This project aims to recommend music genres by analyzing images associated with them. It uses the GTZAN dataset for training, containing images linked to music genres. I built a deep learning model (CNN) to classify these images, enabling the system to predict the genre of new, user-uploaded images. The Django web app integrates this model, providing an intuitive interface for genre prediction.

Steps :

inside visualbasedmusicrecommendation folder

django-admin stratproject visual_music_rec

cd visual_music_rec

python manage.py startapp music

to create environment

cd ..

python -m vev venv

.\venv\Scripts\activate

pip install -r requirements.txt

next steps

cd visual_music_rec

create new folder named media which contains two folder genres_original(all music files based on genre) and uploaded_images(uploaded images for predicting genre and music based on genre)

take genre_original from below dataset

dataset path --https://www.kaggle.com/datasets/andradaolteanu/gtzan-dataset-music-genre-classification

create another file inside visua_music_rec folder named train_genre_cnn.py (to train a CNN to classify music genres using your dataset) (here change the data directry path) , this should contain images_original folder , the dataset from

https://www.kaggle.com/datasets/andradaolteanu/gtzan-dataset-music-genre-classification image_original folder is present inside this dataset)

install postgresql ,

create a database named musicrecommend

in settings.py and enter your username and password in DATABASES

next run in terminal (for training the model)

python train_genre_cnn.py (to train the images)

