CS353-Database Systems

Project Design Report

Social Network for Check-ins

Group 31

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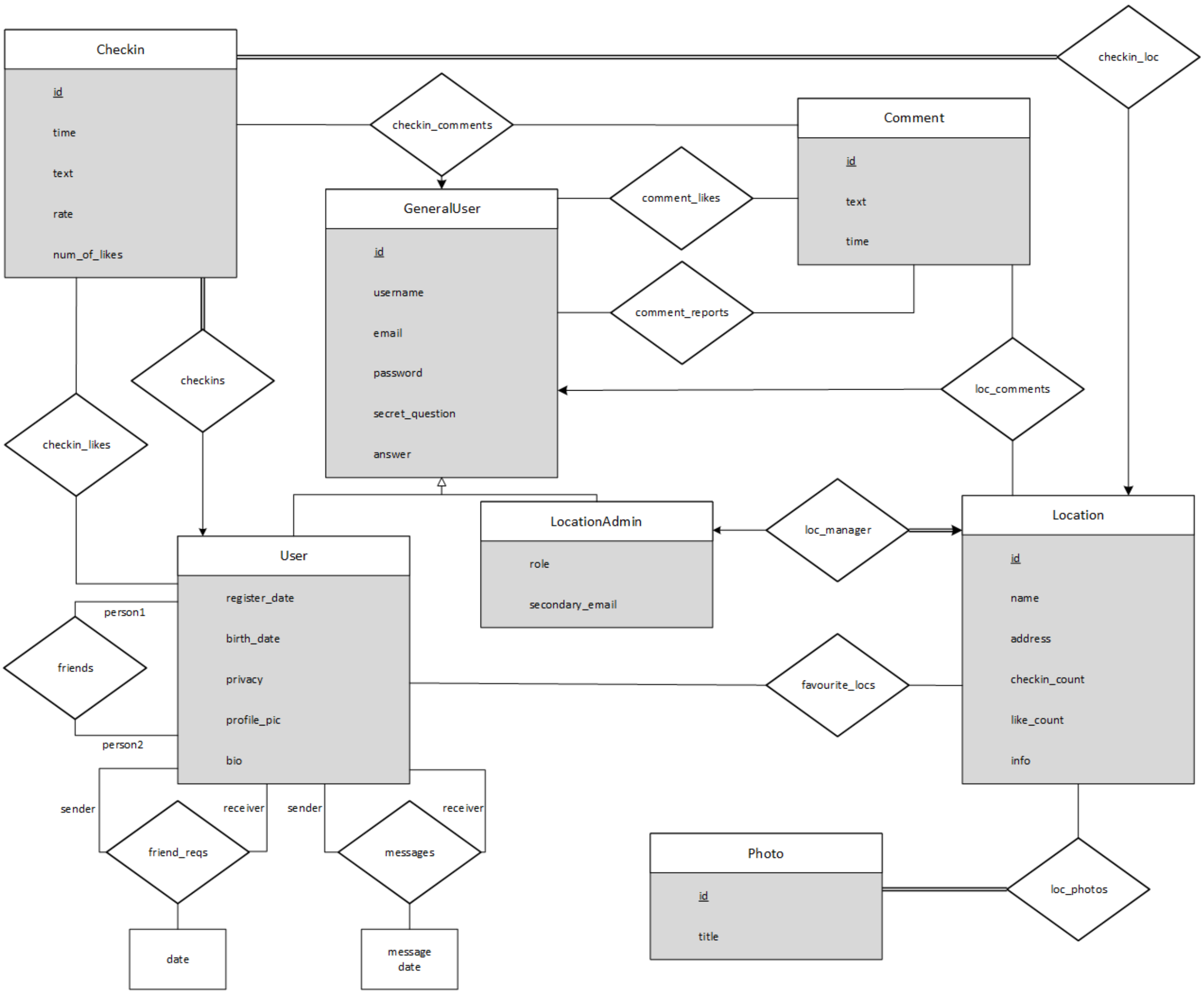
1.0 Revised E/R Model



We have revised our E/R model based on the feedback given on Proposal of project as follows:

- Relations between several User records turned into relation on entity User and not shown as separate entities anymore. In Proposal, *friends* and *friend_reqs* relations were shown as entities. Those are now relations on User entity and the way the relation happens shown by column names written next to relationship connectors.
- A new relation called *messages* added as suggested to provide messaging feature. It is a relation on User entity. Extra information that needs to be stored is shown using a box connected to the relation.

- Relations between *Comment, GeneralUser, Location* and *Checkin* turned in to ternary relations as suggested. Now, Comment-GeneralUser-Location and Comment-GeneralUser-Checkin are related through ternary relations called *loc_comments* and *checkin_comments* respectively.
- Relationships related to *Comment* entity now are connected to *GeneralUser* entity instead of *User* entity to provide comment feature for location admins too, as suggested.
- A new relation called *comment_reports* added to provide reporting feature as suggested. This relation is connected to *GeneralUser* to make location admins be able to report like normal users.
- A new entity called *Photo* added to provide adding photos of locations by admins and 'Pictures' column is removed from *Location* entity as suggested. A relation between *Photo* and *Location* added.
- Foreign key in *LocationAdmin* is not shown on diagram anymore. New columns added to entity *LocationAdmin* as suggested.
- Relations between *GeneralUser* and *User*, *LocationAdmin* entities turned into is-a relation as suggested.
- *UserSettings* entity was shown as a weak entity in Proposal and the relation was suggested to be shown as total participation. Since *User* entity and *UserSettings* entity had One-to-One relation, we decided to move columns of *UserSettings* to *User* entity and removed it.
- The relations between *User*, *Checkin* and *Location* was suggested to be turned into a ternary relation. However after we determined the features and constraints of our application we decided to show relations separately. There are two reasons for this.

First of all Checkin-User and Checking-Location both have Many-to-One relation between them. Since two arrows (Ones) in a ternary relation would cause ambiguity, it would be shown in a more clear way with separate relations. Secondly, *Checkin* entity has total participation in both relations and the relations are Many-to-One. We wanted to show relation this way since it shows clearly that relations can be represented as a column in *Checkin* entity without null values or using extra tables.

- Several cardinality constraints changed as suggested. Favourite locations relation changed to Many-to-Many from One-to-One since a user can have multiple favourite locations and a location can be favourite of many users. Relations on *User* entity changed to Many-to-Many since a user can be related to many in those relations. In Proposal, those were shown as either One-to-One or One-to-Many. Checkin likes relation changed to Many-to-Many from One-to-Many considering similar reasons for favourite locations.
- New entities and relations added to provide new features as suggested. A relation added to provide comment likes feature. Location rating feature added through a new column. Messaging feature between users added. Ability to report comments, for both normal users and location admins, added through a new relation.

2.0 RELATION SCHEMAS

2.1 GeneralUser

Relational Model

GeneralUser(id, username, email, password, secret_question, answer)

Functional Dependencies

id -> username, email, password, secret_question, answer

username -> id, email, password, secret_question, answer

email -> id, username, password, secret_question, answer

Candidate Keys

{(id), (username), (email)}

Normal Form

BCNF

Table Definition

```
CREATE TABLE GeneralUser (id INT NOT NULL AUTO_INCREMENT PRIMARY KEY, username
VARCHAR(64) NOT NULL UNIQUE, email VARCHAR(128) NOT NULL UNIQUE, password
VARCHAR(32) NOT NULL, secret_question INT(2) NOT NULL, answer VARCHAR(128) NOT
NULL) ENGINE=INNODB;
```

2.2 User

Relational Model

User(id, username, email, password, secret_question, answer, register_date, birth_date, privacy, profile_pic, bio)

Functional Dependencies

id -> username, email, password, secret_question, answer, register_date, birth_date, privacy, profile_pic, bio

username -> id, email, password, secret_question, answer, register_date, birth_date, privacy, profile_pic, bio

email -> id, username, password, secret_question, answer, register_date, birth_date, privacy, profile_pic, bio

Candidate Keys

{(id), (username), (email)}

Normal Form

BCNF

Table Definition

CREATE TABLE User (user_id INT NOT NULL PRIMARY KEY, register_date TIMESTAMP NOT NULL, birth_date DATE NOT NULL, privacy BOOLEAN NOT NULL, profile_pic VARCHAR(128), bio VARCHAR(512), FOREIGN KEY (user_id) REFERENCES GeneralUser(id)) ENGINE=INNODB;

2.3 LocationAdmin

Relational Model

LocationAdmin(id, username, email, password, secret_question, answer, role, secondary_email)

Functional Dependencies

id -> username, email, password, secret_question, answer, role, secondary_email

username -> id, email, password, secret_question, answer, role, secondary_email

email -> id, username, password, secret_question, answer, role, secondary_email

Candidate Keys

{(id), (username), (email)}

Normal Form

BCNF

Table Definition

```
CREATE TABLE LocationAdmin (user_id INT NOT NULL PRIMARY KEY, role VARCHAR(64) NOT
NULL, secondary_email VARCHAR(128), FOREIGN KEY (user_id) REFERENCES
GeneralUser(id)) ENGINE=INNODB;
```

2.4 Location

Relational Model

Location(id, admin_id, name, address, checkin_count, like_count, info)

Foreign key admin_id references LocationAdmin

Functional Dependencies

id -> admin_id, name, address, checkin_count, like_count, info

admin_id -> id, name, address, checkin_count, like_count, info

Candidate Keys

{(id), (admin_id)}

Normal Form

BCNF

Table Definition

```
CREATE TABLE Location (id INT NOT NULL AUTO_INCREMENT PRIMARY KEY, admin_id INT
NOT NULL UNIQUE, name VARCHAR(128) NOT NULL, address VARCHAR(256) NOT NULL,
checkin_count INT UNSIGNED NOT NULL, like_count INT UNSIGNED NOT NULL, info
VARCHAR(512) NOT NULL, FOREIGN KEY (admin_id) REFERENCES LocationAdmin(user_id))
ENGINE=INNODB;
```

2.5 Photo

Relational Model

Photo(id, loc_id, title)

Foreign key loc_id references Location

Functional Dependencies

id -> loc_id, title

Candidate Keys

{(id)}

Normal Form

BCNF

Table Definition

```
CREATE TABLE Photo (id INT NOT NULL AUTO_INCREMENT PRIMARY KEY, loc_id INT NOT
NULL, title VARCHAR(256) NOT NULL, FOREIGN KEY (loc_id) REFERENCES Location(id))
ENGINE=INNODB;
```

2.6 Checkin

Relational Model

Checkin(id, loc_id, user_id, time, text, rate, num_of_likes)

Foreign key loc_id references Location

Foreign key user_id references User

Functional Dependencies

id -> loc_id, user_id, time, text, rate, num_of_likes

Candidate Keys

{(id)}

Normal Form

BCNF

Table Definition

```
CREATE TABLE Checkin (id INT NOT NULL AUTO_INCREMENT PRIMARY KEY, loc_id INT NOT
NULL, user_id INT NOT NULL, time TIMESTAMP NOT NULL, text VARCHAR(256) NOT NULL,
rate INT(1) NOT NULL, num_of_likes INT NOT NULL, FOREIGN KEY (loc_id) REFERENCES
Location(id), FOREIGN KEY (user_id) REFERENCES User(user_id)) ENGINE=INNODB;
```

2.7 Comment

Relational Model

Comment(id, user_id, text, time)

Foreign key user_id references GeneralUser

Functional Dependencies

id -> user_id, text, time

Candidate Keys

{(id)}

Normal Form

BCNF

Table Definition

```
CREATE TABLE Comment (id INT NOT NULL AUTO_INCREMENT PRIMARY KEY, user_id INT
NOT NULL, text VARCHAR(512) NOT NULL, time TIMESTAMP NOT NULL, FOREIGN KEY
(user_id) REFERENCES GeneralUser(id)) ENGINE=INNODB;
```

