CSC343 Assignment 1 Solution

June 13, 2020

Warm Up

1. What does this integrity constraint mean? $\sigma_{follower=followed} Follows = \emptyset$

   Means there is no result in a query where user follow himself/herself

2. Would it be a good idea to define the Follows relation like this? Follows()follower, followed, start)

   Omitted for now

3. Can the database represent a single post that has multiple comments?

   Yes.

   Create two relations Comment(pid, commenter, when, text) and Post(pid, uid, when, location, caption). Set *pid* in comment to be the pid of Post.

   Since primary key of Comment is *pid, commenter, when*, comments can have multiple entires with the same *pid*.

   On the other hand, since *pid* in Post is the only primary key, it's value must be non-repeating.

4. Can the database represent multiple comments from the same user on one post?

   Yes.

   The PRIMARY KEY of Comment(pid, commenter, when, text) depends on pid, commenter, when.

   By definition of PRIMARY KEY, the entry with the same pid, commenter, and when

cannot exist.

Since pid and commenter are the same in this case, as long as when is different, the PRIMARY KEY condition will remain valid.

5. How does the schema allow *any* number of photos or videos to be inclyded in one story, but restrict the user to having only one profile photo?

The user is restricted to having one profile photo since the attribute *photo* contains only the URL of user photo.

On the other hand, a story is allowed to have multiple videos or photos, since its list of video and photo urls are defined in relation SIncludes, and it's PRIMARY KEY depends on two attributes *sid* and *url*.

So, as long as there are no entries in SIncludes with the repeating value of *url*, a story can have as many photos and video urls.

Part 1

1. **Rough Work:**

   1. Find all users who liked a post