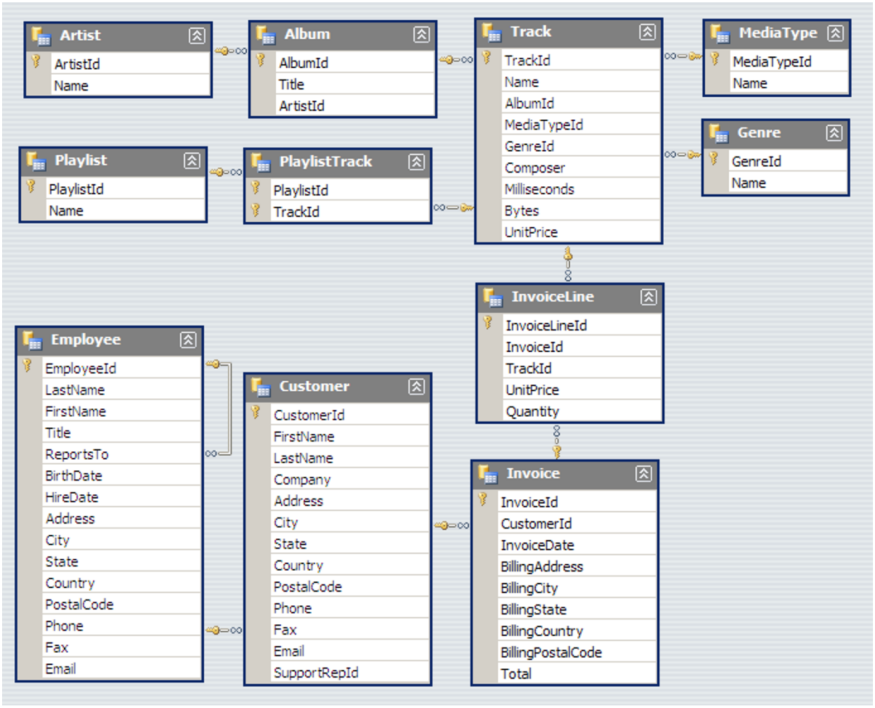
M2 Practical Challenge part 2: Principles of Database Design

Due Jan 31, 2021 at 11:59pm **Points** 70 **Questions** 5
Time Limit None

Instructions



For Part 2 of this Assignment you are tasked with a series of database design tasks that will be used to enhance the content of the Chinook database.

An executive with the Chinook organization has decided that there is an opportunity to expand Chinook's digital product line to include the electronic download of movies.

During your discussions with the executive, the two of you decide to try to leverage the existing Chinook database structure as much as possible for purposes of extending its capabilities to include data on movies. You decide that the database should be extended to include a “Movies” table having the following attributes:

- Movie Title
- Length of Movie
- Genre (Romance, Comedy, Action, and Horror)
- Actors
- Release Year
- MPAA Rating
- Movie Plot, at least 150 characters needed
- Price

It is hoped that the addition of the Movies table can serve as the basis for the purchase of either songs or movies by Chinook’s customers.

Based on your discussion with the executive and your own expertise in the principles of database design, you have created the following action list:

- Determine tables to create based on field list
- Create an ER diagram from our table list showing the relationships between the tables
- Determine if we need to modify any existing tables in Chinook to support this new product line
- Determine impact of modifying existing table (if any) on our existing songs data model
- Develop scripts for creating the new tables
- Develop scripts for adding sample data to our new tables
- Develop scripts for any required modifications to the existing Chinook database tables.

Given this context, answer the following questions.

Questions?

Please review the grading rubric for this assignment. Then post to our **M2 Questions and Solutions forum**.

Attempt History

	Attempt	Time	Score
LATEST	Attempt 1	239 minutes	70 out of 70

ⓘ Correct answers are hidden.

Score for this quiz: **70** out of 70
Submitted Jan 31, 2021 at 10:16pm
This attempt took 239 minutes.

Question 1 — 10 / 10 pts

Based on the schema for the existing Chinook database, what new tables are you proposing to create to store the fields related to this new movie initiative?

Remember: the goal is to leverage as much existing Chinook database design as possible while recognizing that altering tables may impact our

‘songs’ table functionality.

Describe the table(s) you recommend, including the attributes you plan to include within each of them.

Your Answer:

I will create three tables including "Actors", "Movie" and "MovieDownloadLink".

- "Actors" will have 2 attributes including "ActorId" and "Name".
- "Movie" will have 6 attributes including "MovieId", "Name", "Title", "ActorId", "RealeaseYear", "MPAARating" and "MoviePlot".
- "MovieDownloadLink" will have 2 attributes including "MovieId" and "Link".