2.8 friends

Relational Model

friends(person1_id, person2_id)

Foreign key person1_id and person2_id references User

Candidate Keys

{(person1_id, person2_id)}

Normal Form

BCNF

Table Definition

```
CREATE TABLE friends (person1_id INT NOT NULL, person2_id INT NOT NULL, PRIMARY KEY (person1_id, person2_id), FOREIGN KEY (person1_id) REFERENCES User(user_id), FOREIGN KEY (person2_id) REFERENCES User(user_id)) ENGINE=INNODB;
```

2.9 friend_reqs

Relational Model

friend_reqs(sender, receiver, date)

Foreign key sender and receiver references User

Functional Dependencies

sender, receiver -> date

Candidate Keys

{(sender, receiver)}

Normal Form

BCNF

Table Definition

```
CREATE TABLE friend_reqs (sender INT NOT NULL, receiver INT NOT NULL, date TIMESTAMP
NOT NULL, PRIMARY KEY (sender, receiver), FOREIGN KEY (sender) REFERENCES
User(user_id), FOREIGN KEY (receiver) REFERENCES User(user_id)) ENGINE=INNODB;
```

2.10 messages

Relational Model

messages(sender, receiver, message, date)

Foreign key sender and receiver references User

Functional Dependencies

sender, receiver -> message, date

Candidate Keys

{(sender, receiver)}

Normal Form

BCNF

Table Definition

```
CREATE TABLE messages (sender INT NOT NULL, receiver INT NOT NULL, message
VARCHAR(512) NOT NULL, date TIMESTAMP NOT NULL, PRIMARY KEY (sender, receiver),
FOREIGN KEY (sender) REFERENCES User(user_id), FOREIGN KEY (receiver) REFERENCES
User(user_id)) ENGINE=INNODB;
```

2.11 checkin_likes

Relational Model

checkin_likes(checkin_id, user_id)

Foreign key checkin_id references Checkin

Foreign key user_id references User

Candidate Keys

{(checkin_id, user_id)}

Normal Form

BCNF

Table Definition

CREATE TABLE checkin_likes (checkin_id INT NOT NULL, user_id INT NOT NULL, PRIMARY KEY (checkin_id, user_id), FOREIGN KEY (checkin_id) REFERENCES Checkin(id), FOREIGN KEY (user_id) REFERENCES User(user_id)) ENGINE=INNODB;

2.12 checkin_comments

Relational Model

checkin_comments(checkin_id, comment_id)

Foreign key checkin_id references Checkin

Foreign key comment_id references Comment

Candidate Keys

{(checkin_id, comment_id)}

Normal Form

BCNF

Table Definition

```
CREATE TABLE checkin_comments (checkin_id INT NOT NULL, comment_id INT NOT NULL,
PRIMARY KEY (checkin_id, comment_id), FOREIGN KEY (checkin_id) REFERENCES Checkin(id),
FOREIGN KEY (comment_id) REFERENCES Comment(id)) ENGINE=INNODB;
```

2.13 loc_comments

Relational Model

loc_comments(loc_id, comment_id)

Foreign key loc_id references Location

Foreign key comment_id references Comment

Candidate Keys

{(loc_id, comment_id)}

Normal Form

BCNF

Table Definition

```
CREATE TABLE loc_comments (loc_id INT NOT NULL, comment_id INT NOT NULL, PRIMARY
KEY (loc_id, comment_id), FOREIGN KEY (loc_id) REFERENCES Location(id), FOREIGN KEY
(comment_id) REFERENCES Comment(id)) ENGINE=INNODB;
```

2.14 comment_reports

Relational Model

comment_reports(user_id, comment_id)

Foreign key user_id references GeneralUser

Foreign key comment_id references Comment

Candidate Keys

{(user_id, comment_id)}

Normal Form

BCNF

Table Definition

```
CREATE TABLE comment_reports (user_id INT NOT NULL, comment_id INT NOT NULL,
PRIMARY KEY (user_id, comment_id), FOREIGN KEY (user_id) REFERENCES GeneralUser(id),
FOREIGN KEY (comment_id) REFERENCES Comment(id)) ENGINE=INNODB;
```

2.15 favourite_locs

Relational Model

favourite_locs(user_id, loc_id)

Foreign key user_id references User

Foreign key loc_id references Location

Candidate Keys

{(user_id, loc_id)}

Normal Form

BCNF

Table Definition

CREATE TABLE favourite_locs (user_id INT NOT NULL, loc_id INT NOT NULL, PRIMARY KEY (user_id, loc_id), FOREIGN KEY (user_id) REFERENCES User(user_id), FOREIGN KEY (loc_id) REFERENCES Location(id)) ENGINE=INNODB;

2.16 comment_likes

Relational Model

comment_likes(user_id, comment_id)

Foreign key user_id references GeneralUser

Foreign key comment_id references Comment

Candidate Keys

{(user_id, comment_id)}

Normal Form

BCNF

Table Definition

```
CREATE TABLE comment_likes (user_id INT NOT NULL, comment_id INT NOT NULL, PRIMARY KEY (user_id, comment_id), FOREIGN KEY (user_id) REFERENCES GeneralUser(id), FOREIGN KEY (comment_id) REFERENCES Comment(id)) ENGINE=INNODB;
```

3.0 FUNCTIONAL DEPENDENCIES AND NORMALIZATION OF TABLES

With the section 2 we used Boyce-Codd normal form for normalization of tables when we create out tables.

4.0 FUNCTIONAL COMPONENTS

4.1 Use Cases/Scenarios

We have 3 different users in the project. Users, location admins and new users. Each will have different functions, which can be seen in different scenarios down below. Since new users cannot been able to get in our system without signing up, they are not in our ER model.

4.1.1 Users

These types of general users are the ones who use our social media for the purposes of entertaining or getting information about the places. They can search for places and make check-ins in them, see the ratings, make comments, give ratings about a place. They can add friends, accept, decline a friends request or delete a friend, look up for their friends' check-in's and make comments about that check-ins. Friends can send messages to themselves. Users can like comments and check-ins. They can also change their passwords, privacy level and profile picture in the settings menu.

View a place: Users can search for a place by using the search bar. Or click on a place's name on the news feed page.

Make/Delete a check-in: Users can check-in in a place by visiting a place's page and click on the check-in button in the page. Users can also delete a check-in after they post it.

See the ratings: Users can see the ratings of a place on the place’s page.

Make comments: Users can make comments about a place after they check-in in them, by clicking on the “Make Comment” button on place’s page.

Give ratings: Users can give ratings to a place after they check-in in the place, by clicking on the “Give Rating!” button on the place’s page.

View a friend: Users can view a friend by moving to “Friends” page, and search for a new friend in this page.

Add friend: Users can add a friend by visiting a user’s personal page, via the help of search bar in the “Friends” page.

Accept or Decline friend request: Users can accept or decline a friends request by visiting the Friends Request page.

Delete friend: Users can delete a friend by visiting a “Friends” page, by clicking the “Delete Friend” button.

Look up for friends’ check-ins: Users can look up for their friends’ check-ins in the news feed page, which is the default page for a user when they log in in our system. Or by visiting their personal page via the help of search bar in the “Friends” page.

Make comment to a friend’s check-in: Users can make a comment to their friends’ check-ins by clicking on the “Make Comment” button, after they look up for friends’ check-ins.

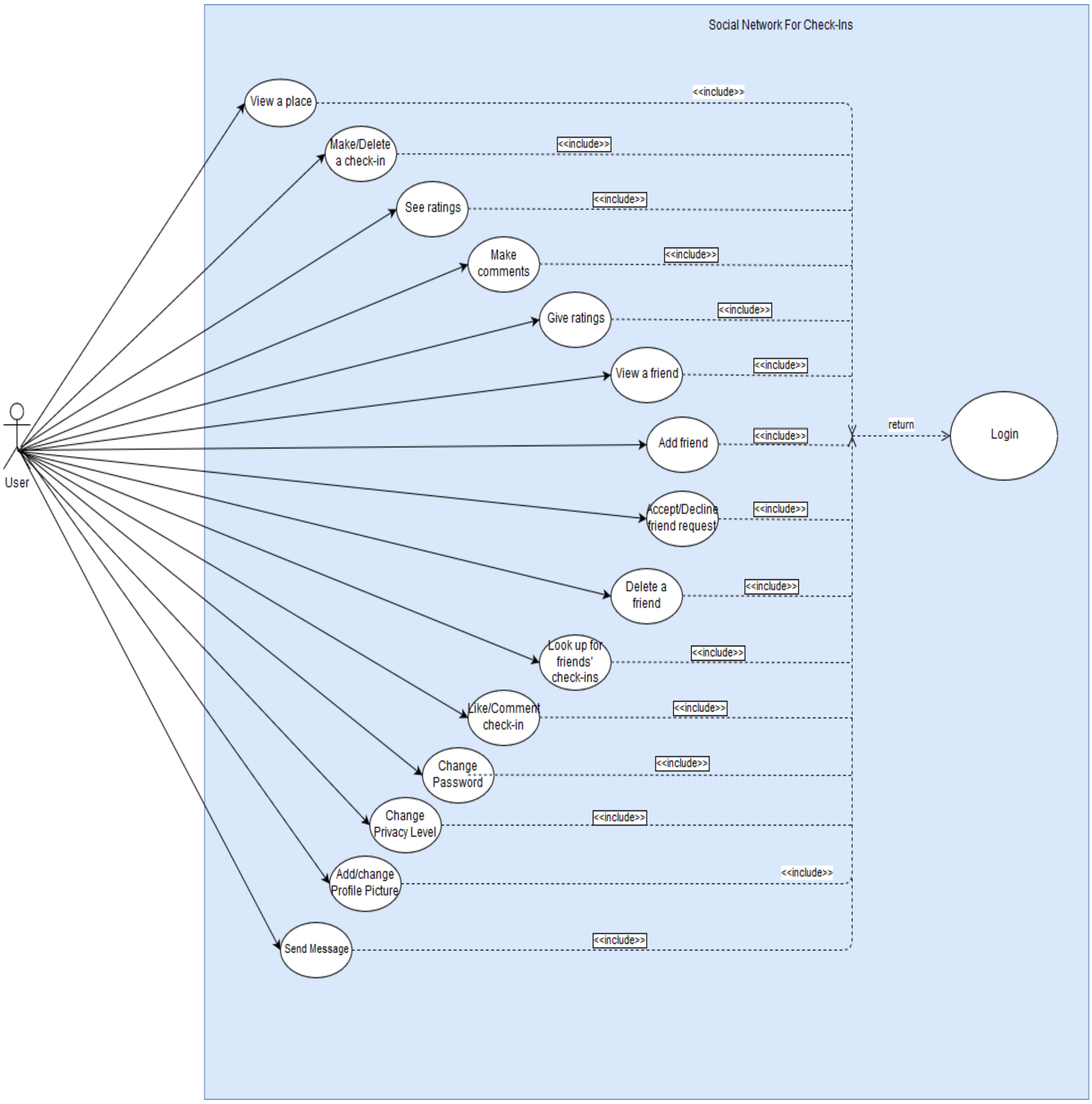
Send Message: Users can send a message to a friend by using the “Messages” menu.

Like comment/Check-in: Users can like a comment or a check-in by clicking the "Like" button on the page, after they reach to a comment or a check-in, in their news feed page or visiting a friend's profile.

Change Password: Users can change their passwords in the "Settings" menu by clicking the "Change Password" button.

Change Privacy Level: Users can adjust their privacy settings in the "Settings" menu. They can choose to publicly open their profiles or making it private so that only his/her friends can see the profile of the user.

