



Spotify

Database Management

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Scope



Functional Req.



Tables



Relationships



ER Diagram



Indexes Used



Triggers



Views



Limitations



Team



Upgrade



Ayush B

Scope

- Artists and their music in the form of albums and songs
- Users and their interactions with the platform such as following artists and creating playlists
- Podcasts and their compositions as episodes
- The relationship between playlists and songs via playlist entries





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Functional Requirements



- CRUD operations for artists, users, and songs
- Associating songs with albums and artists
- Users following artists and other users, and making playlists
- Creating podcasts with a list of episodes
- Adding songs to playlists



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Tables

Songs

title,
genre,
artist_id, etc.

Artists

name,
monthly_listeners,
verified,
etc.

Playlist_Songs

subset of song

Podcasts

title, topic,
num_episodes
etc.

Following_users

Table of user
following/
follower
details

Users

name, email,
num_playlists,
etc.

Playlists

name,
num_songs,
user_id, etc.

Following_artists

Table of user
following/
follower
details

Episodes

name,
description,
podcast_id

Albums

title,
no_of_songs,
artist_id, etc.



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Relationships



#	Title	Table	
1	Artists release Albums, and compose Songs.	Artists	08:00
2	Albums contain Songs.	Albums	10:00
3	Users follow Artists, listen to Podcasts and Songs, and make Playlists.	Users	12:00
4	Playlists contain Playlist Songs.	Playlists	14:00
5	Podcasts comprise Episodes.	Podcasts	12:00
6	Playlist Songs are a subset of Songs	Playlists Songs	14:00



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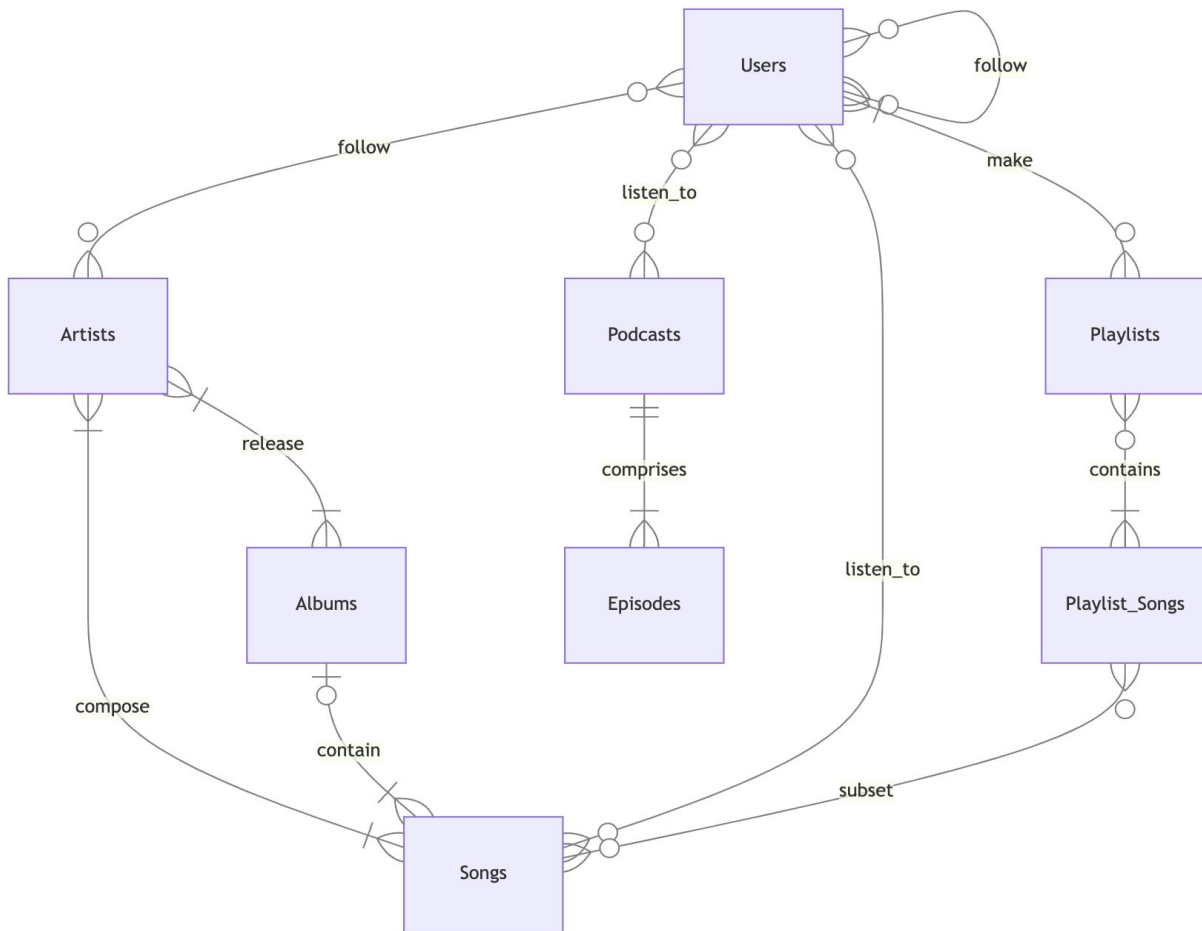


