

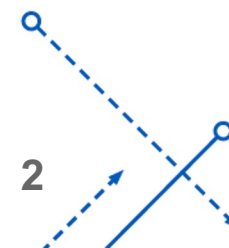
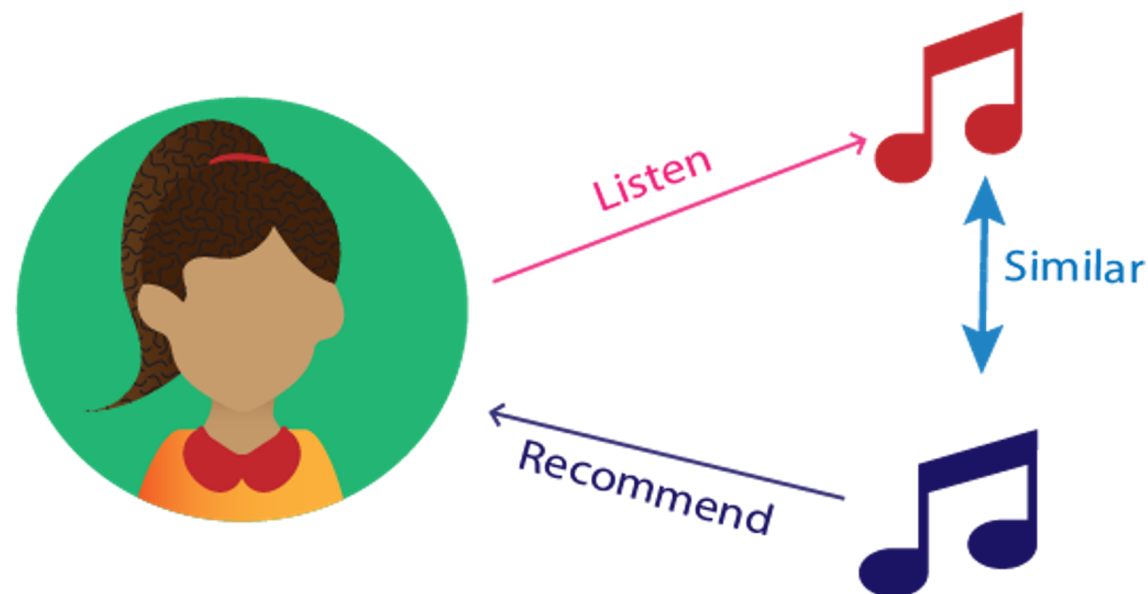
PLAYLIST RECOMMENDATION

Group – 17

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Motivation

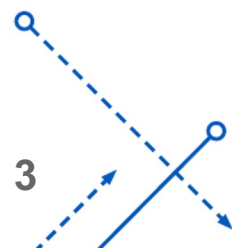
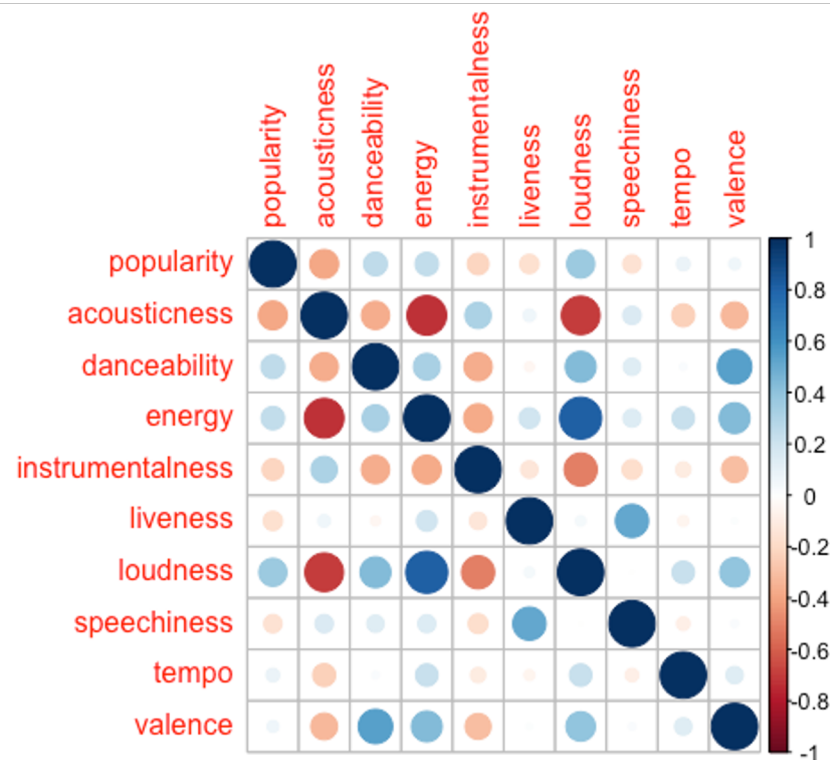
- Where words fail, music speaks
- Playlists save the day
- Supervised or Unsupervised?



