

I. ER explanation:

A. User - The person that creates the chat and/or posts messages in said chat. The user is also able to create a contact list, and react to existing posts by liking or disliking them. Its attributes are:

1. uid - unique id for every user.
2. uname - compound attribute that contains the full name of the user. Composed by the first name and the last name of the user.
3. uemail - contains the email of the user which can be used for login purposes and to add contacts (since it is unique).
4. uphone - phone number of the user, since it also is unique, it can be used to add new contacts.
5. udate\_of\_birth - date of birth of the user, used to determine the age of the user.
6. uage - derived from date of birth attribute, used to make sure every user is above the specified limit age.

B. Contact list - A list owned by a unique user which contains one or more important contacts for the user. Makes creating a chat or adding people to a chat easier. Only contains one attribute:

1. lid - the unique id for a contact list.

C. Chat - Once a user has a contact list, he can create a chat with the selected contacts from his contact list. A chat is owned by the user that created it and can contain multiple users. Its attributes are:

1. cid - unique id for every chat.
2. cname - the name the admin user used to create the chat, in other words, the name every member of the chat is going to see and use to reference the chat (not unique).

D. Message - After creating a chat, the users that are members of a chat can post a message so every user in the chat can see, reply or react to their post. A message is composed by an image, a text description and an optional hashtag. A chat can contain multiple messages and multiple replies to each message. Users can send multiple messages and each message is owned by only one user (the sender). Its attribute are:

1. mid - unique id for every message.
2. mimage - the image portion of the post. Uploaded by the user.
3. mtext - text description created by the user for the image/post.

- E. Reaction - When a user sends a message in a group chat, other users can react to the post by liking or disliking it. Each message has zero or multiple likes and zero or multiple dislikes. Each reaction is performed by one unique user and a user can react to zero or multiple messages. Its attributes are:
1. rid - unique id for every reaction.
  2. like - contains a boolean variable (0 or 1), 1 indicates that the reaction was a like.
  3. dislike - contains a boolean variable (0 or 1), 1 indicates that the reaction was a dislike.
- F. Hashtag - Each post is created by a combination of the image, the description and the hashtag. The hashtag helps the system identify frequent topics so the user can see what people are talking about in the app. Each message contains zero or multiple hashtags created by the user. Its attributes are:
1. hid - unique id for every hashtag.
  2. htext - the hashtag name, created by the user.
  3. htimes\_used - keeps track of the number of times the specific hashtag ("htext") has been used.
- G. Dashboard - The dashboard helps display relevant information to the user. Here the user can look at the total messages, replies, likes, dislikes and users for a specific day, and take a look at the trending users or most used hashtags. Its attributes are:
1. did - unique id for the dashboard.
  2. date - date of the stats currently displayed in the dashboard.
  3. totals - represents the sum of all instances of x in the system during the specified date. x can be:
    - a) messages
    - b) replies
    - c) likes
    - d) dislikes
    - e) users
  4. dtrending\_users - multiple valued attribute that contains the users with most relevant posts during that date.
  5. dtrending\_hashtags - multiple valued attribute that contains the most used hashtags during that date.