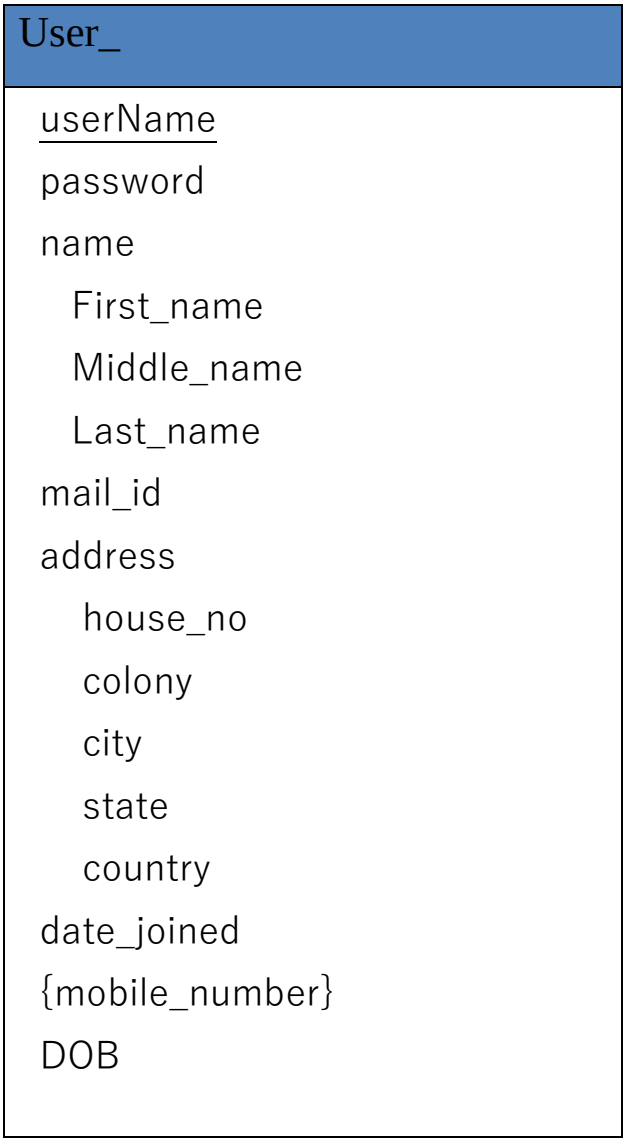
Blogging Database

By: Devendra Ghuge

The following describes a basic structure for a blogging Database. The functionality it must have are adding a user, a user being able to add a blog post, a topic on which the post is based on, which can be useful for suggesting content to users, comments and likes on a blog post, and replies to a comment, a user being able to add friends and messages between users.

Entities:

User_: This entity contains information of the users.



Blog_Post: This entity contains information related to a blog.

Blog_Post
Post_id
Title
Date_created
No_of_likes
No_of_comments

Page: This entity contains information related to pages.

Page
page_id
date_modified
content

Messages: This entity contains information about all the messages.

Messages
Message_id
Content
Date_sent
Subject

Comment_: This entity stores all the information about a comment.

Comment_
Comment_id
Date_commented
Comment_text

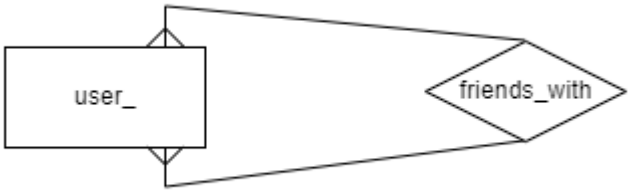
Topic: This entity stores all the different topics a blog_post can have.

Topic
Topic_name

Relationships:

Friends_with*:** It is a self-relationship with ***user_ entity. It represents the friends of a **user_**.

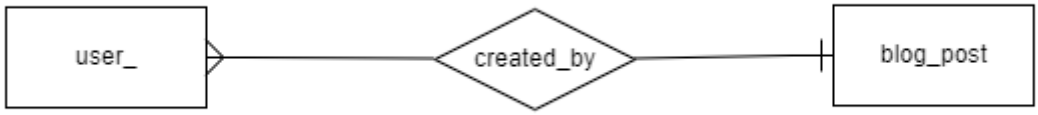
➔Cardinality : Many to Many



- As the relationship is from many to many we need a separate relation for ***friends_with*** relationship.

Created_by : It is a relationship between ***user_*** and ***blog_post***, which denotes, which ***user_*** has written which ***blog_post.***

➔Cardinality : One to Many



- As this relationship is from one to many, we combine ***created_by*** relation on the many side i.e. ***blog_post***, by including the primary key of ***user_*** (**username**)

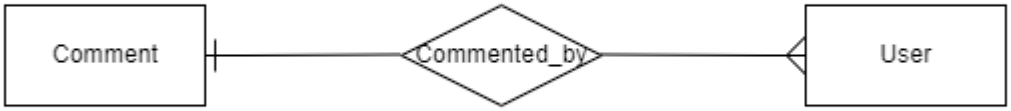
Liked_by*:** It is a relationship between ***user_ and ***blog_post*** representing which user has liked which ***blog_post***.