git clone the folder and then apply migrations

python manage.py makemigrations

python manage.py migrate

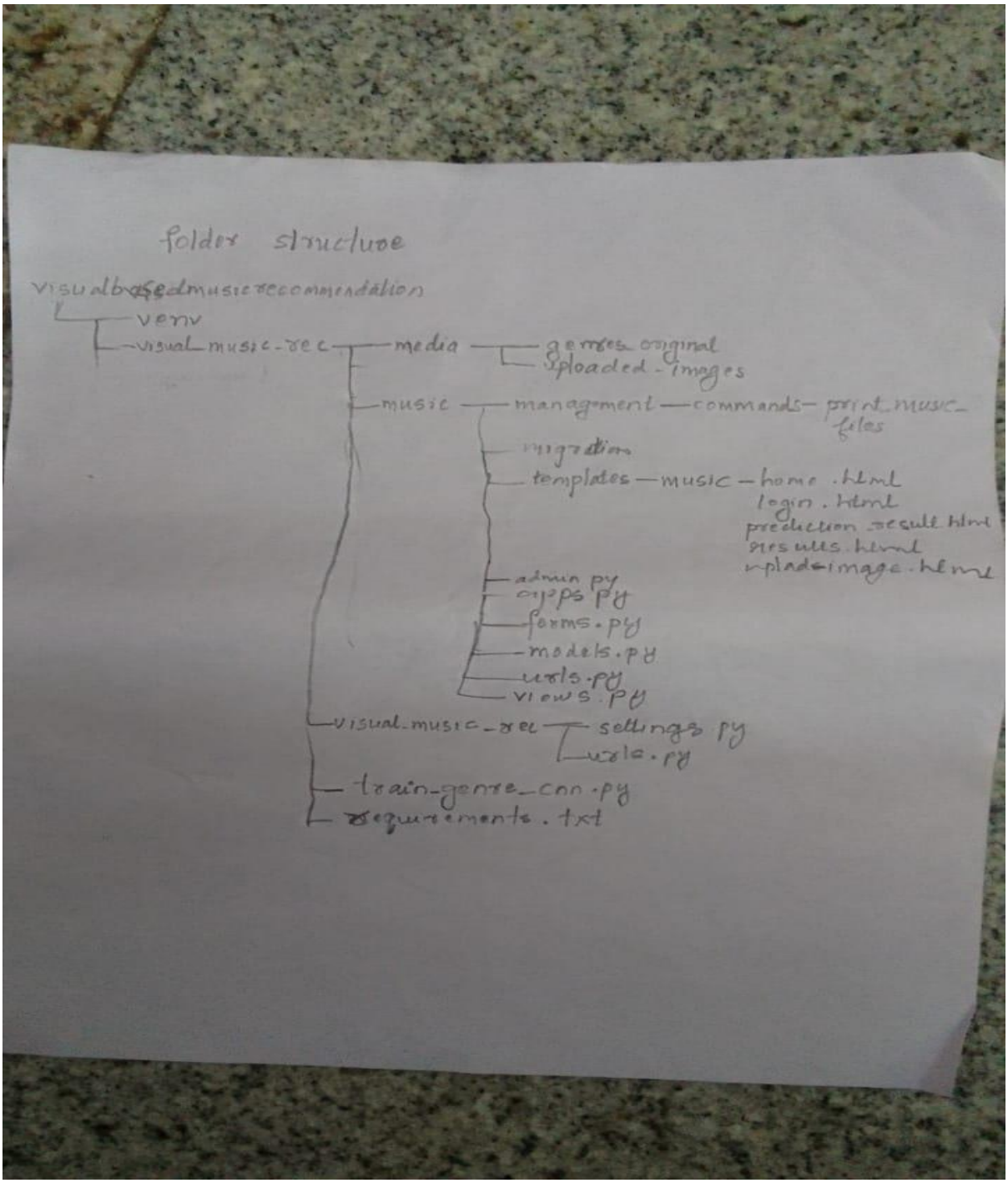
next

create the folder named inside management inside create another folder named command inside that create a file named print_music_files.py (is to to automatically populate your MusicFile database table with information about the audio files from your dataset)

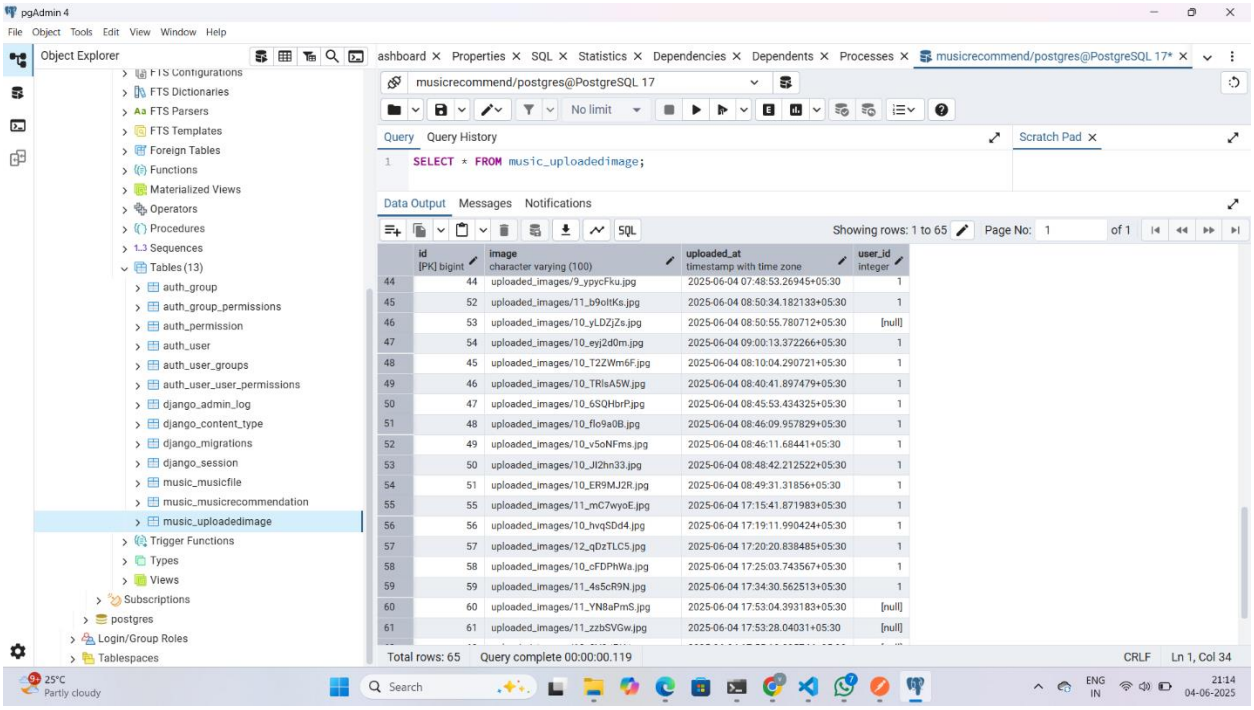
then in terminal run --> python manage.py print_music_files

