CS460 Final Project Report

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Updated Schema (in SQL):

```
DROP DATABASE IF EXISTS photoshare;
CREATE DATABASE photoshare;
USE photoshare;

CREATE TABLE Users (
   user_id INT NOT NULL AUTO_INCREMENT UNIQUE PRIMARY KEY,
   email VARCHAR(255) NOT NULL UNIQUE,
   password VARCHAR(255) NOT NULL,
   firstName VARCHAR(255),
   lastName VARCHAR(255),
   hometown VARCHAR(255),
   gender ENUM('M', 'F'),
   dateOfBirth DATE
);

CREATE TABLE Friends (
 user_id INT NOT NULL,
 friend_id INT NOT NULL,
 PRIMARY KEY  (user_id, friend_id),
 FOREIGN KEY (user_id) REFERENCES Users(user_id) ON DELETE CASCADE,
 FOREIGN KEY (friend_id) REFERENCES Users(user_id) ON DELETE CASCADE
);

CREATE TABLE Albums (
  album_id INT NOT NULL AUTO_INCREMENT UNIQUE PRIMARY KEY,
  name VARCHAR(255) NOT NULL,
  date_created DATETIME NOT NULL DEFAULT NOW(),
  user_id INT NOT NULL,
  FOREIGN KEY (user_id) REFERENCES Users(user_id) ON DELETE CASCADE,
  UNIQUE KEY albumid (user_id, name)
);


CREATE TABLE Pictures (
  imgdata longblob,
  user_id INT NOT NULL,
  caption VARCHAR(255) NOT NULL,
  picture_id INT NOT NULL AUTO_INCREMENT UNIQUE PRIMARY KEY,
  album_id INT,
  INDEX upid_idx (user_id),
  FOREIGN KEY (user_id) REFERENCES Users(user_id) ON DELETE CASCADE,
  FOREIGN KEY (album_id) REFERENCES Albums(album_id) ON DELETE CASCADE
);

CREATE TABLE Tags (
  tagname VARCHAR(255) NOT NULL UNIQUE PRIMARY KEY,
  picture_id INT NOT NULL,
  FOREIGN KEY (picture_id) REFERENCES Pictures(picture_id) ON DELETE CASCADE
);

CREATE TABLE Comments (
  comment_id INT NOT NULL AUTO_INCREMENT UNIQUE PRIMARY KEY,
  text VARCHAR(255) NOT NULL,
  user_id INT DEFAULT '0',
  commentdate DATETIME NOT NULL DEFAULT NOW(),
  picture_id INT NOT NULL,
  FOREIGN KEY (user_id) REFERENCES Users(user_id),
  FOREIGN KEY (picture_id) REFERENCES Pictures(picture_id) ON DELETE CASCADE
);

CREATE TABLE Likes (
  picture_id INT NOT NULL,
  user_id INT NOT NULL DEFAULT '0',
  PRIMARY KEY (picture_id, user_id),
  FOREIGN KEY (picture_id) REFERENCES Pictures(picture_id) ON DELETE CASCADE,
  FOREIGN KEY (user_id) REFERENCES Users(user_id)
);
```

Updated Relational Model Schema:

1. Users (user_id, email, password, firstName, lastName, hometown, gender, dateOfBirth)

2. Friends (user_id, friend_id)

3. Albums (album_id, name, date_created, user_id)

4. Pictures (picture_id, imgdata, caption, album_id, user_id)

5. Tags (tagname, picture_id)

6. Comments (comment_id, commentdate, text, user_id, picture_id)

7. Likes (picture_id, user_id)

Integrity Constraints & Assumptions:

1. An album is created by exactly one user, a photo is a part of exactly one album, a comment is written by exactly one user for exactly one photo and a like is made by exactly one user for exactly one photo and so on. All these relationships are one-many and have total participation constraints using foreign key constraints etc.

2. Primary key constraints are defined for each table there is. There are unique key constraints wherever necessary such as for user's email and the album name for each user i.e. no two (or more) users can have same email addresses & no user should have two (or more) albums with the same album name.

3. If a user is deleted, all associated albums will be deleted automatically, and thus on deletion of an album all associated photos will be deleted, and on deletion of a photo, all associated comments and likes will be deleted. However, is a user is deleted, if they have a comment/like on another user's photo, that comment/like shall not be deleted.

4. Furthermore, we assume that users know how they are supposed to use the application very well and they do not abuse it i.e., they do not friend/unfriend themselves, friend twice, unfriend a not friend, try to create two albums of same name etc. Either of the users in a friendship can initiate the friendship & the other user does not get to deny but can unfriend. Users can like their own pictures.

Checklist (100 pts):

- ☑ ~~Becoming a reg user - 5 pts~~
- ☑ ~~Adding & Listing Friends - 10 pts~~
- ☑ ~~User activity - 10 pts~~
- ☑ ~~**Bonus: Unfriend (5 pts)**~~
- ☑ ~~**Bonus: Delete a user (5 pts)**~~
- □
- ☑ ~~**Photo and album browsing (10 pts)**~~
- □ **Photo and album creating and deleting (10 pts)**
- □
- □ **Viewing your photos by tag name (5 pts)**
- □ **Viewing the most popular tags (10 pts)**
- □ **Photo search (10 pts)**
- □ **Bonus: viewing all photos by tag name (5 pts)**
- ☑ ~~**Bonus: modify photo caption (5 pts)**~~
- ☑ ~~**Bonus: modify tag (5 pts)**~~
- □
- □ **Leaving comments (5 pts)**
- ☑ ~~**Like functionality (5 pts)**~~
- □
- □ **Bonus: Search on comments (5 pts)**
- ☑ ~~**Bonus: unlike photo (5 pts)**~~
- □ **Bonus: modify comment (5 pts)**
- □
- □ **'You-may-also-like' functionality (10 pts)**
- □ **Bonus: Friend recommendation (10 pts)**
- □
- ☑ ~~Final Report - 15 pts~~