➔Cardinality : Many to Many

- As this relationship is from many to many we need a separate relation for the ***liked_by*** relationship.

Commented_by*:** This relationship is between ***user_ and ***comment_***. This represents which user has commented and its corresponding information.

➔Cardinality : Many to One



- As this relationship is from many to one, we combine ***commented_by*** relationship on the many side i.e. ***comment_***, by including the primary key of ***user_*** (**username**)

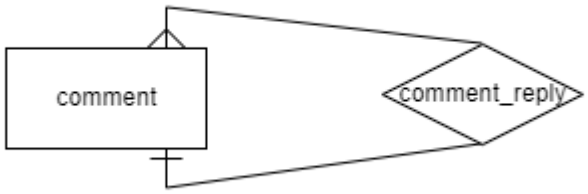
Has_comments: This relationship is between ***blog_post*** and ***comment_*** entities, representing which ***comment_*** corresponds to which ***blog_post***.

➔Cardinality : One to Many

- As this relationship is from one to many, we combine ***commented_by*** relationship on the many side i.e. ***comment_***, by including the primary key of ***blog_post*** (**postid**).

Comment_reply*:** This is a self-relationship with ***comment_ entity. This represents which **reply_comment** corresponds to which **parent_comment**.

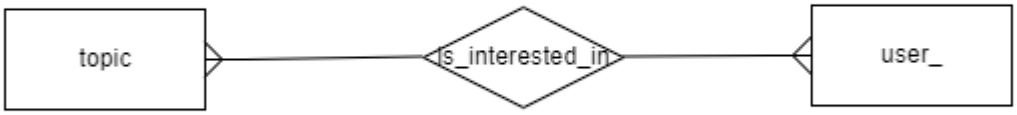
➔Cardinality : One to Many



- As a **reply_comment** is on the one side of the relation, we could include **parent_comment** , which is on the many side, to make one relation **comment_reply**, with a primary key **(reply_comment).**

Is_intrested_in: This is a relationship between ***user_*** and ***topic***. It specifies the topics that a user is interested in.

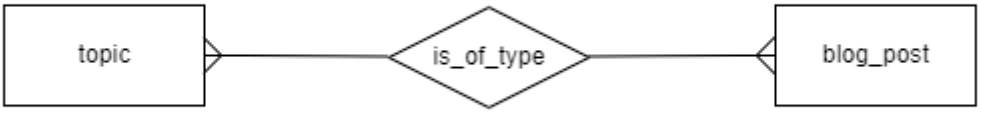
➔Cardinality : Many to Many



- As this is a many to many relationship we need a separate relation for ***is_interested_in*** relationship.

Is_of_type: This is a relationship between ***blog_post*** and ***topic***. This specifies what type of content a blog contains.

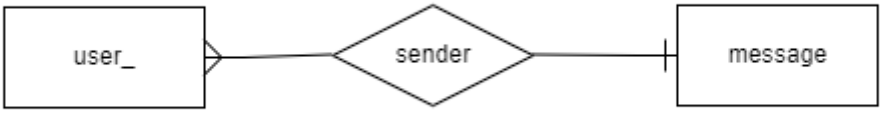
➔Cardinality : Many to Many



- As this is a many to many relationship we need a separate relation for ***Is_of_type*** relationship.

Sender: It is a relationship between ***messages*** and ***user_***. It specifies which user has sent which message.

➔Cardinality : One to Many



- As this relation is from one to many, we combine ***sender*** relation on the many side i.e. ***messages***, by including the primary key of ***user_*** (**username**)

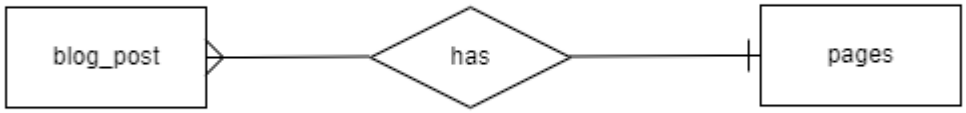
Receiver: It is also a relationship between ***messages*** and ***user_***. It specifies which user has received which message.

➔Cardinality : Many to Many

- As this is a many to many relationship we need a separate relation for ***Receiver*** relationship.

Post_has_pages: This relationship is between ***blog_ post*** and ***pages***. It signifies which ***post*** corresponds to which ***page***.

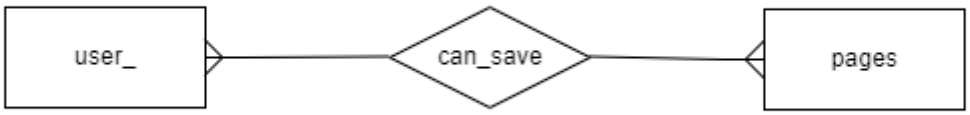
➔Cardinality : One to Many



- As this relationship is from one to many, we combine ***blog_post_has_pages*** relationship on the many side i.e. ***pages***, by including the primary key of ***blog_post*** (**postid**).

