IT-214: Database Management Project

Group 1.12

Model Database for Twitter

Members:

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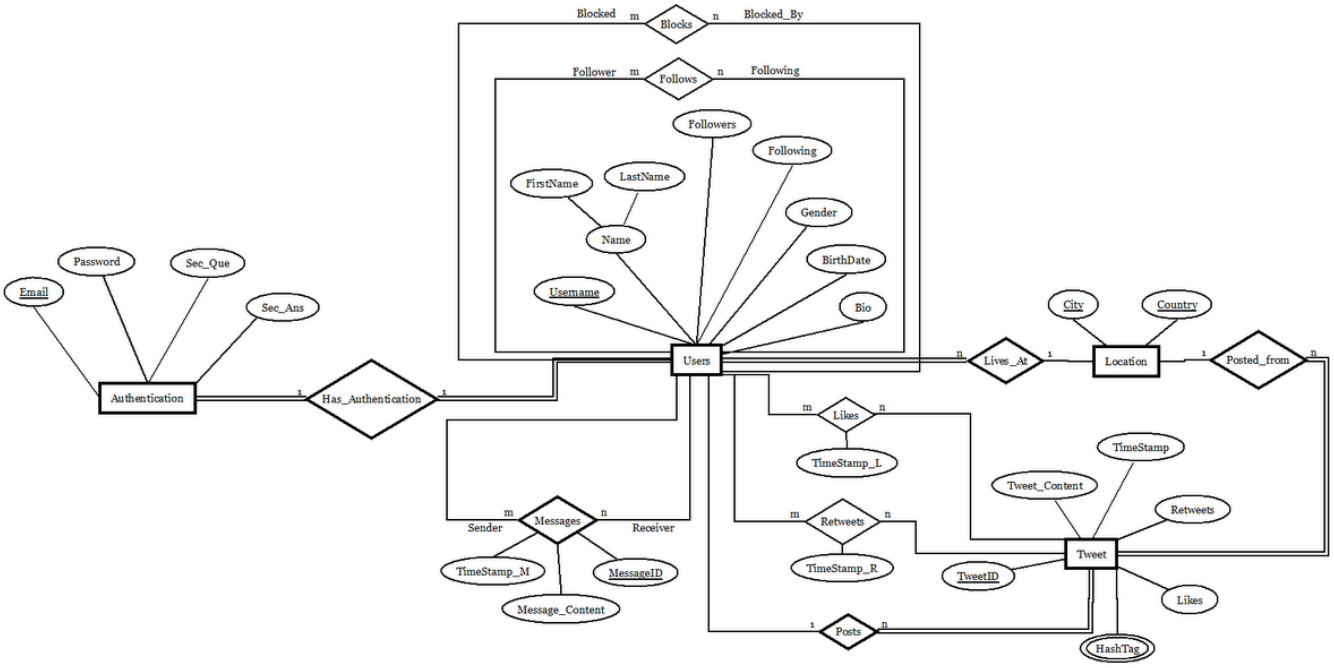
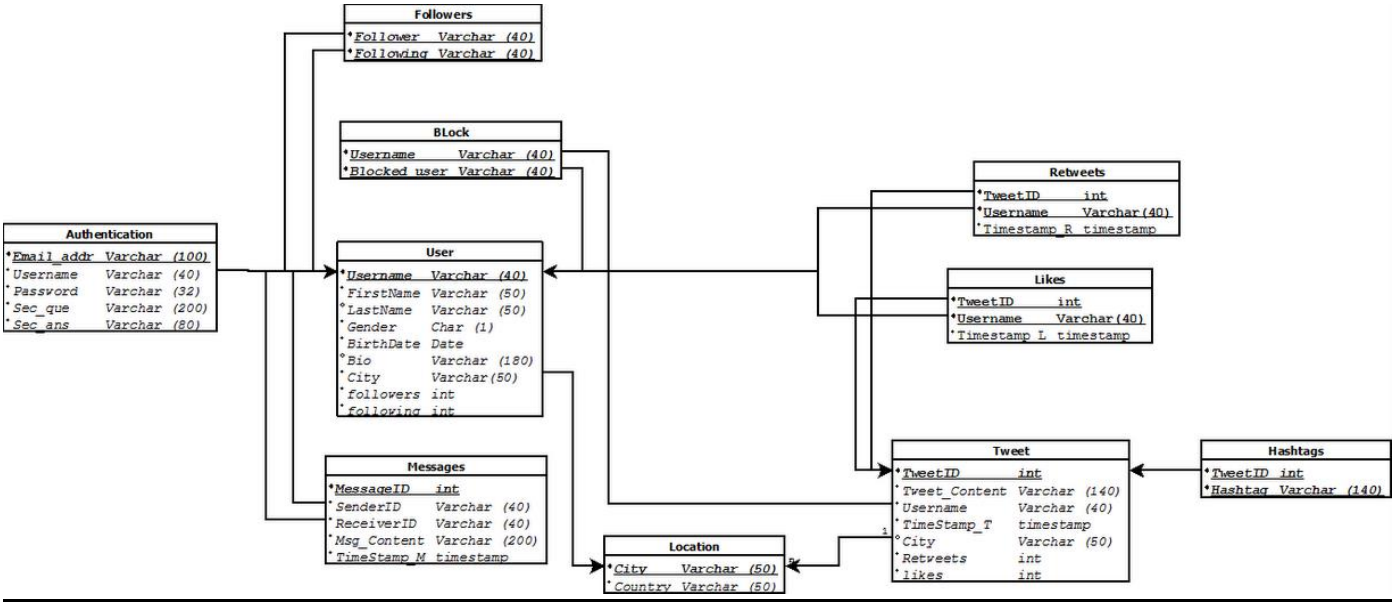
Entitiy Relationship Diagram:



