Questions

- How do music preferences compare on a personal and global scale?

- How varied is a user's playlist in terms of music attributes?

- How do song attributes correlate with one another?

Data

1. Individual music data extracted through the Spotify API
   - Using Spotify API:

     https://developer.spotify.com/documentation/web-api/

2. Global Top 100 hits for the week from 9/20/2019 to 9/27/2019
   - https://spotifycharts.com/regional/global/weekly/2019-09-20--2019-09-27

Tasks

- Data Extraction
- Creating Web Server
- Website/Dashboard Design
- Final Design
  - Visualizations
  - Interactions
  - Underlying Systems

Data Extraction

- Top songs and audio features of each member:
    - Create curl commands with user auth on Spotify API.
- Extract top 100 global songs data
    - Extract trackIDs from the Global Hits csv file.
    - Get audio features from Spotify API.
- Python scripts for merging track ID's, popularity and audio features and to convert data from json format to csv.
- Final data files : the csv files with combined data of all group members and the global data.

Creating Web Server

Motivation for creating a web server:

- Accessibility to everybody.
- Difficult to access csv data locally and any changes to data would have to be made locally which might lead to inconsistent data.

Server:

- Debian VM on Google Cloud Platform.
- Installed the apache web server.
- Added project git repo to our server to push changes to the server directly.

Website/Dashboard Design

- HTML5 and CSS3 based template.
- Baseline framework built on top of Skel.
- Used for keeping a uniform user interface throughout the prototype.

Javascript Libraries

- D3.js
- D3. parcoords.js
- D3 divgrid.js
- Simplestatistics.js

Final Design

Visualizations

- Parallel Coordinates Plot
- Box plots
- Scatter Plots
- Correlation Matrix
- Clusters

Variables for interaction

- Song Attributes
- Members

Demo: http://35.229.64.212/VisualAnalytics_Project/html/

Contribution

- *Hely :* Initial Proposal, Procedure for data extraction, Python script for generating ID's and merging data, Revised Proposal Presentation, Website design, Setting up the server, Parallel Coordinate Plots, Scatter Plots
- *Rucha:* Status Report, Python script for conversion from JSON to CSV, Website design, K-Means Clustering
- *Alex:* Revised Proposal, Revised Proposal Presentation, Box Plots
- *Cai:* Revised Proposal, Revised Proposal Presentation, Correlation Matrix
- **Each member was responsible for extracting their user data from Spotify using the data procedure and merging data using Python Script.**