CSC 336: Database Systems

Project #1

Part I: Proposal

Team Members: [redacted]

Team Name: [redacted]

Description:

We are building a social media / imageboard mobile application. All posts on the app will be restricted to images, gifs, or image macros -- no standalone text. Users will be able to follow other users and see their posts, and reply to them. All replies to posts will follow the same rules.

This software is interesting because it builds on a users keyboard based on what images are posted in the software. Each user has their own set of images to choose from for commenting and sharing etc. Instead of having a global database of Gifs or images that a user can choose from to post, the software is more interactive because they would have to build it as they view the other images in the software. Users are also allowed to add new images that aren't already part of the software into their keyboard but generally they will have the option of taking an already posted image and store it into their images library. Additionally to a personalized image keyboard there will also be a profile page for each user to post images.

Similar software to this is, Tumblr, 4chan, 9gag. Each however is slightly different but also contain a piece of what we are designing. Tumblr allows users to respond with other images but it also allows the use of text, which we will disallow. 4chan allows for both as well but it does not have page dedicated to a specific user in-fact it is generally anonymous. 9gag is the closest software to what we are planning on designing if only it allowed users to create their own keyboard of images and gifs etc. Also, none of the competitors are mobile-focused.

Schemas:

1. Images (imageID, size, type, texttop, textbottom)
2. ImageTags (imageID, tag)
3. Users (userID, firstname, lastname, dob, email)
4. Profiles (userID, avatar)
5. Follows (userID, followeduserID)
6. SavedImages (userID, savedimageID)
7. Posts (postID, userID, postimageID, timestamp)
8. Replies (postID, posterID, replyimageID, timestamp)

Constraints:

$$\pi_{imageID}(ImageTags) \subseteq \pi_{imageID}(Images)$$

$$\pi_{userID}(Profiles) \subseteq \pi_{userID}(Users)$$

$$\pi_{userID,\, followeduserID}(Follows) \subseteq \pi_{userID,\, userID}(Users)$$

$$\pi_{userID}(SavedImages) \subseteq \pi_{userID}(Users)$$

$$\pi_{savedimageID}(SavedImages) \subseteq \pi_{imageID}(Images)$$

$$\pi_{userID}(Posts) \subseteq \pi_{userID}(Users)$$

$$\pi_{postimageID}(Posts) \subseteq \pi_{imageID}(Images)$$

$$\pi_{posterID}(Replies) \subseteq \pi_{userID}(Users)$$

$$\pi_{postID}(Replies) \subseteq \pi_{postID}(Posts)$$

$$\pi_{replyimageID}(Replies) \subseteq \pi_{imageID}(Images)$$