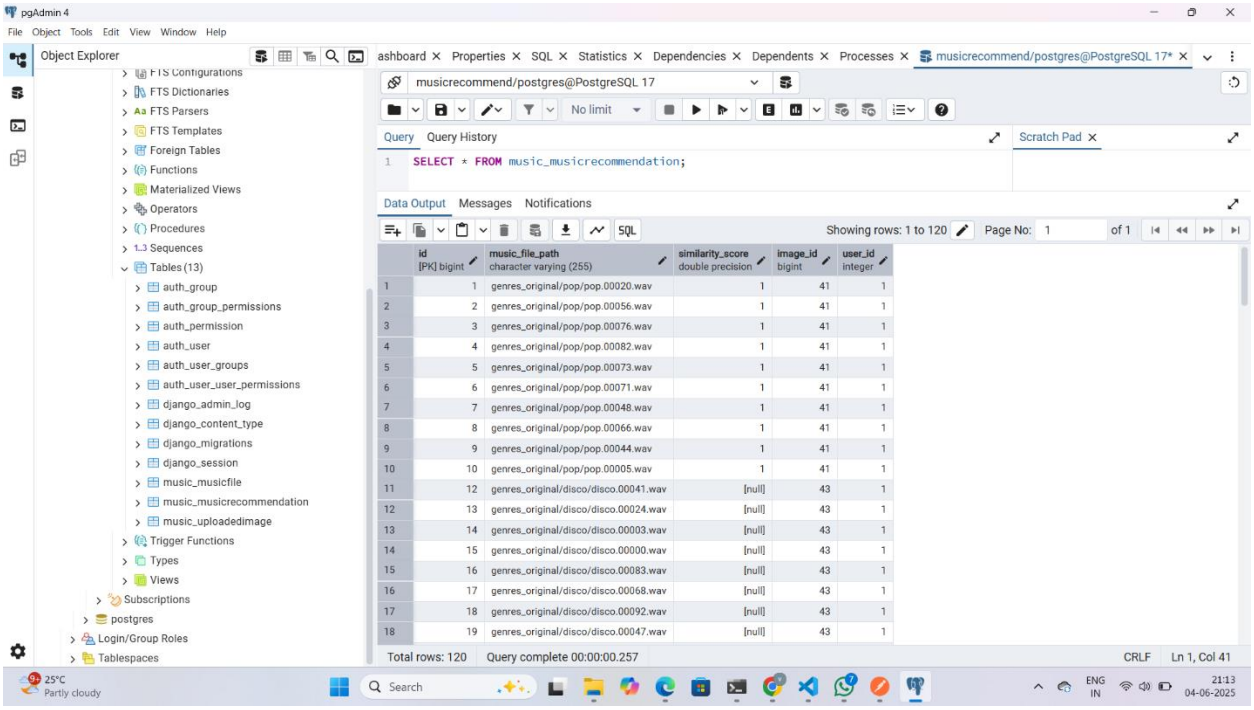
then run python manage.py runserver

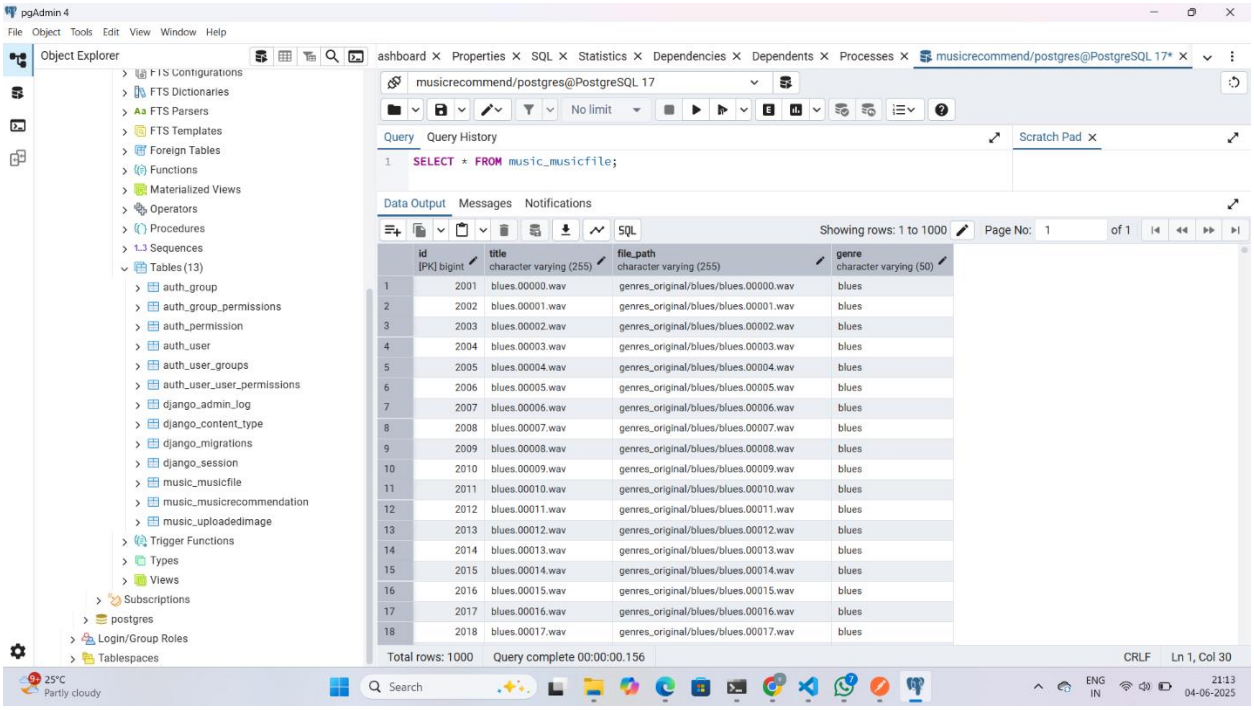
Folder Structure