Can_save: This is a relationship between ***pages*** and ***user_.*** It denotes which ***user_*** has saved which ***pages.***

➔Cardinality : Many to Many



- As this is a many to many relationship we need a separate relation for ***can_save*** relationship.

Assumptions taken while making the ER Model:

- A ***user_*** has different attributes associated with it which give us personal details of the user such as **username**, **address**, etc.

- A ***user_*** can send ***messages*** to one or more than one ***user_***.

- A ***user_*** can have ***friends***.

- A ***user_*** can post a ***blog post*** with some **title** related to one or more ***topics***.

- A ***user_*** can **save** his/her favourite **pages** of a blog post so that he/she can access it in the future when required.

- A ***user_, is_interested_in*** different ***topics*** according to which he gets recommendation of ***blog posts***.

- A ***blog post*** has many pages that consist of **content** about the ***topic***.

- A ***blog post*** has one or more ***topics*** associated with it.

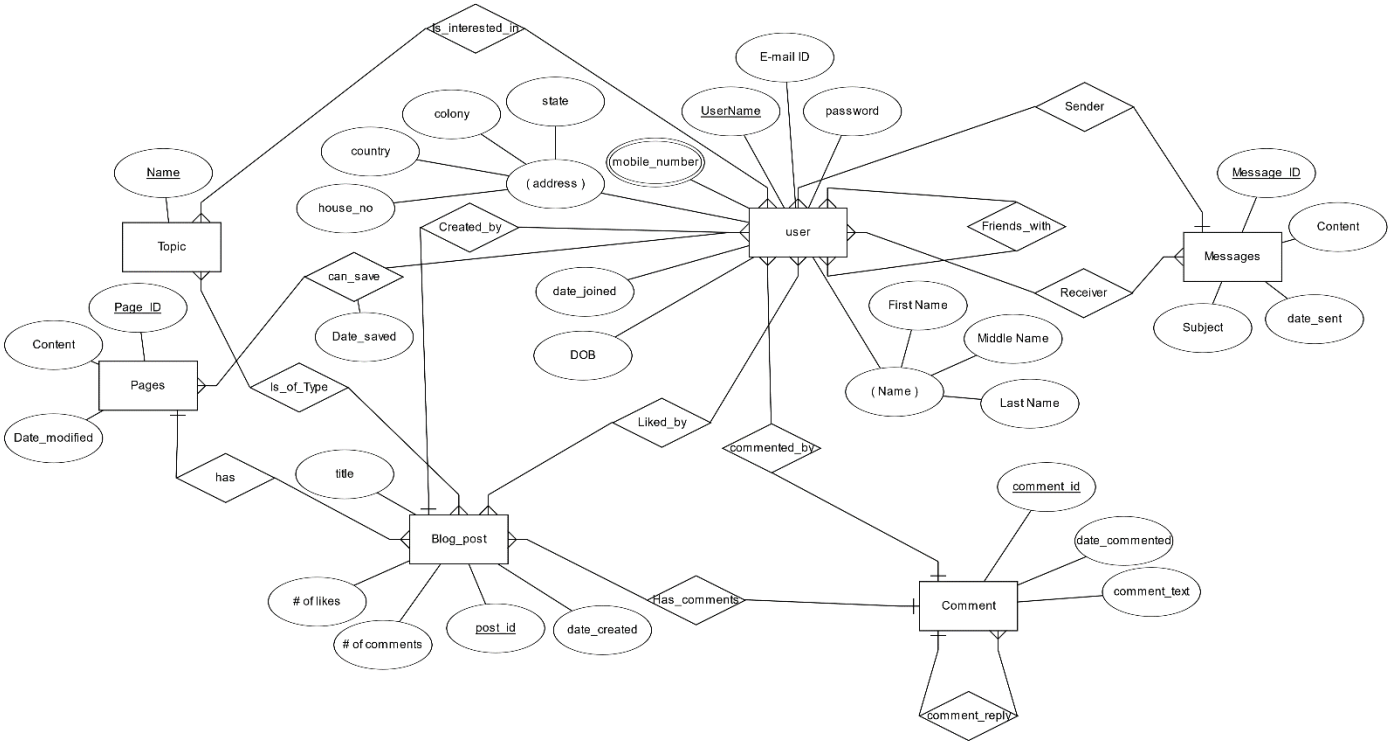
- A ***blog post*** can be ***liked by*** a ***user_***

- A ***blog post*** can have a ***comment_*** posted by ***user_***

- A ***comment_*** can also have a ***reply***

- By default **number of comments** and **number of likes** are set to 0, in ***blog_post.***

ER-Diagram:


Is_interested_in
E-mail ID
colony
state
UserName
password
Sender
country
(mobile_number)
Name
(address)
Message_ID
house_no
Created_by
user
Friends_with
Content
Topic
Messages
can_save
date_joined
Receiver
Page_ID
First Name
Date_saved
Subject
date_sent
Content
DOB
Middle Name
Pages
Is_of_Type
(Name)
Last Name
Liked_by
Date_modified
commented_by
has
title
comment_id
Blog_post
date_commented
# of likes
Has_comments
Comment
comment_text
# of comments
post_id
date_created
comment_reply

