The main task of Phase I is to expand and redesign the Chinook database with extended capabilities and use this as a basis to migrate the current chinook database tables and instances into the new schema. This will occur in both this phase with the version that your team develops as well as a Part of Phase II using a provided solution Chinook ER. In both phases, an updated version of the Chinook DB with the new capabilities thereby migrating Chinook to a revised set of tables. The intent is to extend the chinook ER from MySQL Workbench given in Figure 1 (http://www.engr.uconn.edu/~steve/Cse4701/chinookmodel.mwb) with the following capabilities:

1. Abstract common information from Customer and Employee into a new Person or User Entity. Introduce a new PersonID or UserID for this class, but still keep the EmployeeID and CustomerID in those classes.
2. Extend Chinook with the appropriate entities for Customers to define their own playlist that would be associated with their CustomerID. Do not alter the current Playlist relational Tables and association with the other tables. These playlists represents ones that have been created by the Employees or Administrative Users. Rather, define a new set MyPlaylist and MyPlaylistTrack that Customers can utilize to create and name his/her own playlists. You would need to add in the CustomerID in your new entities in order to allow an individual to define multiple tracks. You will also need to link the MyPlaylistTracks to the Track Entity.
3. Extend Chinook with the appropriate entities for Customers to create Orders. An order could consist of one or more playlists that may be either Customer created (from the new MyPlaylist entity) or one that has been created an Employee (the current Playlist table in Chinook). You may need multiple entities to support this capability.
4. Extend Chinook with appropriate entities for Payment Capabilities (Paypal, Applepay, Google Pay, credit cards, etc.) off of the Invoice Entity and utilize inheritance to organize the different payment options.
5. Add a new entity or entities that would add links for clips of songs that would reference web addresses of Google Play and iTunes in order to play clips/audio previews on for both Albums and Songs.
6. Migrate the current Chinook schema to the new schema by a process that includes: defining new relational tables that correspond to added entities from items 1 to 5 of your redesigned Chinook schema using the CREATE TABLE SQL Command. This would be for your new entities for Person/User, MyPlaylist, Orders, Payments, and for Clips. You will also need to transition existing data from Customer/Employee into Person/User from utilizing the INSERT INTO SQL (see slide 4.72 of the chapter 4 PPTs on the course web site). Additionally, you will need to add and/or drop from existing chinook tables (see slide 4.30 of the chapter 4 PTPs on the course web site).

When you have completed all of your design work that has modified the chinookmodel.mwb file with new entities, store your design in: `GroupZchinookmodel.mwb` where Z is your group.

For item 1 regarding the new table for Person/User, you need to both create the table and migrate the data from the Customer/Employee tables into Person/User by modifying the existing chinook schema and database:

- Create new tables in the chinook schema using the CREATE TABLE Command for the new Person/User table (see slide 4.22 of the chapter 4 PPTs on the course web site).
- You should be able to utilize INSERT INTO SQL (see slide 4.72 of the chapter 4 PPTs on the course web site) in order to retrieve a subset of the information Customer/that can then
be inserted into Person/User. In the process of the retrieval and insertion, you have to generate new values for the keys of the new tables you define.

- Once you have migrated customer and employee tuples into the new person/user table, you can then remove the common columns that formed the basis of the new person/user table. This can be accomplished using the ALTER TABLE command (see slide 4.30 of the chapter 4 PPT on the website).

For items 2 to 5, the new tables for MyPlaylist, Orders, Payment, and Clips, you also need to utilize the CREATE TABLE Command (see slide 4.22 of the chapter 4 PPTs on the course website). You should also insert some sample data into all of these tables for one customer using SQL INSERT.

Figure 1: The Chinook ER Diagram from MySQL Workbench.
The final step in Phase I after you have created new tables, migrated data, inserted new data into the modified Chinook schema is to then generate a .sql file to submit. In MySQL Workbench, Select Server/Data Export, and as given in Figure 2, check off your database and choose the option to generate a .sql file (GroupZChinook.sql where Z is your Group Letter). This will generate a loadable database for David to do Phase I grading. Figure 3 shows the success screen.

**Figure 2: The Export Option in Workbench**

For Phase I in support of item 5 on clips, there are a number of programming options that you can consider that, while more relevant to implementation in Phase II, are listed below since they provide examples of the type of information that could be stored in a clip entity. One approach to this would be an automated web searches in Google to add links to web locations for albums or songs. For Google, the Google Search (Google Play For Those About To Rock We Salute You):  
https://play.google.com/store/music/album/AC_DC_For_Those_About_to_Rock_We_Salute_You?id=Bk2ckckfo23t4tip4aorddir4kxa&hl=en
where the first item returned was:
https://www.google.com/search?q=Google+Play+For+Those+About+To+Rock+We+Salute+You&
oq=Google+Play+For+Those+About+To+Rock+We+Salute+You&aqs=chrome..69i57j69i64.3695j0j4&sourceid=chrome&es_sm=122&ie=UTF-8

For itunes, the Google search (itunes For Those About To Rock We Salute You) returns:  
https://www.google.com/search?q=itunes+For+Those+About+To+Rock+We+Salute+You
&oq=itunes+For+Those+About+To+Rock+We+Salute+You&aqs=chrome..69i57.19982j0j4&sourceid=chrome&es_sm=122&ie=UTF-8
where the first item returned was:

From a programming perspective for Phase II, the Google Libraries and Searches at:
https://developers.google.com/custom-search/json-api/v1/libraries has a PHP API:
https://developers.google.com/api-client-library/php/ and sample
code: https://github.com/google/google-api-php-client/tree/master/examples

In addition there are other APIs available such as unofficial APIs for Google Play:
   i. https://github.com/simon-weber/gmusicapi

For itunes Apple has a search API to find content in all of the itunes stores at:

There are also similar libraries such as:
   iii. https://github.com/ijanerik/PHP-iTunes-API

In addition – I found an entire web site for music APIs: http://musicmachinery.com/music-apis/

Figure 3: Result of Export Operation.