

# homework 1

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## Problem 1: Database Analysis

Presuming that you have installed the software identified in the Software Installation Guide, specifically the Chinook database, use the DBviewer of your choice to examine the database configuration. From this set of data and metadata, answer the following questions:

- i. Identify at least 2 informal queries that you might expect to make on the Chinook database.
  - What kind of *genre* does there exist?
  - How many *albums* does there exist?
- ii. Identify at least 2 update operations that you would expect to apply to the Chinook database.
  - Update *address* of *customer*
  - Update *email* of *employee*
- iii. Specify all the relationships you can deduce between any two objects as defined in the Chinook database.
  - *playlist* and *playlisttrack* are connected by *PlaylistId* to specify the *Name* of *playlist* according to *PlaylistId*
  - *artist* and *album* are connected by *ArtistId* to specify the *Name* of *artist* according to *ArtistId*
  - *playlisttrack* and *track* are connected by *TrackId* to specify which *track* is into which *playlist*
  - *album* and *track* are connected by *AlbumId* to specify which *track* is into which *album* made by which *artist*
  - *mediatype* and *track* are connected by *MediaTypeId* to specify the *Name* of *mediatype* according to *MediaTypeId*
  - *genre* and *track* are connected by *GenreId* to specify the *Name* of *genre* according to *GenreId*
  - *track* and *invoiceline* are connected by *Trackid* to keep the record of how many *track* is sold
  - *invoiceline* and *invoice* are connected by *InvoiceId* to keep the record of transaction
  - *invoice* and *customer* are connected by *CustomerId* to keep the record of *customer*

- *customer* and *employee* are connected by *SupportRepId* (*EmployId* and *ReportsTo*) to track which *employee* is responsible to which *customer*
  - \* *playlist* contains *track*
  - \* *album* is made by *artist* and contains *track*
  - \* *track* is sold to *customer*
  - \* *employee* support *customer*
- iv. Reference two database objects that may require some form of constraint applied to maintain integrity.
- We cannot add a *customer* unless we have an Customer Id for the customer
  - We cannot add a *invoice* unless we have an invoice Id for the invoice

## Problem 2: User Consideration

Using the same Chinook database as the reference model, describe the types of users that would be involved in accessing, creating, and maintaining the database. Who are they? What is their function? How might these users be interconnected?

- Database administrators: They are responsible for authorizing access to the database, for coordinating and monitoring its use, acquiring software hardware resources, controlling its use and monitoring efficiency of operations. Thus managing access of variety of end-users like employee and business analysts and manager.
- Database Designers: Responsible to define the content, the structure, the constraints, and functions or transactions against the database. They must communicate with the end-users, such as employee or business analysts or manager, and understand their needs.
- End-users: They use the data for queries, reports and some of them update the database content
  - \* Employee: Update the invoice and check data to help customer
  - \* Analysts: Can access database to analyze business.
  - \* System Analysts: Design applications that meets requirements.
  - \* Application Programmers: Implement the specifications developed by analysts and test and debug them before deployment.
- Operators and Maintenance Personnel: Manage the actual running and maintenance of the database system hardware and software environment.