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DING-DONG: Dating App Based on User's Spotify History

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ABSTRACT: Dating apps have become one of the most prominent and contentious topics in the realm of intimacy among the wider public and academia. Media and communication researchers have examined their uptake across cultural contexts, seeking to address the dynamics between dating apps and social processes. With the knowledge accumulated in this research field, we assemble a comprehensive account of interactions through dating apps. We categorize existing findings about dating apps into three sections: dating apps and their reconfiguration, dating practices, and their remediation, and lastly social arrangements and their reformation. These sections together present dating apps as a technological consequence of various social forces that mediate users' daily practices and social relationships. But apart from all the evolution in the making of dating apps till now, we can still upgrade the methods to match people regarding their different preferences. In this project, we are trying to match people based on their taste in music and their music history on Spotify. Spotify is a music app, so with the help of its API, we will integrate our app so we can access the user's listening history and music preferences. It's a good way to break the ice between two unknowns so that they can start a conversation by giving them a topic that is known by both of them.

KEYWORDS: Dating, Spotify, API, Music, Matching.

I. INTRODUCTION

Our dating software combines Spotify's music streaming features with the functionality of a conventional dating app. Users of the software would be able to connect with potential companions based on similar musical likes and tastes.

Real-time location-based dating apps like Tinder and Grindr have emerged in the last ten years, revolutionizing how people meet and interact with possible partners. These innovations have changed the way people socialize traditionally. Due to the developer companies' secrecy, it is difficult to determine with any degree of certainty how many people presently use dating apps.

However, the scope of the phenomenon can be seen online thanks to the data provided by various reports and studies. For instance, the Statista Market Forecast portal predicted that there will be more than 200 million active users of dating apps globally by the end of 2019. More than ten million individuals use Tinder every day, and it has been downloaded more than 100 million times globally. Additionally, research from various geographical and cultural contexts has revealed that about 25% of newlywed couples or 40% of single adults who are looking for a partner online do so online. Tinder also has some issues, which we hope to fix by incorporating this app. With this software, we want to match two people more based on their musical preferences than just how they look. We can solve this problem with the aid of this programme.

II. RELATED WORK

[1] In this study, Dehghani et al. likely examined the role of music in online dating platforms, how individuals incorporate music into their profiles, and the impact it has on forming connections. They might have investigated whether similar musical tastes enhance the chances of successful matches, how music can serve as a conversation starter, or the extent to which shared musical preferences contribute to relationship satisfaction.[2] Researchersconducted interviews or gather narratives from people or couples in a qualitative study on the subject of the influence of music on romantic relationships to explore a variety of issues. These facets may include how music is used by couples to communicate their love and affection, how shared musical experiences enhance relationships, or how music provides solace in difficult situations. The study might potentially look into the effects of discovering new music or having different musical tastes on a relationship. [3] Scott et al. most likely looked into how different musical stimuli can influence people's assessments of others' attractiveness and likeability in this study. They conducted studies in

which participants watched films, viewed images, or read descriptions of people while listening to various musical genres. The results of the subjects' responses allowed the researchers to determine how music affected attraction and liking. It is possible for music to arouse emotions, set an atmosphere, and shape social perceptions. It can operate as a trigger for generating opinions about people and influencing how people interact with one another. The study might have investigated whether particular musical genres or qualities lead to more favorable assessments of others or whether similar musical tastes among people increase attraction and liking. [4] Lim et al. have investigated how people use music to communicate aspects of their identities, personalities, or values in their study on the usage of music in online dating profiles. They have looked into whether a person's musical tastes significantly influence their first attraction to or compatibility with a possible partner. The study has additionally looked at how music affects user interactions and overall user experience in online dating.[5] Carder et al. carried out a comprehensive examination of online dating profiles in this study to look at the frequency and kinds of musical allusions. They looked at a variety of topics, including the frequency of musical references, the artists or genres discussed, or the ways in which listeners express their musical preferences. The study also looked into the potential impact of music on first impressions and partner attraction. It looked into whether particular musical tastes or allusions increase the likelihood of sparking a connection or attracting attention on online dating sites.

III. PROPOSED ALGORITHM
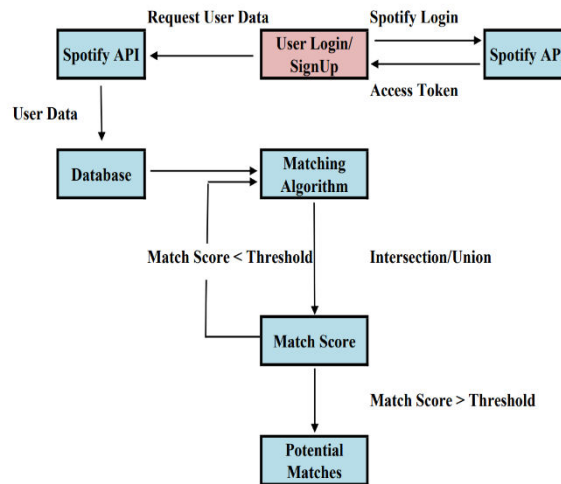
A. *Signing up and Spotify authentication:*

First the user needs to create an account or login into an existing account. A user can sign up using his basic information such as name, gender, age, profile photo, phone number, nationality, etc.The user will be asked to login into his/her' spotify account through which the web app will get the information about their music preference, liked songs, most listened songs, favorite authors and much more. This information will be used to find a match for user with similar music preference which will help them connect better with their matches. When the user connects their Spotify account with the web app, the API generates an AUTH code or authorization code that will be used to get access into user's Spotify account to get their information.

