MUSIC MANAGEMENT SYSTEM

A MINI PROJECT REPORT

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In partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

IN

COMPUTER SCIENCE

RAJALAKSHMI ENGINEERING COLLEGE (AUTONOMOUS)

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2023 - 24

BONAFIDE CERTIFICATE

Certified that this project report "**MUSIC MANAGEMENT SYSTEM**" is the bonafide work of "**PAVENDHAN (220701194), KISHORE KUMAR (220701512)**" who carried out the project work under my supervision.

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ABSTRACT

This project presents a standalone Music Library Management System developed in Python. It offers a user-friendly interface for managing a personal music library without utilizing web technologies like HTML, CSS, or PHP. The application enables users to efficiently organize their music collections by providing essential functionalities such as adding new music records, deleting existing ones, viewing the list of music tracks, and managing overall library data. The primary objective is to demonstrate effective database management using Python's mySQL library, ensuring a lightweight and self-contained environment. Key features include adding music records with details like title, artist, album, genre, and release year, deleting records based on unique identifiers, viewing the entire collection or filtering by specific criteria, updating records, and a search functionality for finding music using keywords. The system architecture maintains data integrity and provides a simple graphical interface for interaction.

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CHAPTER 1

1. INTRODUCTION

The Music Library Management System is a comprehensive solution tailored to meet the needs of music enthusiasts and collectors. This system is designed to automate and simplify critical tasks such as adding, deleting, viewing, and managing music records. By integrating these functionalities into a single platform, the system aims to streamline the organization of music collections, reduce manual errors, and enhance the user experience. With the growing demand for efficient and accurate music management, this system provides a reliable and effective tool to manage various aspects of a personal music library seamlessly. Whether it's cataloging new music, updating existing entries, or searching for specific tracks, the Music Library Management System offers an intuitive and user-friendly interface to keep music collections well-organized and easily accessible.

1.2 OBJECTIVE

The main objectives of the Music Management System are:

- **Efficient Music Organization:** To provide an intuitive interface for adding, updating, and deleting music records, ensuring the music library is well-organized and easily accessible.
- **Accurate Record Management:** To facilitate precise management of music details such as title, artist, album, genre, and release year, reducing manual errors and ensuring data integrity.
- **Comprehensive Library Viewing:** To offer a clear and concise view of the entire music collection, allowing users to browse and manage their library with ease.
- **User-Friendly Interaction:** To provide a simple and user-friendly command-line interface for seamless interaction, making the system accessible to all users.

1.3 MODULES

1. Music Record Management

This module allows users to efficiently manage their music library. Key features include:

- Adding new music records with details such as title, artist, album, genre, and release year.
- Editing existing music records to update information.
- Deleting music records from the library.

2. Library Viewing

This module provides an overview of the entire music collection. Key features include:

- Displaying a list of all music records.
- Filtering music records by criteria such as genre, artist, or album.
- Viewing detailed information about each music record.

3. Search Functionality

This module enables users to quickly find specific music records. Key features include:

- Searching the music library using keywords related to title, artist, album, or genre.
- Displaying search results in an organized manner.
- Highlighting matching criteria in the search results.

4. Playlist Management

This module allows users to create and manage playlists. Key features include:

- Creating new playlists by selecting songs from the music library.
- Adding or removing songs from existing playlists.
- Viewing and playing songs within a playlist.

5. Genre-Based Viewing

This module categorizes and displays music records based on their genre. Key features include:

- Viewing all songs within a specific genre (e.g., Pop, Rock, EDM, Indie, Rap).
- Navigating between different genre categories.
- Displaying genre-specific details for each music record.

CHAPTER 2

2. SURVEY OF TECHNOLOGIES

The Music Management System utilizes a combination of software tools and programming languages to achieve its functionality.

2.1 SOFTWARE DESCRIPTION

The software components used in the Restaurant Management System include:

1. Frontend User Interface: Developed using Python's Tkinter library to create an intuitive and responsive graphical user interface (GUI) for users to interact with. The GUI provides an easy-to-use platform for managing the music library, including adding, deleting, viewing, and searching music records.

2. Backend Database: Utilizes a relational database management system (RDBMS) such as MySQL to store and manage data related to music records. This includes information such as titles, artists, albums, genres, and release years. MySQL ensures efficient data storage, retrieval, and management, supporting the system's data integrity and performance needs.

3. Server-Side Logic: Implemented using Python to handle data processing, business logic, and communication between the frontend interface and the database. This includes executing SQL queries to interact with the MySQL database, processing user inputs, and ensuring seamless operation of the system functionalities.

2.2 LANGUAGES

2.2.1 SQL

Structured Query Language (SQL) is used to interact with the relational database management system. It is employed for tasks such as creating and modifying database schemas, querying data, and managing database transactions. SQL statements are utilized to ensure efficient data retrieval and manipulation within the system.

2.2.2 PYTHON

Python is used for server-side programming in the Music Library Management System. Python's versatility, ease of use, and extensive libraries make it well-suited for developing desktop applications. It is utilized to implement the backend logic, manage data storage, and perform various data processing tasks. Python's robust ecosystem, particularly with libraries like Tkinter for the graphical user interface and mySQL for database interactions, allows for efficient development, testing, and maintenance of the system. This ensures that users can seamlessly manage their music collections with reliable performance and minimal complexity.

CHAPTER 3

3. REQUIREMENTS AND ANALYSIS

The development of the Music Library Management System began with a comprehensive analysis of the requirements gathered from stakeholders, including music enthusiasts, collectors, and librarians. This analysis helped identify the key functionalities and features essential for effectively managing a personal music library. The requirements were categorized into functional and non-functional aspects, ensuring that the system meets both the operational needs and performance expectations.

Functional Requirements

1. Music Record Management:

- Add new music records with details such as title, artist, album, genre, and release year.
- Edit existing music records to update information.
- Delete music records from the library.