Normalisation applied to ER Model:

USER_:

- To store multiple values of **mobile** attribute, we make separate tuples which brings our relation into **1 NF**.
  - {username, mobile} →{ emailid,password,firstname,lastname,middlename,DOB,date_joined,hno,colony,pincode,state,country },
  - {username} → { emailid,password,firstname,lastname,middlename,DOB,date_joined,hno,colony,pincode,state,country}
- Here we have a partial dependency so we need to split the above relation into two relations → (***user*** , ***user_mobile***)
- Separate ***user_mobile*** relation was made, making it into **2NF.**
- **City**,**State** and **Country** of each user can be determined by the **pincode**, So to reduce the repeating/redundant values in the user table ,it was decomposed into another relation ***area*** with primary key **pincode**.
  - {username} → { emailid, password, firstname, lastname, middlename,DOB,date_joined,hno,colony,pincode}
  - {pincode}→{country,state}

- **FDs:**
  - {username}→{emailid,password,firstname,lastname,middlename, DOB,date_joined,hno,colony,pincode}
  - **{username}** determines each record uniquely**,** therefore **username is the primary key of *user_***
  - {pincode} → {state,country}
  - **{pincode}** determines each record uniquely, therefore **pincode is the primary key of *area***
  - **{username,mobile}** both uniquely determine each record hence the **combination of** username and mobile **acts as the primary key for *user_mobile***
- The relation ***user_*** is in **BCNF**.
- The relation ***user_mobile*** is in **BCNF**.
- The relation ***area*** is in **BCNF**.

FRIENDS_WITH:

- **{user1_username,user2_username}** both uniquely determine each record hence the **combination of** user1_username,user2_username **acts as the primay key for *friends_with.***
- The relation ***friends_with*** is in **BCNF.**

BLOG_POST:

- **FD:**
  - {postid}→{title,num_likes,num_comments,date_created,username}
  - **{postid}** uniquely determine each record, hence the **postid acts as the primary key for *blog_post.***
- The relation ***blog_post*** is in **BCNF.**

PAGE:

- **FD:**
  - **{**pageid}→{content,date_modified,postid}
  - **{pageid}** uniquely determine each record hence the **pageid acts as the primary key for *page.***
- The relation ***page*** is in **BCNF.**

LIKED_BY:

- Both **{postid,username}** uniquely determine each record hence **{postid,username} acts as the primary key for *liked_by*.**
- The relation ***liked_by*** is in **BCNF.**

COMMENT_:

- **FD:**
  - {commentid}→{comment_text,date_commented,username}
  - **{commentid}** uniquely determine each record hence the **commentid acts as the primary key for *comment_*.**
- The relation ***comment_*** is in **BCNF.**

MESSAGES:

- **FD:**
  - {messageid}→{subject,content,sender_username,date_sent}
  - **{ messageid }** uniquely determine each record hence the **messageid acts as the primary key for *messages.***
- The relation ***messages*** is in **BCNF.**

SAVED_PAGE:

- Each user can save many pages.
- **{pageid,username}** both uniquely determine each record hence the **combination of pageid,username acts as the primary key for *saved_page.***
- The relation ***saved_page*** is in **BCNF.**

HAS_COMMENTS:

- **FD:**
  - {commentid}→{postid}
  - {commentid} uniquely determines each record hence **{ commentid } acts as the primary key for *has_comments*.**
- The relation ***has_comments*** is in **BCNF.**

COMMENT_REPLY:

- {reply_commentid}→{parent_commentid}
- {reply_commentid} uniquely determines each record hence **{reply_commentid} acts as the primary key for *comment_reply*.**
- The relation ***comment_reply*** is in **BCNF**

RECIEVER:

- **{message_id, receiver_username}** both uniquely determine each record hence the combination of **message_id, receiver_username acts as the primary key for *receiver.***
- The relation ***receiver*** is in **BCNF.**

TOPIC:

- **As topic_name** is the only attribute, **topic_name acts as the primary key for *topic*.**
- The relation ***topic*** is in **BCNF.**

Is_of_type:

- **{post_id, username}** both uniquely determine each record hence the combination of **post_id, username acts as the primary key for *is_of_type.***
- The relation ***is_of_type*** is in **BCNF.**

Is_interested_in:

- {topic_name, username} both uniquely determine each record hence the combination of **topic_name**, username **acts as the primary key for *is_interested_in*.**
- The relation ***is_interested_in*** is in **BCNF.**

Tables:

