

The image shows the homepage of LiveVibe. At the top, there's a red navigation bar with the "LiveVibe" logo on the left and links for "HOME", "TREND", "GENRE", "SEARCH", "REGISTER", and "LOG IN". Below the navigation is a large banner featuring the band Linkin Park standing in front of a brick wall. The band members are dressed in various styles of clothing, including jackets, shirts, and sunglasses. Overlaid on the banner is the band's name "LINKIN PARK" in large, white, block letters. Below the banner, a black bar displays the text "RADIO CITY MUSIC HALL" and "LINCOLN PARK FAREWELL CONCERT \$280". Underneath this, a teal-colored section titled "THE ROCKING PERFORMERS" features three photos of band members: Chester Bennington (vocalist), Mike Shinoda (vocals, rhythm guitar), and Rob Bourdon (drums). To the right of these photos is a large, detailed illustration of a yellow electric guitar. The background of this section has a faint, repeating pattern of musical instruments like guitars and drums. At the bottom of the page is a green footer with a stylized graphic of a guitar neck on the left. On the right side of the footer, there's a section titled "ABOUT LIVEVIBE" with a paragraph of text explaining the website's mission to track favorite bands and provide comprehensive concert information. The footer also includes copyright and design credits: "Copyright © 2014 LiveVibe" and "Designed by Xun Gong + Wei Yu".

LiveVibe

HOME TREND GENRE SEARCH REGISTER LOG IN

RADIO CITY MUSIC HALL
LINCOLN PARK FAREWELL CONCERT \$280

THE ROCKING PERFORMERS

CHESTER BENNINGTON
VOCAL

MIKE SHINODA
VOCALS, RHYTHM GUITAR

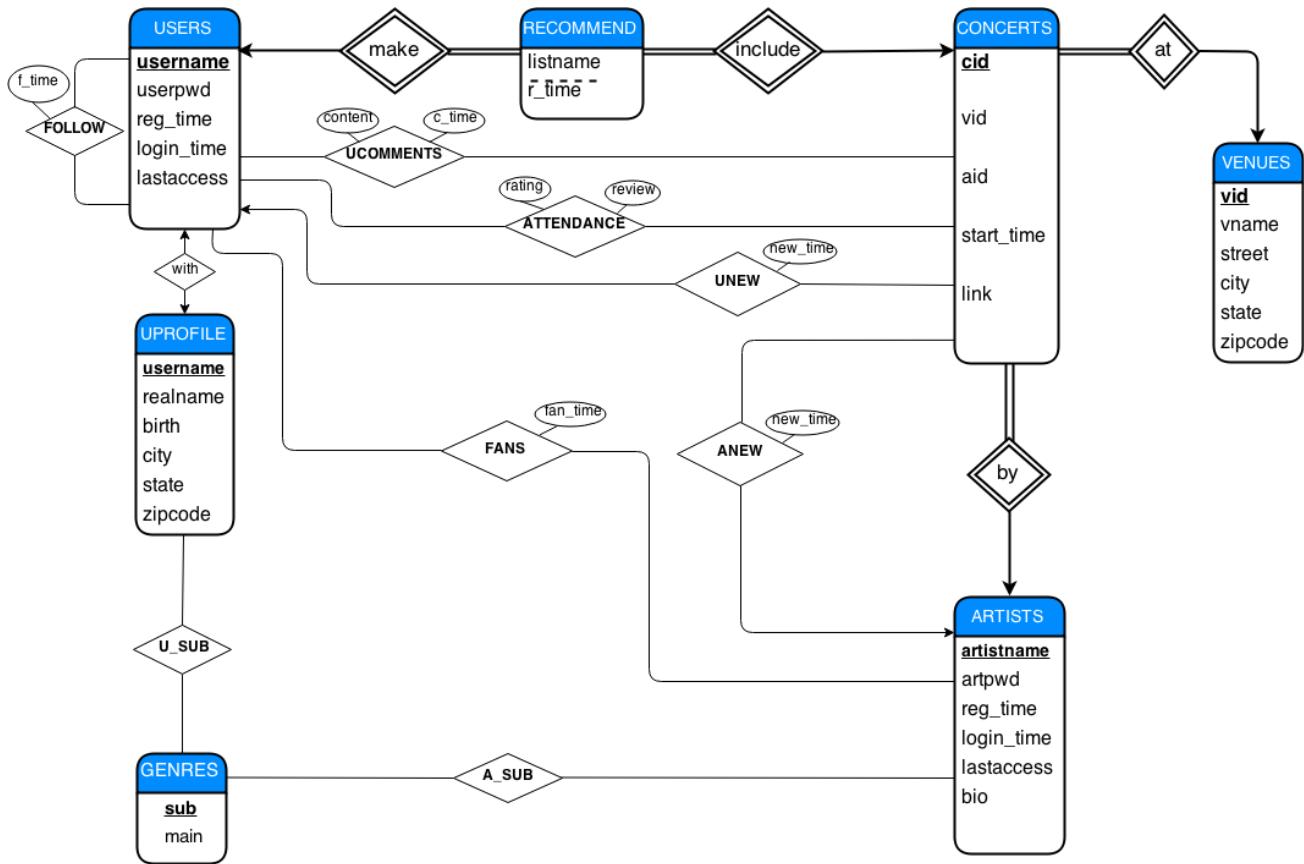
ROB BOURDON
DRUMS

ABOUT LIVEVIBE

We believe that an amazing concert can change your life. We built LiveVibe so we'd have one place to track our favorite bands so we'd never miss them live. We want to take the hassle out of finding out when your favorite bands are coming to your city. LiveVibe works by indexing many different ticket vendors, venue websites, and local newspapers to create the most comprehensive database of upcoming concerts happening around the world. It's our mission to have every show happening anywhere, from your friend's show at your local bar, right up to Lady Gaga tour dates in Tokyo.

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1. Entity-relationship model diagram



2. Schema description

USERS(username, userpwd, reg_time, login_time, lastaccess)

A user in table **USERS** have an **username** as the primary key to identify itself. **userpwd** is created by user when a user signs up, and **reg_time** is created automatically. **login_time** indicates user's login timestamp of this time and **lastaccess** indicates user's timestamp of the last time.

UPROFILE(username, realname, birth, city, state, zipcode)
foreign key **username** referencing **USERS**

Table **UPROFILE** contains a user's real name (**realname**), date of birth (**birth**), and the **city**, **state**, **zipcode** of residence.

