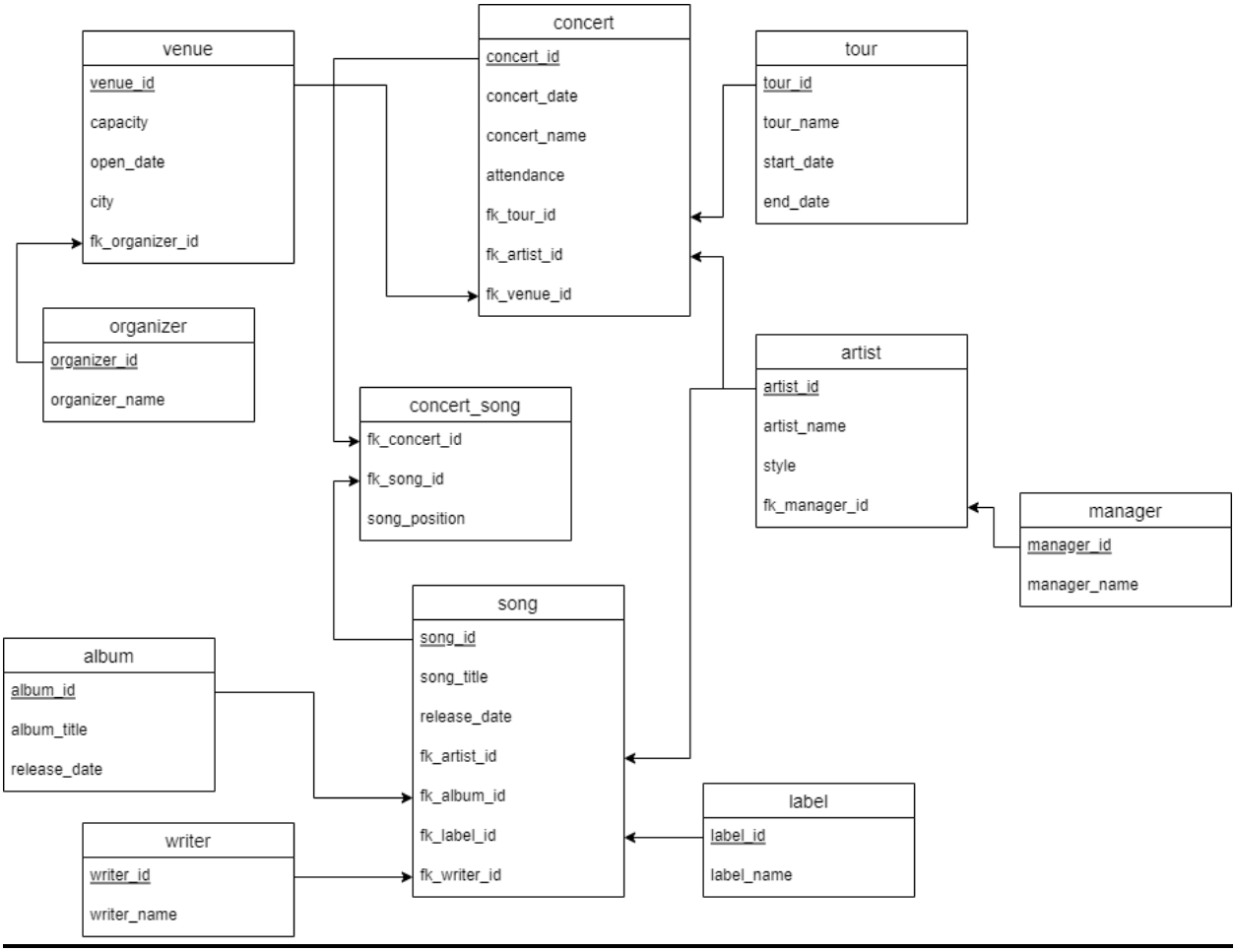
Introduction

I will be creating a database that keeps track of concerts, the artists who performed at them, the venues they were performed at, and many more music-related elements. In total, I will illustrate relationships between venues, organizers, concerts, songs, tours, artists, managers, albums, writers, and labels.

The target audience would be music enthusiasts who are interested in what types of songs have been played at concerts by their favorite artists. The purpose of my database is to create a simple way to look up details about the concerts played by a particular artist, which can then be filtered by a multitude of details such as location and who organized the events.