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Indexes used

Implemented 6 indexes to improve query speed.

01

```
CREATE INDEX "idx_podcasts_type"
ON "Podcasts" ("type");
```

02

```
CREATE INDEX "idx_songs_genre" ON
"Songs" ("genre");
```

03

```
CREATE INDEX "idx_albums_release"
ON "Albums" ("release_year");
```

04

```
CREATE INDEX idx_playlists_user_id
ON "Playlists" ("user_id");
```

05

```
CREATE INDEX "idx_podcasts_publisher"
ON "Podcasts" ("publisher");
```

06

```
CREATE INDEX "idx_plist_songs_playlist"
ON "PlaylistSongs" ("playlist_id");
```



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Triggers



#	Title	Brief
1	update_playlist_on_playlist_song_insert	Update the playlist table when a song is added to playlist_songs
2	update_podcast_on_episode_insert	Update the Podcasts table when an episode is added to Episodes
3	update_album_on_song_delete	Update the Albums table when a song is deleted from the Songs table
4	update_playlist_on_playlist_song_delete	Update the Playlists table when a song is deleted from the Playlist Songs table
5	update_podcast_on_episode_delete	Update the Podcasts table when an episode is deleted from the Episodes table
6	update_following_users_insert	Updating the relevant #following and #followers when a new 'following' relation is created
7	update_following_users_delete	Updating the relevant #following and #followers when an existing 'following' relation is removed
8	update_following_artists_insert	Updating #following for a user and #followers for an artist when the user follows an artist
9	update_following_artists_delete	Updating #following for a user and #followers for an artist when the user unfollows an artist



Scope



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Indexes Used



Triggers



Queries



Views



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Queries



#	Title
1	Query to find all albums released in 2020 with more than 10 songs
2	Query to find the top 10 artists with the most followers
3	Query to find top 10 most popular pop songs based on times played, along with artists and albums, released after 2010
4	Query to find the 3 longest 'games' podcasts including their average rating and total number of episodes
5	Genres with an average song duration of more than 3 minutes
6	Select 5 random 'Pop' songs



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Queries



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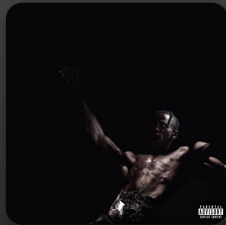
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Views



#	Title	Table	Columns	
1	Top artists based on monthly listeners	Artists	name, monthly_listeners	08:00
2	Top songs for each genre based on times played	Songs	title, genre, times_heard	10:00
3	Display all playlists created by a user and number of songs and duration.	Playlists	playlist_name, duration, num_of_songs	12:00
4	Show all content marked as explicit	Songs, Podcasts	id, title, genre, release_year, explicit	14:00



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Limitations

The schema currently does not account for features like album or song popularity metrics, user recommendations, or detailed podcast listener statistics. Modifications and extensions would be needed to support these features.

The schema does not provide for a blend playlist which updates daily with song choices of 2+ users.

You don't get pre-curated playlists like 'On Repeat', or 'Chill Mix'.

Account security is not emphasized, password is not encrypted.

Assumptions

Assuming that users can only make one account for every phone number

Assuming user signs up with email and phone number



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Our Team



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Welcome



About Us



Our Teams



Agenda



Our Services



Achievements



Our Goals



Gallery



Pricing



Contact Us

Thank You



Gangnam Style

PSY



0:23

-3:15