

**Semi-Finals Output Part 2: Python Application – CRUD Operations with MySQL**

Develop a Python application that connects to your MySQL database and performs full CRUD (Create, Read, Update, Delete) operations using Object-Oriented Programming (OOP). Your application should meet the following requirements:

1. Create a class that encapsulates methods for connecting to the database and performing add, edit, delete, and search operations on **at least one table**.
2. Implement a main program that presents a **text-based menu** to the user and invokes the appropriate class methods based on the selected option.

**Playlist Manager** is a **modular, terminal-based Python application** that allows users to create, manage, and interact with personalized playlists backed by a **MySQL database**. Designed with a user-friendly interface and strong emphasis on data management, the system supports music cataloging, playlist customization, and account management – all in one place.

**Purpose:**

This project aims to simulate a music playlist management system, emphasizing CRUD operations (Create, Read, Update, Delete), database connectivity, and modular Python programming. It's a great example of applying object-oriented design in a real-world-like application with user interaction.

**Features:**

User Management	Song Library	Playlist Features	Music Interaction	Settings
<ul style="list-style-type: none"><li>• Sign up/Login/Logout</li><li>• Username and Password Updates</li><li>• Account Deletion with verification.</li></ul>	<ul style="list-style-type: none"><li>• View all available songs.</li><li>• Add new songs (title, artist, genre).</li></ul>	<ul style="list-style-type: none"><li>• Create and name personalized playlists.</li><li>• Add or remove songs to/from playlists.</li><li>• View your playlists and see the songs in them.</li><li>• Rename or delete existing playlists.</li></ul>	<ul style="list-style-type: none"><li>• Open playlists and “play” a song (simulated output).</li><li>• View details of songs using readable formatting.</li></ul>	<ul style="list-style-type: none"><li>• Access a dedicated Setting menu to manage your account.<ul style="list-style-type: none"><li>○ Change username</li><li>○ Change password</li><li>○ Delete your account securely</li></ul></li></ul>

**Architecture:**

Module	Description
main.py	Entry point of the application. Handles SQL login and main menu flow.
playlist_manager.py	Core functionality for managing songs, playlists, and users with database operations.
playlist_manu.py	Handles the interface when the user is managing a specific playlist.
user_menu.py	Provides options for viewing songs, managing playlists, and accessing settings.
settings.py	Manages sensitive actions like changing credentials or deleting an account.
utility.py	Reusable helper functions (UI formatting, input handling, screen clearing).

**Technologies Used:**

- Python 3
- MySQL Connector
- Object-Oriented Programming (OOP)
- Modular Code Design
- Text-based User Interface (TUI)

**SQL Database Structure:**

- **Users:** Stores user credentials and emails.
- **Songs:** Stores available songs with details.
- **Playlist\_Details:** Contains playlist metadata linked to users.
- **Playlist\_Songs:** Handles song-to-playlist associations.

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**OUTPUT SCREENSHOTS:**

**SQL LOGIN MENU**

```
PS C:\Users\Marc Neil\OneDrive\Documents\Programming\PYTHON\CP102\SemiFinal-Output> & "C:/Program Files/Python313/python.exe" "c:/Users/Marc Neil/OneDrive/Documents/Programming/PYTHON/CP102/SemiFinal-Output/main.py"
SQL LOG-IN (enter blank to cancel)
Enter SQL Username: root
Enter SQL Password: NEIL_progg24
Connection successful!
Welcome, root!

===== PLAYLIST MANAGER =====
[1] Login (admin or user)
[2] Sign up
[0] Exit
Enter operation: █
```

**LOGIN→ USER MENU**

```
PS C:\Users\Marc Neil\OneDrive\Documents\Programming\PYTHON\CP102\SemiFinal-Output> & "C:/Program Files/Python313/python.exe" "c:/Users/Marc Neil/OneDrive/Documents/Programming/PYTHON/CP102/SemiFinal-Output/main.py"
USER LOGIN (enter blank to cancel)
Enter Username: Samson
Enter Password: password
Login successful! Welcome, Samson!

===== USER MENU =====
[1] View Available Songs
[2] Add Song
[3] View My Playlists
[4] Create Playlist
[5] Settings
[0] Logout
Enter operation: █
```

### SIGN UP MENU

```
○ SIGN UP (enter blank to cancel)
  Enter Username: Marc Neil
  Enter Password (max 10 characters): mypass
  Enter Email: marcneil@gmail.com
  User 'Marc Neil' with email 'marcneil@gmail.com' added successfully.

===== PLAYLIST MANAGER =====
[1] Login (admin or user)
[2] Sign up
[0] Exit
Enter operation: █
```