2. Library Viewing:

- Display a list of all music records.
- Filter music records by criteria such as genre, artist, or album.
- View detailed information about each music record.

3. Playlist Management:

- Create new playlists by selecting songs from the music library.
- Add or remove songs from existing playlists.
- View and play songs within a playlist.

4. Genre-Based Viewing:

- View all songs within a specific genre (e.g., Pop, Rock, EDM, Indie, Rap).
- Navigate between different genre categories.
- Display genre-specific details for each music record.

Non-Functional Requirements

- **Usability**: The system should have an intuitive and user-friendly interface, making it easy for users to navigate and perform tasks.
- **Performance**: The system should provide quick and efficient access to the music library, ensuring minimal delay in data retrieval and display.
- **Reliability:** The system should be robust and reliable, ensuring data integrity and preventing data loss or corruption.
- **Maintainability:** The system should be easy to maintain and update, allowing for future enhancements and bug fixes without significant rework.
- **Portability:** The system should be able to run on various operating systems that support Python and its libraries.

3.2 Hardware and Software Requirements

Hardware Requirements

Server-Side

- Processor: Intel Xeon or equivalent

- RAM: 16GB or higher

- Storage: 500GB SSD or higher

- Network: Gigabit Ethernet

Client-Side

- Processor: Intel Core i3 or equivalent

- RAM: 4GB or higher

- Storage: 128GB SSD or higher

- Display: 1024x768 resolution or higher

Software Requirements

Server-Side

- Operating System: Linux (Ubuntu Server recommended) or Windows Server

- Web Server: Apache or Nginx

- Database: MySQL or PostgreSQL

- Programming Language: Python

-Additional Software: Gunicorn or uWSGI for Python application deployment, SSL certificates for secure connections

Client-Side

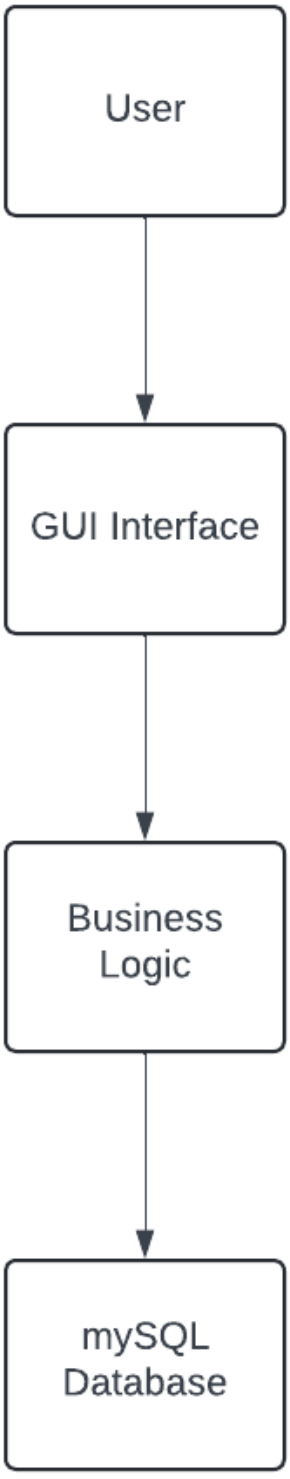
- Operating System: Windows, macOS, or Linux