U_SUB(username, sub)
foreign key **username** referencing **USERS**
foreign key **sub** referencing **GENRES**

Table U_SUB represents various tastes of a user.

```
FOLLOW(from_usr, to_usr, f_time)
foreign key from_usr referencing USERS.username
foreign key to_usr referencing USERS.username
```

Table FOLLOW represents relations between users. Anyone of users can follow another one with a timestamp (f_time).

```
ATTENDANCE(username, cid, rating, review)
foreign key username referencing USERS
foreign key cid referencing CONCERTS
```

A user can choose whether to go to a concert with empty values of rating and review. If a user have been to a concert, he/she can give a rating or a review of this concert.

```
CONCERTS(cid, vid, artistname, start_time, link)
foreign key vid referencing VENUES
foreign key artistname referencing ARTISTS
```

A concert is performed by an artist (artistname) in a venue (vid) with a time of start (start_time).

```
UCOMMENTS(username, cid, c_time, content)
foreign key username referencing USERS
foreign key cid referencing CONCERTS
```

```
UNEW(username, cid, new_time)
foreign key username referencing USERS
foreign key cid referencing CONCERTS
```

```
ANEW(artistname, cid, new_time)
foreign key artistname referencing ARTISTS
foreign key cid referencing CONCERTS
```

```
FANS(username, artistname, fan_time)
foreign key username referencing USERS
foreign key artistname referencing ARTISTS
```

```
ARTISTS(artistname, artistname, artpwd, reg_time, login_time, lastaccess, bio)
```

```
A_SUB(artistname, sub)
foreign key artistname referencing ARTISTS
foreign key sub referencing GENRES
```

```
VENUES(vid, vname, street, city, state, zipcode)
```

GENRES(sub, main)

RECOMMEND(username, cid, listname, r_time)
foreign key username referencing USERS
foreign key cid referencing CONCERTS

3. Create a database system called **LiveVibe** as below:

```
CREATE TABLE users (
    username varchar(20),
    userpwd varchar(20),
    reg_time datetime,
    login_time datetime,
    lastaccess datetime,
    primary key (username));
```

```
CREATE TABLE genres (
    sub varchar(20),
    main varchar(20),
    primary key (sub));
```

```
CREATE TABLE venues (
    vid char(10),
    vname varchar(40),
    street varchar(40),
    city varchar(20),
    state varchar(20),
    zipcode char(5),
    primary key (vid));
```

```
CREATE TABLE artists (
    artistname varchar(30),
    artpwd varchar(20),
    bio varchar(300),
    reg_time datetime,
    login_time datetime,
    lastaccess datetime,
    primary key (artistname));
```

```
CREATE TABLE uprofile (
    username varchar(20),
    realname varchar(30),
    birth datetime,
    city varchar(20),
    state varchar(20),
    zipcode char(5),
    primary key (username),
```

```
foreign key (username) references users(username));  
  
CREATE TABLE u_sub (  
    username varchar(20),  
    sub varchar(20),  
    primary key (username, sub),  
    foreign key (username) references users(username),  
    foreign key (sub) references genres(sub));  
  
CREATE TABLE follow (  
    from_usr varchar(20),  
    to_usr varchar(20),  
    f_time datetime,  
    primary key (from_usr, to_usr),  
    foreign key (from_usr) references users(username),  
    foreign key (to_usr) references users(username));  
  
CREATE TABLE concerts (  
    cid char(10),  
    vid char(10),  
    artistname varchar(30),  
    start_time datetime,  
    link varchar(40),  
    primary key (cid),  
    foreign key (vid) references venues(vid),  
    foreign key (artistname) references artists(artistname));  
  
  
CREATE TABLE attendance (  
    username varchar(20),  
    cid char(10),  
    rating int(2),  
    review varchar(300),  
    rv_time datetime,  
    primary key (username, cid),  
    foreign key (username) references users(username),  
    foreign key (cid) references concerts(cid));  
  
CREATE TABLE ucomments (  
    username varchar(20),  
    cid char(10),  
    c_time datetime,  
    primary key (username, cid, c_time),  
    foreign key (username) references users(username),  
    foreign key (cid) references concerts(cid));  
  
CREATE TABLE unew (
```

```
username varchar(20),
cid char(10),
new_time datetime,
primary key (username, cid),
foreign key (username) references users(username),
foreign key (cid) references concerts(cid));

CREATE TABLE fans (
username varchar(20),
artistname varchar(30),
fan_time datetime,
primary key (username, artistname),
foreign key (username) references users(username),
foreign key (artistname) references artists(artistname));

CREATE TABLE anew (
artistname varchar(30),
cid char(10),
new_time datetime,
primary key (artistname, cid),
foreign key (artistname) references artists(artistname),
foreign key (cid) references concerts(cid));

CREATE TABLE recommend (
username varchar(20),
cid char(10),
listname varchar(30),
rm_time datetime,
primary key (username, cid, listname),
foreign key (username) references users(username),
foreign key (cid) references concerts(cid));

CREATE TABLE a_sub (
artistname varchar(30),
sub varchar(20),
primary key (artistname, sub),
foreign key (artistname) references artists(artistname),
foreign key (sub) references genres(sub));
```

4. Write SQL queries for the following tasks

We wrote **Stored Procedures AND views** to simplify later PHP implementation, I would like to demonstrate them all following User Operation Flow.

1) User:

a) Sign up:

After fill in the register form, and user submit. It will call **uprofile_insert()** based on their register type.

```
DELIMITER $$  
CREATE DEFINER=`root`@`localhost` PROCEDURE `uprofile_insert`  
(IN `uname` VARCHAR(20), IN `pwd` VARCHAR(20), IN `realn` VARCHAR(30),  
IN `bir` DATETIME, IN `ct` VARCHAR(20), IN `st` VARCHAR(20),  
IN `zip` CHAR(5), IN `rt` DATETIME)  
  
BEGIN  
    INSERT INTO users  
    SET username=uname, userpwd=pwd, reg_time=rt, login_time=rt, lastaccess=rt;  
    INSERT INTO uprofile  
    SET username=username, realname = realn, birth=bir, city=ct, state=st, zipcode=zip;  
END$$
```

b) Login

We need to check which the login type of user, it could be normal user/fans, and it could be artists. We build this process within **check_id()**, **check_id_sub()** and **check_pwd()**, we guarantee same login user interface but different conditional control underhood.

```
DELIMITER $$  
CREATE DEFINER=`root`@`localhost` PROCEDURE `check_id`  
(IN `submitted_name` VARCHAR(20))  
BEGIN  
    CALL check_id_sub(submitted_name, @type);  
    SELECT @type;  
END$$
```

check_id() will call a sub stored procedure called **check_id_sub()** to do the dirty work, deciding a login person is user or artist.

```

DELIMITER $$

CREATE DEFINER=`root`@`localhost` PROCEDURE `check_id_sub`
(IN `submitted_name` VARCHAR(20), OUT `usertype` VARCHAR(10))
BEGIN
    DECLARE urow INT;
    DECLARE arow INT;

    SELECT COUNT(distinct username) INTO urow
    FROM users
    WHERE username = submitted_name;

    IF urow != 0 THEN
        SET usertype = "user";
    ELSE
        SELECT COUNT(distinct artistname) INTO arow
        FROM artists
        WHERE artistname = submitted_name;

        IF arow != 0 THEN
            SET usertype = "artist";
        ELSE
            SET usertype = NULL;
        END IF;
    END IF;
END$$

```

After we get the persons login type, we can match the username and password, check if successfully login LiveVibe.

```

DELIMITER $$

CREATE DEFINER=`root`@`localhost` PROCEDURE `check_pwd`
(IN `submitted_name` VARCHAR(20), IN `submitted_pwd` VARCHAR(20),
IN `usertype` VARCHAR(10))
BEGIN
    IF usertype = "user" THEN

        SELECT username
        FROM users
        WHERE username = submitted_name AND userpwd = submitted_pwd;

    ELSEIF usertype = "artist" THEN

        SELECT artistname
        FROM artists
        WHERE artistname = submitted_name AND artpwd = submitted_pwd;

    END IF;
END$$

```

After we logged in , we need to update login time and the last access time, we use `update_login_time()` and `update_LAT()` to complete these tasks.

