One possible schema design for storing whatsapp messages in a SQL database could be as follows:-

* ‘groups’ table:

**id** (primary key, auto-incrementing)

**name** (string)

**created\_at** (datetime)

* ‘users’ table:

**id** (primary key, auto-incrementing)

**username** (string)

**Phone\_number** (string)

**created\_at** (datetime)

* ‘group\_members’ table

**group\_id** (integer, foreign key referencing groups.id)

**user\_id** (integer, foreign key referencing users.id)

**created\_at** (datetime)

* ‘messages’ table:

**id** (primary key, auto-incrementing)

**group\_id** (integer, foreign key referencing groups.id)

**sender\_id** (integer, foreign key referencing users.id)

**text** (string)

**created\_at** (datetime)

I chose to use a SQL database because it allows for the use of foreign keys and

relational integrity constraints, making it easy to enforce relationships between the

different tables and ensure data consistency. Additionally, SQL databases are widely

supported and have many tools available for querying and manipulating the data.

Algorithm to keep track of the read and delivered status of messages in the WhatsApp group chat:-

1. When a message is sent to the group, the **messages** table is updated with the

message and a **sent\_at** timestamp.

1. When a message is delivered to a user’s device, the **group\_members** table is

updated with a **delivered\_at** timestamp for that user and message.

1. When a user opens the message, the **group\_members** table is updated with a

**read\_at** timestamp for that user and message.

1. To check the delivery and read status for a particular message, the

**group\_members** table can be queried for all members of the group and their

corresponding timestamps for that message.

Alternatively, the read and delivered status can be stored within the message table

with a timestamp, this will be an efficient way to check the status of all the messages

at once.

This algorithm utilizes timestamps to track the various stages of message delivery

and reading, and makes use of the relational structure of the database to easily

query for the delivery and read status of any particular message.