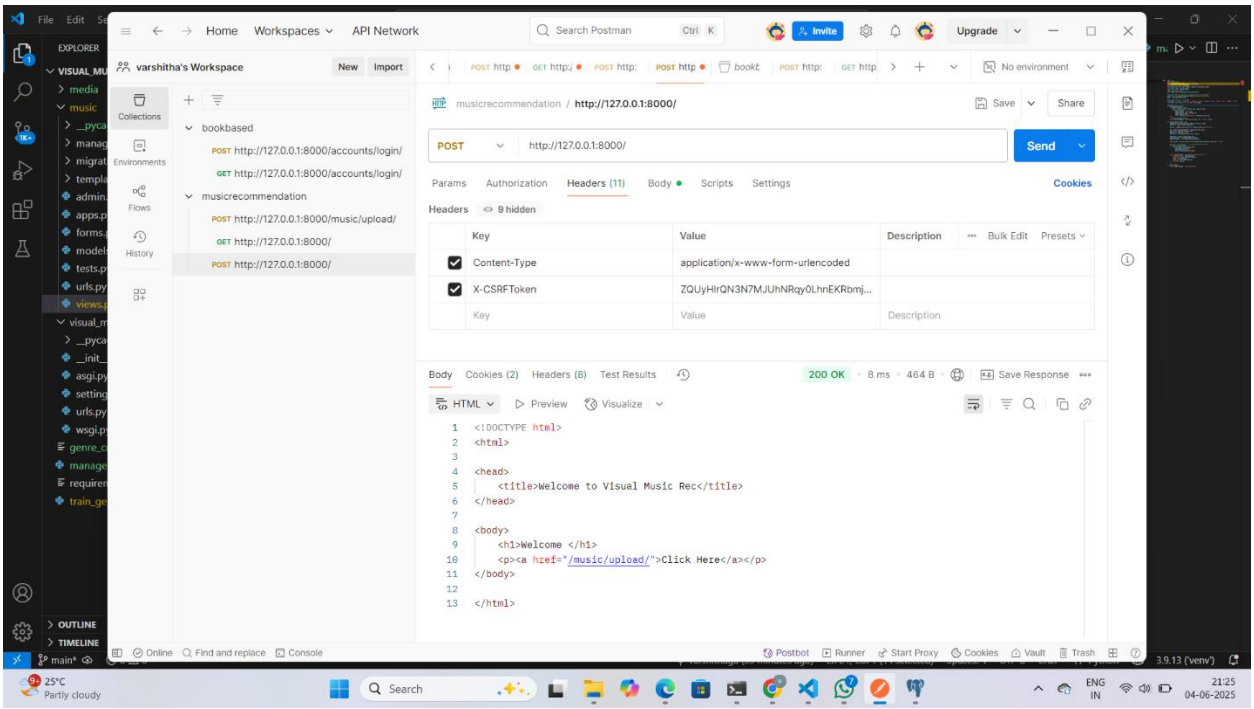
Database

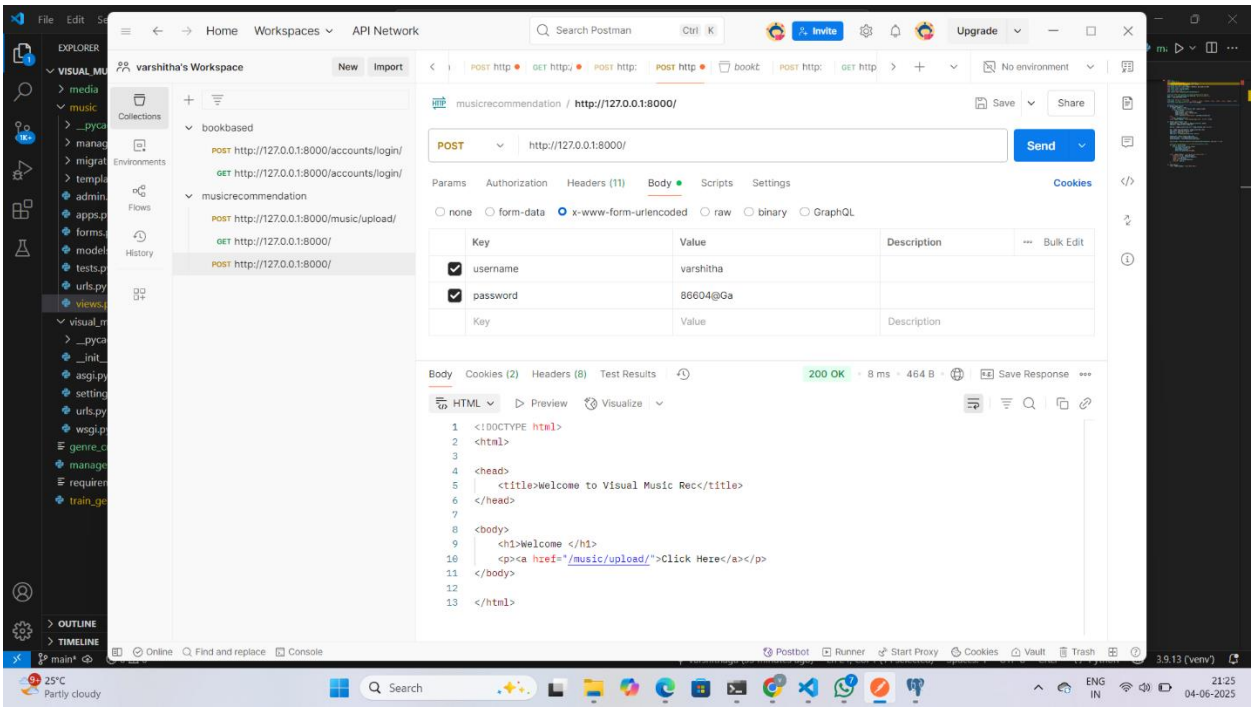

pgAdmin 4
File Object Tools Edit View Window Help
Object Explorer
musicrecommend/postgres@PostgreSQL 17
SELECT * FROM music_uploadedimage;
Data Output Messages Notifications
Total rows: 65 Query complete 00:00:00.119