`update_login_time()`

```
DELIMITER $$  
CREATE DEFINER='root'@'localhost' PROCEDURE `update_login_time`  
(IN `submit_name` VARCHAR(20), IN `loginT` DATETIME, IN `usertype` VARCHAR(10))  
BEGIN  
    IF usertype = "user" THEN  
        UPDATE users SET login_time = loginT  
        WHERE username = submit_name;  
    ELSEIF usertype = "artist" THEN  
        UPDATE artists SET login_time = loginT  
        WHERE artistname = submit_name;  
    END IF;  
END$$  
DELIMITER ;  
update_LAT()
```

```
DELIMITER $$  
CREATE DEFINER='root'@'localhost' PROCEDURE `update_LAT`  
(IN `submit_name` VARCHAR(20), IN `LAT` DATETIME, IN `usertype` VARCHAR(10))  
BEGIN  
    IF usertype = "user" THEN  
        UPDATE users SET lastaccess = LAT  
        WHERE username = submit_name;  
    ELSEIF usertype = "artist" THEN  
        UPDATE artists SET lastaccess = LAT  
        WHERE artistname = submit_name;  
    END IF;  
END$$  
DELIMITER ;
```

c) Follow & Fan

Follow another user can be done by click on a button. Then we will update the **follow** table. For become an fan of a artist, the mechanism is the same, and **fans** table will be updated.

`follow_action()`

```
DELIMITER $$  
CREATE DEFINER='root'@'localhost' PROCEDURE `follow_action`  
(IN `from_uname` VARCHAR(20), IN `to_uname` VARCHAR(20))  
BEGIN  
    INSERT INTO follow SET  
        from_usr = from_uname,  
        to_usr = to_uname,  
        f_time = NOW();  
DELIMITER ;
```

fan – SQL:

```
INSERT INTO fans SET  
username = $username,  
artistname = $artistname,  
fan_time = NOW();
```

- d) Plan to a concert

User can show their interests to a specific concert by clicking Plan to go button, this action will create a records in **attendance** table without rating and review value.

```
INSERT INTO attendance SET
username = $username, cid = $cid,
rating = NULL, review = NULL, rv_time = NULL;
```

- e) Comment on a Concert

Any user can comment under the concert page for many times:

```
INSERT INTO ucomments SET
username = $username, cid = $cid,
content = $content, c_time = NOW();
```

- f) Post a review and rating

We are assuming a logged in user can rating/review a concert only after showed his/her plan to go this concert. And of course, we assume no user can do this to a concert which hasn't started yet.

rating:

```
UPDATE attendance SET rating = $rating
WHERE username = $username AND cid = $cid;
```

review:

```
UPDATE attendance SET review = $review, rv_time = NOW()
WHERE username = $username AND cid = $cid;
```

- g) Post a additional concert that not in LiveVibe

user_Post() is for adding concert info **concerts** table and update **unew** table:

```
DELIMITER $$

CREATE DEFINER=`root`@`localhost` PROCEDURE `user_Post`
(IN `cid_IN` CHAR(10), IN `vid_IN` CHAR(10), IN `aname` VARCHAR(30),
IN `date_time` DATETIME, IN `con_link` VARCHAR(40), IN `poster` VARCHAR(20))
BEGIN
    INSERT INTO concerts SET
        cid = cid_IN, vid = vid_IN, artistname = aname,
        start_time = date_time, link = con_link;

    INSERT INTO unew SET
        username = poster, cid = cid_IN, new_time = NOW();
END$$
DELIMITER ;
```

- h) Make recommendation list of concerts

```
INSERT INTO recommend SET
username = $username, cid = $cid,
listname = $listname, rm_time = NOW();|
```

- i) Reputation System

For Star User with high reputation, they are allowed to post concert of bands or artist in LiveVibe, they can also make recommendation list. We define three views to monitor our three factors for calculating reputation score of each user.

View 1: usr_follower

```
CREATE VIEW `usr_follower` AS
select `users`.`username` AS `to_usr`, count(distinct `follow`.`from_usr`) AS `flwer_num`
from (`users` left join `follow` on((`users`.`username` = `follow`.`to_usr`)))
group by `users`.`username`;
```

View 2: usr_following

```
CREATE VIEW `usr_following` AS
select `users`.`username` AS `from_usr`, count(distinct `follow`.`to_usr`) AS `flw_num`
from (`users` left join `follow` on((`users`.`username` = `follow`.`from_usr`)))
group by `users`.`username`;
```

View 3: usr_review

```
CREATE VIEW `usr_review` AS
select `users`.`username` AS `username`, count(distinct `attendance`.`review`) AS `review_num`
from (`users` left join `attendance` on((`users`.`username` = `attendance`.`username`)))
group by `users`.`username`;
```

Reputation Calculate Algorithm:

$$\text{repu} = 0.4 * \$\text{follower} + 0.5 * \$\text{reviews} + 0.1 * \$\text{following};$$

If reputation result is larger than 2, we say this user is a star user and he/she can post concert information to LiveVibe.

2) Band and Concert:

- a) Register and Login

artist_insert() to create a artist profile:

```
DELIMITER $$
CREATE DEFINER=`root`@`localhost` PROCEDURE `artist_insert`(
IN `aname` VARCHAR(30), IN `apwd` VARCHAR(20),
IN `b` VARCHAR(300), IN `rt` DATETIME)
BEGIN
    INSERT INTO artists
        SET artistname=aname, artpwd=apwd, bio = b, reg_time=rt,
        login_time=rt, lastaccess=rt;
END$$
DELIMITER ;
```

login_check is the same as user because we integrate a conditional check into the procedure.

b) Post New Concert

```

DELIMITER $$

CREATE DEFINER=`root`@`localhost` PROCEDURE `art_Post`
(IN `cid_IN` CHAR(10), IN `vid_IN` CHAR(10),
IN `aname` VARCHAR(30), IN `date_time` DATETIME,
IN `con_link` VARCHAR(40))
BEGIN
    INSERT INTO concerts SET
        cid = cid_IN, vid = vid_IN, artistname = aname,
        start_time = date_time, link = con_link;

    INSERT INTO anew SET
        artistname = aname, cid = cid_IN, new_time = NOW();
END$$
DELIMITER ;

```

3) Browse/Search Queries:

- All concerts with a specific genre:

```

SELECT artistname FROM a_sub WHERE sub = ? ORDER BY artistname ASC;

SELECT C.cid, C.artistname, C.start_time,
       V.vname, V.street, V.city, V.state, V.zipcode
FROM a_sub AS G JOIN artists AS A JOIN concerts AS C JOIN venues AS V
ON G.artistname = A.artistname AND C.artistname = A.artistname AND C.vid = V.vid
WHERE G.sub = ?
ORDER BY C.start_time ASC

```

- All concerts recommended by my star user I followed
&
All newly posted concerts since the last time I logged in:

We integrate these two task into one stored procedure **usr_new_feed()**:

After call this procedure, we will get all the concerts from the star users I followed, the result will be ordered by add_time of concerts.

