (10000 songs) is selected and merging of columns is done and only relevant columns are then choosen.

Creating Song Recommender:

Dataset is splitted into training(80%) and testing data. Splitting is done by using function of **scikit-learn** library.

Popularity based System:

It gets a unique count of user\_id (ie the number of time that song was listened to in general by all user) for each song and tag it as a recommendation score. The recommend function then accept a user\_id and output the top ten recommended song for any given user. The recommendation is not personalized and will be the **same** for all users.

Personalized Song Recommender:

Item-item collaborative filtering is used. A co-occurrence matrix is defined based on a song user likes. We are finding for each song, what a number of time a user,who have listened to that song, will also listen to another set of other songs and result to be stored in this matrix.

We have also used similarity based approach to find similar songs to any song in our dataset.

The methods of Recommender module(custom module) that we used in personalized system are based on Algebra.