SQL Worksheet: Bars

1. Introduction

For this example, we have six tables; three of those correspond to entities: Bars, Beers and People; each one of those tables has two fields, id (an inteher, the PK) and name (a string). We also have three tables that correspond to many-to-many relationships. Likes (Person likes Beer), Goes (Person goes to Bar) and Serves (Bar serves Beer); this tables have fields that correspond to the entity name, like PersonId, BeerId and BarId.

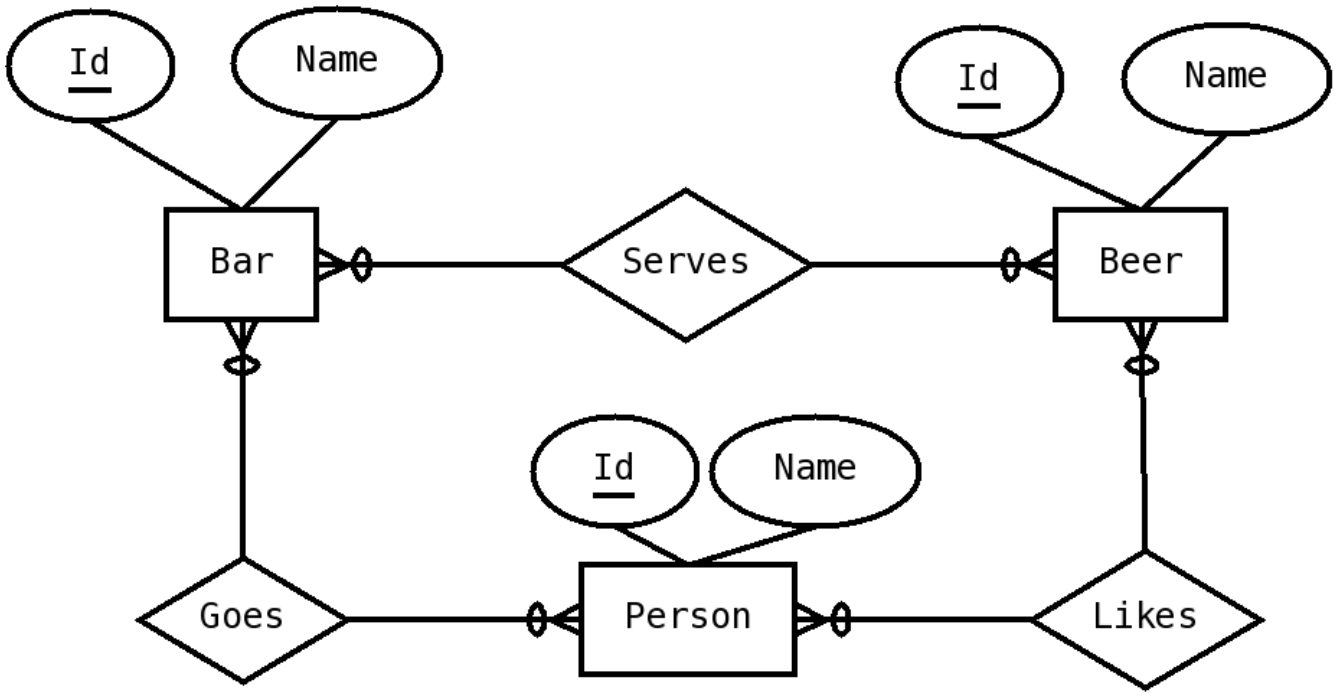

Figure 1: ER diagram for bars database

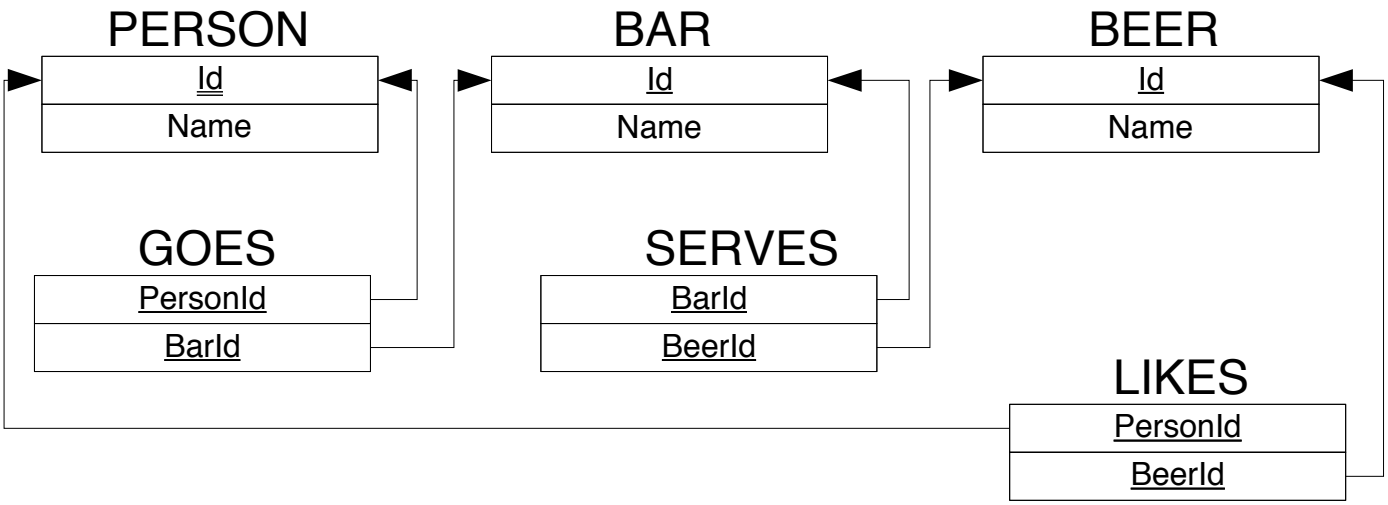

Figure 2: Relational Schema diagram for bars database

Sample SQL for creating the tables is as follows (the other tables are defined in a similar way):

```
CREATE TABLE Person (
  Id INTEGER PRIMARY KEY,
  Name VARCHAR(20) UNIQUE NOT NULL
);

CREATE TABLE Likes (
  PersonId INTEGER NOT NULL REFERENCES Person(Id),
  BeerId INTEGER NOT NULL REFERENCES Beer(Id),
  CONSTRAINT LikesPK
        PRIMARY KEY (PersonId, BeerId)
);
```

Sample 1: SQL for tables (other tables defined similarly)

2. A few Examples

Provide SQL code to display:

2.1. The name of the bar with the name of the people that go to that bar

```
SELECT B.Name, P.Name
FROM Bar B JOIN Goes G ON (B.Id=G.BarId) JOIN
      Person P ON (P.Id=G.PersonId)
```

Sample 2: Name of bar and of people that go to bar

2.2. The name of each bar with the number of people that go to that bar. Make sure ALL bars appear.

```
SELECT B.Name, COUNT(G.BarId)
FROM Bar B LEFT OUTER JOIN Goes G ON (B.Id=G.BarId)
GROUP BY B.Name
```

Sample 3: Name of bar and number of people that go to bar

2.3. The names of all people who do not like the beer with id 1

```
SELECT Name
FROM Person
WHERE Id NOT IN (
     SELECT PersonId
     FROM Likes
     WHERE BeerId=1
)
```

Sample 4: Name of people who don't like beer 1

3. Exercises

Provide SQL to display:

