

Spotifinder

Song Recommendations

Finding & Recommending

- Finding song entry - given part or whole of song and/or singer name
 - Best match for 'Fast Chapman' - ['Fast Car', 'Tracy Chapman', 79]
- Recommending songs - given song entry
 - Recommendations based on choice of ['Fast Car', 'Tracy Chapman', 79]
 - ['Fast Car', 'Tracy Chapman', 79]
 - ['She\'s Like the Wind (feat. Wendy Fraser) - From "Dirty Dancing" Soundtrack', 'Patrick Swayze,Wendy Fraser', 65]
 - ['Howling', 'RY X', 60]
 - ['Dust in the Wind', 'Kansas', 59]
 - ['Diary (feat. Tony! Toni! Tone! & Jermaine Paul)', 'Alicia Keys,Tony! Toni! Toné!,Jermaine Paul', 57]

Finding Song Entry

- Based on song title and artist
- Components
 - TfIDF Vectorizer trained on song title and artist in dataset
 - AutoEncoder - trained on full DTM(12433 features/columns) generated by TfIDF Vectorizer for dataset
 - NearestNeighbor trained on encoded DTM generated by passing full DTM through the Encoder portion of the trained AutoEncoder

Recommending Songs

- Based on song genres plus numerical properties('popularity', 'duration_ms', 'explicit', 'danceability', 'energy', 'key', 'loudness', 'mode', 'speechiness', 'acousticness', 'instrumentalness', 'liveness', 'valence', 'tempo', 'time_signature')
- Components
 - TfIDF Vectorizer trained on genres column in dataset
 - StandardScaler trained on numerical features in dataset
 - AutoEncoder - trained on full DTM generated by TfIDF Vectorizer(10887) + scaled numerical features(15) from dataset - 10902 features/columns in total.
 - NearestNeighbor trained on encoded feature set generated by passing full DTM + scaled numerical features through the Encoder portion of the trained AutoEncoder

Notebooks and Code

- All notebooks and code located in <https://github.com/Spotify-TT-204/Spotifinder>
- Notebooks - located in `.../notebooks`
 - *data_cleanup.ipynb* - work associated with data analysis, cleanup and engineering.
 - *data_modeling.ipynb* - work associated with finding song entry
 - *recommendation_modeling.ipynb* - work associated with song recommendation
- Python class wrapper around find song entry and song recommendation functionality - `.../app/data_model/find_songs.py`
- Sample code using class wrapper - `.../app/data_model_usage.py`
 - Output from sample code - `.../app/data_model_usage.out`