Mood-Based Music Player Project Documentation

# 1. Introduction

The 'Mood-Based Music Player' is an innovative project that combines emotion detection and music recommendation to create a personalized music experience. The system uses a webcam to capture real-time emotions and recommends a playlist from Spotify based on the detected emotion. This project is intended for use in Hackday 2025.

# 2. Technologies Used

The following technologies were used to build the Mood-Based Music Player:

1. Python

2. Flask (Web Framework)

3. OpenCV (Computer Vision Library)

4. DeepFace (Emotion Recognition Library)

5. Spotify API (For music recommendations)

6. HTML, CSS, JavaScript (Frontend for UI)

# 3. Project Setup

To get started with the 'Mood-Based Music Player' project, follow these steps:

## 3.1 Clone the Repository

Start by cloning the repository that contains the project code. Use the following command in your terminal:

git clone <repository\_url>

## 3.2 Install Dependencies

After cloning the repository, navigate to the project directory and install the required Python libraries:

pip install -r requirements.txt

## 3.3 Set up the Spotify API

To use the Spotify API for music recommendations, you will need to authenticate and connect to your Spotify account. Follow these steps to set up the Spotify API client:

1. Go to the Spotify Developer Dashboard and create an app: https://developer.spotify.com/dashboard/applications

2. Once you have created an app, get the 'Client ID' and 'Client Secret'.

3. In the project directory, create a file called 'spotify\_credentials.py' and add the following code:

SPOTIPY\_CLIENT\_ID = '<your\_client\_id>'  
SPOTIPY\_CLIENT\_SECRET = '<your\_client\_secret>'  
SPOTIPY\_REDIRECT\_URI = 'http://localhost:8888/callback'

## 3.4 Run the Flask Application

To start the application, run the Flask server with the following command:

python app.py

# 4. How to Use the Application

1. Once the Flask application is running, open a web browser and navigate to http://localhost:5000.

2. You will see the 'Mood-Based Music Player' interface with a webcam feed and a button to get music recommendations.

3. Make sure your face is visible to the webcam. The application will analyze your emotion in real-time.

4. When the emotion is detected, click on the 'Get Music Recommendation' button. A playlist will be recommended based on the emotion.

5. You can click on the playlist link to open it directly on Spotify.

# 5. Project Structure Overview

The project is structured as follows:

1. app.py - The main Flask server that handles the video feed and music recommendation.

2. templates/ - Contains HTML files for the frontend.

3. static/ - Contains CSS and JavaScript files for the frontend.

4. spotify\_integration.py - Contains functions to authenticate and get music recommendations from Spotify.

5. requirements.txt - A list of Python dependencies required for the project.

# 6. Tools

Visual Studio Code (VS Code) was used as the code editor. It is a lightweight and powerful IDE that supports a wide range of programming languages and extensions. VS Code provides essential features like syntax highlighting, debugging tools, version control integration, and a built-in terminal, making it an ideal choice for development.

# 7. Documentations

Flask : <https://www.geeksforgeeks.org/flask-tutorial/>

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

# 8. Conclusion

The 'Mood-Based Music Player' is an innovative solution that combines cutting-edge emotion recognition with music recommendation to provide an interactive and personalized music experience. By following the steps outlined in this documentation, you can easily set up and run the project on your own machine.