3.1. The names of all beers, with the names of people who like that beer

```
SELECT B.Name, P.Name
FROM Beer B JOIN Likes L ON (                    ) JOIN
        Person P ON (                    )
```

Exercise. 3.1: Complete the code

3.2. The names of all people who do not like any beers.

```
SELECT Name
FROM Person
WHERE Id NOT IN (




)
```

Exercise. 3.2: Complete the code

3.3. The names of all people who do not go to the bar named 'Chilis'

```
SELECT Name
FROM Person
WHERE Id NOT IN (




)
```

Exercise. 3.3: Complete the code

3.4. The names of each person, with the number of beers they like

```
SELECT
FROM            JOIN            ON (            )
GROUP BY
```

Exercise. 3.4: Complete the code

3.5. The names of each person with the number of bars they go to

```
SELECT
FROM            JOIN            ON (            )
GROUP BY
```

Exercise. 3.5: Complete the code

3.6. The names of each person, with the names of any beers they do NOT like

```
SELECT
FROM            ,
WHERE (            ) NOT IN (




)
```

Exercise. 3.6: Complete the code

3.7. The names of each person, with the names of bars that serve any beer those people like

How many tables do you need to join ?

```
SELECT
FROM            JOIN            ON (            )
```

Exercise. 3.7: Complete the code

3.8. The names of each bar, with the names of each person who likes any of the beers the bar serves

3.9. The names of each bar, with the number of people who like any of the beers the bar serves. Make sure people are not counted twice, and each bar appears, even those with a count of 0.

3.10. The names of any people who go to one or more bars that serves a beer they do not like.

3.11. The names of any people who go to at least one bar that does not serve any of the beers they like.

3.12. The names of any people who don't go to any bar that serves a beer they like

3.13. The names of any people who don't go to any bar that serves a beer they do not like