**Application Description for Lab Assignment 2: Vinyl Recording Collection Management**

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**Topic Overview**

Vinyl Recording Collection Management is a database application designed to help users efficiently manage and organize their vinyl record collections. The application uses Microsoft Access as the front-end interface and Oracle 19c as the back-end database, ensuring robust data management and scalability. This Vinyl Recording Collection Management enhances its functionality by implementing multi-valued historical data fields and creating a historical data framework.

**Data Relationships:**

**1. Hierarchies:**

Vinyl records will be grouped into categories such as genre (e.g., rock, jazz, classical).

Artists will be grouped into categories such as nationality (e.g., Canadian, American, British).

**2. Is-a:**

An artist can be a supertype of another role. For instance: A 'Musician' is a type of 'Artist'. A 'Songwriter' is a type of 'Artist'.

**3. Contains:**

A vinyl record contains a list of tracks (recordings).

An invoice for purchasing vinyl records will contain a list of line items.

**4. Related-to:**

Many-to-many relationships between artists and vinyl records through their contributions.

**New features:**

This application introduces multi-valued historical data fields to track historical changes over time in each relationship table including Is-a, contains, and is-related-to.

Modify the original tables (with just the key and the single-valued fields), create new tables for each multi-valued field, association tables to store historical data with timestamps, and use views instead of each of the original tables.

**Detailed Data Description:**

1. Artists table will have multi-valued fields such as Frist Name, Last Name.

Old table

**Artists Table:** Artist ID (Primary Key), Frist Name, Last Name, Nationality

New tables

**Artists Table:** Artist ID (Primary Key), Nationality

**FirstNames Table:** FirstName ID (Primary Key), FirstName

**LastNames Table:** LastName ID (Primary Key), LastName

**ArtistsFirstNames Association Table:**

Artist ID (Foreign Key), FirstName ID(Foreign Key), STARTTIME, ENDTIME, Notes

**ArtistsLastNames Association Table:**

Artist ID (Foreign Key), LastName ID(Foreign Key) , STARTTIME, ENDTIME, Notes

2. Tracks table will have multi-valued fields such as Title.

Old table

**Tracks Table:** Track ID (Primary Key), Title, Length, Record ID (Foreign Key), Recording Date

New tables

**Tracks Table:** Track ID (Primary Key), Length, Record ID (Foreign Key), Recording Date

**Titles Table:** Title ID (Primary Key), Title

**TracksTitles Association Table:**

Title ID (Foreign Key), Track ID (Foreign Key), STARTTIME, ENDTIME, Notes

3. Vinyl Records table will have multi-valued fields such as Record Label.

Old table

**VinylRecords Table:** Record ID (Primary Key), Title, Genre, Release Date, Record Label

New tables

**VinylRecords Table:** Record ID (Primary Key), Title, Genre, Release Date

**RecordLabels Table:** Record Lables ID (Primary Key), Record Label

**VinylRecordsRecordLabels Association Table:**

Record ID (Foreign Key), Record Lables ID (Foreign Key), STARTTIME, ENDTIME, Notes

**Other tables:**

**Producer Table:**

Producer ID (Primary Key), Artist ID (Foreign Key), Type

**Musician Table:**

Musician ID (Primary Key), Artist ID (Foreign Key), Instrument

**Songwriter Table:**

Songwriter ID (Primary Key), Artist ID (Foreign Key), Genre Specialization

**Relationships Table:**

Record ID (Foreign Key), Artist ID (Foreign Key), Role (e.g., guitarist, vocalist)

**Invoices Table:**

Invoice ID (Primary Key), Order Date, Customer Name

**Line Items Table:**

Line Item ID (Primary Key), Invoice ID (Foreign Key), Record ID (Foreign Key), Quantity, Price

**Benefits**

* Centralized database for comprehensive management of vinyl record collections.
* Easy retrieval and organization of records, artists, and track information.
* Detailed tracking of purchases and sales through invoice management.
* Enhanced data integrity and relationships maintained by Oracle.