- Web Browser: Latest versions of Chrome, Firefox, or Safari

- Additional Software: None required

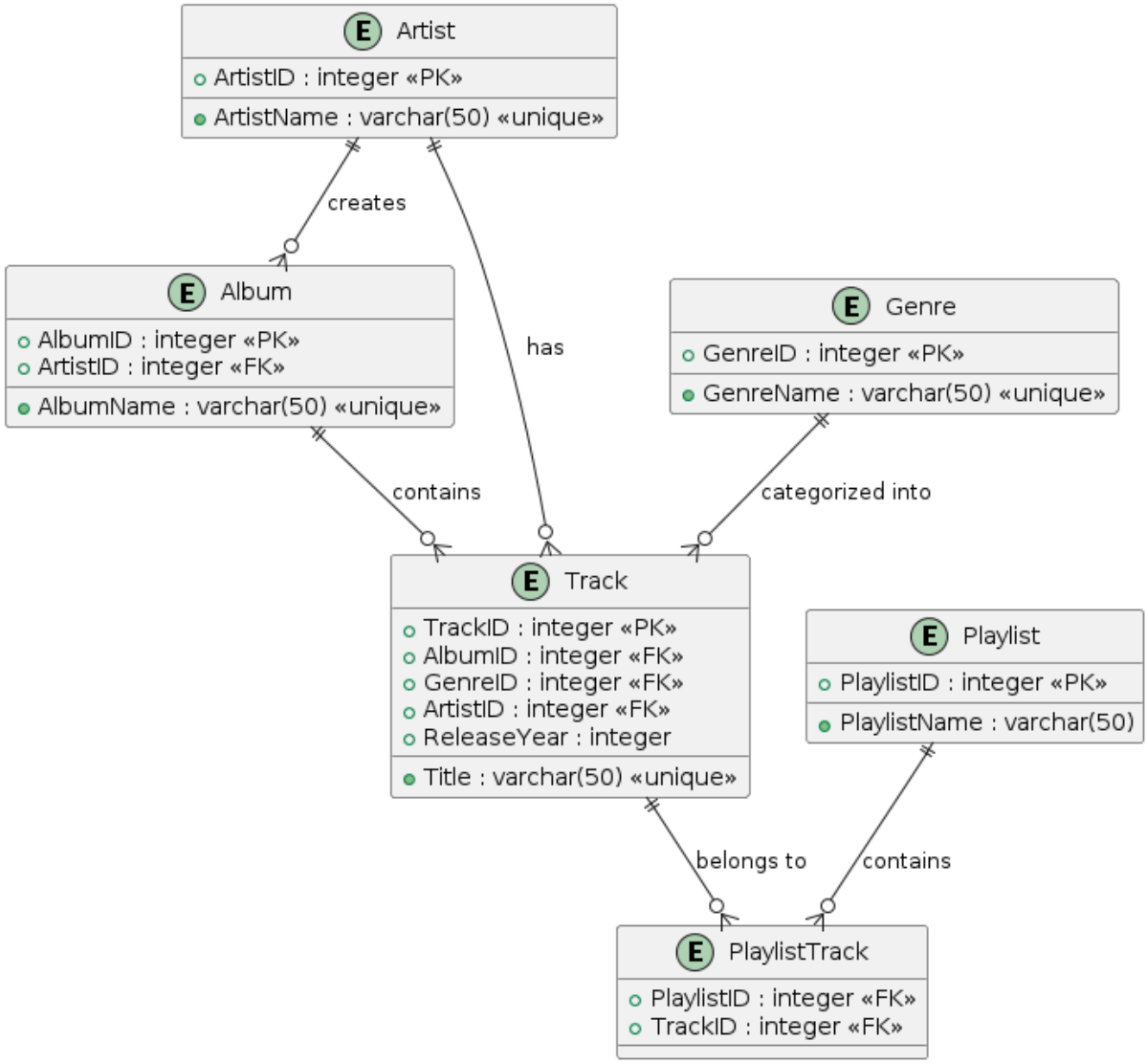
3.3 Architecture Diagram

The architecture diagram provides a high-level view of the system components and their interactions.



3.4 ER Diagram

The Entity-Relationship (ER) diagram visually represents the data model of the system, illustrating the entities, attributes, and relationships.



Detailed ER Diagram

Artist

- Attributes: ArtistID (Primary Key), ArtistName (Unique)

Genre

- Attributes: GenreID (Primary Key), GenreName (Unique)

Album

- Attributes: AlbumID (Primary Key), AlbumName (Unique), ArtistID (Foreign Key)

Track

- Attributes: TrackID (Primary Key), Title (Unique), AlbumID (Foreign Key), GenreID (Foreign Key), ArtistID (Foreign Key), ReleaseYear

Playlist

- Attributes: PlaylistID (Primary Key), PlaylistName

PlaylistTrack

- Attributes: PlaylistID (Foreign Key), TrackID (Foreign Key)

3.5 Normalization

Normalization is the process of organizing the database to reduce redundancy and improve data integrity. The tables in the Music Management System are normalized to the third normal form (3NF).

First Normal Form (1NF)

- Ensure each column contains atomic values.

- Remove duplicate columns from the same table.

Second Normal Form (2NF)

- Ensure all non-key attributes are fully functionally dependent on the primary key.

- Remove partial dependencies.

Third Normal Form (3NF)

- Ensure all non-key attributes are not transitively dependent on the primary key.

- Remove transitive dependencies.

Example of Normalized Tables

1. Artist Table (1NF, 2NF, 3NF)

- ArtistID (Primary Key)
- ArtistName
- 1NF: All attributes are atomic.
- 2NF: No partial dependencies.

2. Genre Table (1NF, 2NF, 3NF)

- GenreID (Primary Key)
- GenreName
- 1NF: All attributes are atomic.
- 2NF: No partial dependencies.
- 3NF: No transitive dependencies.

3. Album Table (1NF, 2NF, 3NF)

- AlbumID (Primary Key)
- AlbumName
- ArtistID (Foreign Key)
- 1NF: All attributes are atomic.
- 2NF: No partial dependencies.
- 3NF: No transitive dependencies.

4. Track Table (1NF, 2NF, 3NF)

- TrackID (Primary Key)
- Title
- AlbumID (Foreign Key)
- GenreID (Foreign Key)
- ArtistID (Foreign Key)
- ReleaseYear
- 1NF: All attributes are atomic.
- 2NF: No partial dependencies.
- 3NF: No transitive dependencies.

5. Playlist Table (1NF, 2NF, 3NF)

- PlaylistID (Primary Key)
- PlaylistName
- 1NF: All attributes are atomic.
- 2NF: No partial dependencies.
- 3NF: No transitive dependencies.

6. PlaylistTrack Table (1NF, 2NF, 3NF)

- PlaylistID (Composite Key, Foreign Key)
- TrackID (Composite Key, Foreign Key)
- 1NF: All attributes are atomic.
- 2NF: No partial dependencies.
- 3NF: No transitive dependencies.

CHAPTER 4

4. PROGRAM CODE

4.1 MAIN.PY

```
from tkinter import *

from PIL import ImageTk,Image

import pymysql

from tkinter import messagebox

from tkinter.ttk import *

from add import *

from delete import *

from view import *


mypass = "password_here"

mydatabase="database_name_here"


con = pymysql.connect(host="localhost",user="root",password=mypass,database=mydatabase)

cur = con.cursor()


root = Tk()

root.title("Music Library Management System")

root.minsize(width=400,height=400)
```

```
root.geometry("800x600")


background_image =Image.open("main.jpg")

[imageSizeWidth, imageSizeHeight] = background_image.size

newImageSizeWidth = int(imageSizeWidth*0.7)

newImageSizeHeight = int(imageSizeHeight*0.7)

background_image =
background_image.resize((newImageSizeWidth,newImageSizeHeight),Image.ANTIALIAS)

img = ImageTk.PhotoImage(background_image)


Canvas1 = Canvas(root)

Canvas1.create_image(300,340,image = img)

Canvas1.config(bg="white",width = newImageSizeWidth, height = newImageSizeHeight)

Canvas1.pack(expand=True,fill=BOTH)


headingFrame1 = Frame(root,bg="#dfdee2",bd=5)

headingFrame1.place(relx=0.2,rely=0.1,relwidth=0.6,relheight=0.16)


headingLabel = Label(headingFrame1, text="Welcome to\nMusic Library Management
System", bg="black", fg='white', font=('Courier',15))

headingLabel.place(relx=0,rely=0, relwidth=1, relheight=1)


btn1 = Button(root,text="Add Track",font='Helvetica 10 bold',bg='black', fg='white',
```

```
command=addsong)

btn1.place(relx=0.28,rely=0.4, relwidth=0.45,relheight=0.1)


btn2 = Button(root,text="Delete Track",font='Helvetica 10 bold',bg='black', fg='white',
command=delete)

btn2.place(relx=0.28,rely=0.5, relwidth=0.45,relheight=0.1)


btn3 = Button(root,text="View Tracks",font='Helvetica 10 bold',bg='black', fg='white',
command=view)

btn3.place(relx=0.28,rely=0.6, relwidth=0.45,relheight=0.1)


root.mainloop()
```