Relational Schema:

User (Username, Firstname, Lastname, Gender, Birthdate, Bio, City)
Authentication (Email_addr, Username, Password, Sec_qsn, Sec_ans)
Followers (Follower, Following)
Block (Username, Blocked_user)
Messages (MessageID, SenderID, ReceiverID, Msg_Content, TimeStamp_M)
Tweet (TweetID, Tweet_Content, Username, TimeStamp_T, City)
Likes (TweetID, Liked_by, TimeStamp_L)
Retweets (TweetID, Retweeted_by, TimeStamp_R)
Hashtags (TweetID, Hashtag)
Location (CIty, Country)



Normalization Proofs:

Minimal FDs in canonical Form:

Username → { FirstName, LastName, Gender, BirthDate, Bio, City, Email_addr, Followers, Following }

Email_addr → { Username, Password, Security_que, Security_ans }

MessageID → { SenderID, ReceiverID, Msg_Content, Timestamp_M }

City → { Country }

TweetID → { Tweet_Content, Username, Timestamp_T, City,Retweets,Likes }

{ **TweetID**, **Username** (of Likes) } → Timestamp_L

{ **TweetID**, **Username** (of Retweets) } → Timestamp_R

Normal Form of each relation:

1). **User**: Username is the super-key(also key) for User.

In its FDs, left side is Super Key of relation.
Thus, **User** is in **BCNF**.

2). **Authentication**: Email_addr is the super-key(also key) for Authentication.

In its FDs, left side is Super Key of relation.
Thus, **Authentication** is in **BCNF**.

3). **Messages**: MessageId is the super-key(also key) for Messages.

In its FDs, left side is Super Key of relation.
Thus, **Messages** is in **BCNF**.

4). **Location**: City is the super-key(also key) for Location.

In its FDs, left side is Super Key of relation.
Thus, **Location** is in **BCNF**.

5). **Tweet**: TweetID is the super-key(also key) for Tweet.

In its FDs, left side is Super Key of relation.
Thus, **Tweet** is in **BCNF**.

6). **Likes**: { TweetID, Username } is the super-key(also key) for Likes.

In its FD, left side is Super Key of relation.
Thus, **Likes** is in **BCNF**.

7). **Retweets**: { TweetID, Username } is the super-key(also key) for Likes.

In its FD, left side is Super Key of relation.
Thus, **Retweets** is in **BCNF**.

8). **Followers**: { Following, Following } is the super-key(also key) for Followers.

It doesn't have any FD. It only has 2 attributes and a relation with 2 attributes is always in BCNF.
Thus, **Followers** is in **BCNF**.

9). **Block**: { Username, Blocked_User } is the super-key(also key) for Block.

It doesn’t have any FD. It only has 2 attributes and a relation with 2 attributes is always in BCNF.
Thus, **Block** is in **BCNF**.

10). **Hashtags**: { TweetID, Hashtag } is the super-key(also key) for Hashtags.

It doesn’t have any FD. It only has 2 attributes and a relation with 2 attributes is always in BCNF.
Thus, **Hashtags** is in **BCNF**.

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