If star users you followed just add a concert to one of the recommendation list he made, your feed will updated and compare add_time with your lastaccesstime, and show a spin sign to indicate it's new. We add a **usr_newMsg_num()** procedure to assist new feed checking.

usr_new_feed():

```

DELIMITER $$
CREATE DEFINER='root'@'localhost' PROCEDURE `usr_new_feed`
(IN `uname` VARCHAR(20))
BEGIN
    DECLARE lat DATETIME;
    DECLARE newM INT;

    SET newM = 0;

    SELECT lastaccess INTO lat
    FROM users
    WHERE username = uname;

    SELECT COUNT(*) INTO newM
    FROM users AS Me JOIN follow AS Star JOIN recommend AS R
    ON Me.username = uname AND Me.username = Star.from_usr
        AND Star.to_usr = R.username AND R.rm_time >= lat
    GROUP BY Me.username;

    IF newM > 0 THEN
        (SELECT Star.to_usr AS star, R.listname, R.rm_time, R.cid,
            C.artistname, C.start_time, V.vname, V.street,
            V.city, V.state, V.zipcode
        FROM users AS Me JOIN follow AS Star JOIN recommend AS R
            JOIN concerts AS C JOIN venues AS V
        ON Me.username = uname AND Me.username = Star.from_usr AND
            Star.to_usr = R.username AND R.rm_time >= lat AND
            R.cid = C.cid AND C.vid = V.vid)
        UNION
        (SELECT Star.to_usr AS star, R.listname, R.rm_time, R.cid,
            C.artistname, C.start_time, V.vname, V.street,
            V.city, V.state, V.zipcode
        FROM users AS Me JOIN follow AS Star JOIN recommend AS R
            JOIN concerts AS C JOIN venues AS V
        ON Me.username = uname AND Me.username = Star.from_usr AND
            Star.to_usr = R.username AND R.rm_time < lat AND
            R.cid = C.cid AND C.vid = V.vid)
        ORDER BY rm_time DESC LIMIT 3;
    ELSE
        SELECT Star.to_usr AS star, R.listname, R.rm_time, R.cid,
            C.artistname, C.start_time, V.vname, V.street,
            V.city, V.state, V.zipcode
        FROM users AS Me JOIN follow AS Star JOIN recommend AS R
            JOIN concerts AS C JOIN venues AS V
        ON Me.username = uname AND Me.username = Star.from_usr AND
            Star.to_usr = R.username AND R.cid = C.cid AND C.vid = V.vid
        ORDER BY rm_time DESC LIMIT 3;
    END IF;
END$$
DELIMITER ;

```

usr_newMsg_num():

```

DELIMITER $$
CREATE DEFINER=`root`@`localhost` PROCEDURE `usr_newMsg_num`
(IN `uname` VARCHAR(20))
BEGIN
    DECLARE lat DATETIME;
    DECLARE newM INT;

    SET newM = 0;

    SELECT lastaccess INTO lat
    FROM users
    WHERE username = uname;

    SELECT COUNT(*) INTO newM
    FROM users AS Me JOIN follow AS Star JOIN recommend AS R
    ON Me.username = uname AND Me.username = Star.from_usr AND
    |Star.to_usr = R.username AND R.rm_time >= lat
    GROUP BY Me.username;

    SELECT newM as newMessage;
END$$
DELIMITER ;

```

- All concerts in a time range:

```

SELECT C.cid, C.artistname, C.start_time,
       V.vname, V.street, V.city, V.state, V.zipcode
  FROM concerts AS C JOIN venues AS V
 WHERE C.vid = V.vid AND C.start_time >= ? AND C.start_time <= ?
 ORDER BY C.start_time ASC

```

- Search user

```
SELECT username FROM users WHERE username = ?;
```

- Search artist

```
SELECT artistname FROM artists WHERE artistname = ?;
```

4) System Recommendations:

We implemented a simple recommendation called Vibe Sense. It will list concerts from the genres you like.

usr_vibe_sense():

```

DELIMITER $$
CREATE DEFINER=`root`@`localhost` PROCEDURE `usr_vibe_sense`
(IN `uname` VARCHAR(20))
BEGIN
    SELECT C.cid, C.artistname, C.start_time, V.vname, V.street,
           V.city, V.state, V.zipcode
  FROM u_sub AS U JOIN a_sub AS A JOIN concerts AS C JOIN venues AS V
 WHERE U.sub = A.sub AND A.artistname = C.artistname AND
       C.vid = V.vid AND C.start_time > NOW()
    WHERE U.username = uname
    ORDER BY C.start_time ASC;
END$$
DELIMITER ;

```

4 Functions and Flow of LiveVibe

4.1 Home Page

4.1.1 Navigation bar

The navigation header is a window-wide banner fixed to the top of the browser. The website logo is on the left, and the navigation bar is on the right. The navigation bar contains 6 buttons. The last 2 buttons are register and login, which will disappear when a user logs in the website, and then a logout button shows up instead on the leftmost position of the bar.



The other 4 buttons are Home, Trend, Genre, and Search. When Home button is clicked, if there is no user has logged in the website, index.php will be called, then the homepage will show up with a wide carousel block. But if a user has logged in, it will lead to user_profile.php page. Genre button takes you to a page with various music genres, which contain a bunch of concert recommendation lists categorized by genres. Search button leads you to the search page where you can find concerts in any ways you want. All those pages will be illustrated in details later in this document.

4.1.2 Widescreen carousel

The widescreen carousel shows recently trended concerts on the homepage to attract new users to



join the LiveVibe music community. It slides images of different concerts from right to left cyclically by a specified time interval. The caption showing on the bottom-left of a concert image tells the artist, the venue, and the price range of tickets. The slideshow carousel is a component in Bootstrap framework. It can be written in few simple HTML codes. It is beautifully complemented using CSS3 for its animations, so the transition animations cannot be shown on some outdated browsers like IE8

& 9.

4.2 User Flow

4.2.1 Register

An account is required to fully access LiveVibe website, no matter you are a music lover or an musician, so if you do not have one you should register one by click on the Register button. A page register.php will be called up to help you complete the register process. The register page has only a form in it. A new user can choose his/her own username as long as it has not been taken, along with a password for verifying user's identity in the next login. It also can take some other optional information that will help LiveVibe or other users to know more about you, such as real name, birthday, city, state and zipcode of residence. An address of user's residence may help website to recommend concerts based on his/her location.

The screenshot shows the 'LiveVibe' website's registration page. At the top, there is a red navigation bar with the 'LiveVibe' logo on the left and four menu items: 'HOME', 'TREND', 'GENRE', and 'SEARCH' on the right. The main content area has a white background with a title 'WELCOME TO LIVEVIBE' at the top. Below the title is a form with several input fields: 'Nickname', 'Password', 'Realname' (which is currently selected), 'Birthday', 'City', 'State', 'Zipcode', and 'Bio (Artist)'. At the bottom of the form, there are two radio buttons: 'User' and 'Artist', both of which are empty. Below the radio buttons is a large blue 'Submit' button.

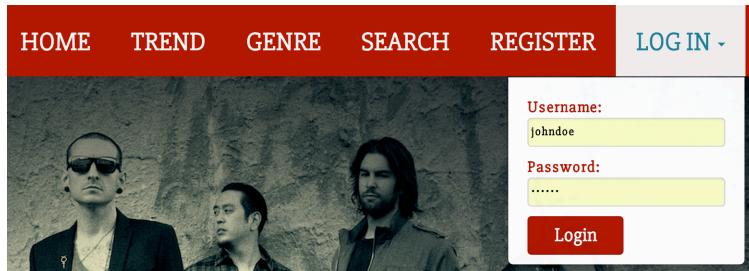
One thing should be mentioned is when a user register he/she must choose to create the account as a general user or an artist. It is important because two accounts type have very different privileges to tour around LiveVibe, and there is no way to switch between them once the account is created. The restriction is limited by the database system design behind the website. If you are an artist, we highly suggest you write your own biography in the form, so that more people will know about you.

When the required fields in the form are all completed, user can click the Submit button on the bottom of the page. As long as there is no conflict occurred in our database and all user information is submitted in required format, a new account can be successfully created. A unique ID number (uid for general users, or aid for artists) is generated with the account, but users need not to remember it because it is only for our system operation and administration. Now you can enjoy your music life in

the warming community of LiveVibe.