Add/Change Profile Picture: Users can add or change profile picture in the "Settings" menu by clicking "Change Profile Pic" button.



4.1.2 Location Admins

Locations admins are responsible for adding their places into our system. They can add their places by giving the name of their places and addresses. They can upload photos for their places, see the check-in counts and the ratings which the users give. They will have also a second email address, in case of forgetting their passwords.

Add place: Location Admins can add their register their places by clicking the "Register a Place" button in their main menu.

Give a name: Location Admins can add the name of their places to our system by filling the “Name” section when they are in the “Register a Place” menu.

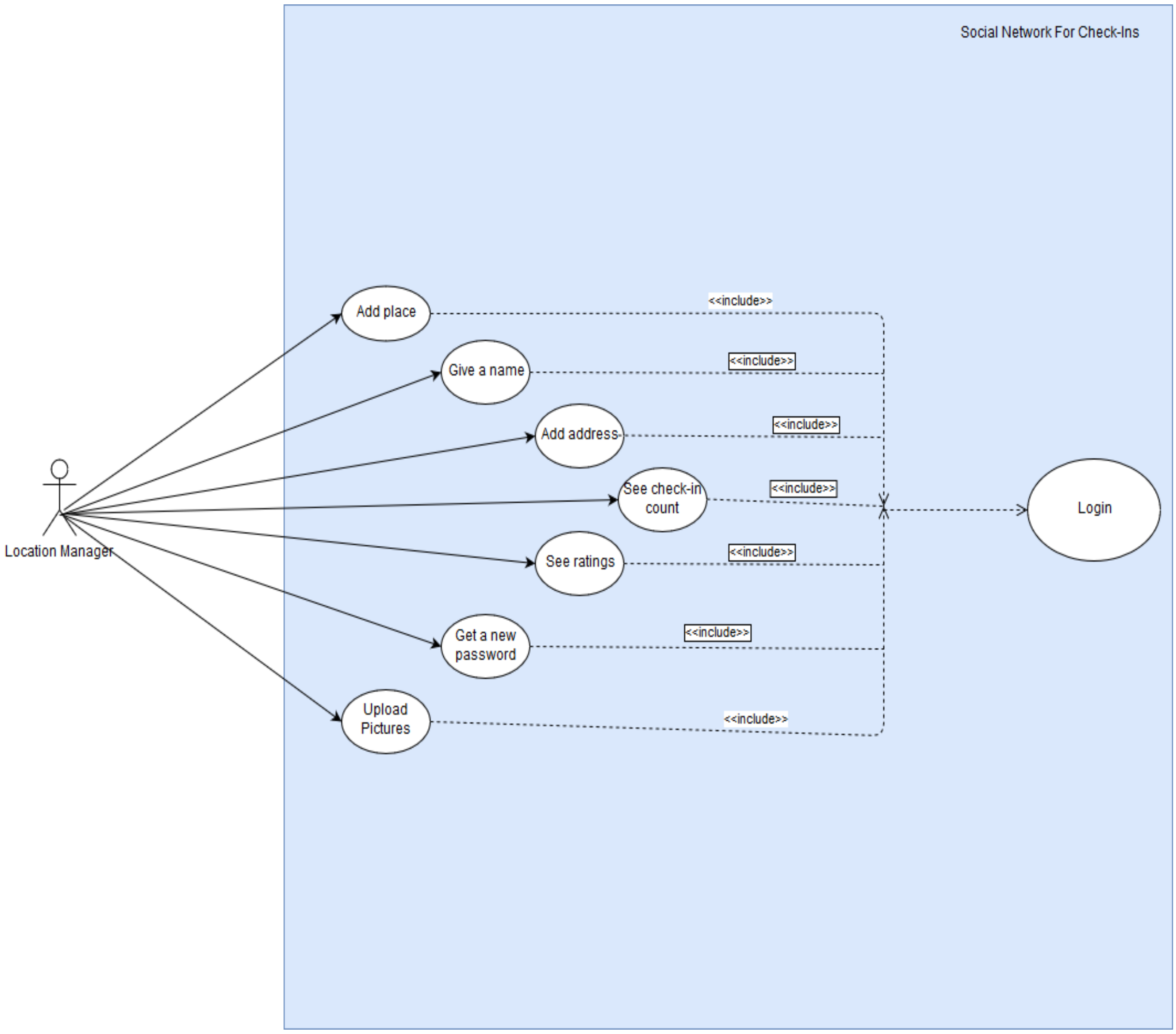
Add Address: Location Admins can add the address of their place by filling the “Address” section when they are in the “Register a Place” menu.

Upload Pictures: Location admins can upload the pictures of their places by clicking the “Upload a Picture” button in their main menu.

See check-in count: Check-in count will be displayed for their places, in their main menu.

See ratings: Ratings will be displayed for their places, in their main menu.

Get a new password: Location Admins can obtain a new password, by clicking the “Forgot Password” button. After they click, a new password will be send to the Location Admin’s secondary email address.

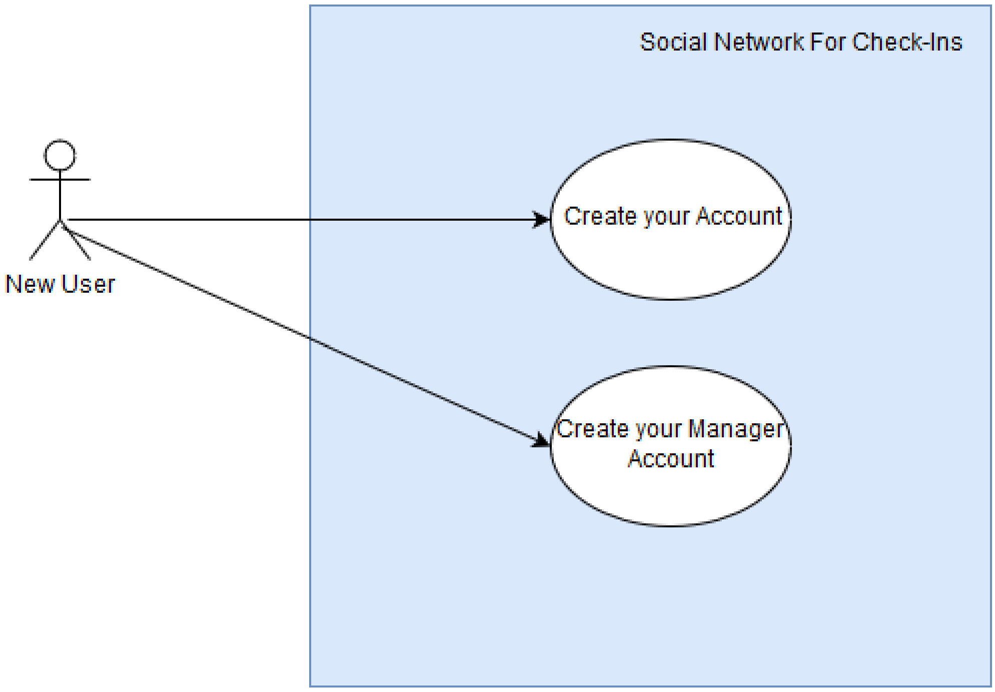


4.1.3 New Users

New Users will be the people who want to sign up to our system. After they access to our system's web page, they can sign up as a User or Location Admin. After the signing up process, they will no longer be a New User. If New User signs up as a Location Admin, he/she has to enter a secondary email for changing or retrieving password for their accounts.

Sign up: New Users can Sign up by clicking the "Create your Account" or "Create your Manager Account" buttons in the website. They can sign up as a new User and Location Admin. After they click, a new page will load and they will enter their name, surname, user name, email, password and a secret question. After they complete the sign up procedure, system will give the new user a unique ID and store the registration date to the database.

Since new users are not a part of the system, they will not be able to access to our system. So that, they will not have any functions other than sign up.



4.2 Algorithms

4.2.1 Search Related Algorithms

Users can search through our system with 2 different types. They can search for a location by using the search bar on the upside of the page. Search bar will only look to locations when they use search bar. However, they can also search for a person by using the search bar on the “Friends” page. This particular search bar will only look up for people in our system.

4.2.2 Logical Requirements

Our application will have many logical requirements. For example, a user cannot make an empty comment, sign up with an empty name, username or password. We will look up for that kind of requirements in our system for preventing future errors.

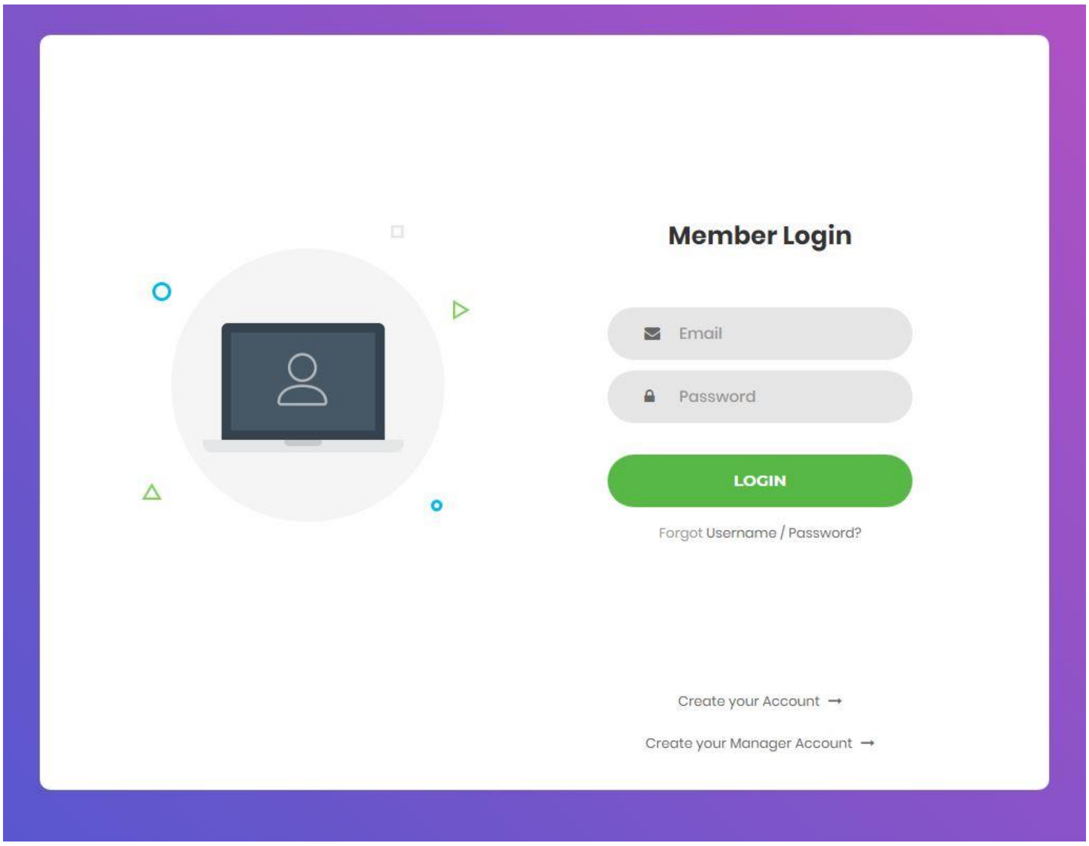
4.2.3 Data Structure

In our system, we will use two types of variables, which are numeric and text types.

Numeric types will be used for storing numeric values like ID’s. We will use INT as our numeric type.

Text types will be used for storing variables which like name, username etc.

5.0 USER INTERFACE DESIGN AND CORRESPONDING SQL STATEMENTS



5.1 LOGIN

Inputs: @email, @password

Process: When user enter the system this page shows up. Here, user can login the system. If user forgot password, he/she can go to change password page. Also user can create account or manager account. Both manager and user can enter system from this page.