(creation)

```
create table area(
    pincode int not null primary key,
    state varchar2(20),
    country varchar2(20)
);

create table user_(
    username varchar2(20) not null primary key,
    emailid varchar2(30),
    password varchar2(20),
    firstname varchar2(20),
    middlename varchar2(20),
    lastname varchar2(20),
    DOB date,
    date_joined date,
    hno varchar2(20),
    colony varchar2(20),
    pincode int,
    foreign key (pincode) references area(pincode)
);

create table user_mobile(
    username varchar2(20),
    mobile int,
    primary key (username,mobile),
    foreign key (username) references user_(username)
);

create table friends_with(
    user1_username varchar2(20),
    user2_username varchar2(20),
    primary key (user1_username,user2_username),
    foreign key (user1_username) references user_(username),
    foreign key (user2_username) references user_(username)
);

create table blog_post(
    postid int,
    username varchar2(20),
    title varchar2(20),
    num_likes int default 0,
    num_comments int default 0,
    date_created date,
    primary key (postid),
    foreign key (username) references user_(username)
);

create table Page(
    pageid int,
    postid int,
    content varchar2(50),
    date_modified date,
    primary key (pageid),
    foreign key (postid) references blog_post(postid)
);

create table saved_page(
    username varchar2(20),
    pageid int,
```

```
    primary key (username,pageid),
    foreign key (username) references user_(username),
    foreign key (pageid) references page(pageid)
);

create table liked_by(
    postid int,
    username varchar2(20),
    primary key (postid,username),
    foreign key (postid) references blog_post(postid),
    foreign key (username) references user_(username)
);

create table comment_(
    commentid int,
    username varchar2(20),
    date_commented date,
    comment_text varchar2(50),
    primary key (commentid),
    foreign key (username) references user_(username)
);


create table has_comments(
    postid int,
    commentid int,
    primary key(commentid),
    foreign key (postid) references blog_post(postid),
    foreign key (commentid) references comment_(commentid)
);

create table comment_reply(
    parent_commentid int,
    reply_commentid int,
    primary key (reply_commentid),
    foreign key (parent_commentid) references comment_(commentid),
    foreign key (reply_commentid) references comment_(commentid)
);

create table messages(
    message_ID number,
    sender_username varchar2(20),
    subject varchar2(100),
    content varchar2(200),
    date_sent date,
    primary key (message_ID),
    foreign key (sender_username) references user_(username)
);

create table receiver
(
    receiver_username varchar2(20),
    message_ID number,
    primary key (message_ID, receiver_username),
    foreign key (receiver_username) references user_(username),
    foreign key (message_ID) references messages(message_ID)
);

create table topic(
    topic_name varchar2(20) primary key
);

create table is_of_type(
```

```
    postid int,
    topic_name varchar2(20),
    primary key (postid,topic_name),
    foreign key (postid) references blog_post(postid),
    foreign key (topic_name) references topic(topic_name)
);

create table is_interested_in
(
    username varchar2(20),
    topic_name varchar2(20),
    primary key (username, topic_name),
    foreign key (username) references user_(username),
    foreign key (topic_name) references topic(topic_name)
);
```

Triggers

```
create or replace trigger update_like1 after insert on
liked_by for each row
begin
        update blog_post
        set num_likes = num_likes + 1
        where postid = :new.postid;
end;
/
create or replace trigger update_like2 after delete on
liked_by for each row
begin
        update blog_post
        set num_likes = num_likes - 1
        where postid = :old.postid;
end;
/
create or replace trigger update_comment1 after insert on
has_comments for each row
begin
        update blog_post
        set num_comments = num_comments + 1
        where postid = :new.postid;
end;
/
create or replace trigger update_comment2 after delete on
has_comments for each row
begin
        update blog_post
        set num_comments = num_comments - 1
        where postid = :old.postid;
end;
/
```

