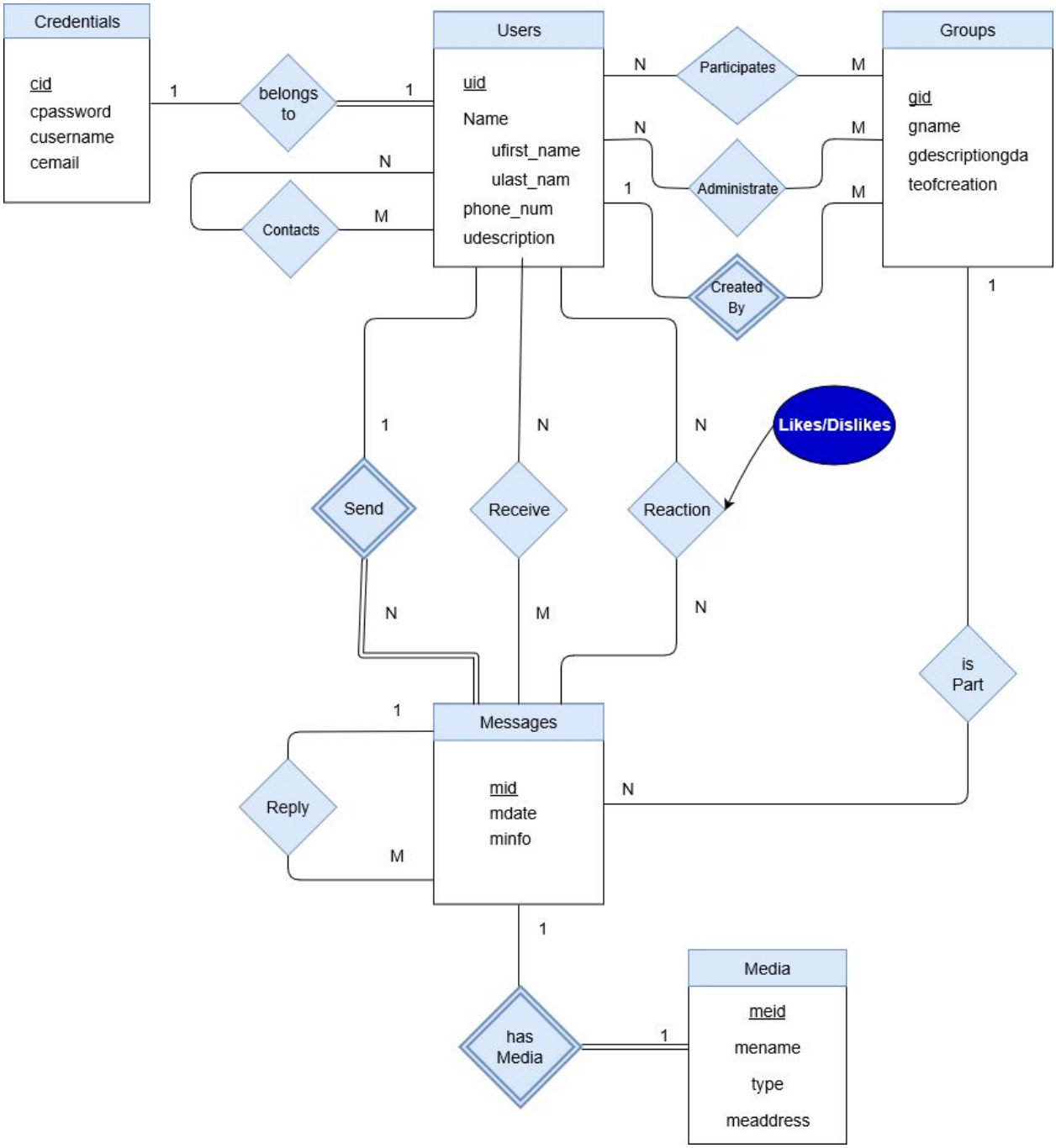
ER Diagram


Credentials
cid
cpassword
cusername
cemail
belongs to
Users
uid
Name
ufirst_name
ulast_nam
phone_num
udescription
Participates
Groups
gid
gname
gdescriptiongda
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Administrate
Contacts
Created By
Likes/Dislikes
Send
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Messages
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Media
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Explanation for ER Diagram

Users: This table contain the information for the users of the application. The people that send or receive messages. The users can also participate of groups.