4.2.2 Login

When you already have an account you can conveniently login LiveVibe by submit your username and password in the login menu. The login menu is not designed within a specific page, but integrated into the navigation bar on the top with a handy drop-down menu button. Once user's submission matches our database, he/she will be directed to the user_profile.php page to enter the LiveVibe community.



4.2.3 User Profile Details

The user profile page is the portal to the LiveVibe community. It is designed in a simple style web interface with a young and vibrant color scheme. Several basic panels are provided to deliver the information you may care, which are user info panel, user plan panel, user feed panel, and the LiveSense panel.

In all general users, there also exist two different groups of user identified by LiveVibe system, normal users and star users. These two groups of user is determined by a reputation system in LiveVibe, who grants higher privileges to star users to help us make the community better and better. Details will be discussed later.

4.2.3.1 Normal Users

Normal users are the core group in LiveVibe community. They are the absolute majority in our ecosystem.

4.2.3.1.1 Show basic information, add taste preferences

The first panel in the user profile page is user info panel. It shows basic information about the user such as name, location, and an image icon as well if the user has uploaded one. On the bottom of user info panel is statistics of how many other users or artists this user is following, how many other users is follow by this user, and how many concert reviews this user have written.

The screenshot shows the LiveVibe user profile for a user named JOHNDOE. At the top, there is a circular profile picture of a smiling man. Below the picture, the user's name "JOHNDOE" and location "NEW YORK, NY" are displayed. Under "TASTE:", there are two buttons: "Alternative rock" (highlighted in blue) and "Indie folk". To the right, there is a dropdown menu set to "Alternative rock" with a "I like it!" button next to it. Below the profile information, there are three statistics: 2 Followers, 1 Following, and 2 Reviews. A "PLAN TO GO" section lists two events: "SNAPLINE" at BEACON THEATRE on 2015-03-05 and "BELLE & SEBASTIAN" at RADIO CITY MUSIC HALL on 2015-06-10. A "NEWS FEED" section shows three news items from "mchotdog": "WHERE TO GO THIS WINTER" (2014-12-12), "TEST LISTNAME" (2015-06-10), and "2015 MUST" (2015-07-01). A "CONCERTS FROM LIVE-SENSE" section lists a single event: "BOB DYLAN" at MADISON SQUARE GARDEN on 2015-07-01.

Event	Date	Location
SNAPLINE	2015-03-05	BEACON THEATRE 2124 Broadway, New York, NY, 10023
BELLE & SEBASTIAN	2015-06-10	RADIO CITY MUSIC HALL 1260 6th Avenue, New York, NY, 10020
BOB DYLAN	2015-07-01	MADISON SQUARE GARDEN 4 Pennsylvania Plaza, New York, NY, 10001

The music taste preferences are shown below user's name and location. And there are a dropdown menu and a button on the right of the panel, which has various music genres in it. Users can click on the menu and choose one of them, then press the button next to the menu, and the genre will be added into user's profile. This is important to a LiveVibe user because it recommends concert the user may like mostly based on user's tastes. Therefore, if a user tells LiveVibe more about his/her tastes and more specific about it, LiveVibe will recommend more concerts the user may like.

4.2.3.1.2 Plan to Go

The user plan panel shows a list of concerts the user may go. LiveVibe will not know if the user really go to a concert, but once the user make a record on LiveVibe, he/she can track the schedule of all concerts he/she may go and share his/her plans to users following this user.

4.2.3.1.3 Recommendation Lists

If any users this user is following post a recommendation list of concerts, the list will appear here. You can click it to see the whole list in details.

The screenshot shows a section of the LiveVibe website with a red header bar containing the logo, 'HOME', 'TREND', 'GENRE', 'SEARCH', and 'LOG OUT'. Below the header is a large, colorful geometric background graphic. A white rectangular box contains the heading 'WHERE TO GO THIS WINTER' in blue capital letters. Underneath, there is a table with five rows, each representing a concert recommendation. The columns are labeled 'DATE TIME', 'PERFORMER', 'VENUE', 'ADDED TIME BY', and an empty column. The data for each row is as follows:

DATE TIME	PERFORMER	VENUE	ADDED TIME BY	
2014-12-12 19:00:00	LINKIN PARK	TERMINAL 5 New York CONCERT DETAILS	2014-12-12 19:00:00	mchotdog
2015-04-14 20:00:00	ONEREPUBLIC	BEACON THEATRE New York CONCERT DETAILS	2015-04-14 20:00:00	mchotdog
2014-11-24 19:00:00	DAMIEN RICE	BARCLAYS CENTER Brooklyn CONCERT DETAILS	2014-11-24 19:00:00	mchotdog
2015-06-10 19:00:00	BELLE & SEBASTIAN	RADIO CITY MUSIC HALL New York CONCERT DETAILS	2015-06-10 19:00:00	mchotdog

4.2.3.1.4 System recommendation

The recommendation system of LiveVibe is called LiveSense. It suggests concerts based on user's tastes and location. Only concerts near the user will be pushed to the user.

4.2.3.2 Star Users

Star users are users with high reputation in LiveVibe community based on the criteria of LiveVibe system. Once a user is recognized as a star user with high reputation, he/she is granted with additional privileges. Besides that, a star user also shares all full functions of a normal user.

The screenshot shows the user profile page for 'MCHOTDOG' on the LiveVibe platform. The top navigation bar includes links for HOME, TREND, GENRE, SEARCH, and LOG OUT. The profile section features a circular profile picture of a man with glasses, the name 'MCHOTDOG ★', and the location 'WASHINGTON, DC'. Below this is a 'TASTE:' section with a list of genres: Alternative rock, Classic Country, Indie folk, Indie pop, Indie rock, New School Hip-Hop, and Old School Hip-Hop. A green button labeled 'Alternative rock' with a dropdown arrow and a 'I like it!' button are also present. Social metrics show 3 Followers, 1 Following, and 2 Reviews. A 'PLAN TO GO' section lists two concert events: 'ONEREPUBLIC' at BEACON THEATRE on 2015-04-14 and 'BOB DYLAN' at MADISON SQUARE GARDEN on 2015-07-01. A 'NEWS FEED' section is partially visible. The 'CONCERTS FROM LIVE-SENSE' section lists four more events: 'MAROON 5' at TERMINAL 5 on 2015-02-03, 'SNAPLINE' at BEACON THEATRE on 2015-03-05, 'ONEREPUBLIC' at BEACON THEATRE on 2015-04-14, and 'BELLE & SEBASTIAN' at RADIO CITY MUSIC HALL on 2015-06-10. The 'POST A NEW CONCERT' section allows users to select an artist (Belle & Sebastian), choose a venue (Barclays), and enter start date and time. The 'MAKE A RECOMMEND LIST' section lets users create a list name and add a concert (5500109291, Maroon!).

This is a user profile page screenshot of a star user.

4.2.3.2.1 A star in user profile page

To distinguish a star user, we give a star sign next to his/her name on the user profile page. It is visible to all visitors to the user's public page, which means this user is a reliable concertgoer with rich experiences with various music concerts he/she likes. This kind of users may share a lot more valuable information in LiveVibe community, so they are very important sources of user-generated content on LiveVibe.

4.2.3.2.2 Create recommendation lists of concerts

Just like an editor of a music magazine, a star user can share his/her own recommendation lists of concerts that are highly expected or recommended in coming days. Anyone who follows the star user can see those list on the user feed panel once they login. Those lists guide people to know about concerts which are cannot-missing, great-but-easily-ignored, or with any other high qualities, you name it.