### SHOW AVAILABLE SONGS

```
○ AVAILABLE SONGS:
('SNG-0004', 'Baby', 'Justin Bieber', 'Pop')
('SNG-0032', 'Overdrive', 'Eraserheads', 'Alternative Rock')
('SNG-0059', 'Migraine', 'Moonstar88', 'OPM Rock')
('SNG-0074', 'Hey Barbara', 'IV of Spades', 'Funk Rock')
('SNG-0088', 'Huwag Na Huwag Mong Sasabihin', 'Kitchie Nadal', 'Alternative Rock')
('SNG-0111', 'Patutunguhan', 'Cup of Joe', 'Pop')
('SNG-0129', 'Groundhog's Day', 'Primus', 'Funk Metal')
('SNG-0147', 'Martyr Nyebera', 'Kamikazee', 'OPM Rock')
('SNG-0155', '14', 'Silent Sanctuary', 'Alternative Rock')
('SNG-0176', 'Tibok', 'Earl Agustin', 'Pop')
('SNG-0188', 'Good Thing', 'Sure Sure', 'Indie')
('SNG-0192', 'Hinahanap-Hanap Kita', 'Rivermaya', 'Alternative Rock')
('SNG-0213', 'Oo', 'Up Dharma Down', 'Alternative Rock')
('SNG-0225', 'Star Treatment', 'Arctic Monkeys', 'Indie Rock')
('SNG-0264', 'Raining in Manila', 'Lola Amour', 'City Pop')
('SNG-0303', 'The Real Slim Shady', 'Eminem', 'Hip-Hop')

Go back? [y]: █
```

### ADD SONG TO DATABASE

```
○ ADD SONG TO DATABASE (enter blank to cancel)
  Enter Song Title: Minsan
  Enter Artist: Eraserheads
  Enter Genre: Alternative Rock
  Added Minsan by Eraserheads.

Do you want to add another song? [y/n]: █
```

### SHOW MY PLAYLISTS

```
MY PLAYLISTS:
1. ('LST-0430', 'OnL <3', 'April 14, 2025 - 01:29 PM')

===== PLAYLIST MENU =====
[1] Open Playlist
[2] Change Playlist Name
[3] Delete Playlist
[0] Back to User Menu
Enter operation: █
```

OPEN PLAYLIST

```
===== ONL <3 =====
1. ('SNG-0236', 'Hanggang Kailan', 'Orange and Lemons', 'Pop')

===== NOW IN PLAYLIST =====
[1] Play Song
[2] Add Song
[3] Delete Song
[0] Back to My Playlists
Enter operation: █
```

CHANGE PLAYLIST NAME

```
MY PLAYLISTS:
1. ('LST-0430', 'OnL <3', 'April 14, 2025 - 01:29 PM')

CHANGE PLAYLIST NAME (enter blank to cancel)
Enter Playlist ID: LST-0430
Enter New Playlist Name: OnL Woohoo
Confirm new playlist name? [y/n]: y
OnL <3 changed to OnL Woohoo.

===== PLAYLIST MENU =====
[1] Open Playlist
[2] Change Playlist Name
[3] Delete Playlist
[0] Back to User Menu
Enter operation: █
```

DELETE PLAYLIST

```
MY PLAYLISTS:
1. ('LST-0430', 'OnL Woohoo', 'April 14, 2025 - 01:29 PM')

DELETE PLAYLIST (enter blank to cancel)
Enter Playlist ID: LST-0430
Do you want to delete OnL Woohoo? [y/n]: y
OnL Woohoo successfully deleted.

===== PLAYLIST MENU =====
[1] Open Playlist
[2] Change Playlist Name
[3] Delete Playlist
[0] Back to User Menu
Enter operation: █
```

PLAY SONG

```
===== ONL <3 =====
1. ('SNG-0236', 'Hanggang Kailan', 'Orange and Lemons', 'Pop')

PLAY SONG (enter blank to cancel)
Enter ID of the song to play: SNG-0236

Now playing: Hanggang Kailan by Orange and Lemons.

Go back? [y]: █
```

