**CS 575 – Topics in Database Systems, Homework 3**

This is a group assignment (2-3 students per group).

A database company called ArtBase builds a product for art galleries. The core of this product is a database with a schema that captures all the information that galleries need to maintain.

Galleries keep information about artists, their names (which are unique), birthplaces, age and style of art. For each piece of artwork, the artist, the year it was made, its unique title, its type of art (e.g. painting, lithograph, sculpture, photograph), and its price must be stored. Pieces of artwork are also classified into groups of various kinds, for example, portraits, still lifes, works by Picaso, or works of the 19th century; a given piece may belong to more than one group. Each group is identified by a name (like those just given above) that describes the group. Finally, galleries keep information about customers. For each customer, galleries keep that person's unique name, address, total amount of dollars spent in the gallery, and the artists and groups of art that the customer tends to like.
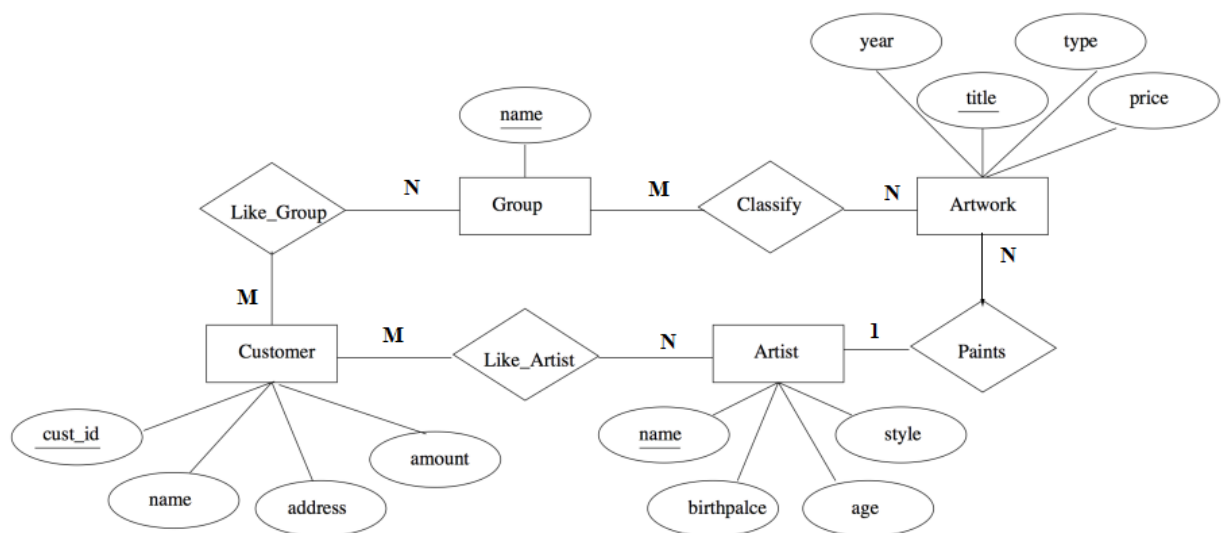
A relational schema corresponding to description and ER diagram is given below.

> **ARTIST (AName, Birthplace, Age, Style)**
>
> **ARTWORK (Title, Year, Type, Price, AName)**
>
> **CUSTOMER (CustId, CName, Address, Amount)**
>
> **GROUP (GName)**
>
> **CLASSIFY (Title, GName)**
>
> **LIKE_GROUP (CustID, GName)**
>
> **LIKE_ARTIST (CustID, AName)**

1. Implement this schema in the MySQL database instance. Consider the following points while working on this section.
    *   It's important that both primary key constraints as well as foreign key constraints are enforced.
    *   You can assume that all String type attribute values will contain less than 100 characters and use appropriate numeric data types for amount and price.

2. Write a client side implementation to access this database using any of your favorite programming language.
3. Following functionality needs to be implemented
    - Add an artist to the database.
    - Add a customer to the database.
    - Add an artwork to the database.
        - Add the new artwork to the table ARTWORK.
        - Check if there is a group in the GROUP table with the given group name. If not add a record with the given group name.
        - Finally add an entry to the table CLASSIFY with the title of the artwork and the group name.
    - Add records to LIKE_GROUP table.
        - It queries the classify table for the records with the same group name and extracts out the artworks for those records.
        - Then it queries for the artist names of these artworks.
        - Finally it should add records to the LIKE_ARTIST table combining the artist's name and customer id if that combination is not already recorded.
    - Implementing update functionality for the style field of artist
        - It should update the style field of the artist record identified by the given artist's name to the new style value.
    - Reading from the database. There is a set of read operations that should be implemented for certain tables to create a report.
        - Get the list of artists.
        - Get the list of artworks.
        - Get the list of groups.
        - Get the list of classify entries.
        - Get the list of like group entries.
        - Get the list of like artist entries.

Your final deliverable should include the following.

- Complete source code.
- A Help file (explaining how to run your program)
- MySQL data dump in Gallery.sql (DDLs and Data)
- Upload everything in a zip file by the due date.