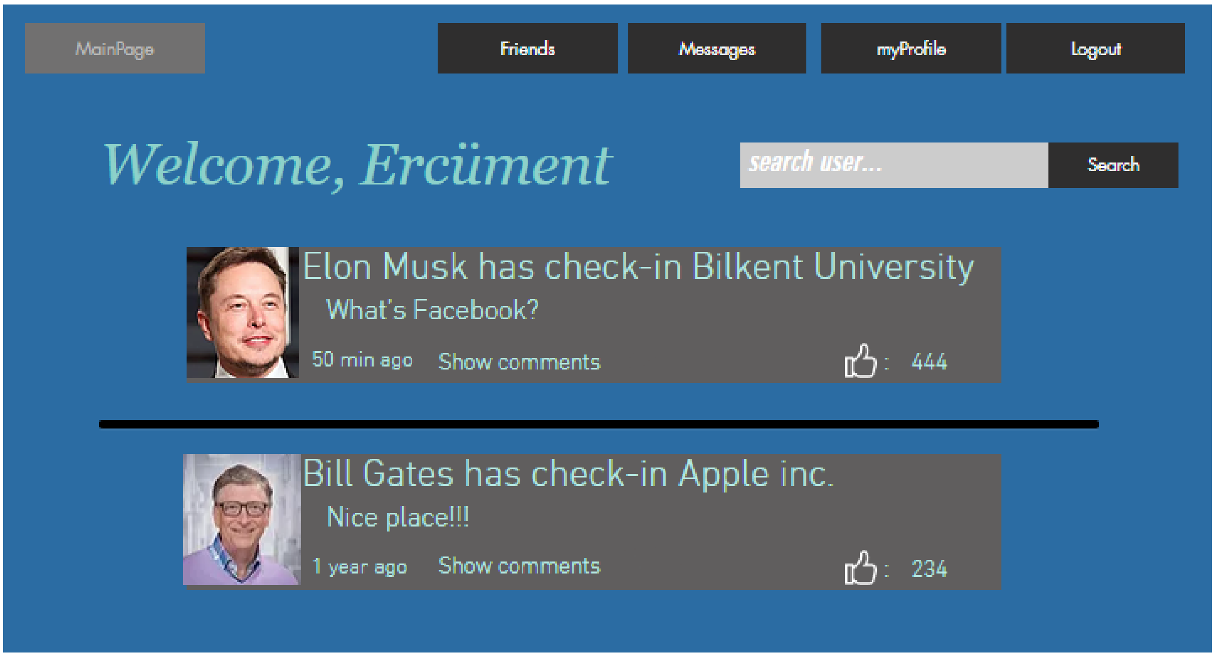
SQL statements:

Enter the system

Select *

From GeneralUser

Where username = @username and password = @password



Elon Musk has check-in Bilkent University

What's Facebook?

50 min ago Show comments 444

Bill Gates has check-in Apple inc.

Nice place!!!

1 year ago Show comments 234

5.2 NEWSFEED PAGE

Inputs: @search, @user_id

Process: After user login system this page shows up. Newsfeed appears in this page. Newsfeed includes recent check-ins of his/her friends. Also user can reach his friends, messages, profile. Also user can logout from system. In this page user can search location to make check-ins or learn about locations.

SQL statements:

Newsfeed:

Select user.username, user.profile_pic, checkin.location_name, checkin.text, checkin.time, checkin.num_of_like

From user, friends, checkin

Where @user_id = friends.person1_id and user.id = friends.person2_id and comment.user_id = friends.person2_id

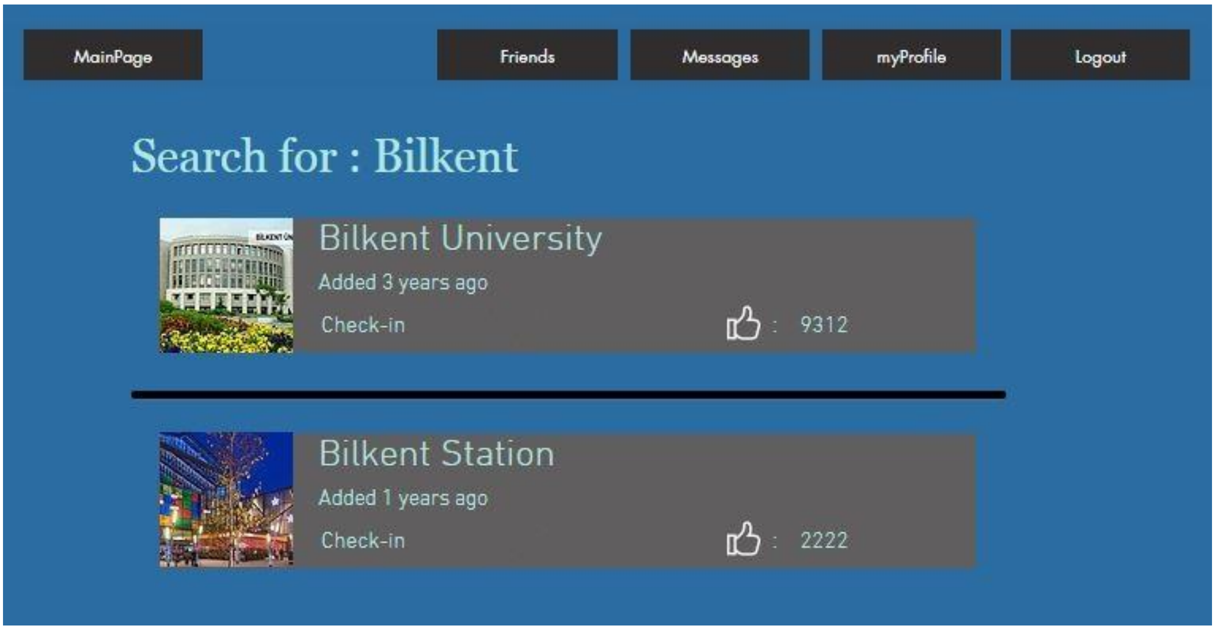
Order by time desc

Welcome Message:

Select username

From user

Where id = @user_id



Search for : Bilkent

Bilkent University
Added 3 years ago
Check-in : 9312

Bilkent Station
Added 1 years ago
Check-in : 2222

5.3 LOCATION SEARCH

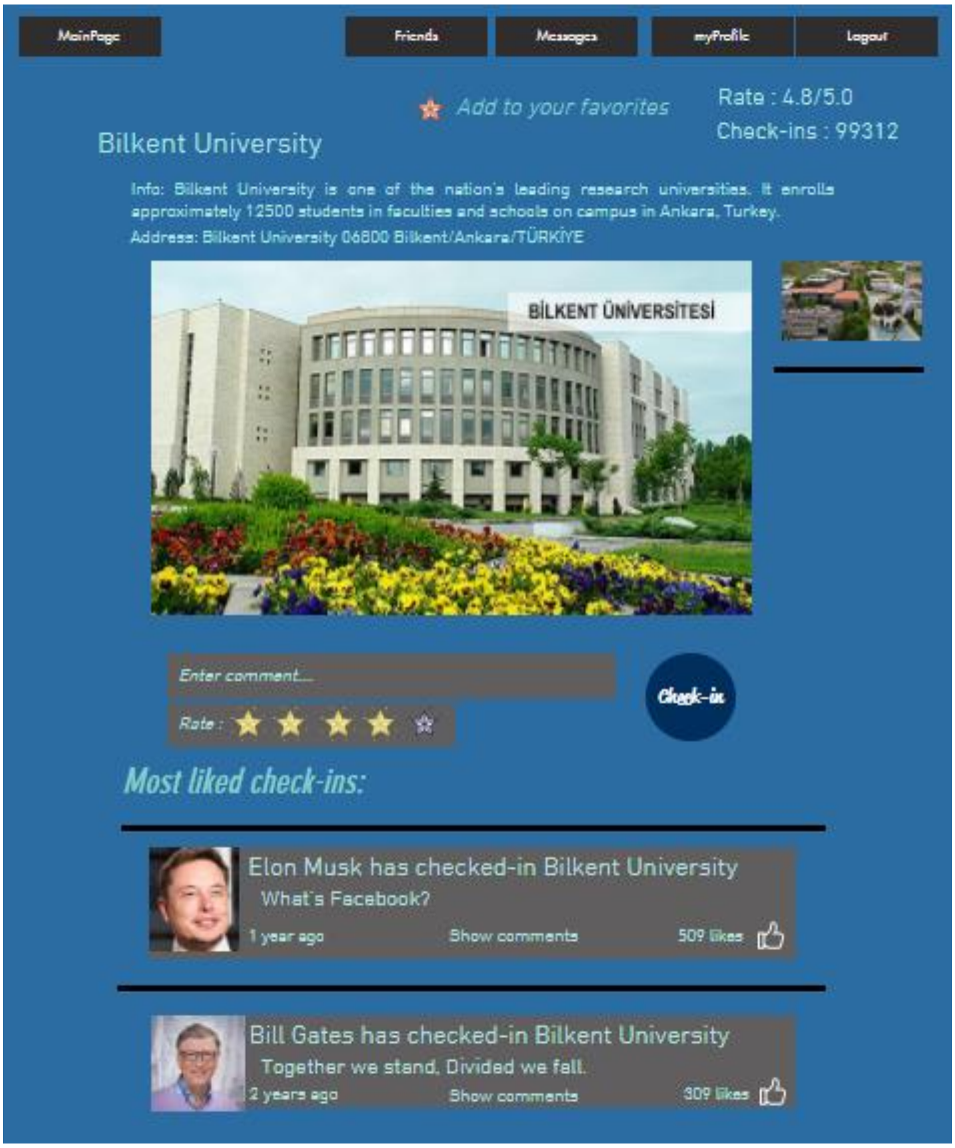
Inputs: @search, @user_id

Process: After user search a place, this page shows up. System shows all locations which includes search keyword. User can choose a location and go to that locations page.

SQL statements:

Search location:

```
Select *

From location

Where name like ‘%@search_name%’
```



Rate : 4.8/5.0
Check-ins : 99312

Bilkent University

Info: Bilkent University is one of the nation's leading research universities. It enrolls approximately 12500 students in faculties and schools on campus in Ankara, Turkey.
Address: Bilkent University 06800 Bilkent/Ankara/TÜRKİYE

Enter comment...

Rate : ★ ★ ★ ★ ☆

Most liked check-ins:

Elon Musk has checked-in Bilkent University
What's Facebook?
1 year ago · 509 likes

Bill Gates has checked-in Bilkent University
Together we stand, Divided we fall.
2 years ago · 309 likes

5.4 LOCATION PAGE

Inputs: @user_id, @loc_id, @time, @text, @selected_checkin, @selected_user

Process: When user search a location and enters that location this page shows up. In this page user can see information about location also he/she can enters comment and make check-in this location. User will be able to see recent check-ins for this location. Also user can like check-ins in this page.

