

Spotify Song Recommender

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CS 122: Final Project Presentation



Your Spotify
profile isn't just
what you listen –
it's who you are!

What if you could build your own custom
music dashboard to showcase your
personality? And also build your own
recommendation system?

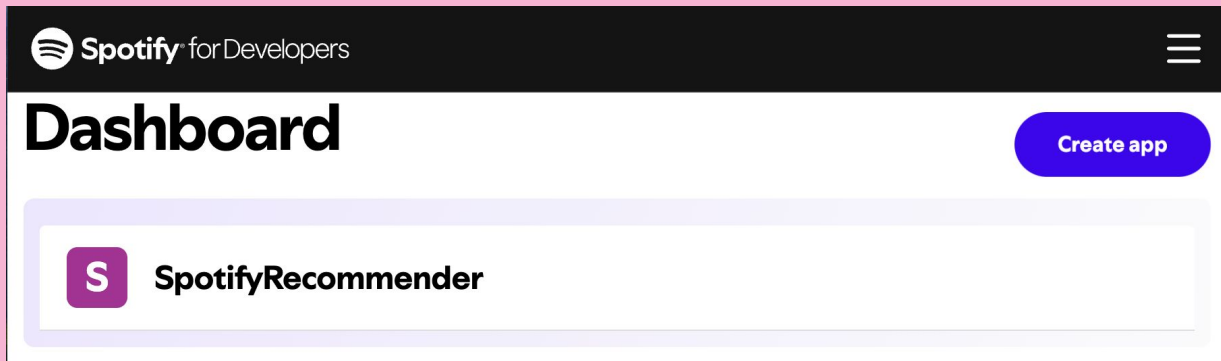
Project Goals

- Recreate your own Spotify music profile that can be customized
- Build your own personal recommendation system to discover new artists and albums



u = u

Spotify App, Libraries & API calls



Spotify API calls used:

`sp.current_user()`

`sp.current_user_top_artists()`

`sp.current_user_top_tracks()`

`sp.search()`

```
# Install spotipy library
!pip install spotipy
```

```
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
from collections import Counter # to keep track of genre count
from IPython.display import display, Image, HTML # to make dashboard interactive w/ images and HTML
import requests # to make GET requests
```



How it works!

This project was made entirely on Google Colab Notebook, therefore does not require the user to make any extra downloads onto their device. All you need to do is 3 simple steps.

Requires a pre-existing Spotify account.

Step #1

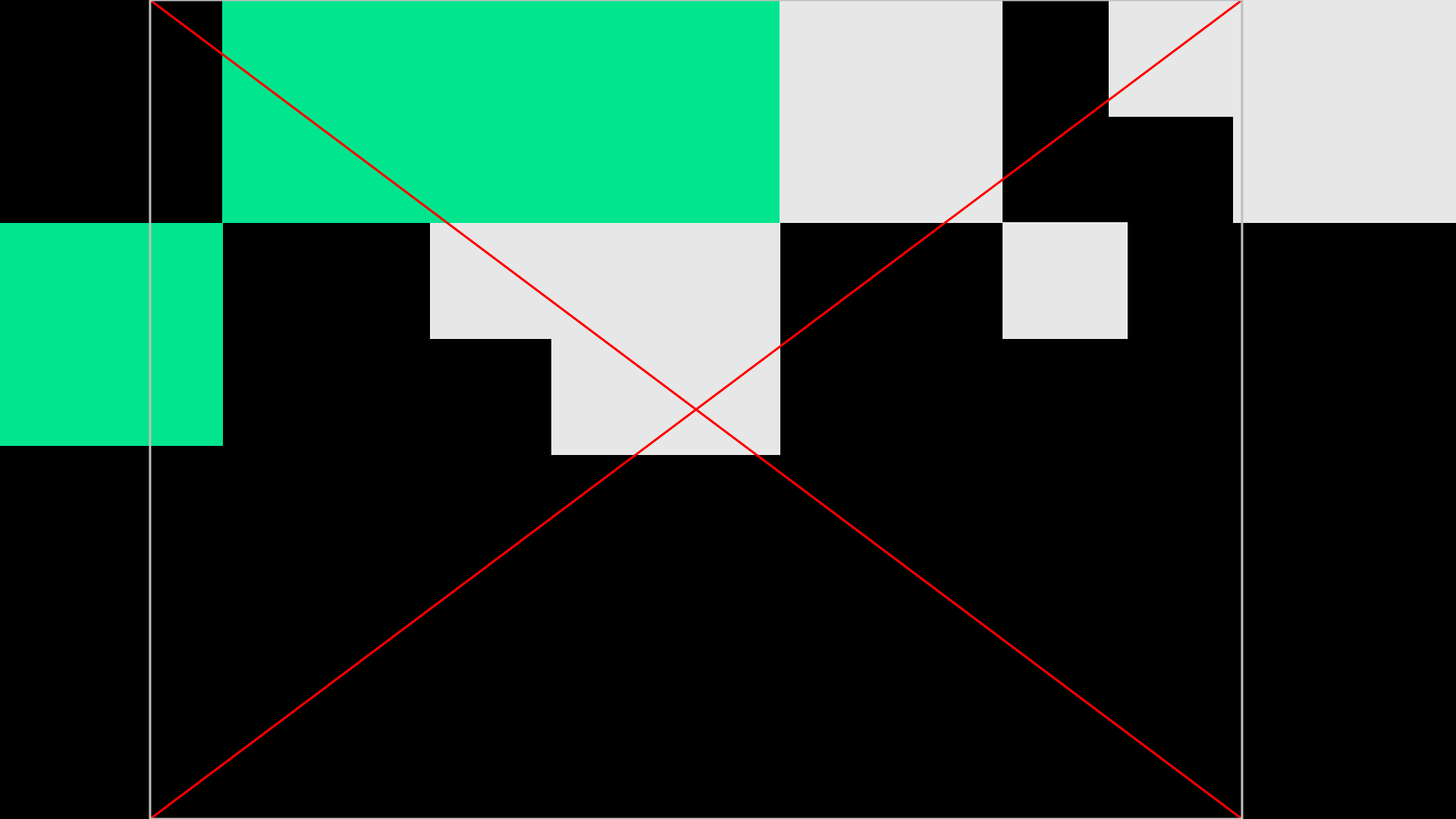
Log in to your Spotify account to authorize the app to get access to your account info.