4.2 ADD.PY

```
from tkinter import *

from PIL import ImageTk,Image

from tkinter import messagebox

import pymysql

def songadd():

    title = songInfo1.get()

    artist = songInfo2.get()

    album = songInfo3.get()

    genre = songInfo4.get()

    rlsyr = songInfo5.get()
```

```
    try:
        cur.execute('insert ignore into artist(artist_name) values(%s)',(artist))
        cur.execute("select id from artist where artist_name = '"+artist+"';")
        artist_id = cur.fetchone()[0]
        cur.execute('insert ignore into album(album_name, artist_id) values(%s,%s)',(album, artist_id))
        cur.execute("select id from album where album_name = '"+album+"';")
        album_id = cur.fetchone()[0]
        cur.execute('insert ignore into genre(genre_name) values(%s)',(genre))
        cur.execute("select id from genre where genre_name = '"+genre+"';")
        genre_id = cur.fetchone()[0]
        cur.execute('insert ignore into track(title, album_id, genre_id, artist_id, rlsyr) values(%s,%s,%s,%s,%s)',(title, album_id, genre_id, artist_id, rlsyr))
        con.commit()
        messagebox.showinfo('Success',"Song Added Successfully")
    except:
        messagebox.showinfo("Error","Can't Add Song Into Database")
    root.destroy()
def addsong():
    global img,songInfo1,songInfo2,songInfo3,songInfo4,songInfo5,Canvas1,con,cur,root
    root = Toplevel()
    root.title("Add Music Record")
    root.minsize(width=400,height=400)
```

```
    root.geometry("800x600")


    mypass = "password_here"
    mydatabase="database_name_here"


    con =
pymysql.connect(host="localhost",user="root",password=mypass,database=mydatabase)
    cur = con.cursor()


    background_image = Image.open("add.jpg")
    [imageSizeWidth, imageSizeHeight] = background_image.size
    newImageSizeWidth = int(imageSizeWidth*0.25)
    newImageSizeHeight = int(imageSizeHeight*0.25)
    background_image =
background_image.resize((newImageSizeWidth,newImageSizeHeight),Image.ANTIALIAS)
    img = ImageTk.PhotoImage(background_image)


    Canvas1 = Canvas(root)
    Canvas1.create_image(300,340,image = img)
    Canvas1.config(bg="white", width = newImageSizeWidth, height = newImageSizeHeight)
    Canvas1.pack(expand=True,fill=BOTH)


    headingFrame1 = Frame(root,bg="#2f2e2e",bd=5)
```

```
    headingFrame1.place(relx=0.25,rely=0.1,relwidth=0.5,relheight=0.13)

    headingLabel = Label(headingFrame1, text="Add Song Record",font='Helvetica 14 bold',
bg= "#d7a26c", fg='black', )

    headingLabel.place(relx=0,rely=0, relwidth=1, relheight=1)

    labelFrame = Frame(root, bg="#d7a26c")

    labelFrame.place(relx=0.1,rely=0.4,relwidth=0.8,relheight=0.4)

    lb1 =Label(labelFrame, text="Title:", font='Helvetica 13 bold',bg="#d7a26c", fg='black')

    lb1.place(relx=0.05,rely=0.16, relheight=0.08,)

    songInfo1 = Entry(labelFrame)

    songInfo1.place(relx=0.3,rely=0.16, relwidth=0.62, relheight=0.08)

    lb2 = Label(labelFrame,text="Artist:", font='Helvetica 13 bold',bg="#d7a26c", fg='black')

    lb2.place(relx=0.05,rely=0.32, relheight=0.08)

    songInfo2 = Entry(labelFrame)

    songInfo2.place(relx=0.3,rely=0.32, relwidth=0.62, relheight=0.08)

    lb3 = Label(labelFrame,text="Album:", font='Helvetica 13 bold',bg="#d7a26c", fg='black')
```

```
    lb3.place(relx=0.05,rely=0.48, relheight=0.08)


    songInfo3 = Entry(labelFrame)

    songInfo3.place(relx=0.3,rely=0.48, relwidth=0.62, relheight=0.08)


    lb4 = Label(labelFrame,text="Genre:", font='Helvetica 13 bold',bg="#d7a26c", fg='black')

    lb4.place(relx=0.05,rely=0.64, relheight=0.08)

    songInfo4 = Entry(labelFrame)

    songInfo4.place(relx=0.3,rely=0.64, relwidth=0.62, relheight=0.08)

    lb5 = Label(labelFrame,text="Release Year:", font='Helvetica 13 bold',bg="#d7a26c",
fg='black')

    lb5.place(relx=0.05,rely=0.80, relheight=0.08)

    songInfo5 = Entry(labelFrame)

    songInfo5.place(relx=0.3,rely=0.80, relwidth=0.62, relheight=0.08)

    SubmitBtn = Button(root,text="Submit",font='Helvetica 12 bold',bg='#d7a26c',
fg='black',command=songadd)

    SubmitBtn.place(relx=0.28,rely=0.9, relwidth=0.18,relheight=0.08)


    quitBtn = Button(root,text="Quit",font='Helvetica 12 bold',bg='#d7a26c', fg='black',
command=root.destroy)

    quitBtn.place(relx=0.53,rely=0.9, relwidth=0.18,relheight=0.08)

    root.mainloop()
```