Credentials: Is a table that contains the user password, username and email for each user in the User table.

Belongs To: Is a relation that relates the users with their respective credentials. Is a one to one relation since one user can have one credential and the credentials can only belong to one user.

Groups: Is a table that contains the information for all the groups in the application. It has the group's name, a short description of the group and the date when the group was created.

Participates In: This relation defines which users belong to which groups. It is a many to many relation because a group can have many members (users) and the users can participate in many groups.

Administrates: Relates the the users that can be set as administrators of a group.

Created By: This relation shows that the Group table is a weak entity since a group cannot be created without a user. Also the relation is one to many, from User to Group, because one user can create many groups, but a particular groups cannot be created by more than one person (user).

Message: This entity will contain the message and the information about the date when a message was sent and the body of the said message.

Send: This represents a one to many relationship between the User and Message entities. It is a one to many relationship because a user can send many messages,but a message can only be sent by a particular user. This relation also shows that the message entity must take total participation.

Receive: This represents a many to many relationship between the User and Message entities. It is a many to many relationship because a user can receive many messages and a message can reach many user.

Reaction: This represents a many to many relationship between the User and Message entities. It is a many to many relationship because a user can react to many messages and a message can be reacted by many user. This relation also contains the attribute of whether a message has been 'Liked' or "Disliked".

Reply: Relates the replied message to a previous message. It is many to one relation since many messages can reply to one message.

Is Part: Represents the relation of the messages in the groups and how one group can have many messages, but a particular message can only be part of one group.

Media: This entity will have the name of a particular media along with its typing that can be a video or photo. Lastly it will also contain the address of said media.

Has Media: This represents a one to one relationship between the Media and Message entities. It is a one to one relationship because a message can only have one media file at a time and media file can only be part of one particular message. This relation also shows that Media is a weak entity because a message must exist in order a Media to exist.

Contacts: This represents a many to many relationship between the Users Table. This is a many to many relation because a user may have multiple contacts and a contact could have multiple contacts itself.

ER Mapping

--Main Tables:
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Create Table Credentials(cid serial primary key, cpassword varchar(20), cusername varchar(20), cemail varchar(50));
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Create Table Users(uid serial unique, cid integer references Credentials(cid), ufirst_name varchar(20), ulast_name varchar(20), phone varchar(20), udescription varchar(100), primary key(uid,cid));
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Create Table Groups(gid serial primary key, gname varchar(50), gdescription varchar(100), gdcreation timestamp, uid integer references Users(uid));
Create Table Messages(mid serial primary key, mdate timestamp, minfo varchar(500), uid integer references Users(uid));
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Create Table Media(meid serial unique, mid integer references Messages(mid) , mename varchar(20), meaddress varchar(100), metype varchar(10),primary key(meid,mid));

--Relational Tables:
Create Table Participates(uid integer references Users(uid), gid integer references Groups(gid), primary key(uid,gid));
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Create Table Administrate(uid integer references Users(uid), gid integer references Groups(gid), primary key(uid,gid));
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Create Table Reply(mid integer references Messages(mid), rid integer references Messages(mid), primary key(mid,rid));
--
Create Table Receive(mid integer references Messages(mid), uid integer references Users(uid), primary key(uid,mid));
--
Create Table Reaction(mid integer references Messages(mid), uid integer references Users(uid), Rating varchar(20),primary key(uid,mid));
--
Create Table IsPart(mid integer references Messages(mid), gid integer references Groups(gid), primary key(gid,mid));
--
Create Table Contacts(uid integer references Users(uid), cid integer references Users(uid), primary key (cid, uid));