SQL statements:

Information about location:

```
Select *

From location , photo

Where location.id = @loc_id and photo.loc_id = id
```

Enter check-in:

```
insert into checkin

values(@loc_id, @text, @rate)
```

Most liked check-ins:

```
select user.username, user.profile_pic, checkin.location_name, checkin.text, time,
checkin.num_of_like

from location, checkin, user

where location.id = @loc_id and location.id = checkin.loc_id and user.id = checkin.user_id
and checkin_likes.checkin_id = checkin.id

order by num_of_like desc
```

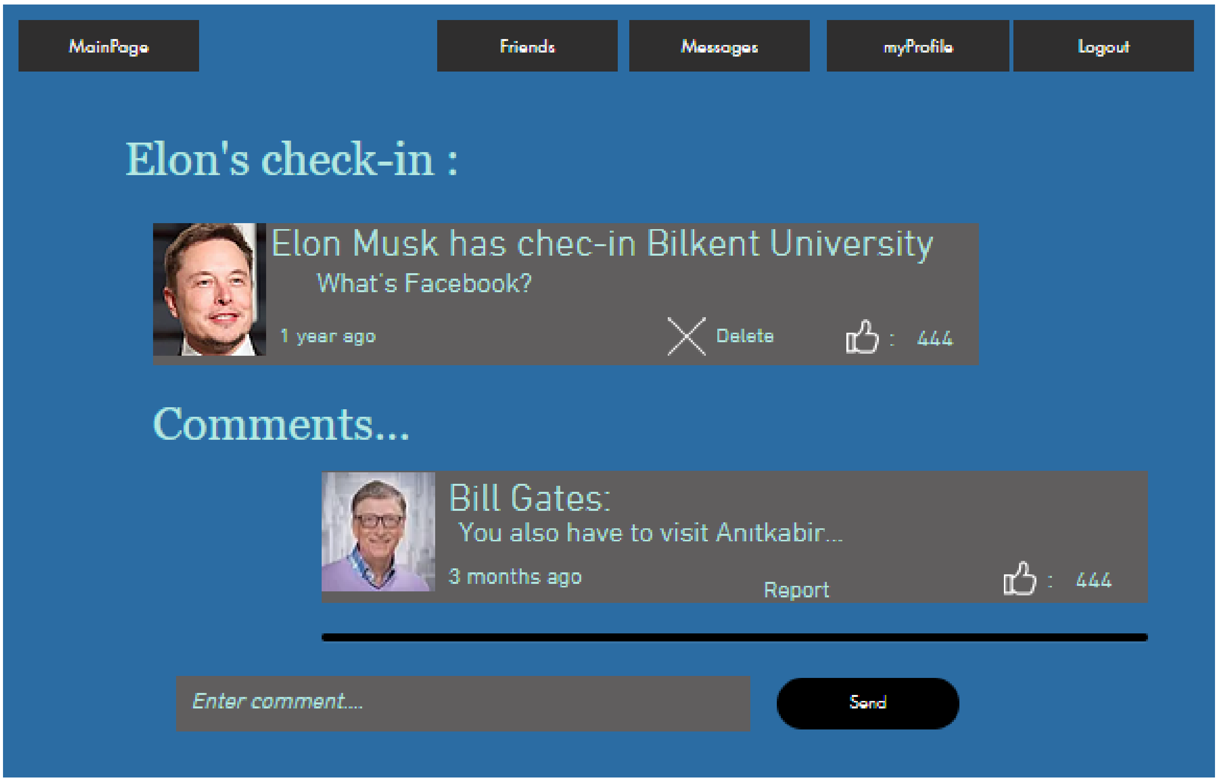
Like check-ins(if no matches in checkin_likes by this user id to avoid double like):

```
insert into checkin_likes

values(@selected_checkin, @selected_user)
```

Add location to your favorites:

Insert into favorite_locs

Values(@user_id, @loc_id)



Elon's check-in :

Elon Musk has chec-in Bilkent University
What's Facebook?
1 year ago

Comments...

Bill Gates:
You also have to visit Anıtkabir...
3 months ago

5.5 CHECK-IN PAGE

Inputs: @user_id, @checkin_id, @text, @selected_comment_id, @selected_user_id

Process: When user enters someone’s check-in via show comment. He/she can see all comments which sended that check-in. Also he/she can enters new comment. User can both like check-in and comments in this page. User can delete his/her comment from this page.

SQL statements:

Check-in:

```
select user.username, user.profile_pic, checkin.location_name, checkin.text, checkin.time, checkin.num_of_like
from checkin, user
where checkin.id = @checkin_id and checkin.user_id = user.id
```

Comments of check-ins:

```
Select user.username, user.profile_pic, checkin.location_name, checkin.text, checkin.time, checkin.num_of_like
From checkin_comments, comment, user
Where checkin_comment.checkin_id = @checkin_id and checkin_comment.comment_id = comment.id and comment.user_id = user.id
```

Enter comment:

```
insert into comment
values(@user_id, @text, @time)
```

Comment like:

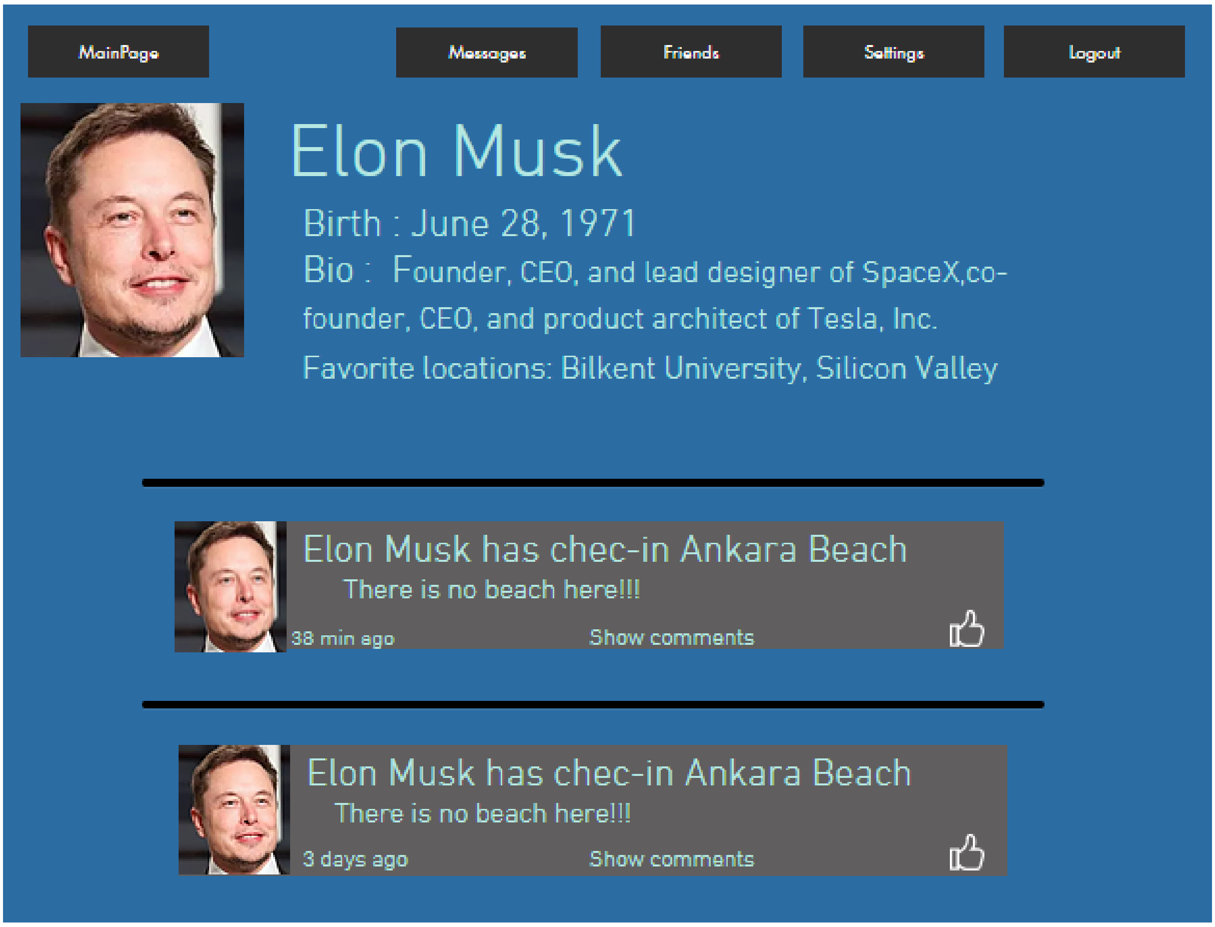
```
insert into comment_likes
values(@user_id, @ selected_comment_id)
```

Report comment:

```
Insert into comment_report

values(@selected_comment_id, @selected_user_id)
```

Delete check-in:

```
Delete from checkin

Where checkin.id = @checkin_id
```



Elon Musk

Birth : June 28, 1971

Bio : Founder, CEO, and lead designer of SpaceX,co-founder, CEO, and product architect of Tesla, Inc.

Favorite locations: Bilkent University, Silicon Valley

Elon Musk has chec-in Ankara Beach

There is no beach here!!!

38 min ago Show comments

Elon Musk has chec-in Ankara Beach

There is no beach here!!!

3 days ago Show comments

5.6 PROFILE PAGE

Inputs: @user_id

Process: When user click on myProfile button he/she can see how others see their profiles.

Also they can see all check-ins which already posted.

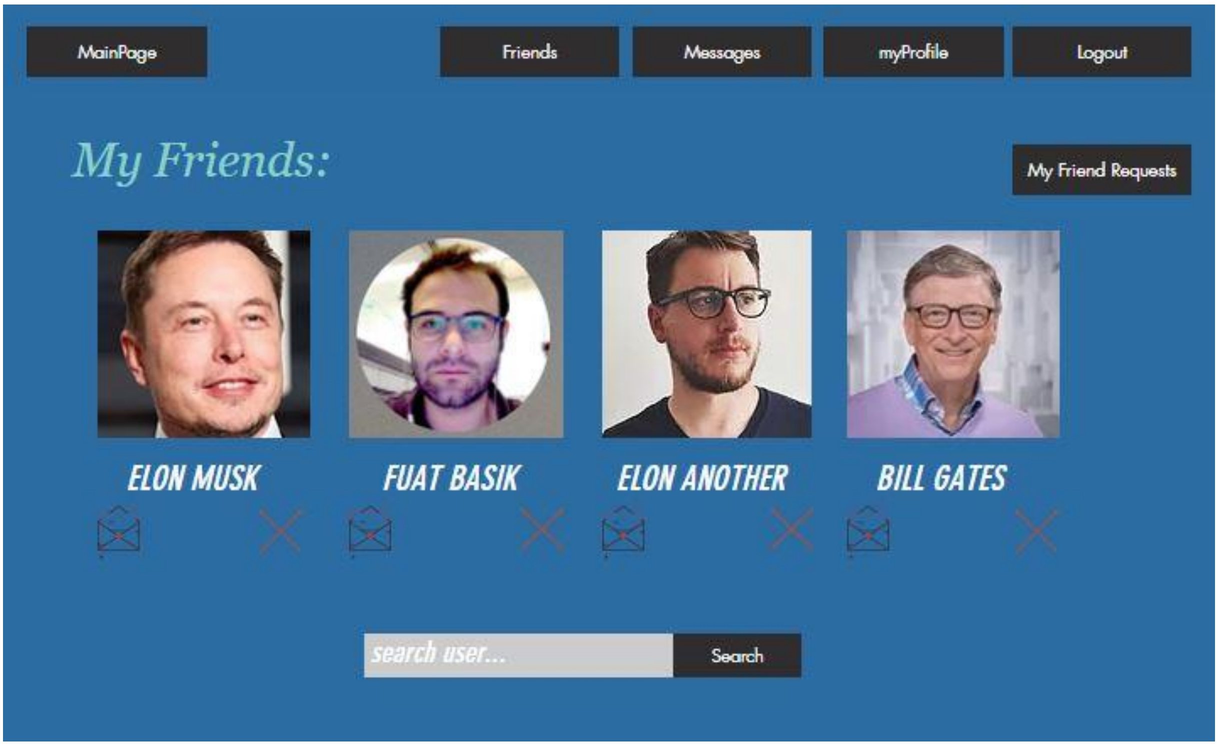
SQL statements:

Check-in:

```
select username, birth_date, bio

from user

where user.id = @user_id
```

All check-ins:

```
Select user.username, user.profile_pic, checkin.location_name, checkin.text, checkin.time,

checkin.num_of_like

From checkin, user

Where checkin.user_id = @user_id
```



5.7 MY FRIENDS PAGE

Inputs: @user_id, @selected_rem_friend, @search_friend

Process: When user click on friends. He/she can see their friends and message them or remove them. Also they can search for new friends.

