Database Project: Digital Music Store

Task 1.1 – 2.1

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Link to video: https://youtu.be/ARhGmytc-Ho

Task 1.1

CASE STUDY: MUSICFY DIGITAL MUSIC PLATFORM

Musicfy is a music streaming service similar to Spotify and Apple Music. Like the other streaming platforms, it gives you unlimited access to a library of millions of songs. It has its headquarters in Accra, Ghana but the streaming service is available in over 50 countries worldwide. It is also available on different devices, ranging from iPhones to Android, beating its competitor, Apple Music in this aspect. It released its trial version in July 2021 and has officially been on the market since January 2022. Its target audience are low, middle and upper-class individuals between the ages of 9 – 60 who are looking for high-quality music sounds. Its affordability for all social classes in the world is what makes it the most preferred digital music platform today.

Musicfy has customers from all over the world using its platform. To meet the needs of its diverse consumers, it purchases music from several parts of the world to promote diversity and inclusion on its platform. Songs can be accessed by typing the country of the artistes if the name of the artiste cannot be found on the platform. Users can also download the songs they like on their devices only. This benefits the consumers because they can be able to listen to music offline. The company has 6 departments working at its headquarters to make streaming on their platforms smooth and easy.

OPERATIONS

Musicfy has three types of customers that are based on the different subscription plans we offer. The customer subscription plans we have are the individual, family and student plan. The individual plan is ₵20.99 per month, family plan is ₵35.99 per month and the student plan is ₵10.99 per month. By default, every customer is under the individual subscription plan. The family plan supports up to

6 members of the family. Customers can switch between subscription plans. Customers are allowed to pay using Mobile Money, credit/debit cards, or through PayPal. Employees are assigned several customers they are supposed to call or email per month to ensure the satisfaction of their customers. When users open the platform, they have the liberty to search for songs they want to stream online. The platform allows you to look for music by typing the name of the artiste and the song sang by the artiste. They can also favorite songs they like as well as download and listen to songs offline. Finally, if they want to learn the lyrics of the song, a feature on the platform allows them to view the lyrics whilst listening to the song. To create a friendly environment, users can add friends, and view their playlist if they have one.

REASON FOR THIS PROJECT

When customers are looking for songs on the platform, they have to enter the name of the artiste **and** the title of the song. This is a tedious process. Thus, prospective customers are hesitant to use the platform. Other platforms allow for users to search for songs based on just the name of the artiste **or** the title of the song which people consider easier to do. Our current system does not offer that. Aside from this, users are not able to create playlists of their own. Our platform currently does not group songs according to the albums. To improve customer experience, the company would like to include these on their platform as well. Finally, the company is interested in selling advertisements to increase their revenue.

To help the company keep accurate track of a customer and their friends, a database needs to be created. Finally, customers have made complaints about not receiving a record of their monthly payment. Thus, they need a way to send a record of a customer's payment as well as keep the records.

FUNCTIONALITIES

The design should enable:

- Customers to look for songs by name of artiste, title of the song, country or genre