4.2.3.2.3 Post missing concerts for certain artists

With their high credibility, a star user also can post information of concerts that lineup artists may not active on LiveVibe. This function enriches choices of concerts in LiveVibe community, because not every artist goes online but people who love music in our community need these valuable information.

4.2.3.3 User Public Page Details

A user's public page is a page shown to other users.

4.2.3.3.1 Social Functions

In a public page of another user, a user can see this user's name, city, a yellow star if the user is a star user, the preference of tastes, and the statistics of his/her followers, followings, and reviews.

Also, there is a button located at the bottom of the user's brief information, the follow button. If a user is already following this user, it shows "Following", and if you click the button you will unfollow this user. If you are not following this user, the button shows "Follow", and you will follow this user after clicking on it.

The user plan panel and recommendation lists panel are also shown under the user info panel. You can see this user's recent plan and his/her recommendation lists. These will help you know this user so you can communicate with him/her without what to talk about.

The screenshot shows the user profile page for 'MCHOTDOG' on the LiveVibe platform. The top navigation bar includes links for HOME, TREND, GENRE, SEARCH, and LOG OUT. The profile picture is a circular portrait of a man with glasses. The name 'MCHOTDOG' is displayed with a yellow star icon. Below the name is the location 'WASHINGTON, DC'. A section titled 'Taste:' lists various music genres: Alternative rock, Classic Country, Indie folk, Indie pop, Indie rock, New School Hip-Hop, and Old School Hip-Hop. Below this is a 'Followed' button. User statistics are shown: 3 Followers, 1 Following, and 2 Reviews. The main content area features a section titled 'MCHOTDOG IS GOING TO...' with two event cards: one for OneRepublic at Beacon Theatre on 2015-04-14 and another for Bob Dylan at Madison Square Garden on 2015-07-01. Below this is a section titled 'MCHOTDOG'S RECOMMEND LISTS' which lists several recommended events and their details.

MCHOTDOG ★

WASHINGTON, DC

Taste:

- Alternative rock
- Classic Country
- Indie folk
- Indie pop
- Indie rock
- New School Hip-Hop
- Old School Hip-Hop

Followed

3 Followers 1 Following 2 Reviews

MCHOTDOG IS GOING TO...

2015-04-14 20:00:00
ONEREPUBLIC
BEACON THEATRE
2124 Broadway
New York ,
NY , 10023
[DETAILS](#)

2015-07-01 20:00:00
BOB DYLAN
MADISON SQUARE GARDEN
4 Pennsylvania Plaza
New York ,
NY , 10001
[DETAILS](#)

MCHOTDOG'S RECOMMEND LISTS

2014-12-12 19:00:00
LINKIN PARK
Terminal 5, New York
[DETAILS](#)
From the list:
WHERE TO GO THIS WINTER

2015-03-05 19:00:00
SNAPLINE
Beacon Theatre, New York
[DETAILS](#)
From the list:
2015 MUST

2015-06-10 19:00:00
BELLE & SEBASTIAN
Radio City Music Hall, New York
[DETAILS](#)
From the list:
TEST LISTNAME

2015-04-14 20:00:00
ONEREPUBLIC
Beacon Theatre, New York
[DETAILS](#)
From the list:
WHERE TO GO THIS WINTER

2015-07-01 20:00:00
BOB DYLAN
Madison Square Garden, New York
[DETAILS](#)
From the list:
2015 MUST

2014-11-24 19:00:00
DAMIEN RICE
Barclays Center, Brooklyn
[DETAILS](#)
From the list:
WHERE TO GO THIS WINTER

2015-06-10 19:00:00
BELLE & SEBASTIAN
Radio City Music Hall, New York
[DETAILS](#)
From the list:
WHERE TO GO THIS WINTER

This is a user public page screenshot of a star user.

4.3 Concert Page

4.3.1 Concert information

The concert page contains the details about the concert. A picture of the performing artist is shown at the top of the panel, and the name of artist and venue information is shown on the picture, following ratings from other users. At the bottom of the picture, there are two buttons, the rating button and the plan-to-go button.

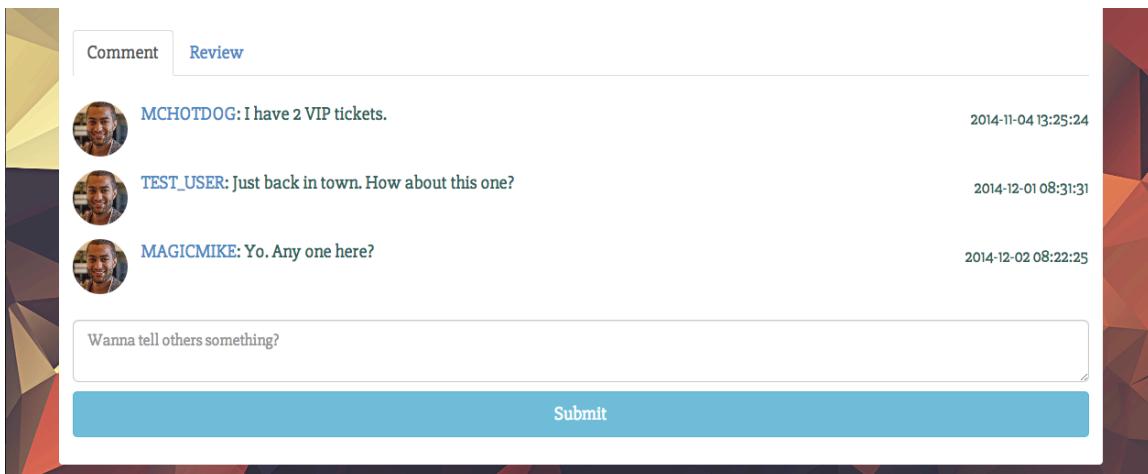
Under the concert info is some information about the performing artist, his/her biography, and some media like videos or pictures if there is any. After those things, there are two tabs of comments and reviews.

The screenshot shows a concert page for the band SNAPLINE. At the top, there's a red navigation bar with the 'LiveVibe' logo and links for HOME, TREND, GENRE, SEARCH, and LOG OUT. Below the header is a large image of a concert stage with a performer singing into a microphone. Overlaid on the image are event details: '2015-03-05 19:00:00', 'SNAPLINE', 'BEACON THEATRE', '2124 Broadway, New York, 10023', 'POSTED BY: LIVEVIBE', and 'Ratings: 0'. Below the image are two buttons: 'Rating' (orange) and 'Plan to Go' (blue). The main content area has a white background. It starts with a section titled 'WHO IS SNAPLINE?' containing placeholder text. To the right of this is a video player showing a thumbnail of a video and controls for play/pause, volume, and HD. Below these sections are two tabs: 'Comment' (selected) and 'Review'. Under the 'Comment' tab, there's a comment from a user named 'JOHNDOE' asking about parking rates, with a timestamp of '2014-12-11 14:52:26'. At the bottom, there's a text input field for users to 'Wanna tell others something?' and a large blue 'Submit' button.