ER Model


concert
concert_id
concert_date
concert_name
attendance
fk_tour_id
fk_artist_id
fk_venue_id
venue
venue_id
capacity
open_date
city
fk_organizer_id
tour
tour_id
tour_name
start_date
end_date
organizer
organizer_id
organizer_name
concert_song
fk_concert_id
fk_song_id
song_position
artist
artist_id
artist_name
style
fk_manager_id
manager
manager_id
manager_name
song
song_id
song_title
release_date
fk_artist_id
fk_album_id
fk_label_id
fk_writer_id
album
album_id
album_title
release_date
label
label_id
label_name
writer
writer_id
writer_name

Business Rules

Entity 1	Entity 2	Cardinality on Entity 1 Side	Cardinality on Entity 2 Side	Business Rules
organizer	venue	1	1.. *	An organizer can be in charge of many venues, but a venue is only run by 1 organizer.
venue	concert	1	1.. *	A venue can host many concerts, but a concert is held at one specific venue.
concert	song	1.. *	1.. *	A concert includes many songs, and a song can be played at many concerts.
tour	concert	1	1.. *	A tour can include many concerts, while a concert can only be part of 1 tour.
artist	concert	1	1.. *	An artist can perform at many concerts, but a concert is only performed buy 1 artist.
manager	artist	1	1.. *	A manager can manage many artists, but an artist is only managed by 1 manager.
label	song	1	1.. *	A label can have many songs signed under it, while a song is only signed under 1 label.
writer	song	1	1.. *	A writer can write multiple songs, while a song is only written by 1 writer.
album	song	1	1.. *	An album includes many songs, while a song is only assigned to 1 album.

Entity/Attribute Descriptions

organizer		
organizer_id	INT	Primary key for the id of the organizer
organizer_name	VARCHAR(200)	Name of the organizer for a venue

venue		
venue_id	INT	Primary key for the id of the venues
capacity	INT	Capacity of the venue
open_date	DATETIME	Date the venue was opened
city	VARCHAR(200)	City the venue is located in
fk_organizer_id	INT	Foreign key referencing the ‘organizer’ table

Concert		
concert_id	INT	Primary key for the id of the concert
concert_name	VARCHAR(200)	Name of the concert
concert_date	DATETIME	Date of the concert
attendance	INT	How many people attended
fk_tour_id	INT	Foreign key referencing the ‘tour’ table
fk_artist_id	INT	Foreign key referencing the ‘artist’ table
fk_venue_id	INT	Foreign key referencing the ‘venue’ table

Song		
song_id	INT	Primary key for the id of the song
song_title	VARCHAR(200)	Title of the song
release_date	DATETIME	Date the song was relesed
artist_id	INT	Foreign key referencing the ‘artist’ table
album_id	INT	Foreign key referencing the ‘album’ table
label_id	INT	Foreign key referencing the ‘lable’ table
writer_id	INT	Foreign key referencing the ‘writer’ table

concert_song		
concert_id	INT	Foreign key referencing the ‘concert’ table
song_id	INT	Foreign key referencing the ‘song’ table
song_position	INT	Position the song was played in the show relative to the other songs

Album		
album_id	INT	Primary key for the id of the album
album_title	VARCHAR(200)	Title of the album
release_date	DATETIME	Date the album was released

Writer		
writer_id	INT	Primary key for the id of the writer
writer_name	VARCHAR(200)	Name of the writer

Label		
label_id	INT	Primary key for the label a song was released under
label_name	VARCHAR(200)	Name of the label

Tour		
tour_id	INT	Primary key for the id of the tour
tour_name	VARCHAR(200)	Name of the tour
start_date	DATETIME	Date the tour began
end_date	DATETIME	Date the tour ended

Artist		
artist_id	INT	Primary key for the id of the artist
artist_name	VARCHAR(200)	Name of the artist
style	VARCHAR(200)	Music style of the artist
fk_manager_id	INT	Foreign key referencing the ‘manager’ table

Manager		
manager_id	INT	Primary key for the id of the manager
manager_name	VARCHAR(200)	Name of the manager

Questions for Queries

Question to answer	How answer adds value
Which concerts include songs that were released before January 1st, 2016?	Allows user to sort concerts based on when songs played at that concert were originally released
What is the average attendance of the concerts performed by artist Madeon?	Allows user to see average attendance of all the concerts played by a certain artist
What are all the concerts listed in order by date?	Allows user to see a chronological list of concerts
What were all of the concerts that occured in either Pittsburgh or Wheeling?	Allowers user to filter concerts based on what city they occurred in
What were the first 3 songs written by Daniel Adams-Ray in order of release?	Allows user to see a chronological list of songs written by a certain writer
Which concerts include songs that were released under Orange Records?	Allows user to filter concerts based on the labels by which the played songs were released under
Which concerts were performed by EDM artists after 2018?	Allows user to filter concerts based on the style of artist and also in a certain time period
What is the total attendance of all concerts organized by Comix in the city of Pittsburgh?	Allows summation of attendance based on concerts with a certain organizer and a certain location
What were the 3 most recent concerts that were part of the Nurture Live tour?	Allows viewing of chronological concerts in a specific tour and also a limit to the amount of returned results
How many times has the artist Avicii played a song from the album 'True' at a concert?	Allows the summation of how many times a certain artist has played songs from a certain album

Conclusion

This project was time consuming yet fulfilling. The most difficult part was the entering of data, which took effort not only to come up with relevant data points, but also to enter each individual data point. The easiest part was the creation of the business rules because after I had the ER diagram in place, it was easy to translate that logic into that table. Overall, throughout this project, I learned a lot about how SQL queries operate and how they can be utilized for specific results.