Methodology

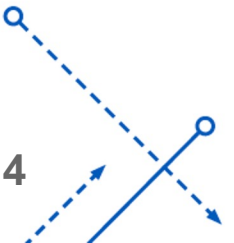
- Capturing user input:
 - a. number of playlist and songs per playlist
 - b. selection of feature values such as Popularity, Danceability, Acousticness, and Energy (Slider Inputs)
- Incorporating user input into our algorithm
- Analysing the result via plots

Correlation Plot



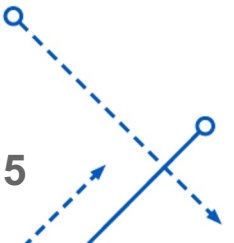
Algorithm - Cosine Similarity and K Means

- Create a data frame with features of the songs
- Pass input into similarity function - Cosine Similarity
- Merge the cosine similarity column into our original data frame
- Descending order sort - Most similar songs
- Pass the data frame and number of playlists into KMeans algorithm which creates different clusters



Analyzing results

- Retrieve playlists
- Plot cluster of songs
 - a. Overlap in different clusters - similar songs in playlists
 - b. No overlap - relatively distinct playlists
- Depict histogram plots of various features



R Shiny Application

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Inputs

No. of playlists

No. of songs per playlist

Popularity
 0

Dance
 0

Accousticness
 0

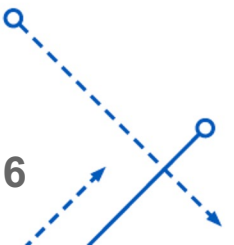
Energy
 0

Generate Playlists

Clear Results

Cluster plot

Output Playlists



R Shiny - User Input and Output