Sample Data insertion

```
insert into  area (pincode,state,country) values(583111,'Karnataka','India');
insert into  area (pincode,state,country) values(533406,'Andhra Pradesh','India');
insert into  area (pincode,state,country) values(799290,'Tripura','India');
insert into  area (pincode,state,country) values(465679,'Madhya Pradesh','India');
insert into  area (pincode,state,country) values(481996,'Madhya Pradesh','India');
insert into  area (pincode,state,country) values(796470,'Mizoram','India');
insert into  area (pincode,state,country) values(125050,'Haryana','India');
insert into  area (pincode,state,country) values(561204,'Karnataka','India');
insert into  area (pincode,state,country) values(335504,'Rajasthan','India');
insert into  area (pincode,state,country) values(811102,'Bihar','India');

insert into  user_
(username,emailid,password,firstname,middlename,lastname,DOB,date_joined,hno,colony,pin
code)
values('Anne','Anne@dbms.com','AC12GICBHNRX','Anne','Kristine','Ramos',to_date('21-Aug-
1995'),to_date('15-Mar-2018'),'1-2-3/4/10A','ShriNagar',125050);
insert into  user_
(username,emailid,password,firstname,middlename,lastname,DOB,date_joined,hno,colony,pin
code)
values('Joel','Joel@dbms.com','HGMKKQVAW00UBW','Joel','Candace','Gray',to_date('6-Aug-
1995'),to_date('29-Aug-2017'),'1-5-8-7/10B','Saifabad',811102);
insert into  user_
(username,emailid,password,firstname,middlename,lastname,DOB,date_joined,hno,colony,pin
code)
values('Derek','Derek@dbms.com','6DJFSD0E7','Derek','Josephine','Rodriquez',to_date('27
-Oct-1980'),to_date('6-Feb-2021'),'1-9-8-7/10C','Jupiter',583111);
insert into  user_
(username,emailid,password,firstname,middlename,lastname,DOB,date_joined,hno,colony,pin
code)
values('Jimmie','Jimmie@dbms.com','MVQNO0SWG28ZK','Jimmie','Rosemary','Grant',to_date('
15-Mar-1980'),to_date('5-Dec-2016'),'4-5-7/4A','Saturn',481996);
insert into  user_
(username,emailid,password,firstname,middlename,lastname,DOB,date_joined,hno,colony,pin
code)
values('Krystal','Krystal@dbms.com','9LRK9SBMZAV','Krystal','Stephen','Cruz',to_date('2
4-Dec-1991'),to_date('5-Aug-2020'),'7-5-6/2C','Uranus',796470);
insert into  user_
(username,emailid,password,firstname,middlename,lastname,DOB,date_joined,hno,colony,pin
code)
values('Tammy','Tammy@dbms.com','1YJ9NCSQIX','Tammy','Reginald','Cummings',to_date('20-
Nov-1991'),to_date('6-May-2018'),'3-7-8-/5A','Mercury',561204);
insert into  user_
(username,emailid,password,firstname,middlename,lastname,DOB,date_joined,hno,colony,pin
code)
values('Allison','Allison@dbms.com','YFAP4SCF9M0Y6','Allison','Fannie','Cross',to_date(
'26-Jan-1984'),to_date('19-Jun-2015'),'4-2-5-7/10D','Earth',335504);
insert into  user_
(username,emailid,password,firstname,middlename,lastname,DOB,date_joined,hno,colony,pin
code)
values('Andres','Andres@dbms.com','GKJRZZJ1','Andres','Suzanne','George',to_date('13-
Jan-1980'),to_date('2-May-2018'),'7-2-8-6-1/10A','Mars',533406);
insert into  user_
(username,emailid,password,firstname,middlename,lastname,DOB,date_joined,hno,colony,pin
code)
values('Lynn','Lynn@dbms.com','5CAKZ5VOSX91312M','Lynn','Raymond','Holloway',to_date('3
0-Sep-1992'),to_date('4-May-2020'),'8-5-4/9A','Moon',465679);
insert into  user_
(username,emailid,password,firstname,middlename,lastname,DOB,date_joined,hno,colony,pin
code)
values('Roy','Roy@dbms.com','8JDFU27JHOMBXTBY','Roy','Katherine','Bryant',to_date('7-
Apr-1995'),to_date('25-Dec-2020'),'9-3-4/6E','Sun',799290);
```

```
insert into  user_mobile (username,mobile) values('Tammy',5661930181);
insert into  user_mobile (username,mobile) values('Krystal',2631916006);
insert into  user_mobile (username,mobile) values('Lynn',8672548883);
insert into  user_mobile (username,mobile) values('Anne',4374653704);
insert into  user_mobile (username,mobile) values('Joel',4590903440);
insert into  user_mobile (username,mobile) values('Derek',2593173617);
insert into  user_mobile (username,mobile) values('Allison',1893578956);
insert into  user_mobile (username,mobile) values('Andres',9036729414);
insert into  user_mobile (username,mobile) values('Roy',9257402792);
insert into  user_mobile (username,mobile) values('Jimmie',5333869307);

insert into  friends_with (user1_username,user2_username) values('Derek','Jimmie');
insert into  friends_with (user1_username,user2_username) values('Jimmie','Andres');
insert into  friends_with (user1_username,user2_username) values('Tammy','Tammy');
insert into  friends_with (user1_username,user2_username) values('Krystal','Roy');
insert into  friends_with (user1_username,user2_username) values('Allison','Allison');
insert into  friends_with (user1_username,user2_username) values('Joel','Derek');
insert into  friends_with (user1_username,user2_username) values('Lynn','Joel');
insert into  friends_with (user1_username,user2_username) values('Roy','Lynn');
insert into  friends_with (user1_username,user2_username) values('Anne','Krystal');
insert into  friends_with (user1_username,user2_username) values('Andres','Anne');

insert into  blog_post (postid,username,title,date_created) values(3000,'Anne','Blog
title 1',to_date('2-Mar-2020'));