4.3.1.1 Plan to go future concerts

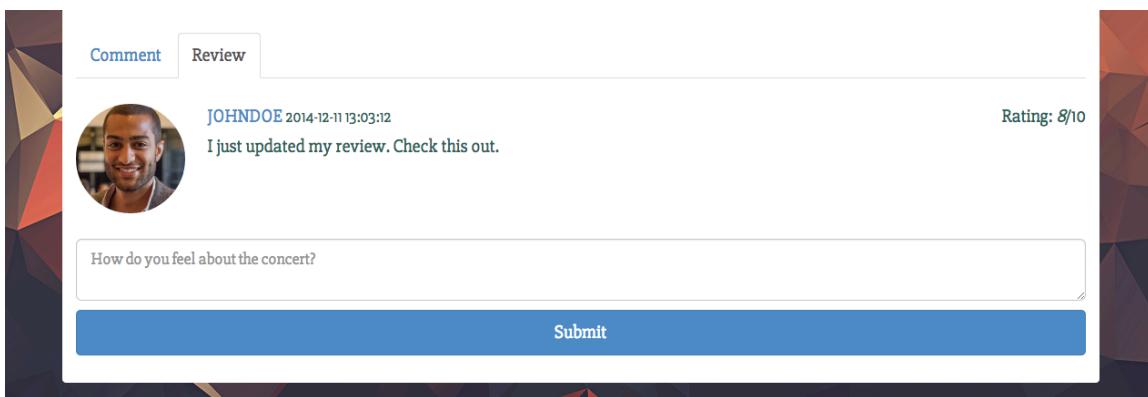
If you are going to the concert, you can click on the plan-to-go button, the concert will be shown on your plan to go panel then your followers will see it.

4.3.1.2 Leave Comment Anytime

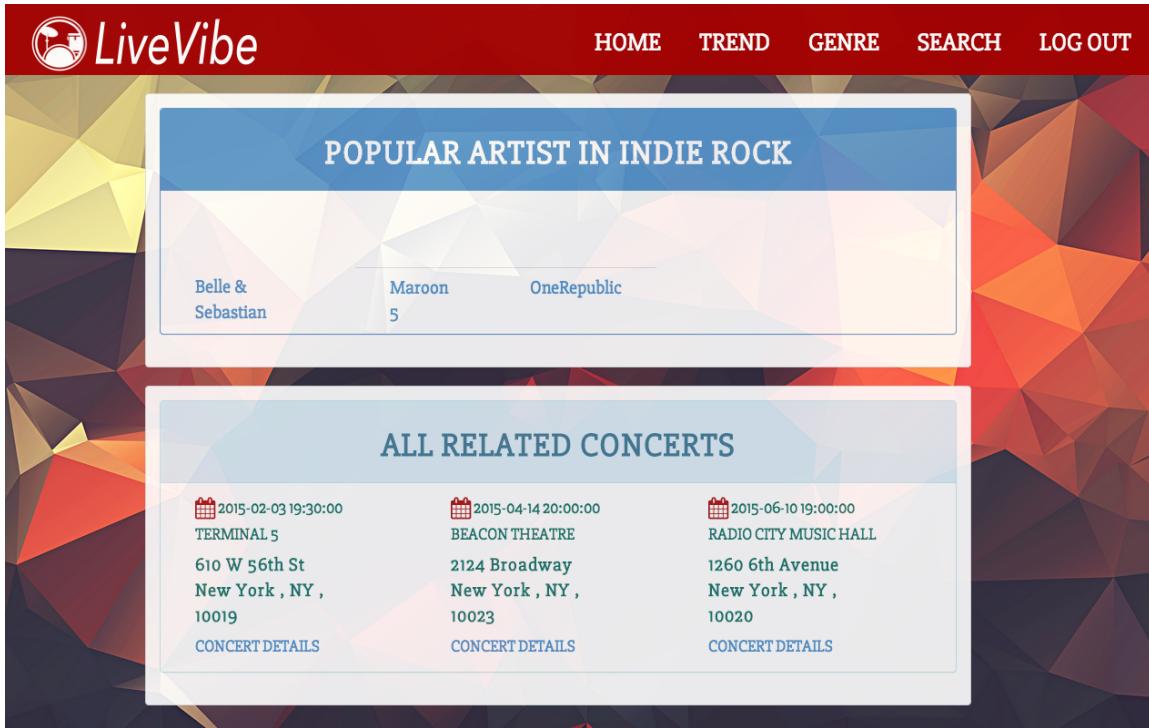


Under the comments tab, you can comment anything you want to discuss with others like in a forum, such as questions about the concert, the venue, or just some anecdotes or gossips about the performing artist. Everyone sees this page can read your comment on it and then they may reply.

4.3.1.3 Rating and review after Concert

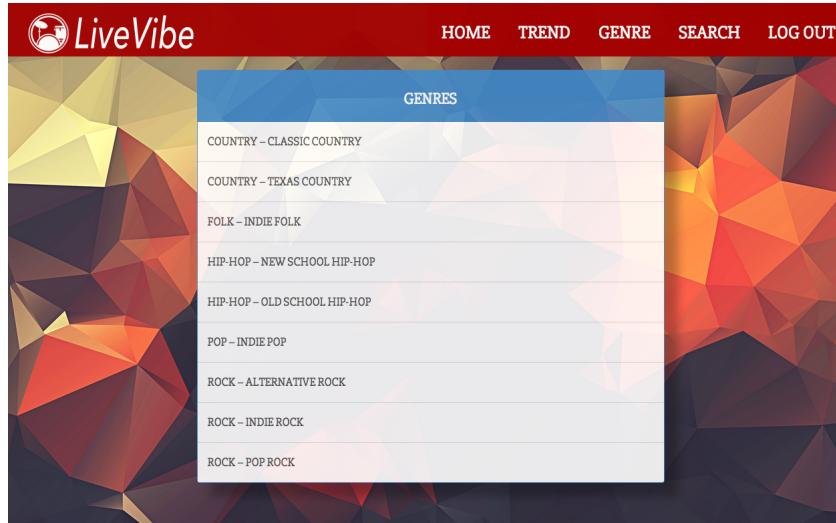


If you have been to the concert, you can choose your rating score out of 10 for the concert and then click the rating button. Your and others' rating will be calculated by LiveVibe and shown in the concert info panel.



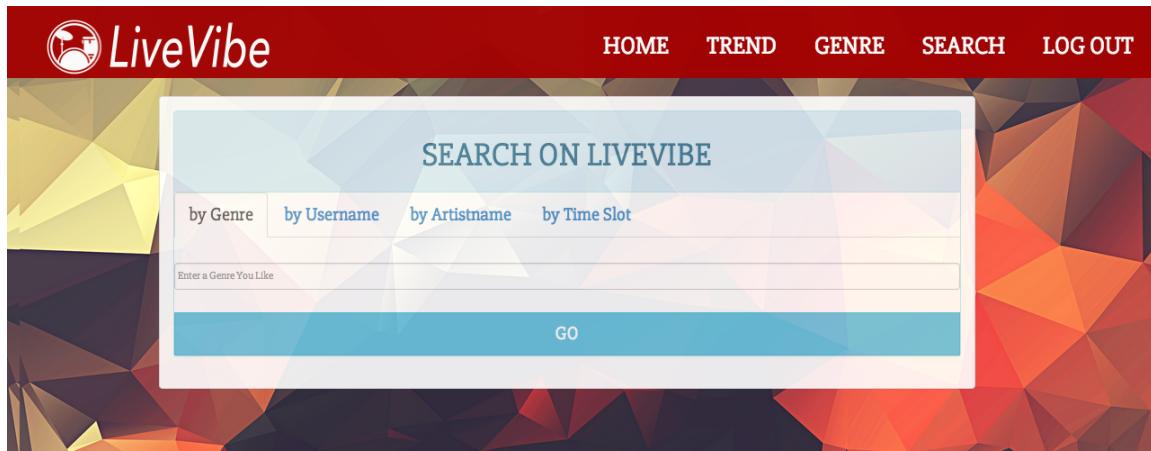
4.4 Genre Page

The genre page is a way for you to explore your new world of music. After your login, you can click on the Genre button on the navigation bar to enter the genre page. Then a list of all kinds of genres will appear. You can click on a genre you love to see what recent concerts are played by artists of this genre.