Inputs

No. of playlists

No. of songs per playlist

Popularity

Dance

Accousticness

Energy

Generate Playlists

Clear Results

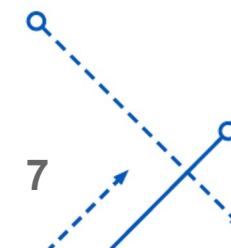
Output Playlists

Playlist 1

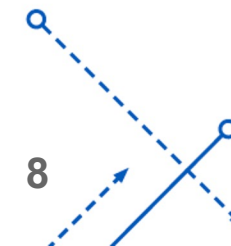
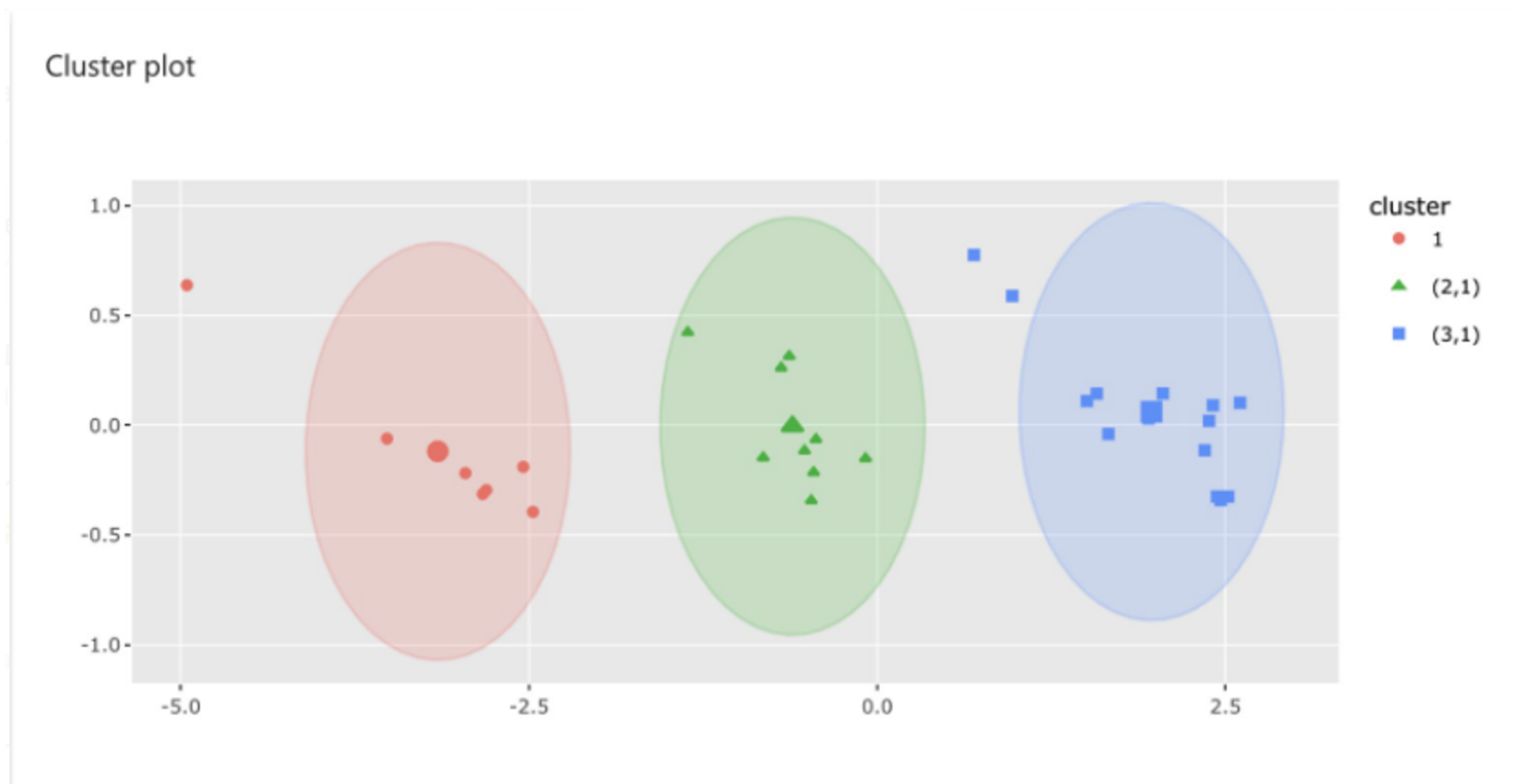
Track Name	Artist Name	Genre
Blood Hands	Royal Blood	Blues
Hypnotized	Linda Jones	Blues
If Trouble Was Money - Live	Gary Clark Jr.	Blues
Give Your Heart Away	The Black Keys	Blues
Witch Hunt - Remastered 1998 / Rudy Van Gelder Edition	Wayne Shorter	Jazz
We Can't Make It Here	James McMurtry	Country
Mystic Journey - Freestyle	Jhene Aiko	Alternative
Share the Land	The Guess Who	Blues
Each and Every One - 2012 Remaster	Everything But T...	Electronic

Playlist 2

Track Name	Artist Name	Genre
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R Shiny - Analytics Page



Impact

- UI of the application is quite smooth and easy to understand
- Plots and analytics
- Shows similarities and overlaps in the cluster plots

Research Opportunities

- Establishing any third-party app to play the songs.
- Real time data collection
- Incorporate an algorithm which will generate playlists with equal number of songs
- Providing user with the option to create as many playlist as possible