4.3 DELETE.PY

```
from tkinter import *

from PIL import ImageTk,Image

from tkinter import messagebox

import pymysql


mypass = "password_here"

mydatabase="database_name_here"


con = pymysql.connect(host="localhost",user="root",password=mypass,database=mydatabase)

cur = con.cursor()


def deletesong():


    title = songInfo1.get()


    try:

        cur.execute("delete from track, album, artist using track join album join artist on track.artist_id=artist.id and track.album_id=album.id where track.title = "'+title+'";")

        con.commit()

        messagebox.showinfo('Success',"Song Record Deleted Successfully")

    except:
```

```
        messagebox.showinfo("Please Check Song Title")


    songInfo1.delete(0, END)

    root.destroy()


def delete():


    global img,songInfo1,songInfo2,songInfo3,songInfo4,songInfo5,Canvas1,con,cur,root


    root = Toplevel()

    root.title("Delete Music Recordd")

    root.minsize(width=400,height=400)

    root.geometry("800x600")


    background_image = Image.open("delete.jpg")

    [imageSizeWidth, imageSizeHeight] = background_image.size

    newImageSizeWidth = int(imageSizeWidth*0.8)

    newImageSizeHeight = int(imageSizeHeight*0.8)

    background_image =
background_image.resize((newImageSizeWidth,newImageSizeHeight),Image.ANTIALIAS)

    img = ImageTk.PhotoImage(background_image)
```

```
    Canvas1 = Canvas(root)

    Canvas1.create_image(300,340,image = img)

    Canvas1.config(bg="black", width = newImageSizeWidth, height = newImageSizeHeight)

    Canvas1.pack(expand=True,fill=BOTH)


    headingFrame1 = Frame(root,bg="#dfdee2",bd=5)

    headingFrame1.place(relx=0.25,rely=0.1,relwidth=0.5,relheight=0.13)


    headingLabel = Label(headingFrame1, text="Delete Song Record",font='Helvetica 14 bold',
bg="#010103", fg='white',)

    headingLabel.place(relx=0,rely=0, relwidth=1, relheight=1)


    labelFrame = Frame(root,bg="#010103")

    labelFrame.place(relx=0.25,rely=0.4,relwidth=0.5,relheight=0.2)


    lb2 = Label(labelFrame,text="Song Title:", font='Helvetica 11 bold', bg="#000000",
fg='white')

    lb2.place(relx=0.05,rely=0.5)


    songInfo1 = Entry(labelFrame)

    songInfo1.place(relx=0.3,rely=0.5, relwidth=0.62)


    SubmitBtn = Button(root,text="Submit",font='Helvetica 11 bold',bg="#010103",
```

```
fg='white',command=deletesong)
    SubmitBtn.place(relx=0.28,rely=0.75, relwidth=0.18,relheight=0.08)

    quitBtn = Button(root,text="Quit",font='Helvetica 11 bold',bg="#010103", fg='white',
command=root.destroy)
    quitBtn.place(relx=0.53,rely=0.75, relwidth=0.18,relheight=0.08)
    root.mainloop()
```

4.4 VIEW.PY

```
from tkinter import *
from PIL import ImageTk,Image
from tkinter import messagebox
import pymysql
from viewallsongs import *
from viewplaylists import *

mypass = "password_here"
mydatabase="database_name_here"

con = pymysql.connect(host="localhost",user="root",password=mypass,database=mydatabase)
cur = con.cursor()

def view():
```

```
    root = Toplevel()
    root.title("View Songs")
    root.minsize(width=400,height=400)
    root.geometry("800x600")

    background_image = Image.open("view.jpg")
    [imageSizeWidth, imageSizeHeight] = background_image.size
    newImageSizeWidth = int(imageSizeWidth*0.2)
    newImageSizeHeight = int(imageSizeHeight*0.2)
    background_image =
background_image.resize((newImageSizeWidth,newImageSizeHeight),Image.ANTIALIAS)
    img = ImageTk.PhotoImage(background_image)

    Canvas1 = Canvas(root)
    Canvas1.create_image(300,340,image = img)
    Canvas1.config(bg="white", width = newImageSizeWidth, height = newImageSizeHeight)
    Canvas1.pack(expand=True,fill=BOTH)

    headingFrame1 = Frame(root,bg="#d4b890",bd=5)
    headingFrame1.place(relx=0.25,rely=0.1,relwidth=0.5,relheight=0.13)
```

```
    headingLabel = Label(headingFrame1, text="View Songs",font='Helvetica 14 bold', bg="#090a0c", fg='white', )

    headingLabel.place(relx=0,rely=0, relwidth=1, relheight=1)


    btn1 = Button(root,text="All Songs",font='Helvetica 10 bold',bg='black', fg='white', command=viewallsongs)

    btn1.place(relx=0.28,rely=0.42, relwidth=0.45,relheight=0.1)


    btn2 = Button(root,text="View Playlists",font='Helvetica 10 bold',bg='black', fg='white', command=viewplaylists)

    btn2.place(relx=0.28,rely=0.52, relwidth=0.45,relheight=0.1)

    root.mainloop()
```