SQL statements:

Show friends:

select user.profil_pic, user.username

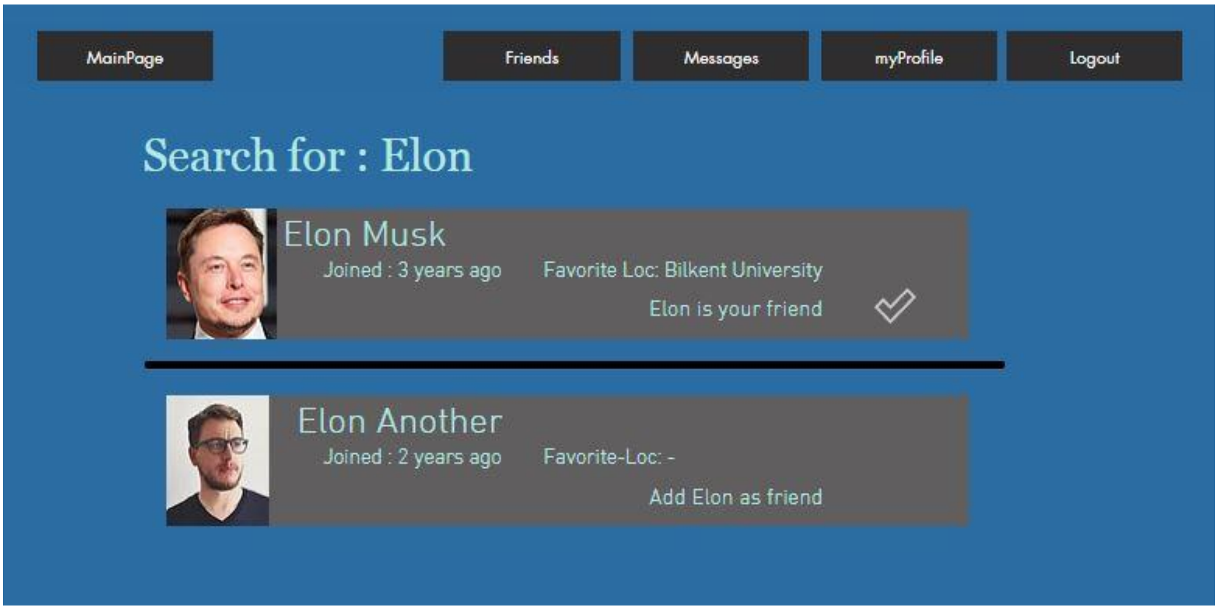
from user, friend

where friends.person1_id= @user_id and friends.person2_id = user.id

Remove friends:

Delete from friends

Where friends.person2 = @selected_rem_friend or (friends.person1 = @selected_rem_friend and friends.person2 = @user_id)



Search for : Elon

Elon Musk
Joined : 3 years ago
Favorite Loc: Bilkent University
Elon is your friend ✓

Elon Another
Joined : 2 years ago
Favorite-Loc: -
Add Elon as friend

5.8 USER SEARCH

Inputs: @search_friend, @user_id, @selected_user_id

Process: After user search friend this page show user all user which include the key in their username. Also they can add those users.

SQL statements:

Search friend:

Select profil_pic, username, reg_date, location.name

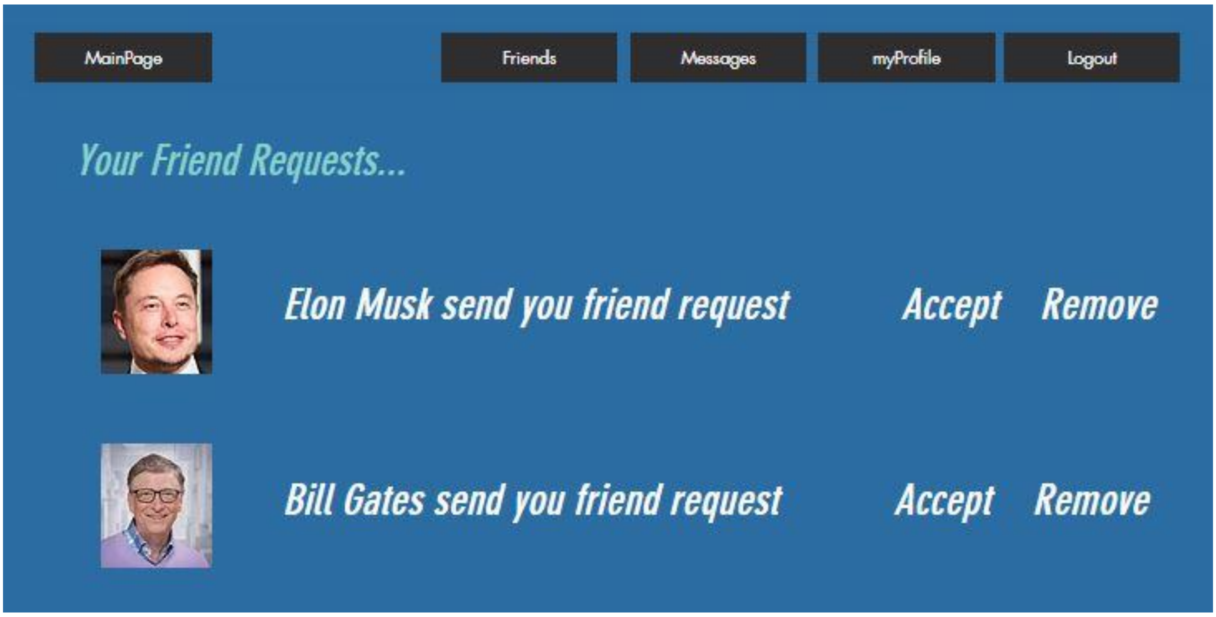
From user, favorite_loc, location

Where username like '%@search_friend%' and favorite_loc.user_id = @user_id and favorite_loc.loc_id = location.id

Friend Request:

Insert into friend_req

Values (@user_id, @selected_user_id,@time)



Your Friend Requests...

Elon Musk send you friend request

Bill Gates send you friend request

5.9 FRIEND REQUESTS

Inputs: @user_id, @selected_id

Process: After user click on my friend requests, he/she can see requests and accept the request or remove request.

SQL statements:

Accept user request:

Insert into friends

Values(@user_id, @selected_id)

Insert into friends

Values(@selected_id, @user_id)

Remove user request:

Remove from friend_reqs

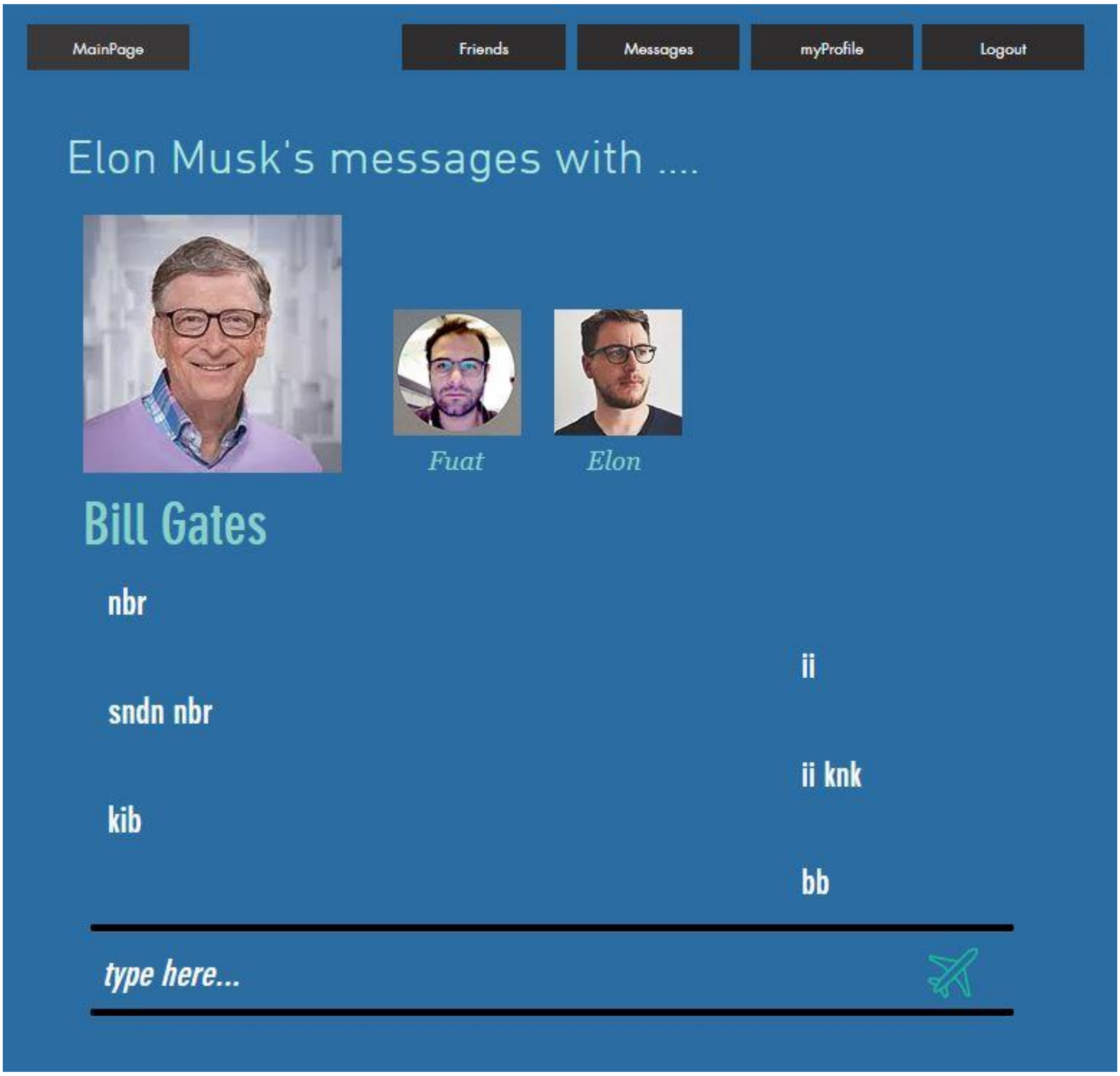
Where receiver = @user_id and sender = @selected_id

Show Requests:

Select profile_pic, username

From friend_req, user

Where friend_req.receiver = @user_id and friend_req.sender = user.sender



Elon Musk's messages with ....

nbr

ii

sndn nbr

ii knk

kib

bb

5.10 MESSAGES

Inputs: @user_id, @selected_id, @message, @time

Process: After users click on messages. They can see all of their friends' pictures. If they click picture of friend, they can see messages with that friend and send them new messages.

