DBMS Project

Messaging Web App

Jaideep Guntupalli - 2020378
Rahul Singh - 2020398
Ishmeet Singh Saluja - 2020511
Kunal Shrivastva - 2020385

Scope of the Project

Messaging Web App

We plan to implement a web-based messaging app, where to log in users will be using their email-id and password. Users can chat with anyone, block someone they don't like, send and receive photos, files, and have the ability to star messages and delete messages. Users can also set their theme wallpaper, change their profile picture and update their bio. Users will also be able to form groups, assign group admins, and update group pictures, titles, and descriptions. Admins can kick group members except for the owner of the group.

Features

User Related Features

- Users can set their name, profile picture and bio.
- Users can also personalize their experience by setting a wallpaper and theme.
- Users can star and delete messages specifically for them.

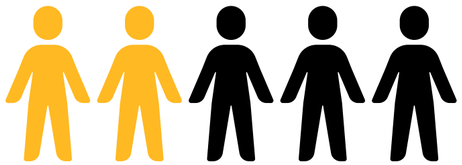
Group Features

- Groups can also personalize with a name, group pic and description.
- Group can have admins and kick people if needed except the owner.
- Read receipts are also being handled.

Misc Features

- Messages can also contain photos and files.
- Messages can also be used to reply with other messages to give context
- Users can block users that they don't like.

Identified Stakeholders



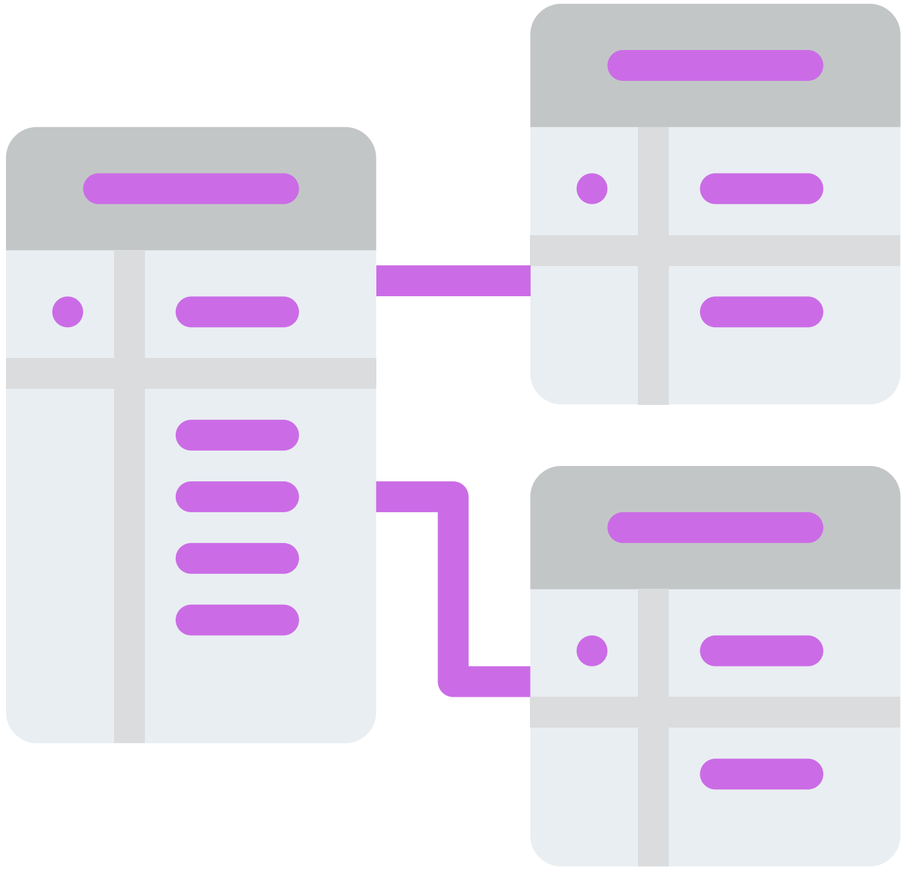
Anyone / No specific group

Anyone who wants to send messages can be identified as the stakeholder. There exists only one type of user.

Entities Defined

- User
- Message
- Group
- Chatbox
- One_to_One
- Group_Members
- Read reciepts
- Blocked_users
- Admin
- Starred_msgs
- Delete_for_me

ER Diagram



Link

Relationship Established

Link to ER Diag - link

Weak Entities

It's a type of entity that doesn't have its key attribute.
Weak Entities in our Relational Schema are:

- Read_Reciepts
- Starred_msgs
- Deleted_for_me
- Admin
- One_to_one
- Blocked_user

All the above entities are dependent upon other entities like:
'**Delete_for_me**' is dependent upon msg_id & user_id,
'**One_to_one**' id dependent upon chatbox_id & user_id,
'**Read_Reciepts**' is dependent upon msg_id & user_id,
'**Starred_msgs**' is dependent upon user_id & msg_id,
'**Deleted_for_me**' is dependent upon user_id & msg_id,
'**Admin**' dependent upon user_id & group_id.