4.5 VIEWALLSONGS.PY

```
from tkinter import *

from PIL import ImageTk,Image

from tkinter import messagebox

import tkinter as tk

import pymysql


mypass = "password_here"

mydatabase="database_name_here"
```

```
con = pymysql.connect(host="localhost",user="root",password=mypass,database=mydatabase)
cur = con.cursor()

def viewallsongs():

    root = Tk()
    root.title("View All Songs")
    root.minsize(width=40,height=4)
    root.geometry("1000x400")

    tree = ttk.Treeview(root, column=("c1","c2","c3","c4","c5",),show='headings')
    tree.column("#1", anchor=tk.CENTER)
    tree.heading("#1", text="Title")
    tree.column("#2", anchor=tk.CENTER)
    tree.heading("#2", text="Artist")
    tree.column("#3", anchor=tk.CENTER)
    tree.heading("#3", text="Album")
    tree.column("#4", anchor=tk.CENTER)
    tree.heading("#4", text="Genre")
    tree.column("#5", anchor=tk.CENTER)
    tree.heading("#5", text="Release Year")
    tree.grid(sticky = (N,S,W,E))
```

```
    root.treeview = tree
    root.grid_rowconfigure(0, weight = 1)
    root.grid_columnconfigure(0, weight = 1)
    tree.pack(expand=True,fill=BOTH)

    try:
        cur.execute("select track.title, artist.artist_name, album.album_name, genre.genre_name,
track.rlsyr from track join album join artist join genre on track.artist_id=artist.id and
track.album_id=album.id and track.genre_id=genre.id order by track.title;")
        rows = cur.fetchall()
        con.commit()
        for i in rows:
            tree.insert("", tk.END, values=i)
    except:
        messagebox.showinfo('Error',"Failed To Fetch Songs From The Database")

    quitBtn = Button(root,text="Quit", bg='#f7f1e3', fg='black', command=root.destroy)
    quitBtn.place(relx=0.4,rely=0.9, relwidth=0.18,relheight=0.08)
    root.mainloop()
```

4.6 VIEWEDM.PY

```
from tkinter import *
from PIL import ImageTk,Image
```

```
from tkinter import messagebox
import tkinter as tk
import pymysql

mypass = "password_here"
mydatabase="database_name_here"

con = pymysql.connect(host="localhost",user="root",password=mypass,database=mydatabase)
cur = con.cursor()

def viewedm():

    root = Tk()
    root.title("View Electronic Dance Music")
    root.minsize(width=400,height=400)
    root.geometry("1000x400")

    tree = ttk.Treeview(root, column=("c1","c2","c3","c4","c5",),show='headings')
    tree.column("#1", anchor=tk.CENTER)
    tree.heading("#1", text="Title")
    tree.column("#2", anchor=tk.CENTER)
    tree.heading("#2", text="Artist")
```

```
    tree.column("#3", anchor=tk.CENTER)
    tree.heading("#3", text="Album")
    tree.column("#4", anchor=tk.CENTER)
    tree.heading("#4", text="Genre")
    tree.column("#5", anchor=tk.CENTER)
    tree.heading("#5", text="Release Year")
    tree.grid(sticky = (N,S,W,E))
    root.treeview = tree
    root.grid_rowconfigure(0, weight = 1)
    root.grid_columnconfigure(0, weight = 1)
    tree.pack(expand=True,fill=BOTH)


    genre = "EDM"
    try:
        cur.execute("select track.title, artist.artist_name, album.album_name, genre.genre_name,
track.rlsyr from track join album join artist join genre on track.artist_id=artist.id and
track.album_id=album.id and track.genre_id=genre.id where genre.genre_name= '"+genre+"';")
        rows = cur.fetchall()
        con.commit()
        for i in rows:
            tree.insert("", tk.END, values=i)
    except:
        messagebox.showinfo('Error',"Failed To Fetch Songs From The Database")
```

```
    quitBtn = Button(root,text="Quit",bg='#f7f1e3', fg='black', command=root.destroy)

    quitBtn.place(relx=0.4,rely=0.9, relwidth=0.18,relheight=0.08)


    root.mainloop()
```

4.7 VIEWINDIE.PY

```
from tkinter import *

from PIL import ImageTk,Image

from tkinter import messagebox

import tkinter as tk

import pymysql


mypass = "password_here"

mydatabase="database_name_here"


con = pymysql.connect(host="localhost",user="root",password=mypass,database=mydatabase)

cur = con.cursor()


def viewindie():


    root = Tk()
```

```
root.title("View Indie Songs")

root.minsize(width=400,height=400)

root.geometry("1000x400")


tree = ttk.Treeview(root, column=("c1","c2","c3","c4","c5",),show='headings')

tree.column("#1", anchor=tk.CENTER)

tree.heading("#1", text="Title")

tree.column("#2", anchor=tk.CENTER)

tree.heading("#2", text="Artist")

tree.column("#3", anchor=tk.CENTER)

tree.heading("#3", text="Album")

tree.column("#4", anchor=tk.CENTER)

tree.heading("#4", text="Genre")

tree.column("#5", anchor=tk.CENTER)

tree.heading("#5", text="Release Year")

tree.grid(sticky = (N,S,W,E))

root.treeview = tree

root.grid_rowconfigure(0, weight = 1)

root.grid_columnconfigure(0, weight = 1)

tree.pack(expand=True,fill=BOTH)


genre = "Indie"
```

```
    try:
        cur.execute("select track.title, artist.artist_name, album.album_name, genre.genre_name,
track.rlsyr from track join album join artist join genre on track.artist_id=artist.id and
track.album_id=album.id and track.genre_id=genre.id where genre.genre_name= '"+genre+"';")
        rows = cur.fetchall()
        con.commit()
        for i in rows:
            tree.insert("", tk.END, values=i)
    except:
        messagebox.showinfo('Error',"Failed To Fetch Songs From The Database")


    quitBtn = Button(root,text="Quit",bg='#f7f1e3', fg='black', command=root.destroy)
    quitBtn.place(relx=0.4,rely=0.9, relwidth=0.18,relheight=0.08)


    root.mainloop()
```