Step #2

Customize the parameters as you wish to change your dashboard.

Step #3

Run all the cell blocks to see your own Music Profile and Recommendation list that you built!



Challenges

Spotify deprecated
some critical endpoints

Problem

- Could not use endpoints to build the recommendation system, find related artists and similar songs based on audio features

Workaround

- Implement our own logic by using `sp.search()` method to look for similar artists in user's top genres
- Use another library 'musicbrainz' to implement the recommendation system

Web API endpoint integration

Effective today, **new** Web API use cases will no longer be able to access or use the following endpoints and functionality in their third-party applications. Applications with existing extended mode Web API access that were relying on these endpoints remain unaffected by this change.

1. [Related Artists](#)
2. [Recommendations](#)
3. [Audio Features](#)
4. [Audio Analysis](#)
5. [Get Featured Playlists](#)
6. [Get Category's Playlists](#)
7. [30-second preview URLs](#), in multi-get responses (SimpleTrack object)
8. Algorithmic and Spotify-owned editorial playlists

MusicBrainz

MusicBrainz

Log in

Create account

About us

Products

Search

Documentation

The Beatles

(UK rock band, "The Fab Four")

Group

Overview

Releases

Recordings

Works

Events

Relationships

Aliases

Tags

Reviews

Details

Edit

Annotation

» Core catalogue (worldwide discography standardization)

» UK discography

» US discography

» Canadian discography

The official name of "The White Album" is *The Beatles*; please do not add incorrectly titled releases to the database!

Show more...

Annotation last modified on 2024-06-14 23:30 UTC.

Previously known as: [The Quarrymen](#) (British group that evolved into The Beatles)

Wikipedia

The Beatles were an English rock band formed in Liverpool in 1960. The core lineup of the band comprised John Lennon, Paul McCartney, George Harrison and Ringo Starr. They are widely regarded as the most influential band in Western popular music and were integral to the development of 1960s counterculture and the recognition of popular music as an art form. Rooted in skiffle, beat and 1950s rock 'n' roll, their sound incorporated elements of classical music and traditional pop in innovative ways. The band also explored music styles ranging from folk and Indian music to psychedelia and hard rock. As pioneers in recording, songwriting and artistic presentation, the Beatles revolutionised many aspects of the music industry and were often publicised as leaders of the era's youth and sociocultural movements.