insert into  blog_post (postid,username,title,date_created) values(3001,'Joel','Blog
title 2',to_date('12-Apr-2016'));
insert into  blog_post (postid,username,title,date_created) values(3002,'Krystal','Blog
title 3',to_date('4-Jun-2017'));
insert into  blog_post (postid,username,title,date_created) values(3003,'Allison','Blog
title 4',to_date('16-Sep-2020'));
insert into  blog_post (postid,username,title,date_created) values(3004,'Tammy','Blog
title 5',to_date('24-Sep-2017'));
insert into  blog_post (postid,username,title,date_created) values(3005,'Lynn','Blog
title 1',to_date('27-Feb-2021'));
insert into  blog_post (postid,username,title,date_created) values(3006,'Jimmie','Blog
title 2',to_date('17-Feb-2017'));
insert into  blog_post (postid,username,title,date_created) values(3007,'Derek','Blog
title 3',to_date('7-Jul-2018'));
insert into  blog_post (postid,username,title,date_created) values(3008,'Andres','Blog
title 4',to_date('12-Nov-2015'));
insert into  blog_post (postid,username,title,date_created) values(3009,'Roy','Blog
title 5',to_date('4-Dec-2019'));

insert into  Page (pageid,postid,content,date_modified) values(2000,3001,'This is test
pagecontent1',to_date('28-Dec-2015'));
insert into  Page (pageid,postid,content,date_modified) values(2001,3004,'This is test
pagecontent2',to_date('26-Jul-2020'));
insert into  Page (pageid,postid,content,date_modified) values(2002,3008,'This is test
pagecontent3',to_date('5-Sep-2021'));
insert into  Page (pageid,postid,content,date_modified) values(2003,3009,'This is test
pagecontent4',to_date('24-Jun-2019'));
insert into  Page (pageid,postid,content,date_modified) values(2004,3003,'This is test
pagecontent5',to_date('26-Feb-2017'));
insert into  Page (pageid,postid,content,date_modified) values(2005,3007,'This is test
pagecontent1',to_date('22-Oct-2015'));
insert into  Page (pageid,postid,content,date_modified) values(2006,3000,'This is test
pagecontent2',to_date('28-Apr-2017'));
insert into  Page (pageid,postid,content,date_modified) values(2007,3006,'This is test
pagecontent3',to_date('23-Dec-2016'));
insert into  Page (pageid,postid,content,date_modified) values(2008,3005,'This is test
pagecontent4',to_date('5-Aug-2021'));
insert into  Page (pageid,postid,content,date_modified) values(2009,3002,'This is test
```

```
pagecontent5',to_date('30-Dec-2015'));

insert into  saved_page (username,pageid) values('Jimmie',2009);
insert into  saved_page (username,pageid) values('Andres',2003);
insert into  saved_page (username,pageid) values('Joel',2004);
insert into  saved_page (username,pageid) values('Allison',2008);
insert into  saved_page (username,pageid) values('Tammy',2002);
insert into  saved_page (username,pageid) values('Lynn',2006);
insert into  saved_page (username,pageid) values('Anne',2005);
insert into  saved_page (username,pageid) values('Krystal',2001);
insert into  saved_page (username,pageid) values('Derek',2000);
insert into  saved_page (username,pageid) values('Roy',2007);


insert into  liked_by (postid,username) values(3005,'Tammy');
insert into  liked_by (postid,username) values(3007,'Andres');
insert into  liked_by (postid,username) values(3002,'Anne');
insert into  liked_by (postid,username) values(3006,'Derek');
insert into  liked_by (postid,username) values(3008,'Lynn');
insert into  liked_by (postid,username) values(3003,'Jimmie');
insert into  liked_by (postid,username) values(3001,'Krystal');
insert into  liked_by (postid,username) values(3009,'Roy');
insert into  liked_by (postid,username) values(3004,'Allison');
insert into  liked_by (postid,username) values(3000,'Joel');

insert into  comment_ (commentid,username,date_commented,comment_text)
values(5000,'Joel',to_date('8-May-2020'),'This is comment text 1');
insert into  comment_ (commentid,username,date_commented,comment_text)
values(5001,'Derek',to_date('23-May-2021'),'This is comment text 2');
insert into  comment_ (commentid,username,date_commented,comment_text)
values(5002,'Tammy',to_date('23-Sep-2019'),'This is comment text 3');
insert into  comment_ (commentid,username,date_commented,comment_text)
values(5003,'Jimmie',to_date('16-Apr-2016'),'This is comment text 4');
insert into  comment_ (commentid,username,date_commented,comment_text)
values(5004,'Allison',to_date('23-Nov-2017'),'This is comment text 5');
insert into  comment_ (commentid,username,date_commented,comment_text)
values(5005,'Anne',to_date('15-Mar-2016'),'This is comment text 6');
insert into  comment_ (commentid,username,date_commented,comment_text)
values(5006,'Andres',to_date('12-Nov-2017'),'This is comment text 7');
insert into  comment_ (commentid,username,date_commented,comment_text)
values(5007,'Roy',to_date('17-Mar-2017'),'This is comment text 8');
insert into  comment_ (commentid,username,date_commented,comment_text)
values(5008,'Krystal',to_date('12-Sep-2019'),'This is comment text 9');
insert into  comment_ (commentid,username,date_commented,comment_text)
values(5009,'Lynn',to_date('30-Nov-2018'),'This is comment text 10');

insert into  has_comments (postid,commentid) values(3006,5002);
insert into  has_comments (postid,commentid) values(3002,5001);
insert into  has_comments (postid,commentid) values(3009,5003);