4.8 VIEWPOP.PY

```
from tkinter import *
from PIL import ImageTk,Image
from tkinter import messagebox
import tkinter as tk
import pymysql
```

```
mypass = "password_here"

mydatabase="database_name_here"


con = pymysql.connect(host="localhost",user="root",password=mypass,database=mydatabase)

cur = con.cursor()


def viewpop():


    root = Tk()

    root.title("View Pop Songs")

    root.minsize(width=400,height=400)

    root.geometry("1000x400")

    tree = ttk.Treeview(root, column=("c1","c2","c3","c4","c5",),show='headings')

    tree.column("#1", anchor=tk.CENTER)

    tree.heading("#1", text="Title")

    tree.column("#2", anchor=tk.CENTER)

    tree.heading("#2", text="Artist")

    tree.column("#3", anchor=tk.CENTER)

    tree.heading("#3", text="Album")

    tree.column("#4", anchor=tk.CENTER)

    tree.heading("#4", text="Genre")

    tree.column("#5", anchor=tk.CENTER)
```

```
    tree.heading("#5", text="Release Year")
    tree.grid(sticky = (N,S,W,E))
    root.treeview = tree
    root.grid_rowconfigure(0, weight = 1)
    root.grid_columnconfigure(0, weight = 1)
    tree.pack(expand=True,fill=BOTH)
    genre = "Pop"
    try:
        cur.execute("select track.title, artist.artist_name, album.album_name, genre.genre_name,
track.rlsyr from track join album join artist join genre on track.artist_id=artist.id and
track.album_id=album.id and track.genre_id=genre.id where genre.genre_name= '"+genre+"';")
        rows = cur.fetchall()
        con.commit()
        for i in rows:
            tree.insert("", tk.END, values=i)
    except:
        messagebox.showinfo('Error',"Failed To Fetch Songs From The Database")
    quitBtn = Button(root,text="Quit",bg='#f7f1e3', fg='black', command=root.destroy)
    quitBtn.place(relx=0.4,rely=0.9, relwidth=0.18,relheight=0.08)
    root.mainloop()
```

4.9 VIEWRAP.PY

```
from tkinter import *
from PIL import ImageTk,Image
```

```
from tkinter import messagebox

import tkinter as tk

import pymysql


mypass = "password_here"

mydatabase="database_name_here"


con = pymysql.connect(host="localhost",user="root",password=mypass,database=mydatabase)

cur = con.cursor()


def viewrap():


    root = Tk()

    root.title("View Rap Songs")

    root.minsize(width=400,height=400)

    root.geometry("1000x400")


    tree = ttk.Treeview(root, column=("c1","c2","c3","c4","c5",),show='headings')

    tree.column("#1", anchor=tk.CENTER)

    tree.heading("#1", text="Title")

    tree.column("#2", anchor=tk.CENTER)

    tree.heading("#2", text="Artist")
```

```
    tree.column("#3", anchor=tk.CENTER)
    tree.heading("#3", text="Album")
    tree.column("#4", anchor=tk.CENTER)
    tree.heading("#4", text="Genre")
    tree.column("#5", anchor=tk.CENTER)
    tree.heading("#5", text="Release Year")
    tree.grid(sticky = (N,S,W,E))
    root.treeview = tree
    root.grid_rowconfigure(0, weight = 1)
    root.grid_columnconfigure(0, weight = 1)
    tree.pack(expand=True,fill=BOTH)


    genre = "Rap"
    try:
        cur.execute("select track.title, artist.artist_name, album.album_name, genre.genre_name,
track.rlsyr from track join album join artist join genre on track.artist_id=artist.id and
track.album_id=album.id and track.genre_id=genre.id where genre.genre_name= '"+genre+"';")
        rows = cur.fetchall()
        con.commit()
        for i in rows:
            tree.insert("", tk.END, values=i)
    except:
        messagebox.showinfo('Error',"Failed To Fetch Songs From The Database")
```

```
quitBtn = Button(root,text="Quit", bg='#f7f1e3', fg='black', command=root.destroy)

quitBtn.place(relx=0.4,rely=0.9, relwidth=0.18,relheight=0.08)


root.mainloop()
```

4.10 VIEWPLAYLISTS.PY

```
from tkinter import *

from PIL import ImageTk,Image

from tkinter import messagebox

import pymysql

from viewedm import *

from viewindie import *

from viewpop import *

from viewrap import *


mypass = "password_here"

mydatabase="database_name_here"


con = pymysql.connect(host="localhost",user="root",password=mypass,database=mydatabase)

cur = con.cursor()
```

```
def viewplaylists():


    root = Toplevel()

    root.title("View Playlists")

    root.minsize(width=400,height=400)

    root.geometry("800x600")


    mypass = "08052000"

    mydatabase="Music"


    con =
pymysql.connect(host="localhost",user="root",password=mypass,database=mydatabase)

    cur = con.cursor()


    background_image = Image.open("viewplaylists.jpg")

    [imageSizeWidth, imageSizeHeight] = background_image.size

    newImageSizeWidth = int(imageSizeWidth*0.25)

    newImageSizeHeight = int(imageSizeHeight*0.25)

    background_image =
background_image.resize((newImageSizeWidth,newImageSizeHeight),Image.ANTIALIAS)

    img = ImageTk.PhotoImage(background_image)


    Canvas1 = Canvas(root)
```

```
    Canvas1.create_image(300,340,image = img)

    Canvas1.config(bg="white", width = newImageSizeWidth, height = newImageSizeHeight)

    Canvas1.pack(expand=True,fill=BOTH)


    headingFrame1 = Frame(root,bg="#dbd1c6",bd=5)

    headingFrame1.place(relx=0.25,rely=0.1,relwidth=0.5,relheight=0.13)


    headingLabel = Label(headingFrame1, text="View Playlists",font='Helvetica 14 bold',
bg="#6b4c38", fg='white',)

    headingLabel.place(relx=0,rely=0, relwidth=1, relheight=1)


    btn1 = Button(root,text="Electronic Dance Music",font='Helvetica 10 bold',bg='black',
fg='white', command=viewedm)

    btn1.place(relx=0.28,rely=0.4, relwidth=0.45,relheight=0.1)


    btn2 = Button(root,text="Ultimate Indie",font='Helvetica 10 bold',bg='black', fg='white',
command=viewindie)

    btn2.place(relx=0.28,rely=0.5, relwidth=0.45,relheight=0.1)


    btn3 = Button(root,text="Make Me Pop",font='Helvetica 10 bold',bg='black', fg='white',
command=viewpop)

    btn3.place(relx=0.28,rely=0.6, relwidth=0.45,relheight=0.1)


    btn4 = Button(root,text="Chill Rap",font='Helvetica 10 bold',bg='black', fg='white',
```

```
        command=viewrap)
            btn4.place(relx=0.28,rely=0.7, relwidth=0.45,relheight=0.1)
            root.mainloop()
```