SQL statements:

Showing all friends:

select profil_pic, username

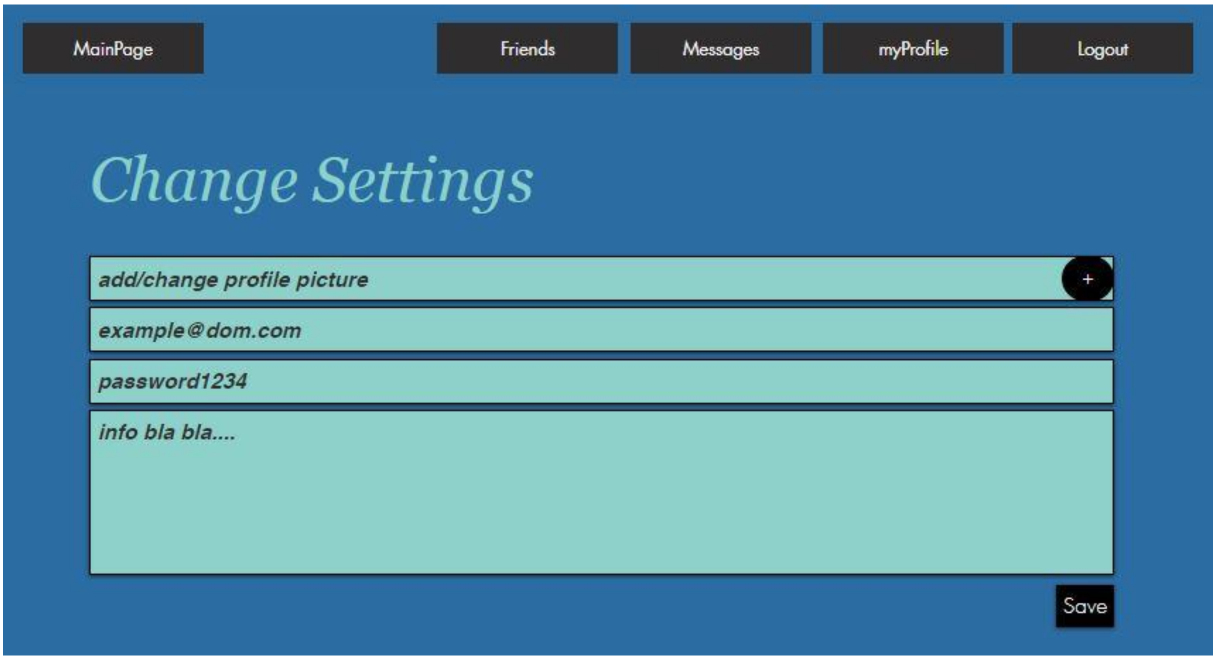
```
from user, friend

where friends.person1_id= @user_id and friends.person2_id = user.id
```

Showing messages of selected friend:

```
Select message, date

From messages

Where reviever = @user_id and sender = @selected_id
```

Sending message:

```
Insert into messages

Values (@user_id, @selected_id, @message, @time)
```



Change Settings

add/change profile picture

example@dom.com

password1234

info bla bla....

5.11 CHANGE SETTINGS

Inputs: @user_id, @profil_pic, @email, @password, @bio

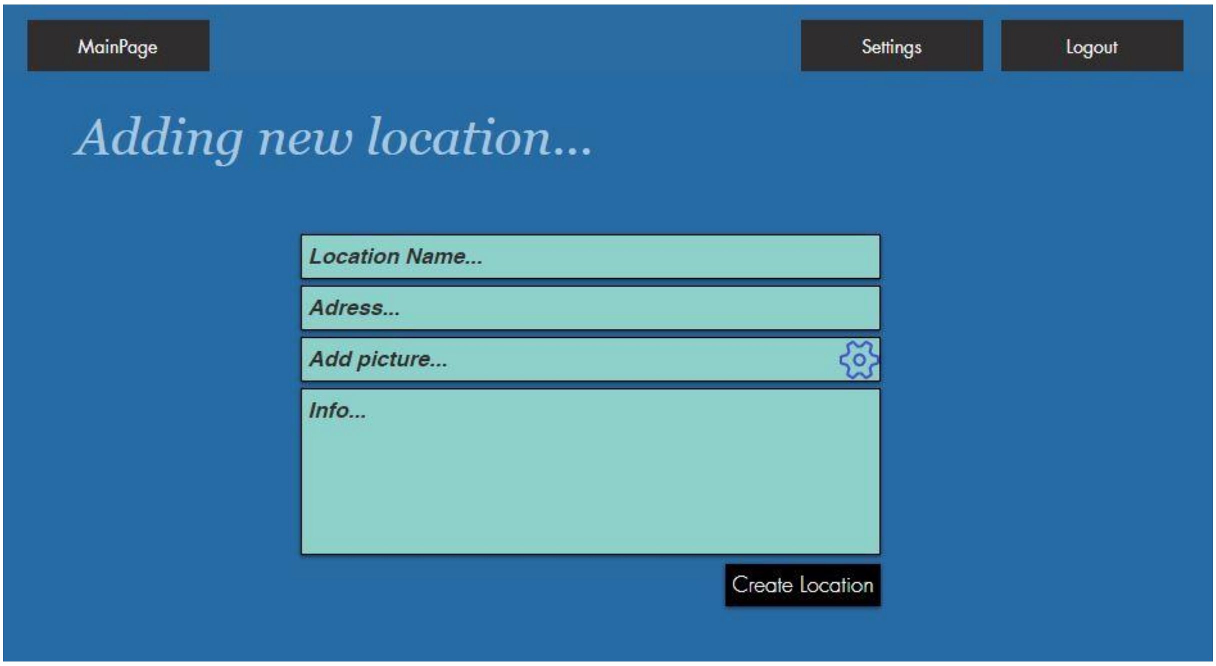
Process: User can change his profil picture, e-mail, password and bio from this page.

SQL statements:

Updating user settings:

Update user

Set profil_pic = @profil_pic, email = @email, password = @password, bio = @bio



5.12 ADD NEW LOCATION

Inputs: @name, @address, @photo, @info

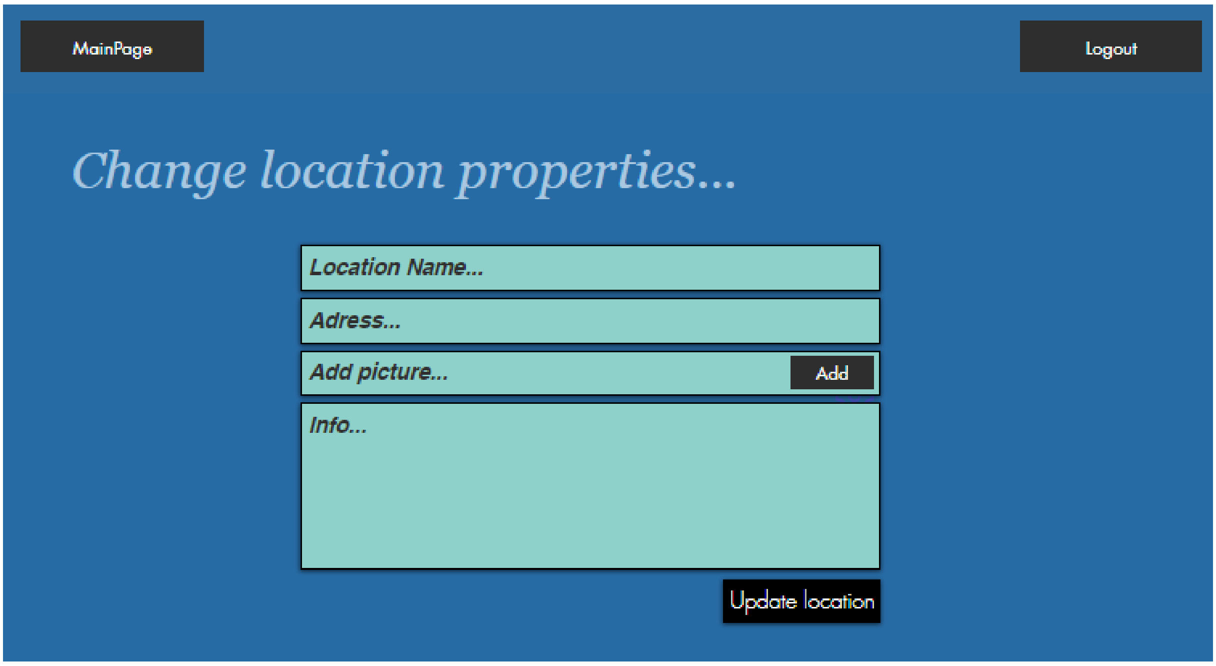
Process: Manager can add new location from this page.

SQL statements:

Creating new location:

İnsert into location

Values(@name, @address, @photo, @info)



5.13 CHANGE LOCATION SETTINGS

Inputs: @location_id, @title, @name, @ address, @photo, @info

Process: Manager can update new location from this page.

SQL statements:

Updating location settings:

update location

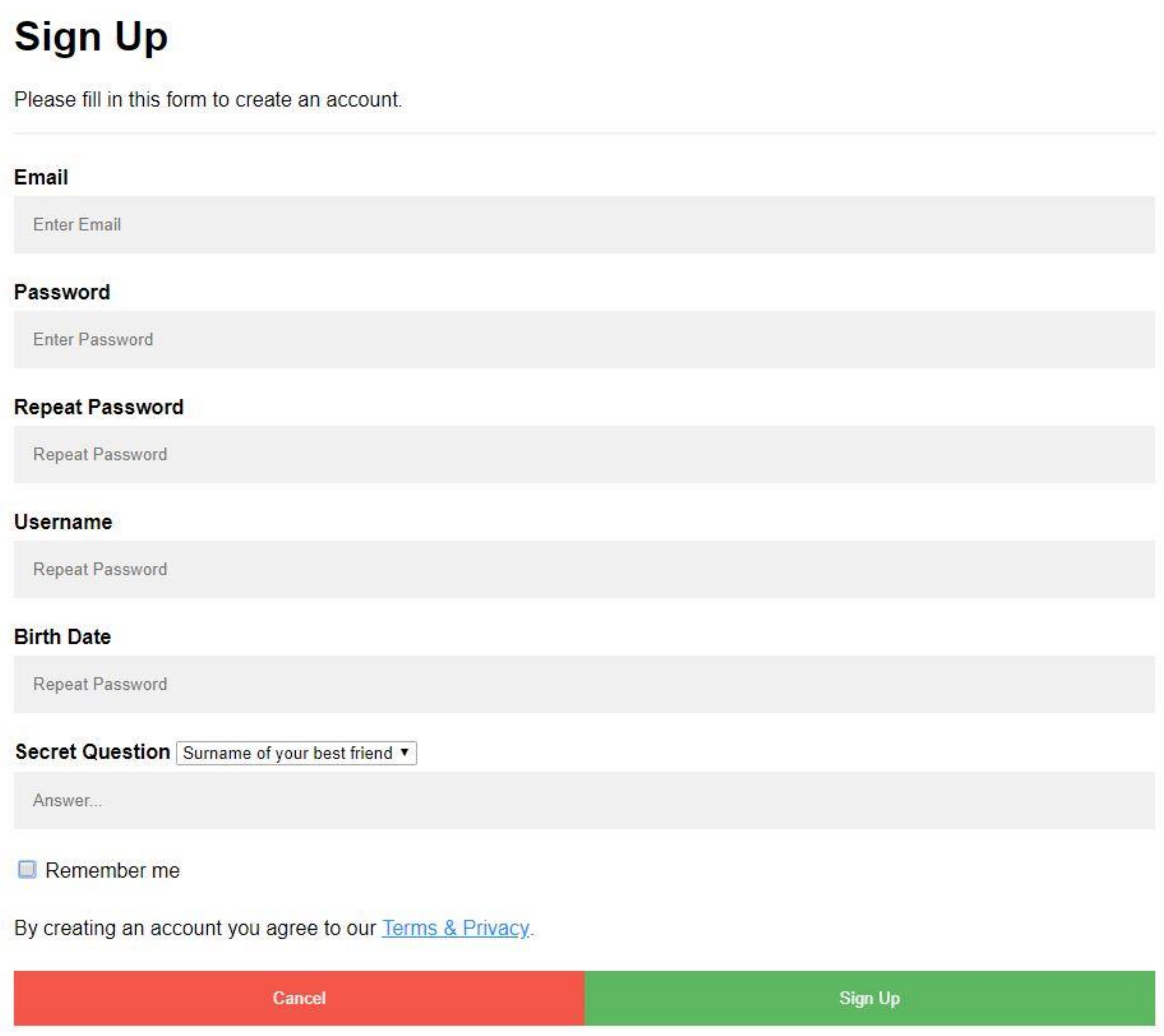
set name = @name, address= @ address, info = @info

where location.id = @location_id

Adding new photos:

Insert into photo

Values (@location_id, @title)



Sign Up

Please fill in this form to create an account.

