IE 555 Project Proposal

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Proposed Project Title

Data analysis and exploration of Spotify API data

Project Type

Option 2 - Online Data Analysis

Data Sources:

- Spotify API is used as a data source.
- The Spotify API (Application Programming Interface) allows developers to access data from the Spotify music streaming service, and build applications that can interact with Spotify's music catalog, user data, and playlists.
- To use the Spotify API, we need to register our application with Spotify and obtain an access token, which is required to authenticate API requests. The access token must be included in the header of every API request, along with other parameters
- Here is the link to the Spotify API documentation: https://developer.spotify.com/documentation/web-api
- After creating a spotify account or logging into an existing one, the user can create an API documentation and receive unique Developer's credentials : Client_id and Secret_id, which will be used to fetch and import data.

Analysis Plan:

The objective of this project is to develop a recommendation system for Spotify tracks based on user preferences, such as artist ID, genre, and track ID, using the Spotify API. We will also explore the relationships between different music features and track popularity and create visualizations to help understand the data better.
Once we have imported the Spotify data into our Python environment and installed necessary packages, our first step will be to pre-process the data. This includes treating/checking for any missing values and removing unnecessary data to ensure accurate analysis. We will then move on to data exploration and visualization, utilizing Python's data analysis libraries to gain insights into the data. Through data visualization, we can identify patterns and trends within the Spotify data, such as the relationship between different variables like - artist popularity and genre preference.

Motivation:

The motivation for this project is to create a recommendation system that suggests tracks based on user preferences and gain insights into what makes a track popular, informing music production decisions. From a technical perspective, the project provides an opportunity to explore data analysis, including data visualization, feature engineering, and classification by working on real world data. This will also provide valuable experience in data wrangling and working with web-based data sources, which are in high demand in many industries.