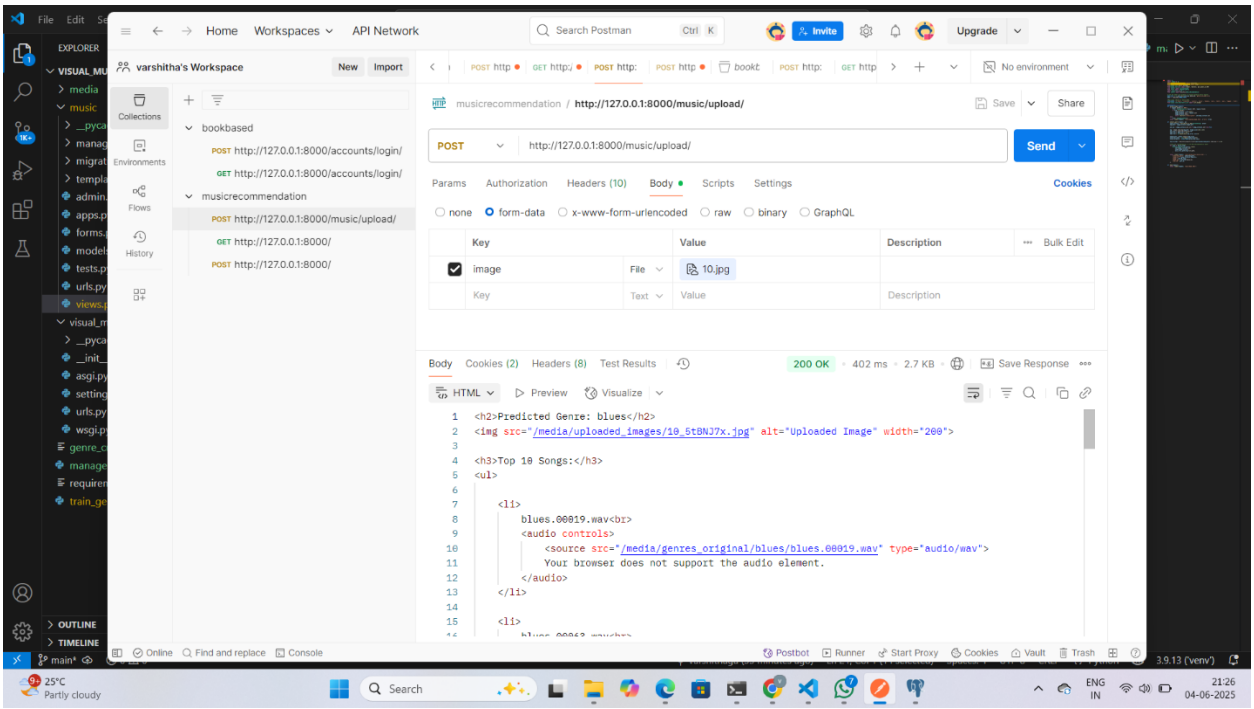

pgAdmin 4
File Object Tools Edit View Window Help
Object Explorer
musicrecommend/postgres@PostgreSQL 17
SELECT * FROM music_musicrecommendation;
Data Output Messages Notifications
Total rows: 120 Query complete 00:00:00.257


pgAdmin 4
File Object Tools Edit View Window Help
Object Explorer
musicrecommend/postgres@PostgreSQL 17
SELECT * FROM music_musicfile;
Data Output Messages Notifications
Total rows: 1000 Query complete 00:00:00.156

Postman


Home Workspaces API Network
varshitha's Workspace
musicrecommendation / http://127.0.0.1:8000/
POST http://127.0.0.1:8000/
Send
Params Authorization Headers (11) Body Scripts Settings
Content-Type application/x-www-form-urlencoded
X-CSRFToken
200 OK
<!DOCTYPE html>
<html>
<head>
<title>Welcome to Visual Music Rec</title>
</head>
<body>
<h1>Welcome </h1>
Click Here
</body>
</html>


Home
Workspaces
API Network
Search Postman
Invite
Upgrade
varshitha's Workspace
New
Import
Collections
Environments
Flows
History
bookbased
POST http://127.0.0.1:8000/accounts/login/
GET http://127.0.0.1:8000/accounts/login/
musicrecommendation
POST http://127.0.0.1:8000/music/upload/
GET http://127.0.0.1:8000/
POST http://127.0.0.1:8000/
musicrecommendation / http://127.0.0.1:8000/
Save
Share
POST
http://127.0.0.1:8000/
Send
Params
Authorization
Headers (11)
Body
Scripts
Settings
Cookies
none
form-data
x-www-form-urlencoded
raw
binary
GraphQL
Key
Value
Description
Bulk Edit
username
varshitha
password
86604@Ga
Body
Cookies (2)
Headers (8)
Test Results
200 OK
8 ms
464 B
Save Response
HTML
Preview
Visualize
<!DOCTYPE html>
<html>
<head>
<title>Welcome to Visual Music Rec</title>
</head>
<body>
<h1>Welcome </h1>
Click Here
</body>
</html>
Online
Find and replace
Console
Postbot
Runner
Start Proxy
Cookies
Vault
Trash
OUTLINE
TIMELINE
main*
25°C
Partly cloudy
Search
ENG
IN
21:25
04-06-2025