Led by primary songwriters Lennon and McCartney, the Beatles evolved from Lennon's previous group, the Quarrymen, and built their reputation by playing clubs in Liverpool and Hamburg, Germany, starting in 1960, initially with Stuart Sutcliffe playing bass. The core trio of Lennon, McCartney and Harrison, together since 1956, went through a succession of drummers, including Pete Best, before inviting Starr to join them in 1962. Manager Brian Epstein moulded them into a professional act, and producer George Martin developed their recordings, greatly expanding their domestic success after they signed with EMI.

Show more...

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Discography

Previous

1

2

3

4

Next

Album

Year	Title	Artist	Rating	Releases
1963	Please Please Me	The Beatles	★★★★	74
1963	With The Beatles	The Beatles	★★★★	51
1964	Introducing... The Beatles	The Beatles	★★★★	27
1964	Meet The Beatles!	The Beatles	★★★★	35
1964	Twist and Shout	The Beatles	★★★★	1
1964	The Beatles' Second Album	The Beatles	★★★★	29
1964	The Beatles' Long Tall Sally	The Beatles	★★★★	1
1964	Something New	The Beatles	★★★★	30
1964	Beatles for Sale	The Beatles	★★★★	53
1964	Beatles '65	The Beatles	★★★★	29
1965	Beatles VI	The Beatles	★★★★	26
1965	Rubber Soul	The Beatles	★★★★	101
1966	Yesterday and Today	The Beatles	★★★★	7
1966	Revolver	The Beatles	★★★★	61
1967	Sgt. Pepper's Lonely Hearts Club Band	The Beatles	★★★★	72
1968	The Beatles (The White Album)	The Beatles	★★★★	57
1969	Abbey Road	The Beatles	★★★★	64

Play on ListenBrainz

Artist information

Sort name: Beatles, The

Type: Group

Founded: 1960

Founded in: Liverpool, Merseyside, England, United Kingdom

Dissolved: 1970-04-10 (10 years)

Area: United Kingdom

ISNI codes: 0000 0001 2170 7484

Rating

★★★★★ (see all ratings)

Tags

Genres

rock, pop, pop rock, psychedelic pop, merseybeat

Other tags

british, british invasion, 60s, psychedelia, 1960s

See all tags

External links

Official homepage

spotifybeats

spotifybeats

45cat

AllMusic

Amazon Music US

Apple Music GB

brit Catalogue

Cantalabs

CDJapan

discogs

DNB

Genius

IMDb

IMVDb

iTunes GB

Library of Congress

mora

MusicBox

Musik-Sammler

Musicmatch

Muzikweb

Muzikweb


Napster US

Open Library

Prog Archives

Qobuz

ListenBrainz



Feed

Dashboard


Explore

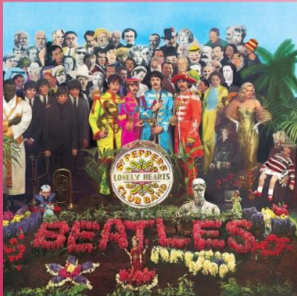
Sign in

About

Donations

Community














Sgt. Pepper's Lonely Hearts Club Band

The Beatles

Album · 1967/06/26



Open in MusicBrainz

Artist Radio

rock 22 · psychedelic rock 13 · baroque pop 8 · classic rock 5 · pop 5 · pop rock 4 · art rock 3 · psychedelic 2 · british invasion 2 · am pop 2 · psychedelic pop 2 · sunshine pop 1

Tracklist

1. Sgt. Pepper's Lonely Hearts Club Band
The Beatles 2:02

2. With a Little Help From My Friends
The Beatles 2:44

3. Lucy in the Sky With Diamonds
The Beatles 3:28

4. Getting Better
The Beatles 2:48

5. Fixing a Hole
The Beatles 2:37

6. She's Leaving Home
The Beatles 3:35

242K plays

5.8K listeners

Top listeners

keir2 1.8K

diegopostmodern 1.6K

kozumel 1.7K

allie-wake-up 1.7K

duncethethird 1.6K

ajayijoshua8 1.5K

hugo141592 1.4K

afestein 1.3K

ptaff 1.2K

Reviews

Submit Reviews

Before you can submit reviews for your Listens, you must connect to your CritiqueBrainz account.

