Final Project: HateYourMusic

CS-3743-002: Database Systems

University of Texas San Antonio

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Swag Software

Christian Hockley

Oom Bhakta

Lain Gordon

Abraham Steve O Colina

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Data Sources and Generation

1.1 Data Sources

Our music database was populated using a mix of real-world music information and synthetically generated user interaction data.

Real Data Sources Used:

- Spotify - Artist monthly listeners and popular tracks

- AllMusic - Albums, release dates, labels

- Wikipedia - Artist origin and background

- MusicBrainz - Verified track/album metadata

Data Captured:

- Artists, albums, songs, genres, song durations, release dates, and basic popularity metrics.

1.2 Synthetic Data Generation

To meet the 24+ record requirement, we generated:

- User accounts (usernames, emails, follower counts)

- Reviews (0-5 ratings, sample review text)

- Follow relationships (user <-> user, user <-> artist)

- Engagement data (play counts, monthly listeners)

Data was inserted using SQL INSERT statements and validated against constraints.

Business Rules

Below is the required exhaustive list of business rules modeled in our database:

User Rules

1. Each user must have a unique username.

2. Each user must have a unique email address.

3. Users cannot follow themselves.

4. A user cannot follow the same user more than once.

Artist / Album / Song Rules

5. Artists, albums, and songs each have their own unique ID.

6. Songs must have a title, release date, and duration.

7. Albums must have a title and release date.

8. Songs may belong to one album, but can also be singles.

9. A song can have multiple artists.

10. An album can have multiple artists.

11. A song can have multiple genres.

Review Rules

12. A user may only review a specific song once.

13. Review ratings must be between 0 and 5.

14. Review dates must record when a review is created or updated.

15. Users may like a review only once.

Interaction / Integrity Rules

16. Users can follow other users.

17. Users can follow artists.

18. Deleting a user removes their reviews.

19. Deleting an artist removes their associated data.

20. Song ratings reflect the average of all reviews.