Complex Systems Theory and Practice
Lab 1

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Install a database engine (MariaDB will be used in the examples, yet any relational database is suitable) and download `Chinook` database from here. Try to import the data to the DBMS, you may skip the `Invoiceline` table.

1. Find a way to select all the tables in the database.

2. Check all the properties of table `track`, including the list of column, their type, key types and default values.

3. For each track print out a pair of track title and album title.

4. Select all albums by '*Various Artists*'.

5. Print out all the unique names of the artists.

6. For each artist print out all the pairs (artist name, album title).

7. Print out all the tracks except the ones performed by *Queen*.

8. Print out all the audio files (both AAC and MPEG) that last between 275s and 400s.

9. Select all non-audio tracks and their album titles.

10. Select all tracks from each playlist that contains *Classic* substring in its name. The resulting schema should contain only track titles, album names, band names and the genre.

11. Select all the cities, from which came the clients in the database.

12. Check whether all American cities in the database have a state assigned.

13. List all the countries that do not have states assigned.

14. List all the domains of the clients' e-mails.

15. For each of the domains print out the number of clients using them. Count together the companies without distinction on their country suffix.

16. Find country from which clients ordered products with highest joint value.

17. For each country print out the average value of ordered goods.

18. Find the album of the highest value. The resulting scheme should contain the name of the artist, the title of the album, the number of the tracks and the total price.

19. Find the artist with the second highest number of tracks.

20. Using `customer` and `employee` tables, list the employees who are not currently responsible for customer service.

21. List all employees who do not serve any customer from their own city.

22. List all offered products belonging to *Sci Fi & Fantasy* or *Science Fiction*. The schema should include the titles and their price.

23. Find out which artist has the most *Metal* and *Heavy Metal* songs (combined). Display the band name and track count. Order the result by the number of tracks in a descending manner.

24. Find the employee that was the youngest when first hired.

25. Select all episodes of *Battlestar Galactica* on offer, include all seasons. Order the results by the title.

26. Select artist names and album titles in cases where the same title is used by two different bands. (**Note:** If (X, Y, A) is selected, the result should not include (Y, X, A)).

27. Select all the songs by *Santana*, regardless of who was featuring the record.

28. Print out all the records composed by a person named *John*, ensure that none of the records are repeated. Order the results alphabetically in terms of the track title.

29. Sort all the artists in descending order of the average duration of their rock song. Do not include artists who have recorded less than 7 for songs in the *Rock* category.

30. Enter a new customer into the `customer` table, do not create any invoices for them.

31. Add a `FavGenre` column (as a last one) to the `customer` table. Set it, initially, to `NULL` for all clients.

32. For each customer, set the `FavGenre` value to genre ID of the genre he bought the most tracks of.

33. Remove the `Fax` column from the `customer` table.

34. Delete from the `invoice` table all the invoices issued before *2010*.

35. Remove from the database information about customers who are not related to any transaction.

36. Add information about tracks from albums The Unforgiving and Gigaton to the `track` table, update the information in the other tables so that the database is consistent (i.e. add information about previously non-existent bands, albums, etc., and enter the correct ID for the existing ones). Try to automate this process.