Home
Workspaces
API Network
Search Postman
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Upgrade
varshitha's Workspace
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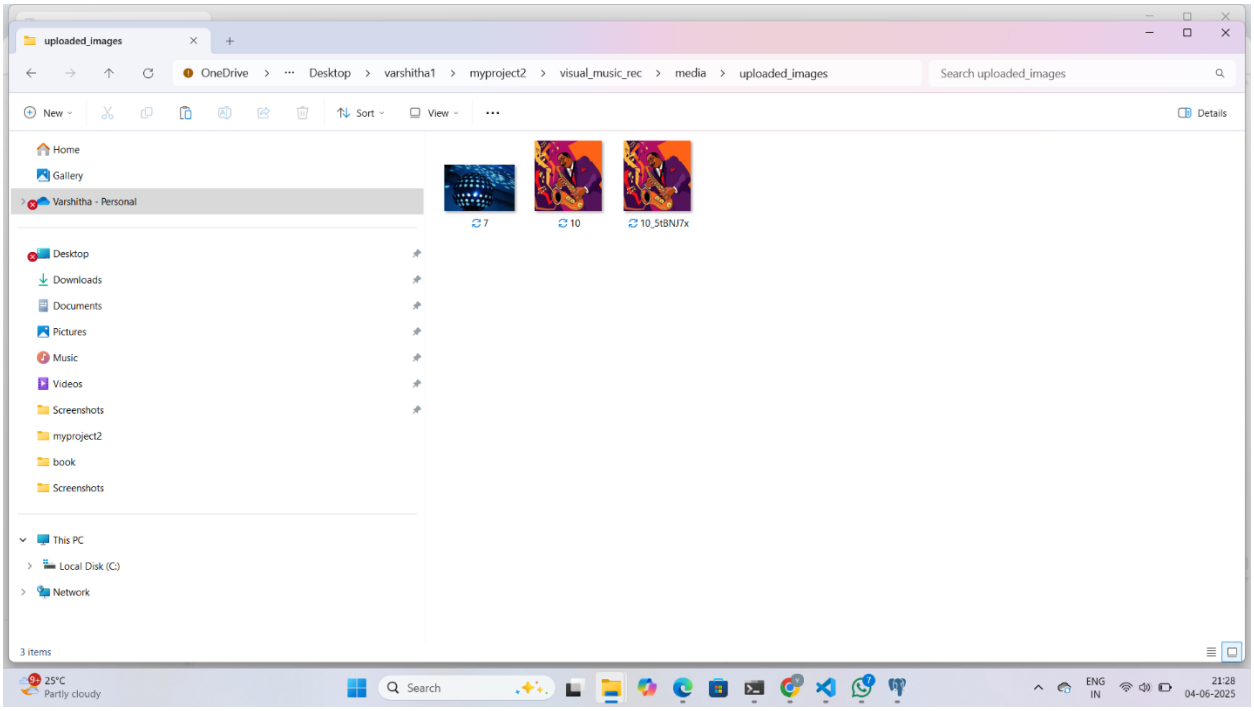
bookbased
POST http://127.0.0.1:8000/accounts/login/
GET http://127.0.0.1:8000/accounts/login/
musicrecommendation
POST http://127.0.0.1:8000/music/upload/
GET http://127.0.0.1:8000/
POST http://127.0.0.1:8000/
musicrecommendation / http://127.0.0.1:8000/music/upload/
Save
Share
POST
http://127.0.0.1:8000/music/upload/
Send
Params
Authorization
Headers (10)
Body
Scripts
Settings
Cookies
none
form-data
x-www-form-urlencoded
raw
binary
GraphQL
Key
Value
Description
Bulk Edit
image
File
10.jpg
Text
Body
Cookies (2)
Headers (8)
Test Results
200 OK
402 ms
2.7 KB
Save Response
HTML
Preview
Visualize
<h2>Predicted Genre: blues</h2>
<img src="/media/uploaded_images/10_5tBNJ7x.jpg" alt="Uploaded Image" width="200">
<h3>Top 10 Songs:</h3>