insert into  has_comments (postid,commentid) values(3004,5004);
insert into  has_comments (postid,commentid) values(3005,5000);

insert into  comment_reply (parent_commentid,reply_commentid) values(5002,5005);
insert into  comment_reply (parent_commentid,reply_commentid) values(5004,5006);
insert into  comment_reply (parent_commentid,reply_commentid) values(5005,5008);
insert into  comment_reply (parent_commentid,reply_commentid) values(5003,5009);
insert into  comment_reply (parent_commentid,reply_commentid) values(5009,5007);

insert into  messages (message_ID,sender_username,subject,content,date_sent)
values(4000,'Lynn','Meet with you','This is test Message content 1',to_date('23-Aug-
2016'));
insert into  messages (message_ID,sender_username,subject,content,date_sent)
values(4001,'Jimmie','How did you do this?','This is test Message content
```

```
2',to_date('20-May-2017'));
insert into  messages (message_ID,sender_username,subject,content,date_sent)
values(4002,'Tammy','I would like to collobrate','This is test Message content
3',to_date('21-Mar-2017'));
insert into  messages (message_ID,sender_username,subject,content,date_sent)
values(4003,'Krystal','Wanna meet after COVID','This is test Message content
4',to_date('27-Oct-2016'));
insert into  messages (message_ID,sender_username,subject,content,date_sent)
values(4004,'Allison','Come to park','This is test Message content 5',to_date('24-Jun-
2016'));
insert into  messages (message_ID,sender_username,subject,content,date_sent)
values(4005,'Andres','Meet with you','This is test Message content 1',to_date('23-Aug-
2016'));
insert into  messages (message_ID,sender_username,subject,content,date_sent)
values(4006,'Derek','How did you do this?','This is test Message content
2',to_date('20-May-2017'));
insert into  messages (message_ID,sender_username,subject,content,date_sent)
values(4007,'Anne','I would like to collobrate','This is test Message content
3',to_date('21-Mar-2017'));
insert into  messages (message_ID,sender_username,subject,content,date_sent)
values(4008,'Joel','Wanna meet after COVID','This is test Message content
4',to_date('27-Oct-2016'));
insert into  messages (message_ID,sender_username,subject,content,date_sent)
values(4009,'Roy','Come to park','This is test Message content 5',to_date('24-Jun-
2016'));

insert into  receiver (receiver_username,message_ID) values('Tammy',4005);
insert into  receiver (receiver_username,message_ID) values('Jimmie',4009);
insert into  receiver (receiver_username,message_ID) values('Derek',4008);
insert into  receiver (receiver_username,message_ID) values('Allison',4007);
insert into  receiver (receiver_username,message_ID) values('Joel',4004);
insert into  receiver (receiver_username,message_ID) values('Krystal',4001);
insert into  receiver (receiver_username,message_ID) values('Andres',4006);
insert into  receiver (receiver_username,message_ID) values('Roy',4002);
insert into  receiver (receiver_username,message_ID) values('Anne',4000);
insert into  receiver (receiver_username,message_ID) values('Lynn',4003);

insert into  topic (topic_name) values('Technology');
insert into  topic (topic_name) values('Science');
insert into  topic (topic_name) values('Education');
insert into  topic (topic_name) values('Music');
insert into  topic (topic_name) values('Art');
insert into  topic (topic_name) values('Creative Writing');
insert into  topic (topic_name) values('Astronomy');
insert into  topic (topic_name) values('Photography');
insert into  topic (topic_name) values('Video Editing');
insert into  topic (topic_name) values('Programming');


insert into  is_of_type (postid,topic_name) values(3005,'Science');
insert into  is_of_type (postid,topic_name) values(3009,'Video Editing');
insert into  is_of_type (postid,topic_name) values(3004,'Music');
insert into  is_of_type (postid,topic_name) values(3008,'Astronomy');
insert into  is_of_type (postid,topic_name) values(3001,'Photography');
insert into  is_of_type (postid,topic_name) values(3006,'Creative Writing');
insert into  is_of_type (postid,topic_name) values(3002,'Programming');
insert into  is_of_type (postid,topic_name) values(3007,'Education');
insert into  is_of_type (postid,topic_name) values(3000,'Art');
insert into  is_of_type (postid,topic_name) values(3003,'Technology');

insert into  is_interested_in (username,topic_name) values('Roy','Photography');
insert into  is_interested_in (username,topic_name) values('Allison','Education');
insert into  is_interested_in (username,topic_name) values('Andres','Astronomy');
```

```
insert into  is_interested_in (username,topic_name) values('Jimmie','Video Editing');
insert into  is_interested_in (username,topic_name) values('Anne','Programming');
insert into  is_interested_in (username,topic_name) values('Krystal','Art');
insert into  is_interested_in (username,topic_name) values('Tammy','Technology');
insert into  is_interested_in (username,topic_name) values('Derek','Music');
insert into  is_interested_in (username,topic_name) values('Lynn','Creative Writing');
insert into  is_interested_in (username,topic_name) values('Joel','Science');
```