Connect to CritiqueBrainz

Rating: ★★★★★

on May 02, 2023, 9:02 PM

I'm not really your typical Beatles fan - my parents weren't big music listeners... by Read on aerosolCritiqueBrainz

It took 129 days to record, between autumn 1966 and spring 1967, and ... by Chris Read on

PlayWright

```
from playwright.async_api import async_playwright

# Async function to extract all MusicBrainz recording links from a user's recommendations page
async def get_listenbrainz_recording_links(user):
    async with async_playwright() as p:
        print(user)
        # Launch the browser in headless mode
        browser = await p.chromium.launch(headless=True)
        page = await browser.new_page()

        # Go to the user's recommendations page
        url = f"https://listenbrainz.org/user/{user}/recommendations/"
        await page.goto(url)

        try:
            await page.wait_for_selector('.playlist-items')
            playlist_items = await page.query_selector_all('.playlist-items a[href^="https://musicbrainz.org/recording/"]')

            if playlist_items:
                songs = {await item.get_attribute('href') for item in playlist_items}
            else:
                print(f"No MusicBrainz links found for user {user}.")
                songs = set()

        except Exception as e:
            print(f"Error getting recommendations for user {user}: {e}")
            songs = set()
```

ListenBrainz Recommendations

Feed

Dashboard

Explore

keir2

Listens

Stats

Taste

Playlists

Created for you

Created for keir2

Weekly Exploration

Weekly Jams

Last Week's Exploration

Last Week's Jams

To Wish Impossible Things 4:43
The Cure

Just One of Those Things 3:44
Dudley Moore

Farra Na Madrugada 4:50
Os Jovens Do Prenda

The Faith Healer 7:11
The Sensational Alex Harvey Band

Zinni 5:52
The Durutti Column

Movin' On 3:43
Blur

Planet 3:23
The Sugarcubes

Long Title: Do I Have to Do This All Over Again 2:39
The Monkees

Weekly Jams for keir2, week of 2025-05-05 Mon
50 tracks | Updated May 04, 5:06 PM | Deleted in 2 weeks from now

Public playlist by listenbrainz | For keir2
[Link to this playlist](#)

The ListenBrainz Weekly Jams playlist features songs that you have listened to before, arranged into a comfortable playlist that doesn't require active listening on your part.

Generated on Monday morning, in accordance with your timezone settings.

Spotify Popularity Score

popularity integer

The popularity of the track. The value will be between 0 and 100, with 100 being the most popular.

The popularity of a track is a value between 0 and 100, with 100 being the most popular. The popularity is calculated by algorithm and is based, in the most part, on the total number of plays the track has had and how recent those plays are.

Generally speaking, songs that are being played a lot now will have a higher popularity than songs that were played a lot in the past. Duplicate tracks (e.g. the same track from a single and an album) are rated independently. Artist and album popularity is derived mathematically from track popularity. **Note:** *the popularity value may lag actual popularity by a few days: the value is not updated in real time.*

Oct 26, 2023 - Feb 12, 2024 - Worldwide

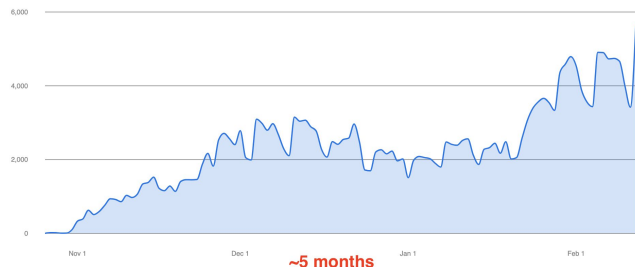
Streams
251,474

Listeners
62,088









Streams / Listener
4.05

Playlist adds
14,939

Saves
11,357



Recommendations

- | | | | |
|---|--|--|--|
| 1 |  | Something in the Room She Moves
Julia Holter | Something in the Room She Moves |
| 2 |  | Looking Inwardly
The Chameleons | What Does Anything Mean? Basically (2009 Rema... |
| 3 |  | Always
Time Warp, Elizabeth Glenn-Copeland, Beverly Glenn-Copeland | TRANSA |
| 4 |  | Fa Ce La
The Feelies | Ork Records: New York, New York |
| 5 |  | Eaten Alive
E clipping., Jeff Parker, Ted Byrnes | Visions of Bodies Being Burned |
| 6 |  | Saudosismo
Caetano Veloso | Caetano Veloso |
| ▶ |  | Evol
Adrienne Lenker | Bright Future |
| 8 |  | City Streets
Shigeru Suzuki | WHITE HEAT |

NEXT STEPS

1. Deploy as a Flask App

Build this dashboard into a live website for better authentication flow and interactivity. This would also allow users to share their profile with friends.

2. Animation

Add hover effects and animations to make the dashboard more interactive and dynamic.

3. Integrate Recommendation System

Integrate the recommendation system into the app for a smoother user experience.

THANK YOU!

