

Exercises: LINQ

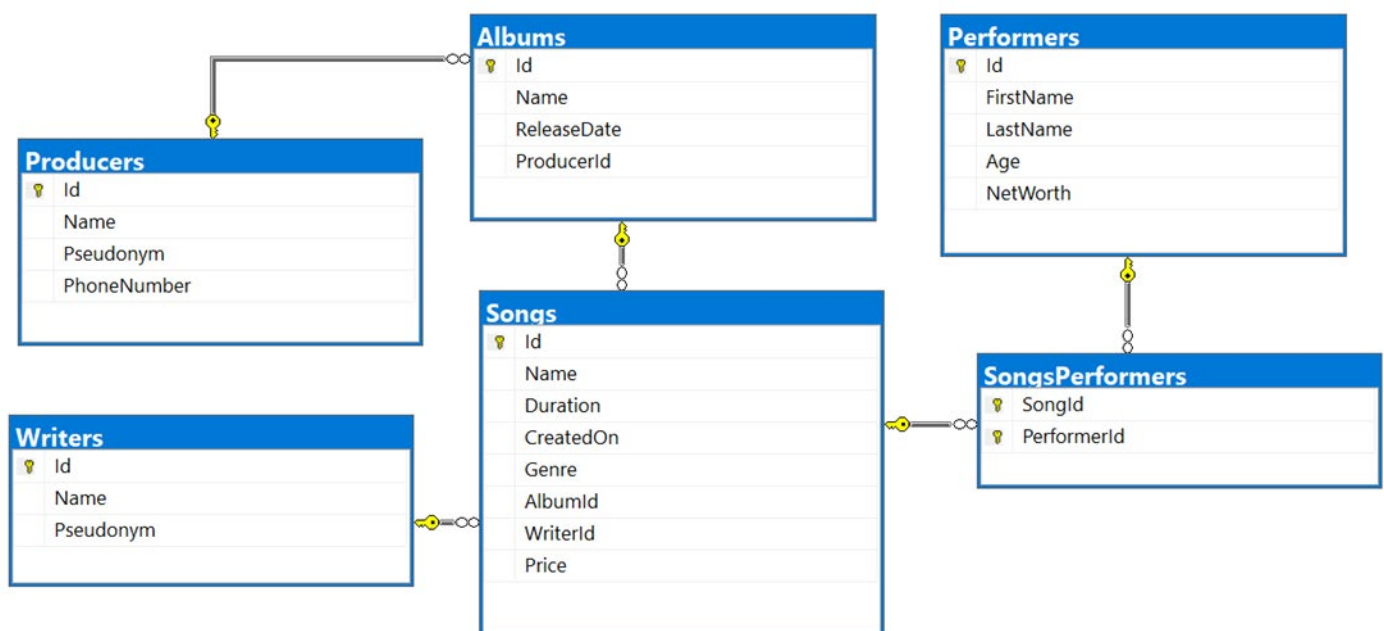
This document defines the **exercise assignments** for the "[Databases Advanced – EF Core](#)" course @ [Software University](#).

MusicHub

People love listening to music, but they see that YouTube is getting older and older. You want to make people happy and you've decided to make a better version of YouTube – **MusicHub**. It's time for you to start coding. Good luck and impress us.

1. MusicHub Database

You must create a **database** for a **MusicHub**. It should look like this:



Constraints

Your **namespaces** should be:

- **MusicHub** – for your **Startup** class, if you have one
- **MusicHub.Data** – for your **DbContext**
- **MusicHub.Data.Models** – for your **Models**

Your **models** should be:

Song

- **Id** – Integer, Primary Key
- **Name** – Text with max length 20 (required)
- **Duration** – TimeSpan (required)
- **CreatedOn** – Date (required)
- **Genre** – Genre enumeration with possible values: "Blues, Rap, PopMusic, Rock, Jazz" (required)
- **AlbumId** – Integer, Foreign key
- **Album** – The song's album

- **WriterId** – Integer, Foreign key (required)
- **Writer** – The song's writer
- **Price** – Decimal (required)
- **SongPerformers** – collection of type **SongPerformer**

Album

- **Id** – Integer, Primary Key
- **Name** – Text with max length 40 (required)
- **ReleaseDate** – Date (required)
- **Price** – calculated property (the sum of all song prices in the album)
- **ProducerId** – integer, Foreign key
- **Producer** – the album's producer
- **Songs** – collection of all **Songs** in the **Album**

Performer

- **Id** – Integer, Primary Key
- **FirstName** – text with max length 20 (required)
- **LastName** – text with max length 20 (required)
- **Age** – Integer (required)
- **NetWorth** – decimal (required)
- **PerformerSongs** – collection of type **SongPerformer**

Producer

- **Id** – Integer, Primary Key
- **Name** – text with max length 30 (required)
- **Pseudonym** – text
- **PhoneNumber** – text
- **Albums** – collection of type **Album**

Writer

- **Id** – Integer, Primary Key
- **Name** – text with max length 20 (required)
- **Pseudonym** – text
- **Songs** – collection of type **Song**

SongPerformer

- **SongId** – Integer, Primary Key
- **Song** – the performer's **Song** (required)
- **PerformerId** – Integer, Primary Key
- **Performer** – the song's **Performer** (required)

Table relations

- **One Song** can have **many Performers**
- **One Performer** can have **many Songs**
- **One Writer** can have **many Songs**
- **One Album** can have **many Songs**
- **One Producer** can have **many Albums**

You will need a constructor, accepting **DbContextOptions** to test your solution in **Judge!**

2. All Albums Produced By Given Producer

You need to write method `string ExportAlbumsInfo(MusicHubDbContext context, int producerId)` in the **Startup** class that receives a **Producer Id**. Export **all albums** which are **produced by** the provided **Producer Id**. For each **Album**, get the **Name**, **Release date** in format **"MM/dd/yyyy"**, **Producer Name**, the **Album Songs** with each **Song Name**, **Price (formatted to the second digit)** and the **Song Writer Name**. **Sort the Songs by Song Name (descending)** and by **Writer (ascending)**. At the end export the **Total Album Price** with exactly **two digits after the decimal place**. **Sort the Albums by their Total Price (descending)**.

Example

Output(producerId = 9)
-AlbumName: Devil's advocate -ReleaseDate: 07/21/2018 -ProducerName: Evgeni Dimitrov -Songs: ---#1 ---SongName: Numb ---Price: 13.99 ---Writer: Kara-lynn Sharpous ---#2 ---SongName: Ibuprofen ---Price: 26.50 ---Writer: Stanford Daykin -AlbumPrice: 40.49 ...

3. Songs Above Given Duration

You need to write method `string ExportSongsAboveDuration(MusicHubDbContext context, int duration)` in the **Startup** class that receives **Song duration (integer, in seconds)**. Export the songs which are **above** the given duration. For each **Song**, export its **Name**, **Performer Full Name**, **Writer Name**, **Album Producer** and **Duration (in format("c"))**. **Sort the Songs by their Name (ascending)**, by **Writer (ascending)** and by **Performer (ascending)**.

Example

Output(duration = 4)
-Song #1 ---SongName: Away ---Writer: Norina Renihan ---Performer: Lula Zuan ---AlbumProducer: Georgi Milkov ---Duration: 00:05:35 -Song #2 ---SongName: Bentasil ---Writer: Mik Jonathan

---Performer: Zabrina Amor
---AlbumProducer: Dobromir Slavchev
---Duration: 00:04:03
...