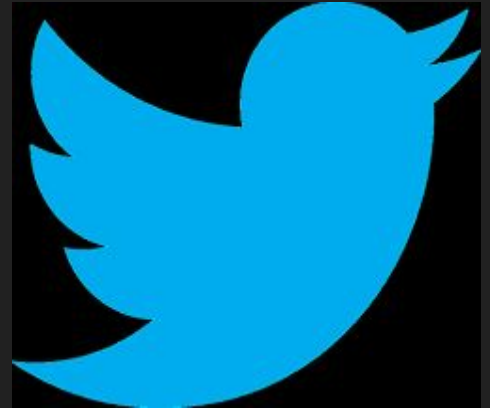


# Using Twitter and Spotify data to build a music recommendation system and analyze user's sentiment correlation to songs' audio features



W205 - Storing and Retrieving Data  
Fall 2017 Final Project

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# Goals

Data Sources: Twitter, Spotify

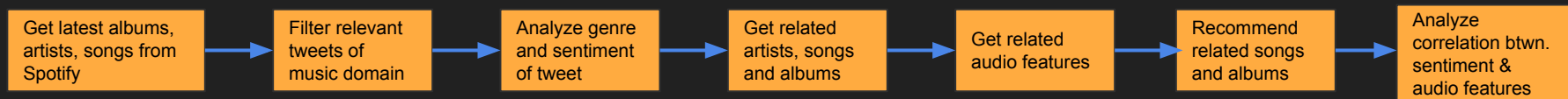
Problem Statement:

## 1. Music Recommendation System:

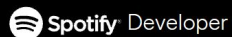
Based on the genre and category of songs a user is listening to, recommend artists, albums and songs similar to the current genre/category.

## 2. Analyze user's sentiment correlation to songs' audio features

Use tweet's sentiment to determine if there is a correlation between user's sentiment and audio features of a song (like tempo, loudness, energy)



# Tweets Examples and Spotify APIs



My Apps Tools Support News

Search

Home

News

Developer Showcase

My Applications

Web API

User Guide

Beginner's Tutorial

API Endpoint Reference

Albums

## Get a Category's Playlists

Get a list of Spotify playlists tagged with a particular category.

### Endpoint

GET [https://api.spotify.com/v1/browse/categories/{category\\_id}/playlists](https://api.spotify.com/v1/browse/categories/{category_id}/playlists)

```
$ curl -X GET "https://api.spotify.com/v1/audio-features/06AKEBrKuckW0KREUwRnVT" -H "Access token:"
```

```
{
  "danceability" : 0.735,
  "energy" : 0.578,
  "key" : 5,
  "loudness" : -11.840,
  "mode" : 0,
  "speechiness" : 0.0461,
  "acousticness" : 0.514,
  "instrumentalness" : 0.0902,
  "liveness" : 0.159,
  "valence" : 0.624,
  "tempo" : 98.002,
  "type" : "audio_features",
  "id" : "06AKEBrKuckW0KREUwRnVT",
  "uri" : "spotify:track:06AKEBrKuckW0KREUwRnVT",
  "track_href" : "https://api.spotify.com/v1/tracks/06AKEBrKuckW0KREUwRnVT",
  "analysis_url" : "https://api.spotify.com/v1/audio-analysis/06AKEBrKuckW0KREUwRnVT",
  "duration_ms" : 255349,
  "time_signature" : 4
}
```

Get an artist's related artists artists OAuth

Get Audio Analysis for a Track audio analysis object OAuth

Get audio features for a track audio features OAuth



t swift @aswiftiesworld · Nov 9

Replying to @taylornation13

CANT WAIT TO BE THIS HAPPY LISTENING TO ALL OF #REPUTATION <sup>NEW</sup>  
#GORGEOUS #REPUTATION5HOURS [pic.twitter.com/WtixcPhkW1](https://pic.twitter.com/WtixcPhkW1)



1



ME @silva1982 · Nov 9

Replying to @courtneyduck503

Such a good album! Listening to it now! #Gorgeous #Dress #NewYearsDay



Louise Francesca @louisethewriter · Nov 9

Don't really care for popular opinion, I can't stop listening to #gorgeous



Olivia Diggs @OliviaDiggs · Nov 7

The three songs I can not stop listening to right now are by Taylor Swift.  
#gorgeous



Tweets filtered for 'listening to #Gorgeous' Taylor Swift's latest song

# Information Organization Challenges

Twitter (Volume and Velocity Challenges):

1. Only past seven days data is available for search
2. Using appropriate filters, to get the right data set. Ex: #listeningto, #nowplaying
3. Based on filters used, either too less or too much of data will be available.

Spotify (Variety):

4. Connecting to spotify data and getting relevant details of artists and albums
5. Large number of apis and api calls to be used to extract data

Common Data Challenge:

6. Storing and retrieving data as needed in the right format

# Reference Sites and Papers

## Twitter Developer APIs:

<https://developer.twitter.com/en/docs/tweets/filter-realtime/overview>

<https://developer.twitter.com/en/docs/tweets/search/api-reference/get-search-tweets>

<https://developer.twitter.com/en/docs/trends/trends-for-location/api-reference/get-trends-place>

## Spotify Developer APIs:

<https://developer.spotify.com/web-api/code-examples/#basic-snippets>

<https://developer.spotify.com/web-api/tutorial/>

<https://developer.spotify.com/web-api/get-several-audio-features/>

## Other sites and papers related to this topic:

<http://wefeelfine.org/>

[http://ceur-ws.org/Vol-1313/paper\\_7.pdf](http://ceur-ws.org/Vol-1313/paper_7.pdf)