

# MY 4 WEEKS PROGRESS REPORT

Udit Katyal

## Features:

1. Song Recommendation (minimalistic feature)
2. Recommendation on the basis of Genre and Year of Release (old or new)
3. Depicting the Importance of Acousticness, Loudness, Tempo, Liveness, danceability and valence using Feature Correlation
4. Used Spotify API to play songs on the WebApp
5. Redirecting to the recommended Songs on the Spotify app with one click.
6. Predicting the Popularity of songs after their recommendation using Linear Regression, Decision Tree Classifier, Support Vectorization, KNN and Random Forest
7. Calculated the Accuracy and Area under curve of each algorithm to see which is best for Prediction and Recommendation
8. Depicted a 3-D earth Model predicting popularity of most famous song(Blinding Lights) in my dataset in different location.

## Week 1: (4<sup>th</sup> May - 10<sup>th</sup> May)

Decided to explore all 3 given projects, and within 1-2 days finalized to work on Recommendation engine.

### a) Product Building

- i. Researched about the shortcomings of recommendation engine.
- ii. Drafted how I am going to build it and which algorithms should be preferred while building this product.

Reason to choose recommendation engine -: I was recently building an Ecommerce platform and I was curious to know how are they able to recommend products so similar to our searches.

Within recommendation I decided to work on either music or job recommendation engine.

## Week 2: (11<sup>th</sup> May – 17<sup>th</sup> May)

Finalized Music Recommendation Engine.

### a) Gathering resources and Analyzing

- i. Read a few research papers on Recommendation Engine and their working.
  - 1) <https://bit.ly/3t2NiF6>
  - 2) <https://bit.ly/3wQPEbj>
- ii. Analyzed product requirements, divided engine among various filtering methods and defined a clear data flow.

### b) Searching Required Dataset

- i. Analyzed many dataset and worked upon required columns.
- ii. Finally allocated Spotify Gen Track Dataset and filtered it's content.
- iii. Datasets used:
  - i. <https://bit.ly/3z4lm7G>
  - ii. <https://bit.ly/3IS0s3G>

### Week 3: (18<sup>th</sup> May – 24<sup>th</sup> May)

#### a) Training ML Model

- i. Configured the dataset and started with Training ML Model
- ii. Used KNN Algorithm prior and achieved Accuracy of 0.77633

#### b) Enhancing Algorithms for Recommendation and Prediction

- i. Trained the model using **Random Forest Classifier** and got great accuracy of 0.93573
- ii. Decided to explore other Algorithms as well **Decision Tree Classifier, Support Vector, Linear Regression and Support Vector.**

The MOST efficient algorithm with **0.93573** accuracy on 0 – 1 scale was **RANDOM FOREST**

#### c) Building UI for deploying the ML Model

- i. Picked Streamlit for designing the Web App
- ii. Loaded ML model onto the page
- iii. Loaded custom widgets and graphs using streamlit Plotly, Express, Pydeck etc.

### Week 4: (25<sup>th</sup> May – 29<sup>th</sup> May)

#### a) Graphs and Data Allocation

- i. Pushed graphs, Performance Summary Model and Models
- ii. Linked Spotify to the list of recommended songs.

#### b) Deployment and Github setup

- i. Deployed the app on Streamlit Host  
Link: [https://share.streamlit.io/uditkatyal/songfitt\\_/main/app.py](https://share.streamlit.io/uditkatyal/songfitt_/main/app.py)
- ii. To run and deploy in local, check for README.md file on Github.