Because there are attributes such as "Milliseconds" to replace "length of movie", "UnitPrice" to replace "Price" in table "Track" and there is a table Genre so that I don't add these attributes into the new table.

In these tables,

"ActorId" is the primary key in table"Actors".

"MovieId" is the primary key in table "Movie".

I don't set a primary key in table "MovieDownloadLink" because it is a weak entity.

"MovieId" in table "MovieDownloadLink" is a foreign key references to "Movie"("MovieId").

"ActorId" in table "Movie" is a foreign key reference to "Actors"(ActorId).

Finally, I need to change the table "Track". I add two new columns in it including "MovieId" and "MovieOrAlbum". The fore is a foreign reference to "Movie"("MovieId") and the latter one tells the DBA whether the data belong to "movie" or "album".

Question 2

15 / 15 pts

Create/Modify the existing Chinook ER diagram to show your new tables.

Create this diagram however you see fit.

- Consider using the **Dbdiagram.io ER diagramming tool (https://dbdiagram.io/home)**
- A photo of a hand-written diagram will also suffice, as long as it is legible.

AddNewMovieTable.pdf (https://yu.instructure.com/files/1711667/download)

Question 3

15 / 15 pts

Create and share SQL scripts for any database tables you believe should be newly created for purposes of supporting the download of movie content by Chinook users.

Be sure to include some INSERT scripts that add sample movie data to the database (entries for five movies should be sufficient).

Your Answer:

```
CREATE TABLE "Actors"(
"ActorId" Int NOT NULL PRIMARY KEY,
"Name" VARCHAR(120)
);

CREATE TABLE "Movie"(
    "MovieId" INT NOT NULL PRIMARY KEY,
    "Title" VARCHAR(160) NOT NULL,
    "ActorId" INT NOT NULL REFERENCES "Actors"("ActorId"),
    "RealeaseYear" DATE,
    "MPAARating" FLOAT,
```

```
    "MoviePlot" VARCHAR(1000)
);

CREATE TABLE "MovieDownloadLink"(
    "MovieId" INT NOT NULL REFERENCES "Movie"("MovieId"),
    "Link" VARCHAR(1000)
);

ALTER TABLE "Track" ADD COLUMN "MovieId" INT REFERENCES
"Movie"("MovieId");
ALTER TABLE "Track" ADD COLUMN "MovieOrAlbum" VARCHAR(6);

INSERT INTO "MediaType" ("MediaTypeId", "Name") VALUES (6, 'MP4');
INSERT INTO "Actors" ("ActorId", "Name") values (1,'Charles Chaplin');
INSERT INTO "Movie" ("MovieId", "Title", "ActorId") values (1,'Charles
Chaplin’s festival',1);
INSERT INTO "MovieDownloadLink" ("MovieId", "Link") values
(1,'https://ia903005.us.archive.org/6/items/charlie_chaplin_film_fest/charli
e_chaplin_film_fest.mp4?');
INSERT INTO "Track" ("TrackId", "Name", "MovieId", "MediaTypeId",
"Milliseconds", "UnitPrice") Values (4000, 'Buy Chaplin Movie', 1, 6,
5400000, 20);


INSERT INTO "Actors" ("ActorId", "Name") values (2,'Fred Weintraub');
INSERT INTO "Movie" ("MovieId", "Title", "ActorId") values
(2,'moviesINVASION OF THE BEE GIRLS widescreen & quality
upgrade.',2);
INSERT INTO "MovieDownloadLink" ("MovieId", "Link") values
(2,'https://ia903007.us.archive.org/11/items/InvasionOfTheBeeGirlsWides
creenQualityUpgrade/InvasionOfTheBeeGirlsWidescreen.mp4?cnt=0');
INSERT INTO "Track" ("TrackId", "Name", "MovieId", "MediaTypeId",
"Milliseconds", "UnitPrice") Values (4001, 'Buy INVASION OF THE BEE
GIRLS widescreen & quality upgrade', 2, 6, 5400000, 20);


INSERT INTO "Actors" ("ActorId", "Name") values (3,'Alvin Knechtel');
INSERT INTO "Movie" ("MovieId", "Title", "ActorId") values (3,'Cockeyed:
Gems from the Memory of a Nutty Cameraman',3);
INSERT INTO "MovieDownloadLink" ("MovieId", "Link") values
(3,'https://ia801706.us.archive.org/3/items/silent-cockeyed-gems-from-the-
memory-of-a-nutty-
```

cameraman/Cockeyed%3A%20Gems%20from%20the%20Memory%20of%20a%20Nutty%20Cameraman.mp4?cnt=0');
INSERT INTO "Track" ("TrackId", "Name", "MovieId", "MediaTypeId", "Milliseconds", "UnitPrice") Values (4002, 'Buy Gems from the Memory of a Nutty Cameraman', 3, 6, 5400000, 20);