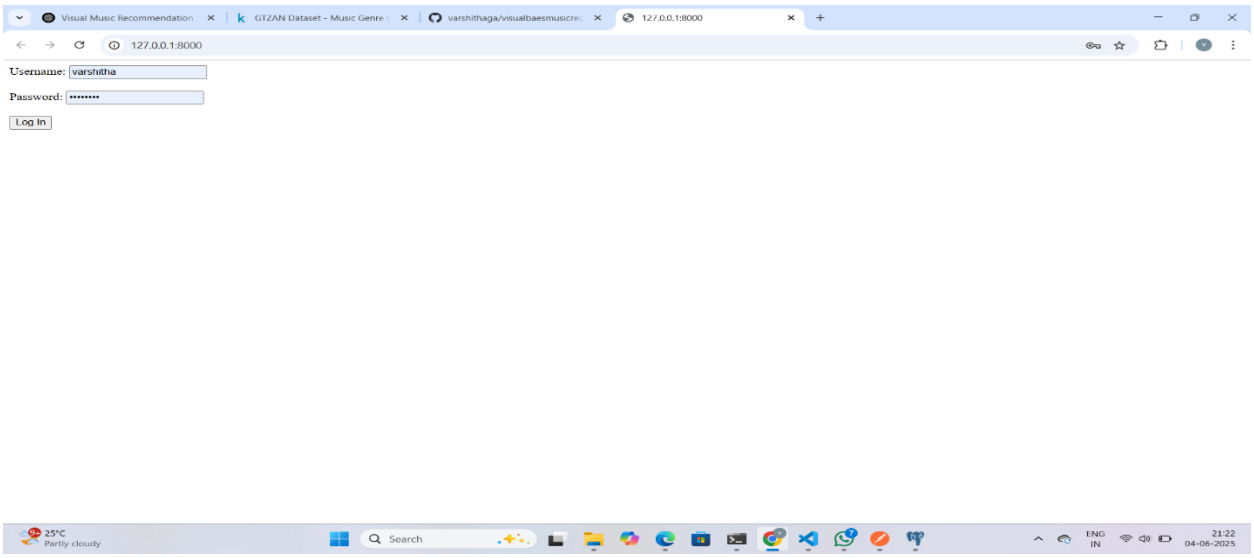
blues.00019.wav
<audio controls>
<source src="/media/genres_original/blues/blues.00019.wav" type="audio/wav">
Your browser does not support the audio element.
</audio>

Online
Find and replace
Console
Postbot
Runner
Start Proxy
Cookies
Vault
Trash
OUTLINE
TIMELINE
main*
25°C
Partly cloudy
Search
ENG
IN
21:26
04-06-2025

Image Uploded in uploaded_image



Output



Visual Music Recommendation | GTZAN Dataset - Music Genre | varshithaga/visualbaesmusicrec | Upload Image

127.0.0.1:8000/music/upload/

Upload an Image

Image: Choose File 7.jpg

Upload

25°C Partly cloudy | Search | ENG IN | 21:22 04-06-2025

Visual Music Recommendation | GTZAN Dataset - Music Genre | varshithaga/visualbaesmusicrec | 127.0.0.1:8000/music/predict/66/

127.0.0.1:8000/music/predict/66/

Predicted Genre: pop

Top 10 Songs:

- pop.00025.wav
  0:00 / 0:30
- pop.00086.wav
  0:00 / 0:30
- pop.00005.wav
  0:00 / 0:30
- pop.00042.wav
  0:00 / 0:30
- pop.00092.wav
  0:00 / 0:30
- pop.00039.wav
  0:00 / 0:30
- pop.00052.wav

25°C Partly cloudy | Search | ENG IN | 21:22 04-06-2025