To get the access to user's Spotify account, the user first needs to sign into their Spotify account using our web app. Before that we need to create an app on Spotify developer's dashboard. We need to give a name to it and a URL on which the user will be redirected once they sign in to Spotify. The redirect URL will also provide an Authentication code after successful logging in. This code will be used to access token. The access token is a string which contains the credentials and permissions that can be used to access a given resource (e.g artists, albums or tracks) or user's data (e.g your profile or your playlists).

After getting the access token in exchange of authorization code from the Spotify API, we can simply use different endpoints of Spotify API to get different information such as recently played songs, liked artists, etc. For example, we will use the Get Artist endpoint to request information about an artist. The access token is valid for one hour. We will get all this information and store them in a database. All the information is stored in labeled format. All the datasets will be linked to web app.

B. *Description of the Proposed Algorithm:*

After we stored the user data in the dataset, we can start matching the user for their potential matches. In this app we are going to match the users based on their music history. We will match the user those who are having most similar recently played songs and similar most listened artists. For this purpose, we will be using simple matching score algorithm. We will import the information of users, after that we will start matching them using our own formula that is intersection upon union. Where intersection is then same data among both the user and union is the combined data of both the user. After getting the match score, we will convert it into a score between 0 and 1 for efficiency purpose. We will do the same thing for every user until we get a matching score for each pair of users.

As we got the matching score for each pair of users now we can suggest the matches to each user. For this we will set a threshold value. Then we will suggest the user their matches for each user with whom their matching score is greater than the threshold value, by setting the threshold value we make sure that the every match suggested to the user is certainly a potential match with similarity among them. The user will also be seeing other information about their matches, such as, their name, profile photo, their description, their city, etc. the user can than choose whether to give a like to that user or not. In case the user gives a like to their shown match, that particular match will be notified that their profile has been liked by someone and they can now choose whether to like them back or just reject them. If both the user like each other's profile, they will be given access to chat box where they can have a conversation and get to know about each other.

IV. PSEUDO CODE

Step 1: User will sign in through Spotify and create a profile.
Step 2: Using the user's Spotify credentials, Spotify's API generates a AUTH token.
Step 3:The AUTH token is used to get a access token from Spotify's API.
Step 4: The access token is used to get user's Spotify Data.
Step 5: User's data is stored and used in our algorithm to get the match score.
Step 6: User's having the match score above the threshold vale are suggested as matches to each other.
Step 7: User's can match each other by swiping right to their profile.
Step 8: Matched user get the access to chat box.

V. SIMULATION RESULTS

Our goal is to develop a web application that uses a user's Spotify listening history to locate prospective matches for them and to give them a user-friendly interface that will enable them to interact with their matches. Our web app first requests that users register themselves and provide basic information about themselves, like their name, age, place of residence, gender, etc. After completing all of the required information and registering, the user will be sent to a website where they must enter their Spotify login information to confirm their account. A redirect to the web app with an authentication code will occur once the user's Spotify login credentials have been validated. This authentication code is made available via the Spotify API and is used to swap it for an access token so that we may access the user's Spotify data.

After that, we will send Spotify an endpoint request with a scope to get the data. After being obtained, the data is then put into a MongoDB database. Data is sent into our algorithm after being obtained for the user. The method collects information from two users at once, counting the number of songs that both users have played in common and storing that information in an intersection variable. The total number of songs played by both users combined is then taken and stored in a union variable. By dividing the intersection by the union, we can get the matching score. The method uses the.pow function to translate the matching score into a number between 0 and 1. Following the calculation of the matching score, we compare the result to the predetermined threshold value, in this case 0.25. Every user will have a matching score with another user, however a good match is required for a possible match, and we consider a matching score of 0.25 or above to be a good match. Users with matching scores above a certain threshold will be suggested in the user's matches section, where they can decide whether they like or dislike the match as shown in figure 2.

Figure 2. Potential Matches Shown.

We compiled a dataset of four individuals and the music they recently played in order to test our algorithm's effectiveness. The algorithm received the dataset as input and produced a matching score between the users.

Figure3. Matching Score Calculation.

VI. CONCLUSION AND FUTURE WORK

The addition of Spotify API to a dating app presents a novel way to improve the user experience by enabling users to connect based on shared musical tastes. The software offers users a personalized and interesting experience that typical dating apps do not, including profile building, music choices, and messaging. The process of developing the app has shed important light on the technical and functional needs as well as the possible advantages for users.Furthermore, by providing a more comprehensive method of matching users based on their musical preferences, the integration of Spotify API into a dating app has the potential to revolutionize the dating sector. Because the app matches users based on their shared musical tastes, it might result in deeper bonds and even long-term relationships. The successful creation of this app shows the potential of integrating different APIs into online dating services to provide consumers with a more individualized experience.

Future development has a ton of possibilities for Spotify API integration in dating apps. Here are some future potential project scope areas:
Integrating the app with social media sites like Facebook or Instagram could provide users a more complete profile and improve the app's matchmaking skills. It might enhance match quality and aid consumers in comprehending their possible partners.

In-App Purchases: Adding premium services to the app that users may pay extra for, such as unlimited chatting or access to exclusive music content, might provide the app with a second source of income. The functionality, user experience, and engagement of the app might all be enhanced by this kind of income.

Enhanced Matching techniques: Using machine learning techniques to examine user search history and music tastes may result in more precise and efficient matching capabilities. Users could be matched by the app based on their location, music choices, and other user preferences using AI-powered algorithms.

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