ADD SONG TO PLAYLIST

```
AVAILABLE SONGS:
('SNG-0004', 'Baby', 'Justin Bieber', 'Pop')
('SNG-0032', 'Overdrive', 'Eraserheads', 'Alternative Rock')
('SNG-0059', 'Migraine', 'Moonstar88', 'OPM Rock')
('SNG-0074', 'Hey Barbara', 'IV of Spades', 'Funk Rock')
('SNG-0088', 'Huwag Na Huwag Mong Sasabihin', 'Kitchie Nadal', 'Alternative Rock')
('SNG-0111', 'Patutunguhan', 'Cup of Joe', 'Pop')
('SNG-0129', "Groundhog's Day", 'Primus', 'Funk Metal')
('SNG-0141', 'Yakap sa Dilim', 'Orange and Lemons', 'Pop')
('SNG-0147', 'Martyr Nyebera', 'Kamikazee', 'OPM Rock')
('SNG-0155', '14', 'Silent Sanctuary', 'Alternative Rock')
('SNG-0176', 'Tibok', 'Earl Agustin', 'Pop')
('SNG-0188', 'Good Thing', 'Sure Sure', 'Indie')
('SNG-0192', 'Hinahanap-Hanap Kita', 'Rivermaya', 'Alternative Rock')
('SNG-0213', 'Oo', 'Up Dharma Down', 'Alternative Rock')
('SNG-0225', 'Star Treatment', 'Arctic Monkeys', 'Indie Rock')
('SNG-0236', 'Hanggang Kailan', 'Orange and Lemons', 'Pop')
('SNG-0264', 'Raining in Manila', 'Lola Amour', 'City Pop')
('SNG-0303', 'The Real Slim Shady', 'Eminem', 'Hip-Hop')
('SNG-0489', 'Pinoy Ako', 'Orange and Lemons', 'Pop')
('SNG-0689', 'Minsan', 'Eraserheads', 'Alternative Rock')

===== ONL <3 =====

ADD SONG TO PLAYLIST (enter blank to cancel)
Enter Song ID: SNG-0236
Successfully added Hanggang Kailan to OnL <3.

Do you want to add another song? [y/n]: █
```

CREATE PLAYLIST

```
CREATE PLAYLIST (enter blank to cancel)
Enter Playlist Name: OnL <3
Playlist 'OnL <3' created.

Do you want to create another playlist? [y/n]: █
```

DELETE SONG IN PLAYLIST

```
===== ONL <3 =====

1. ('SNG-0236', 'Hanggang Kailan', 'Orange and Lemons', 'Pop')

DELETE SONG IN PLAYLIST (enter blank to cancel)
Enter Song ID: SNG-0236
Do you want to remove Hanggang Kailan? [y/n]: y
Successfully removed Hanggang Kailan from OnL <3.

Do you want to remove another song? [y/n]: █
```

SETTINGS MENU

```
===== SETTINGS =====
[1] Change Username
[2] Change Password
[3] Delete Account
[0] Back to User Menu
Enter operation: █
```

### CHANGE USERNAME

```
CHANGE USERNAME (enter blank to cancel)
Enter New Username: Marco Polo
Confirm new username? [y/n]: y
Username Updated! Hello, Marco Polo!
```

```
===== SETTINGS =====
[1] Change Username
[2] Change Password
[3] Delete Account
[0] Back to User Menu
Enter operation: █
```

### CHANGE PASSWORD

```
CHANGE PASSWORD (enter blank to cancel)
Enter Old Password: mypass
Enter New Password: mypassword
Confirm new password? [y/n]: y
Password Updated!
```

```
===== SETTINGS =====
[1] Change Username
[2] Change Password
[3] Delete Account
[0] Back to User Menu
Enter operation: █
```

### DELETE ACCOUNT

```
DELETE ACCOUNT (enter blank to cancel)
Enter Password: mypassword
Do you want to delete your account? [y/n]: y
Account successfully deleted. Goodbye!
```

```
===== PLAYLIST MANAGER =====
[1] Login (admin or user)
[2] Sign up
[0] Exit
Enter operation: █
```

### LOGOUT

```
USER LOGOUT (enter blank to cancel)
Do you want to logout? [y/n]: y
Logged out.
```

```
===== PLAYLIST MANAGER =====
[1] Login (admin or user)
[2] Sign up
[0] Exit
Enter operation: █
```

### EXIT DATABASE

```
DELETE ACCOUNT (enter blank to cancel)
Enter Password: mypassword
Do you want to delete your account? [y/n]: y
Account successfully deleted. Goodbye!
```

```
===== PLAYLIST MANAGER =====
[1] Login (admin or user)
[2] Sign up
[0] Exit
Enter operation: 0
```

```
Goodbye!
Disconnection successful!
```

```
PS C:\Users\Marc Neil\OneDrive\Documents\Programming\PYTHON\CP102\Semifinal-Output> █
```