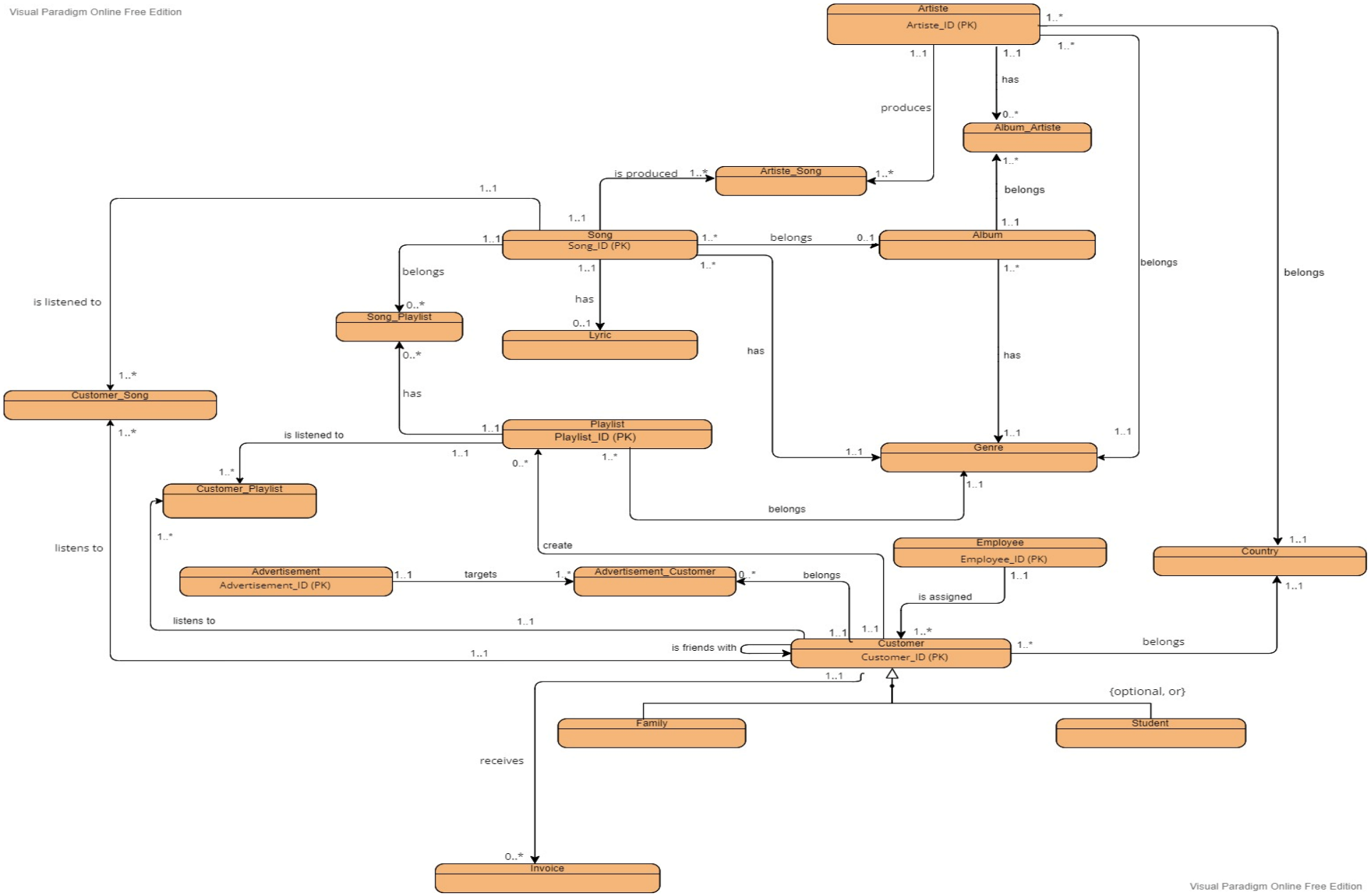
- Customers to create a playlist of their own
- The company keep track of customers and their friends
- The company should be able to identify customers who are still on a free tier subscription and do not utilize the platform often
- The company will be able to identify customer demographics in order to target advertisements to them.
- The company should be able to take a particular advertisement and find their target audience from the customer table.
- The company send an invoice about monthly payment to the customers
- The company keep invoice history for each customer for future purposes
- The company to determine customers who have still not paid for a subscription plan they are currently on
- Music should be categorized by genre, country, and artiste

Task 1.2

Non-Key Attributes

1. **Artiste**: artiste_stagename, artiste_description, dob, gender, musician_type
2. **Customer (Generalised)**: customer_fname, customer_lname, email, address, phone, gender, dob, date_registered
    a. **Family (Specialised)**: relationship, date_switched
    b. **Student (Specialised)**: school_name, school_email, date_switched
3. Country: country_name, geographic_location
4. **Employee**: employee_fname, employee_lname, phone, email, address, gender, dob
5. Invoice: invoice_date, amount_billed, payment_method, subscription_plan
6. **Advertisement**: company_name, target_no, advertisement_description, advertisement_title, duration_in_months
7. Genre: genre_name, genre_description
8. **Playlist**: playlist_name, playlist_description, last_time_updated, total_tracks, playlist_length

9. Album: album_name, album_length, released_date, total_tracks, record_label
10. Lyrics: lyrics_description, lyrics_source
11. **Song**: song_title, song_length, year_released


Visual Paradigm Online Free Edition
Artiste
Artiste_ID (PK)
produces
has
Album_Artiste
Artiste_Song
is produced
belongs
Song
Song_ID (PK)
Album
belongs
belongs
belongs
is listened to
Song_Playlist
has
Lyric
has
has
has
Customer_Song
Playlist
Playlist_ID (PK)
is listened to
Genre
Customer_Playlist
belongs
listens to
create
Employee
Employee_ID (PK)
Country
Advertisement
Advertisement_ID (PK)
targets
Advertisement_Customer
belongs
is assigned
listens to
is friends with
Customer
Customer_ID (PK)
belongs
{optional, or}
Family
Student
receives
Invoice
Visual Paradigm Online Free Edition

