Database Concepts (Summer Term 2017)
Exercise 12

1. Create the necessary DDL statements for following scenarios:

   (a) Create a table Glass with the attributes Gname(VARCHAR2(15)) and Gid(NUMBER). Gid is the primary key.

   (b) Create a table Ingredient with the attributes Iname(VARCHAR2(15)), Iid(NUMBER) and Alcohol_content(NUMBER). Iid is the primary key. The default alcohol content value is 0.

   (c) Create a table Cocktail with the attributes Cname(VARCHAR2(20)), Cid(NUMBER), Alcoholic(CHAR(1)) and Gid(NUMBER). Cid is the primary key and Gid is a foreign key referencing table Glass(Gid). Additionally, Cname is not allowed to be "Absinth".

2. Insert following data into the database:

   (a) Insert following values into table Glass:

<table>
<thead>
<tr>
<th>Gid</th>
<th>Gname</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Floete</td>
</tr>
<tr>
<td>2</td>
<td>Schwenker</td>
</tr>
<tr>
<td>3</td>
<td>Kelch</td>
</tr>
</tbody>
</table>

   (b) Insert following values into table Ingredient:

<table>
<thead>
<tr>
<th>Iid</th>
<th>Iname</th>
<th>Alcohol_content</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tequilla</td>
<td>34</td>
</tr>
<tr>
<td>2</td>
<td>Curacao Triple</td>
<td>36</td>
</tr>
<tr>
<td>3</td>
<td>Limettensaft</td>
<td>0</td>
</tr>
</tbody>
</table>

3. Use the available SQL-Script `create.sql` to set up a database. Answer following queries:

   (a) Which cocktails exist in the database?
   (b) Which bars have the postal code 39108?
   (c) List all postal codes (without duplicates).
(d) Which ingredients have an alcohol content greater than 30?

4. Again, use the schema from task 3. Use the presented possibilities of SQL as presented in the lecture where appropriate.

(a) Pick an arbitrary task and replace the connection of tables in a WHERE clause by a join in the FROM clause.

(b) In a drinking game, all persons should play against each other. List the pairs of players (Name, Name).

(c) List the names of glasses and cocktails in single column list/table.

(d) For which cocktails no recipe is available?

(e) In which bars no "Knieweich" is served?

(f) Insert into table Cocktail the new cocktail "Lila Kuh". The cocktail has alcohol and is served in a "Schwenker". Its id is 18.

(g) The cocktail "Lila Kuh" is named wrong. The correct name is "Blaue Kuh". Fix the mistake.

(h) The alcohol content of all ingredients of cocktail "Knieweich" is twice as high as currently given in the database. Fix the mistake.

(i) Delete the glass "Bierkrug".

(j) Which bars serve cocktails with id 8 or 11?

(k) Which cocktail has alcohol and is served in a "Cocktailglas"?

(l) Which glasses are never used?

(m) About which cocktails people talk? (Use table cocktail_person!)

(n) Which ingredients have an alcohol content between 0 and 50?

(o) Which persons’ names start with "S"?

(p) Is there a bar that does not serve any cocktail?

(q) What is the average alcohol content of all ingredients? (Do not use the AVG function!)

(r) What is the average alcohol content of all ingredients? (Use the AVG function!)

(s) How many ingredients are stored in the database?

5. To solve these tasks use the already introduced schema.

(a) List the amount only of alcoholic ingredients in every cocktail.

(b) List all cocktails that have more than 2 ingredients. Additionally, list the number of ingredients per cocktail.
(c) The alcohol content of a cocktail is the ratio between the sum of alcohol content of all ingredients (alcohol content of ingredient * amount of ingredient) and the sum of amounts of all ingredients. Compute the alcohol content of each cocktail. Thereby, use suitable names for the columns of the result relation.

(d) List all alcoholic and non-alcoholic cocktails that have more than 4 ingredients. Additionally, list the number of ingredients per cocktail.

(e) Create view "Cocktail_View" that provides the cid and the alcoholic content of every cocktail.

(f) Find for bar the minimum and maximum alcohol content of the served cocktails. Use the previously created view.

(g) Create a view that provides as much information about cocktails as possible (including derived information as well as data from other tables).

Good Luck!