Email

Enter Email

Password

Enter Password

Repeat Password

Repeat Password

Username

Repeat Password

Birth Date

Repeat Password

Secret Question Surname of your best friend ▾

Answer...

□ Remember me

By creating an account you agree to our Terms & Privacy.

5.14 SIGN UP FOR USER

Inputs: @email, @password, @username, @birth_date, @answer

Process: User will sign up in this page

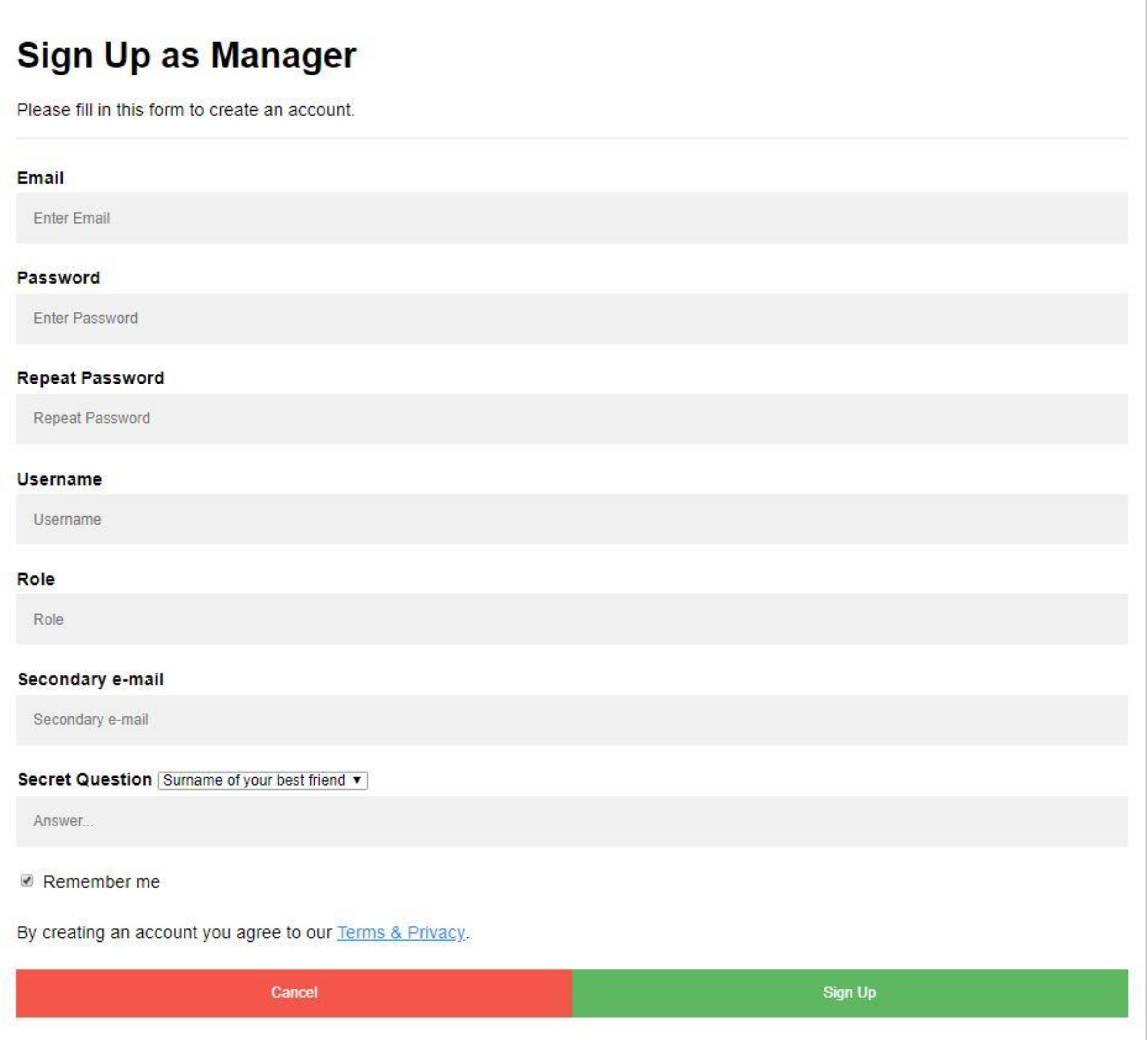
SQL statements:

New user sign-up:

insert into user

values(@email, @password, @username, @birth_date, @answer)

Where @password = @reppass



Sign Up as Manager

Please fill in this form to create an account.

Email

Enter Email

Password

Enter Password

Repeat Password

Repeat Password

Username

Username

Role

Role

Secondary e-mail

Secondary e-mail

Secret Question Surname of your best friend ▼

Answer...

☑ Remember me

By creating an account you agree to our Terms & Privacy.

5.15 SIGN UP FOR MANAGERS

Inputs: (@email, @password, @username, @role, @secondary_email, @answer

Process: Manager will sign up in this page

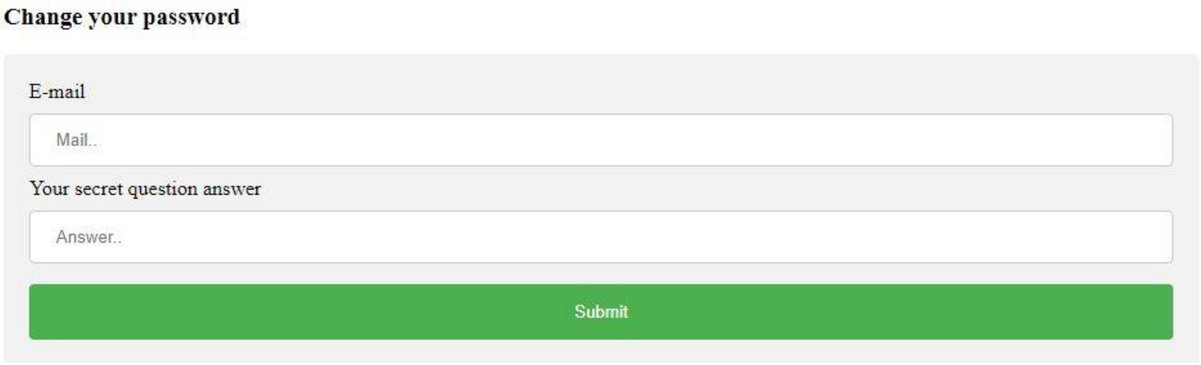
SQL statements:

New manager user sign-up:

İnsert into LocationAdmin

Values(@email, @password, @username, @role, @secondary_email, @answer)

Where @password = @reppass



Change your password

E-mail

Mail..

Your secret question answer

Answer..

5.16 CHANGE PASSWORD VALIDATION

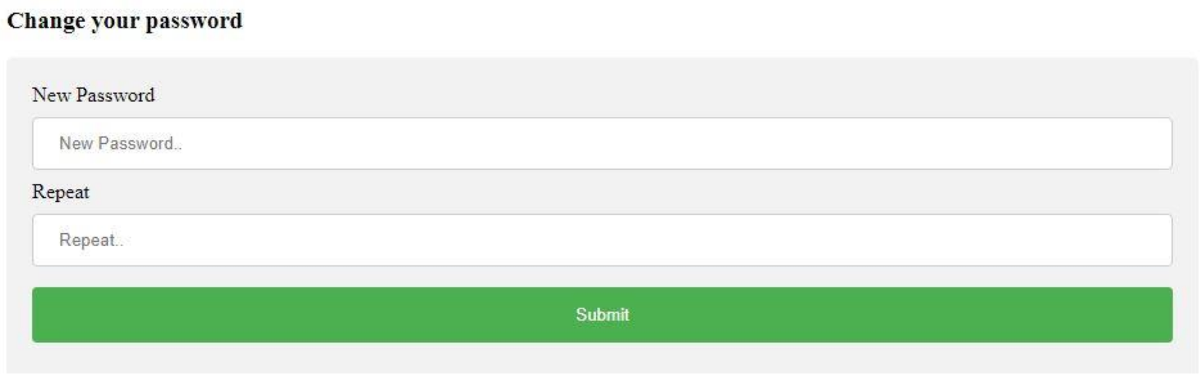
Inputs: @email, @answer

Process: After click on forgot password button, this page will show up. User should enter mail and secret question answer so that system will validate that user.

SQL statements:

Validation of mail and answer:

```
Select id

From GeneralUser

Where email = @email and answer = @answer
```



Change your password

5.17 CHANGE PASSWORD

Inputs: @id, @password, @reppass

Process: After mail-question validation this page will show up and user decide his/her new password.

SQL statements:

Decide new password:

Update GeneralUser

Set password = @password

Where id = @id

Where password = repassword

Where @password = @reppass

6.0 ADVANCED DATABASE COMPONENTS

6.1 View

We will have two different views in the project, one for User and one for Location Manager.

6.1.1 User View

Users will mainly see their personal “News Feed” page when they sign in to the system. News feed will be produced by User’s friends and system will order the check-ins of User’s friends according to time. Check-ins which posted lastly will be seen first and User can see other check-in chronically. So, when User logs in to the system, we will use this view to list the check-ins.

```
Create view user_friends as

Select person2 from user, friends

Where user.id = friends.person1

Create view friends_checkins as

Select * from checkin

Where checkin.user_id in user_friends
```

Users can also see a location’s page, check-ins made in the location, and the rating. We will use this view to list check-ins.

```
Create view checkins_inloc as

Select * from checkin
```

```
Where loc_id = @loc_id

Order by time desc
```

6.1.2 Location Manager View

Location Manager will mainly see his/her location's page, check-ins made in the place and the rating of the place. Check-ins made in the place will chronically order and Location Manager will see the lastly posted check-in on the top of the page. We will use this view to list the check-ins.

```
Create view location_ret as

Select * from location

Where admin_id = @admin_id
```

6.2 Stored Procedures

We planned to use stored procedures when creating a check-in, location, and user. Whenever a check-in created by the user, we need to create a check-in tuple for every check-ins in our system.

A procedure that is similar for check-ins will be applied whenever a User, Location Manager or a location created, and we need to create as many tuples as them.

We will need to store check-ins for displaying them in User's and Location Manager's view, store friends for displaying check-ins in the "News Feed" page for User's view, and store locations for displaying them in User's and Location Manager's View.

6.3 Reports

When a User wants to see how many likes his/her check-ins have, User will see them as a report and can track them according to time and User.

6.4 Triggers

- When a check-in is deleted from system, all comment which connected to that check-in will also be deleted.
- When a comment is liked, like count will be increased.
- When location manager is created, location table will be updated.
- When a check-in added to system, check-in count will be increased.
- When a location deleted, check-ins for that location also will be deleted.
- When a check-in deleted, number of check-ins will be decreased.
- When a friend deleted, messages with those users also will be deleted.

6.5 Constraints

- If someone wants to use this system, he/she should login.
- If user wants to see comments of check-in, user should enter the corresponding check-in page.
- If someone wants to check-in a location, location should exist in system.
- User should search for a person if he/she wants add him/her as a friend.
- User should search for a location if he/she wants to check-in.
- User cannot see non friends check-ins if the privacy is close.
- There cannot be two same username.

7.0 Implementation plan

We are going to use MySQL server in our project as database management system. For web site logic and UI we will code in php, html also js.