Enterprise Rules

- An artiste produces one or more artiste_songs. An artiste_song is produced by exactly one artiste.
- A song is produced by one or more artiste_songs. An artiste_song produces exactly one song.
- An artiste has zero or more album_artistes. An album_artiste belongs to exactly one artiste.
- An album belongs to one or more album_artistes. An album_artiste has exactly one album.
- An artiste belongs to exactly one country. A country has one or more artistes.
- An artiste belongs to exactly one genre. A genre can belong to one or more artistes.
- A song has zero or one lyric. A lyric belongs to exactly one song.
- A song belongs to exactly one genre. A genre has one or more songs.
- A song belongs to zero or more song_playlists. A song_playlist has exactly one song.
- A playlist has zero or more song_playlists. A song_playlist belongs to exactly one playlist.
- A song belongs to zero or one album. An album has one or more songs.
- A playlist belongs to exactly one genre. A genre can belong to one or more playlists.
- An album has exactly one genre. A genre has one or more albums.
- An advertisement targets one or more advertisement_customers. An advertisement_customer is targeted by exactly one advertisement.
- A customer belongs to zero or more advertisement_customers. An advertisement_customer has exactly one customer.
- An employee is assigned to one or more customers. A customer is assigned to exactly one employee.
- A customer belongs to exactly one country. A country has one or more customers.
- A customer is friends with zero or more customers.
- A customer receives zero or more invoices. An invoice is received by exactly one customer.

- A customer creates zero or more playlists. A playlist is created by exactly one customer.
- A customer listens to one or more customer_playlists. A customer_playlist is listened to by exactly one customer.
- A playlist is listened to by one or more customer_playlists. A customer_playlist listens to exactly one playlist.
- A customer listens to one or more customer_songs. A customer_song is listened to by exactly one customer.
- A song is listened to by one or more customer_songs. A customer_song listens to exactly one song.

Assumptions

- I have assumed that every customer can register without a credit card until the one-month free trial is up in order to attract customers to our platform hence you can sign up without specifying what mode of payment you will use till the free trial is up.
- I have assumed that you can only be an artiste if you have at least one song hence an artiste must have at least one song in our database.
- I have assumed that a genre exists only when an artiste creates a song, playlist or album with that genre hence a genre has at least one song, playlist, or album.
- I have assumed that every country has a default customer who is technically a test customer for business operations hence every country in the world exists in our database.
- I have assumed that before you join a particular family plan, you have to be a relative of the owner of the plan hence each member on the family plan is a relative of the family plan owner.
- I have assumed that the first time a customer ID appears in the specialized tables (family or student) is the date they switched subscription plans hence to calculate the invoice date, the date switched should be used instead.
- I have assumed that utility of the platform is measured in terms of the number of songs listened to by a customer.

- I have assumed that when a customer receives an invoice in their email, it means that they have made payment for their subscription plan hence the invoice table consists of those who have paid for their subscription plans.

Task 2.1

Logical Database Design

1. Artiste: (**artisteID**, artiste_stagename, artiste_description, dob, gender, musician_type, *countryID*, *genreID*)
2. Country: (**countryID**, country_name, geographic_location)
3. Artiste_Song: (*artisteID*, *songID*)
4. Album_Artiste: (*artisteID*, *albumID*)
5. Customer: (**customerID**, customer_fname, customer_lname, email, address, phone, gender, dob, date_registered, *employeeID*, *countryID*, *friendID*)
6. Family: (*customerID*, relationship, date_switched)
7. Student: (***customerID***, school_name, school_email, date_switched)
8. Employee: (**employeeID**, employee_fname, employee_lname, phone, email, address, gender, dob, *countryID*)
9. Invoice: (**invoiceID**, invoice_date, amount_billed, payment_method, subscription_plan, *customerID*)
10. Advertisement: (**advertisementID**, company_name, target_no, advertisement_description, advertisement_title, duration_in_months)
11. Genre: (**genreID**, genre_name, genre_description)
12. Playlist: (**playlistID**, playlist_name, playlist_description, last_time_updated, total_tracks, playlist_length, *genreID*)
13. Song_Playlist: (*songID*, *playlistID*)

14. Customer_Song: (*customerID, songID*)
15. Customer_Playlist: (*customerID, playlistID*)
16. Advertisement_Customer: (*advertisementID, customerID*)
17. Album: (**albumID**, album_name, album_length, released_date, total_tracks, record_label, *genreID*)
18. Lyric: (**lyricsID**, lyrics_description, lyrics_source, *songID*)
19. Song: (**songID**, song_title, song_length, year, *genreID, albumID*)