**A picture containing cartoon, graphics, graphic design, screenshot

Description automatically generated**CST2355 – Database Systems Group Lab Assignment 2

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# Application Description

Our application manages an individual's Spotify streaming data, including user playlists, tracks listened to, a dedicated section for 1980's classic tracks, top 10 ranking songs, and artist information. The design of the database incorporates various relationships, such as hierarchies (from user to playlists to tracks), is-a (a track is an output of an artist), contains (a playlist contains multiple songs), and related-to (an artist is related to various tracks, and a track can be related to many playlists).

The Access front-end provides users with a smooth experience to manage and navigate their streaming data. Various forms and reports facilitate adding, editing, and viewing data, **tracking historic change of data** which making the application user-friendly and intuitive, even when handling complex relationships within the data.

# Installation/Backup Instructions

## Installation Instructions

* *Installation Steps:*

1. **Oracle Tools Setup:** Make sure Oracle Database and Oracle SQL Developer are installed on your computer. If they aren't, download and install from Oracle's official website.
2. **Restoring the Database Backup File:**

Launch Oracle SQL Developer, establish a connection, and then import the provided dump file.

1. **Microsoft Access Installation:** If not already installed, download and install Microsoft Access from the official Microsoft website. Ensure that the version of Access installed is compatible with the version of the database file.
2. **Access Front-End Database File:** Launch the supplied Access front-end database file (with a .accdb extension) by double-clicking on it.
3. **Connecting Access to SQL Server:**
   1. In the Access application, go to the "External Data" tab on the Ribbon.
   2. Click on "New Data Source" > "From Database" > "SQL Server".
   3. In the "Get External Data - ODBC Database" window, click "Link to the data source by creating a linked table", then "OK".
   4. In the "Select Data Source" window, click "New" > "Next" > "Finish".
   5. A screenshot of a computer

      Description automatically generatedIn the "Create New Data Source" window, type your SQL Server instance name and select your database, then follow the prompts to complete the connection.

## Backup Instructions

* - How to Backup:
* 1. Initiate Oracle SQL Developer and establish a connection.
* 2. Select your database schema, right-click, and opt for an export.
* 3. Ensure the correct export settings are selected.
* 4. Designate your desired backup location and start the backup process.

# Usage Instructions

## Login

Open the Access application. Login with your designated credentials (***Login ID: groupUser, Password:123456***).

## Main Menu

After successful login, you will be greeted with the main menu.

### Administrator login

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Administrator user may click on “Admin” button at the left-bottom, which will grant the full access of all forms and functions including adding/deleting/updating/searching.

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Here the administrator will be able to find options for managing playlists, tracks, artists, and rankings. They will also see a special section for 1980's classics.

### Regular user login

Regular users can register a new account.

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Then log in using their existing username.

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Then users are able to view the user page, update their username, and track the username history; as well as creating/updating/deleting playlist and track information. These management actions will be described in details below.

## Managing Playlists

1. Viewing Playlists: Select "Playlists" from the main menu. You'll see a list of existing playlists with details.
2. Adding a Playlist: To add a new playlist, click on the "Add New" button and fill in the necessary information in the form, such as the playlist name. Click "Save" when done.
3. Editing a Playlist: To edit a playlist, select the playlist from the list and click the "Edit" button. Update the information as needed and click "Save".
4. Deleting a Playlist: To delete a playlist, select the playlist from the list and click "Delete". Confirm the deletion.

## Managing Tracks

1. Viewing Tracks: Select "Tracks" from the main menu. You'll see a list of existing tracks with details.
2. Adding a Track: To add a new track, click on the "Add New" button and fill in the necessary information in the form, such as track name, artist, and duration. Click "Save" when done.
3. Editing a Track: To edit a track, select the track from the list and click the "Edit" button. Update the information as needed and click "Save".
4. Deleting a Track: To delete a track, select the track from the list and click "Delete". Confirm the deletion.

## Viewing Rankings and 1980's Classics

1. Top 10 Ranking: To view the top 10 ranking of tracks, select "Top 10 Ranking" from the main menu. Here you can see the top 10 tracks based on the number of times they've been added to playlists.
2. 1980's Classics: To view 1980's classic tracks, select "1980's Classics" from the main menu. This will provide you with a list of popular tracks from the 1980s.

## Working with Reports

1. Reports are used to view and analyze data. You can access them from the main navigation pane.
2. Open a report and use the navigation buttons to scroll through records.
3. Use the 'Sort & Filter' tools at the top to customize your view.

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## Navigating Hierarchies

1. In the 'User Playlist' form, select a user to view their playlists.
2. In the 'Playlist Tracks' form, select a playlist to view its tracks.
3. In the 'Track' form, select a track to view its details.

## Navigating User, Playlist, and Tracks Views

The power of views in Oracle SQL Developer extends beyond mere data representation. For our application, we've tailored the views to also track and showcase the historical changes in data. This is essential for understanding the evolution and modifications over time for users, playlists, and tracks.

**User View:**

This view captures the chronological changes associated with users. It might include their sign-up date, profile modifications, account status changes, and other relevant updates. See figure 1, by accessing this view, you get a timeline of how a user's data has evolved since they joined the platform.

How to Access: From the main navigation pane, select the "User History" view option. You'll see entries for each significant event or modification related to users. Each entry will typically have a timestamp, detailing when the change occurred. A screenshot of a computer

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Figure 3: Track View

Figure 2: Playlist View

Figure 1: User View

**Playlist View:**

This view presents a history of playlists' creation, modification, or deletion. See figure 2, you can see when a playlist was created, when tracks were added or removed, or if the playlist name changed. It serves as a record for all significant interactions concerning playlists.

How to Access: Navigate to the "Playlist History" view from the main pane. Here, you'll be greeted with a chronological list of changes made to playlists, each stamped with the time and date of the alteration.

**Tracks View:**

This view is dedicated to capturing the life cycle of tracks within the system. Whether a track is newly added, updated, or even removed, this view keeps a record. See figure 3, it might display details like when the track was first introduced, any subsequent updates to its metadata, or if it was deleted from the platform.

How to Access: By choosing the "Tracks History" option in the main navigation pane, you'll be shown a historical list of all track-related changes. Each entry will detail the nature of the change and the time it happened.

By tapping into these historical views, users gain insights into the trajectory of their data, helping to trace back any anomalies, understand usage patterns, or simply observe the growth and dynamism of their content over time.

\*\*Note\*\*: Always remember to save your changes before closing forms or the application.

# A diagram of a computer Description automatically generated with medium confidenceOracle SQL Developer Model

Figure 4: The Physical Model of database