Entity Relationship Participation & Types

Types, Relationship Roles, Constraints with Identification

Participation Type

ER diag(participation shown)

There are basically two types of participations:

1) Total Participation [Double Line]
2) Partial Participation [Single Line]

Roles

Few Identified Roles in our Relational Schema are:

- User
- Admin
- Group Member

Constraints

Constraints enforce limits to the data or type of data that can be inserted/updated/deleted from a table.
Constraints of our Relational Schema are:

- **User :** firstname, lastname, emailid, password can be updated, theme, wallpaper, profilepic, bio, can be deleted/updated.
- **Read_Reciepts : msg_id, user_id deleted, delivered_time, read_time can be update.**
- **One_to_One : user_id, chatbox_id can updated, inserted**
- **Blocked_Users : user_id can be updated, blocked_user_id can be inserted**
- **Chatbox_msg : user_id, chatbox_id can be updated, msg_can be deleted and updated and inserted can be inserted for new users**
- **Deleted_for_me : user_id, msg_id can be updated, inserted.**
- **Message : media_url, file_url, reply_msg_url can be inserted, created_at can be deleted, user_id can be updated**
- **Group_Members : group_id can be updated, user_id can be inserted and deleted**
- **Chatbox : group_id can be updated, deleted**
- **Group : name can be updated, profile_pic can be inserted, updated**
- **Admin : group_id can be updated**
- **Starred_msgs : user_id, msg_id can be updated**

Ternary Relationship

Current data and investment information

A ternary relationship is when three entities participate in the relationship.
Ternary Entities in our Relational Schema are:

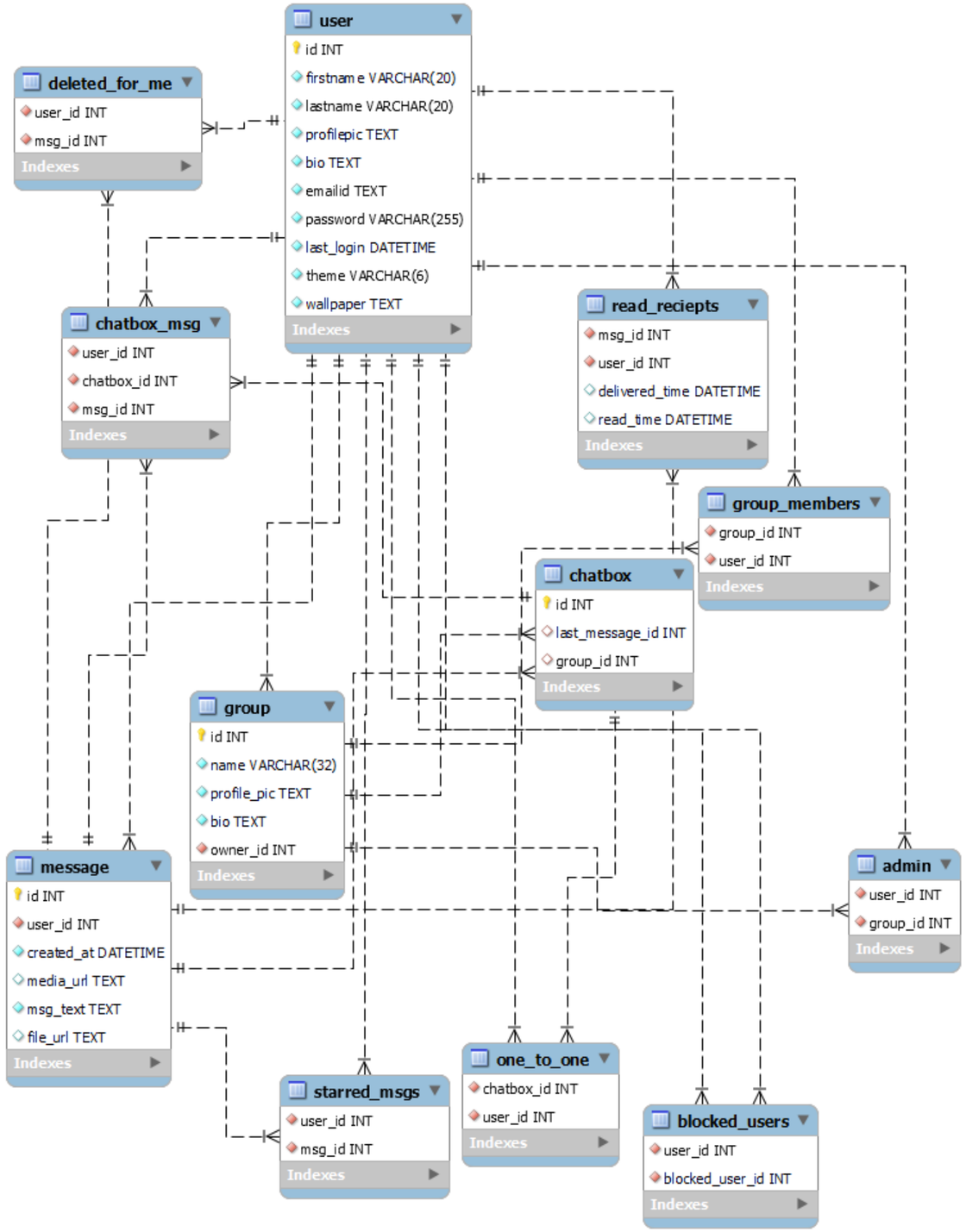
- Charbox_msg

Charbox_msg involves three entities -> user, message , and chatbox.

Relational Schema Diagram

DrawSQL Link

MySQL Link



SQL Queries (Data Population using valid constraints in DDL) & Sufficient and Valid data

LINK

Diverse set of queries to validate the schema and access features

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Thank You