4.11 BACKEND.PY

```
import pymysql
mypass = "password_here"
mydatabase="database_name_here"
con = pymysql.connect(host="localhost",user="root",password=mypass,database=mydatabase)
cur = con.cursor()
try:
   cur.execute("USE Music;")
   cur.execute('''CREATE TABLE Artist(
            id integer auto_increment,
            artist_name varchar(50) unique,
            primary key(id));''')
   cur.execute('''CREATE TABLE Genre(
            id integer auto_increment,
            genre_name varchar(50) unique,
            primary key(id));''')
   cur.execute('''CREATE TABLE Album(
            id integer auto_increment,
```

```
            album_name varchar(50) unique,
            artist_id integer,
            primary key(id),
            foreign key(artist_id) references artist(id) on delete cascade);'")
    cur.execute('"CREATE TABLE Track(
            title varchar(50) unique,
            album_id integer,
            genre_id integer,
            artist_id integer,
            rlsyr integer,
            primary key(title),
            foreign key(album_id) references album(id) on delete cascade,
            foreign key(genre_id) references genre(id) on delete cascade,
            foreign key(artist_id) references artist(id) on delete cascade);"')
    con.commit()
    print("Done")
except:
    print('Database Connection Failed!')
```

CHAPTER 5

5. RESULTS AND DISCUSSION

Results

The Music Management System was successfully implemented, and the key features were thoroughly tested to ensure they met the specified requirements. The system demonstrated the following results:

1. Artist Management

- The system provided an easy-to-use interface for adding, updating, and deleting artists.
- Artists were accurately maintained in the database, ensuring all records were up-to-date and free from duplication.

2. Genre Management

- Genres were effectively managed with the ability to add, update, and delete genre records.
- The system ensured unique genre entries, preventing redundancy and maintaining database integrity.

3. Album Management

- The system allowed seamless management of albums, including functionalities for adding, updating, and deleting albums.
- Albums were correctly associated with artists, ensuring accurate relational data representation.

4. Track Management

- The interface for managing tracks was user-friendly, enabling quick entry, modification, and deletion of track records.
- Tracks were accurately linked to their respective albums, artists, and genres, ensuring comprehensive data organization.

5. Playlist Management

- Playlists were efficiently managed, allowing users to create, update, and delete playlists.
- The system supported adding and removing tracks from playlists, maintaining an organized and customizable music collection.

Discussion

The successful implementation of the Music Management System brought several notable improvements to the management and organization of the music library:

1. Efficiency

The automation of artist, genre, album, track, and playlist management reduced manual tasks, allowing users to focus on curating and enjoying their music collection.

Real-time updates ensured that all changes to the music library were immediately reflected, streamlining the management process and reducing delays.

2. Accuracy

Automated linking of tracks to albums, artists, and genres significantly reduced the likelihood of human error, ensuring accurate categorization and organization of the music library.

The integration of the system with the backend database ensured that all data was consistent, up-to-date, and free from redundancy.

3. User Experience

The efficient management of artists, genres, albums, and tracks enhanced the overall user experience, making it easier to navigate and explore the music library.

Customizable playlists allowed users to organize their music according to their preferences, enhancing the enjoyment and usability of the system.

4. Scalability and Flexibility

The system's architecture allowed for easy scalability, enabling the music library to accommodate growth and handle an increasing number of records without performance degradation.

The modular design of the system facilitated future enhancements and integration with other platforms, such as music streaming services and mobile applications.

Challenges and Limitations

Despite the successful implementation, some challenges and limitations were encountered:

1. Training

Initial training of users on the new system required time and resources, as some individuals needed to adapt to the digital interface and new functionalities.

2. Technical Issues

Occasional technical issues, such as software bugs or compatibility problems, affected the performance and reliability of the system. These were mitigated through regular updates and maintenance.

3. User Feedback

Continuous feedback from users was essential to fine-tune the system and address any usability issues that arose during real-world usage, ensuring the system met user expectations and requirements.

CHAPTER 6

6. CONCLUSION

The Music Management System significantly enhances the organization and management of music libraries by automating artist, genre, album, track, and playlist management. These improvements have led to increased efficiency, accuracy, and user satisfaction.

Key Achievements

1. **Efficiency**: Automated processes reduce manual tasks, allowing users to focus on curating and enjoying their music.
2. **Accuracy**: Digital interfaces minimize errors in categorizing and linking music data.
3. **User Experience**: Streamlined operations result in easier navigation and higher satisfaction.
4. **Scalability**: The system's architecture supports growth and future enhancements.
5. **Reliability**: Robust design ensures minimal downtime and continuous operations.

Future Enhancements

1. **Music Streaming Integration**: Integrate with music streaming platforms for seamless playback.
2. **Mobile App**: Develop an app for managing music on the go.
3. **Advanced Analytics**: Implement analytics for better insights into music preferences and usage patterns.
4. **AI Integration**: Use AI to recommend music and optimize playlist creation.

REFERENCES

ADD LINKS, BOOKS, REFERRED TO DEVELOP THIS PROJECT

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