**25W\_CST2355\_301 Database Systems - Group 5**

**Proposal for Vinyl Recording Collection Management**

**Section 1: Introduction**

The proposed application is for managing a personal vinyl recording collection. The system

will store and manage data related to vinyl records, artists, recordings, and genres. It enables users to add, update, delete data. It also has a feature which enables users to view the history of the artist, genres and recordings.

**Details of the information stored and relationships:**

***Updated Tables with Assignment 2 Data***

1. **Artists**:
   * Each artist now includes:
     + ArtistID: Surrogate key (primary key).
     + ArtistName: Multi-valued field tracking historical names using Artist\_Name\_History.
     + ArtistType: Multi-valued field linked to Artist\_Type\_History.
     + Connection to Albums: Artists are related to vinyl albums.
2. **Vinyl Albums**:
   * Each album contains:
     + AlbumID: Surrogate key (primary key).
     + Title: Multi-valued field tracked in Album\_Title\_History.
     + GenreID: Foreign key referencing Genres.
     + ArtistID: Foreign key referencing Artists.
3. **Recordings**:
   * Each recording is linked to:
     + RecordingID: Surrogate key (primary key).
     + AlbumID: Foreign key referencing Vinyl Albums (an album may have multiple recordings).
     + ArtistID: Foreign key referencing Artists (a recording may feature multiple artists).
4. **Genres**:
   * Each album belongs to a genre:
     + GenreID: Surrogate key (primary key).
     + GenreName: Multi-valued field tracked in Genre\_Name\_History.

***Relationships with Hierarchical Data***

● An artist can contribute to multiple recordings.

● A recording can appear on multiple vinyl albums.

● A vinyl album is associated with one genre.

● A genre can have multiple vinyl albums.

**Is-a Relationship:**

* **Artists**:
  + Artists belong to types such as singer, musician, songwriter.
  + Implemented using the ArtistTypes table and tracked via Artist\_Type\_History.

**Contains Relationship:**

* **Vinyl Albums**:
  + Albums contain multiple recordings. This is represented by the relationship between Albums and Recordings.

**Is-related-to Relationship:**

* **Artists and Albums**:
  + Artists are associated with albums they contributed to.

**Genres:**

* Albums are categorized into genres (e.g., jazz, rock, classical).
* This establishes a classification hierarchy between Albums and Genres.

***Integrating Front-End Changes***

In **Microsoft Access**, update forms and reports to reflect these connections:

1. **Forms**:
   * **Artists Form**:
     + Include fields for ArtistName and ArtistType.
     + Add buttons for viewing name and type history.
   * **Albums Form**:
     + Include fields for Title, Genre, and Recordings.
     + Add pop-up forms to display historical title data.
   * **Genres Form**:
     + Include fields for GenreName and historical data (using history tables).
2. **Reports**:
   * Hierarchical reports showing relationships like:
     + **Artists and Albums**.
     + **Albums and Recordings**.
     + **Genres and Albums**.

***Expanded Physical Model***

**Entities Added:**

1. ArtistTypes, Artist\_Name\_History, and Artist\_Type\_History for tracking artist attributes.
2. AlbumTitles and Album\_Title\_History for tracking album titles.
3. GenreNames and Genre\_Name\_History for tracking genre names.

**Relationships:**

* Proper cardinality between tables (e.g., one-to-many relationships like Albums to Recordings, many-to-one relationships like Albums to Genres).

**Surrogate Keys:**

* Ensure surrogate keys (ArtistID, AlbumID, GenreID) are consistently used for unique identification.

**Section 2: Group Member and Tasks**

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