

Assignment 2

Q.1) Analyzing the Dataset, Part 1 (5 points)

A small sample of the Albums dataset is shown in the figure above. Inspect the data and try to find patterns. List as many entities as you can find. Remember that not every column is an entity; it could be an attribute instead

1. Album_Information

- Album_ID
- Album_Title
- Album_Release_Dates
- Album_Length
- Album_Sold_US
- Album_Primary_Artist

2. Label_Information

- Label_Name
- Label_Address
- Label_Phone_Number
- Label_Websites

3. Music_Genre

- Genre1
- Genre2
- Genre3
- Genre4
- Genre5

4. Chart_Information

- Chart_Name1
- Chart_Debut_Position1

- Chart_Debut_Position1
- Chart_Name2
- Chart_Debut_Position2
- Chart_Debut_Position2

5. Track_Information

- Track_Title1
- Track_Length1
- Track_Title2
- Track_Length2
- Track_Title3
- Track_Length3
- Track_Title4
- Track_Length4

Q.2) Analyzing the Dataset, Part 2 (5 points)

1NF:

- Album_Information and Track_Information: (one-to-many):
- Track_Information and Album_Information:(many-to-one):

2NF:

- Album_Information and Track_Information: (many-to-many)
- Album_Information and Album_Genre and Music_Genre: (many-to-many)
- Music_Genre and Album_Genre and Album_Information: (many-to-many)

3NF:

- Album_Information and Track_Information: (one-to-many)
- Track_Information and Album_Information: (many-to-one)
- Album_Information and Album_Genre and Music_Genre: (many-to-many)
- Music_Genre and Album_Genre and Album_Information: (many-to-many)
- Album_Information and Album_Label and Label_Information: (many-to-one):

- Label_Information and Album_Label and Album_Information: (one-to-many)

Q3) Explain the process (1NF)

The steps I took in creating the first form were straightforward. To design the table, I simply transcribed what I made in question 1 into tables. My thought process for section 1 involved looking at the table and identifying the entities and attributes. Since this was the first form, I decided to structure the dataset as one-to-many.

Q4) Explain the process (2NF)

The first step was to simply copy and paste the 1NF dataset, using this week's knowledge. The dataset cannot be deleted. After that, I had to determine which of the two datasets would have a consistent relationship, making it logical to combine them into one dataset. I considered `Album_genre`, which represents the genre of the album, and `album_label`, which is the label that owns the album.

It is clear that software would need data on the genre of the album and the label that owns it. For the relationships, I envisioned that the dataset for albums and genres would form a relationship with `Album_genre`. Similarly, albums and labels would form a relationship with `album_relation`. Additionally, I imagined that an album could also have relationships with track and chart datasets.

Q4) Explain the process (3NF)

Similar to 2NF, I copied and pasted the dataset from 2NF to 3NF. After that, I didn't need to brainstorm much; I just observed that there were two relationships between the album and the datasets for tracks and charts. From this, I created two new datasets: `Album_Track` and `Album_Chart`.

Why did I imagine these relationships? I can see software needing data on the tracks within an album as well as the album's chart performance, which led me to create these new data tables. The relationships between the datasets remain the same as in 2NF, with the only change being the new relationship between the album and the chart dataset.

In the new tables, the original relationships were divided, and the album now has a new relationship with the two new databases. Meanwhile, `track_information` has a relationship with the newly created `Album_Track`, and `chart_information` has a relationship with the newly created `Album_Chart`.