INSERT INTO "Actors" ("ActorId", "Name") values (4,'Cecil B. DeMille');
INSERT INTO "Movie" ("MovieId", "Title", "ActorId") values (4,'The Ten Commandments / Blu-ray / x264 / MKV / 720p / Commentary',4);
INSERT INTO "MovieDownloadLink" ("MovieId", "Link") values (4,'https://ia800607.us.archive.org/34/items/ptp_the-ten-commandments_cecil-b-demille_blu-ray_x264_mkv_720p_180770/The.Ten.Commandments.1923.720p.BluRay.x264-GABE.mp4?cnt=0');
INSERT INTO "Track" ("TrackId", "Name", "MovieId", "MediaTypeId", "Milliseconds", "UnitPrice") Values (4003, 'Buy The Ten Commandments / Blu-ray / x264 / MKV / 720p / Commentary', 4, 6, 5400000, 20);

INSERT INTO "Actors" ("ActorId", "Name") values (5,'The 2am Theater');
INSERT INTO "Movie" ("MovieId", "Title", "ActorId") values (5,'DOUBLE FEATURE HELL 8 (Grindhouse 3)',5);
INSERT INTO "MovieDownloadLink" ("MovieId", "Link") values (5,'https://ia801307.us.archive.org/20/items/DoubleFeatureHell8grindhouse3/DoubleFeatureHell8grindhouse3.mp4?cnt=0');
INSERT INTO "Track" ("TrackId", "Name", "MovieId", "MediaTypeId", "Milliseconds", "UnitPrice") Values (4004, 'Buy Chaplin Movie', 5, 6, 5400000, 20);

Question 4

15 / 15 pts

Describe any modifications to existing Chinook tables that you will be making to enable the downloading of movie content by Chinook

customers. Create and share the SQL scripts required for those modifications.

Your Answer:

Create a new table "MovieDownloadLink" to store the download link for the movie.

Table "MovieDownloadLink" will link with table "Movie" by foreign key "MovieId".

```
CREATE TABLE "MovieDownloadLink"(
   "MovieId" INT NOT NULL REFERENCES "Movie"("MovieId"),
   "Link" VARCHAR(1000)
);


ALTER TABLE "Track" ADD COLUMN "MovieId" INT REFERENCES
"Movie"("MovieId");
ALTER TABLE "Track" ADD COLUMN "MovieOrAlbum" VARCHAR(6);
```

Question 5

15 / 15 pts

Prove that your ‘new’ data model works by creating and sharing a script that returns invoiced sales for a customer who purchased both songs and movies.

Your Answer:

```
INSERT INTO "Invoice" values(413, 2, '2010-01-01 00:00:00', 'Theodor-
Heuss-Straße 34', 'Stuttgart', '',  'Germany', '70174', 20);
INSERT INTO "InvoiceLine" VALUES (2241, 413, 4004, 20, 1);--Insert a
record about buying a movie for a customer whose ID is 2 and bought
some albums in the past.

SELECT "In".*
FROM (((((("Actors" AS "Ac"
    LEFT JOIN "Movie" AS "Mo" ON "Ac"."ActorId"="Mo"."ActorId")
    LEFT JOIN "Track" AS "Tr" ON "Mo"."MovieId"="Tr"."MovieId")
```

```
    LEFT JOIN "InvoiceLine" AS "IL" ON "Tr"."TrackId"="IL"."TrackId")
    RIGHT JOIN "Invoice" AS "In" ON "IL"."InvoiceId"="In"."InvoiceId")
    RIGHT JOIN "Customer" AS "Cu" ON
"Cu"."CustomerId"="In"."CustomerId")
    LEFT JOIN "MovieDownloadLink" AS "MD" ON
"MD"."MovieId"="Mo"."MovieId")
    LEFT JOIN "Album" AS "Al" ON "Al"."AlbumId"="Tr"."AlbumId")
    LEFT JOIN "Artist" AS "Ar" ON "Ar"."ArtistId"="Al"."ArtistId"
    WHERE "In"."CustomerId"='2';--Show the invoice record about buying
7 albums and 1 movie for this customer.
```

Quiz Score: **70** out of 70