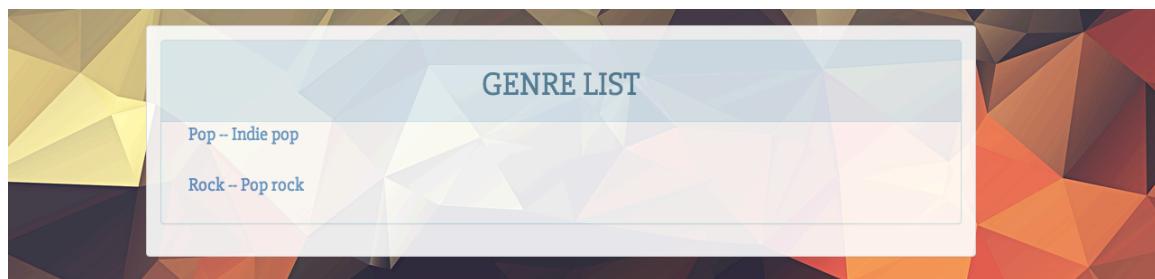


4.5 Search Page

You can also search thing on LiveVibe in the way you want. After clicking on the search button on the navigation bar, you will be directed to the search page. There are four methods of search you can choose from: by genre, by username, by artist name, and by time slot.



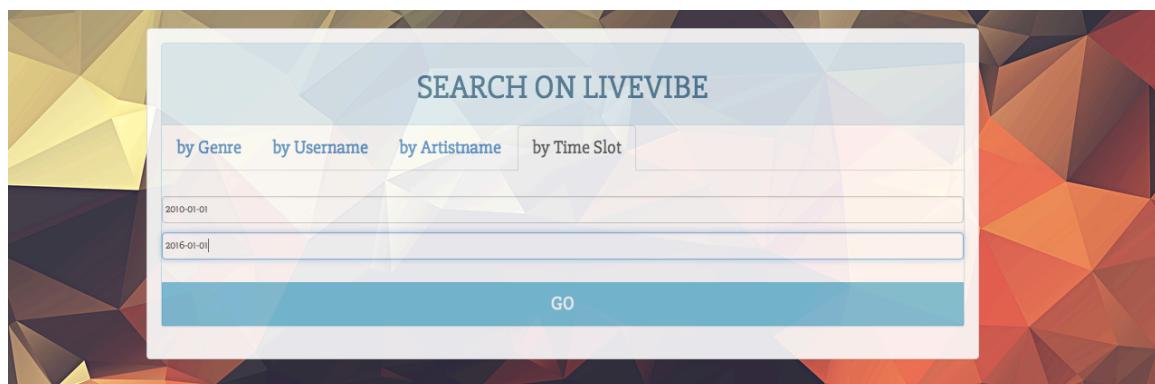
4.5.1 Search by genre



This is a search result page by searching genre “pop”.

4.5.2 Search by time slot

When you give a range of date, LiveVibe returns all concerts held in this window of date.



The screenshot shows a web application interface for "LiveVibe". At the top, there is a navigation bar with links for "HOME", "TREND", "GENRE", "SEARCH", and "LOG OUT". The main content area has a title "CONCERTS BASED ON YOUR SELECTED TIMESLOT". Below this, there is a list of concert entries, each with a date/time icon, the artist name, the venue, and the address. The entries are as follows:

- 2014-01-25 19:00:00
JUSTIN TIMBERLAKE
BARCLAYS CENTER
620 Atlantic Ave
Brooklyn , NY ,
11217
CONCERT DETAILS
- 2014-11-10 19:00:00
BOB DYLAN
MUSIC HALL OF WILLIAMSBURG
66 North 6th St.
Brooklyn , NY ,
11211
CONCERT DETAILS
- 2014-11-24 19:00:00
DAMIEN RICE
BARCLAYS CENTER
620 Atlantic Ave
Brooklyn , NY ,
11217
CONCERT DETAILS
- 2014-11-28 20:00:00
INTERPOL
BEACON THEATRE
2124 Broadway
New York , NY ,
10023
CONCERT DETAILS
- 2014-12-12 19:00:00
LINKIN PARK
TERMINAL 5
610 W 56th St
New York , NY ,
10019
CONCERT DETAILS
- 2014-12-14 20:00:00
BILLY JOEL
BARCLAYS CENTER
620 Atlantic Ave
Brooklyn , NY ,
11217
CONCERT DETAILS
- 2015-02-03 19:30:00
MAROON 5
TERMINAL 5
610 W 56th St
New York , NY ,
10019
CONCERT DETAILS
- 2015-03-05 19:00:00
SNAPLINE
BEACON THEATRE
2124 Broadway
New York , NY ,
10023
CONCERT DETAILS
- 2015-04-14 20:00:00
ONEREPUBLIC
BEACON THEATRE
2124 Broadway
New York , NY ,
10023
CONCERT DETAILS
- 2015-06-10 19:00:00
BELLE & SEBASTIAN
RADIO CITY MUSIC HALL
1260 6th Avenue
New York , NY ,
10020
CONCERT DETAILS
- 2015-07-01 20:00:00
BOB DYLAN
MADISON SQUARE GARDEN
4 Pennsylvania Plaza
New York , NY ,
10001
CONCERT DETAILS

Search result by time slot

The screenshot shows the 'LiveVibe' website interface for an artist profile. The top navigation bar includes links for HOME, TREND, GENRE, SEARCH, and LOG OUT. The main content area features a circular profile picture of Bob Dylan and his name, 'BOB DYLAN'. A bio states: 'FOR ALMOST 50 YEARS, BOB DYLAN HAS REMAINED, ALONG WITH JAMES BROWN, THE MOST INFLUENTIAL AMERICAN MUSICIAN ROCK & ROLL HAS EVER PRODUCED.' Below the bio, under 'Genre:', are 'Alternative rock' and 'Pop rock'. It also shows '3 Followers' and '2 Concerts'. A green button labeled 'Alternative rock' has a dropdown arrow, and a blue button labeled 'Add Genre You Perform' has a musical note icon. To the right is a 'Home Page' link with a right-pointing arrow. Below this section is a box titled 'MY UPCOMING CONCERTS' containing one concert entry: '2015-07-01 20:00:00' at 'MADISON SQUARE GARDEN' (4 Pennsylvania Plaza, New York, NY, 10001), with a 'CONCERT DETAILS' link. Further down is a box titled 'ALL MY CONCERTS' listing two past performances: '2014-11-10 19:00:00' at 'MUSIC HALL OF WILLIAMSBURG' (66 North 6th St., Brooklyn, NY, 11211) and '2015-07-01 20:00:00' at 'MADISON SQUARE GARDEN' (4 Pennsylvania Plaza, New York, NY, 10001), each with a 'CONCERT DETAILS' link. At the bottom is a form titled 'POST A NEW CONCERT' with fields for 'Date and Time' and 'Link', a dropdown menu showing '8800000111, Barclays', and a 'Post' button.

An artist Profile page

4.6 Artist Flow

4.6.1 Register

When an artist register for an account, most of the process is the same as a general user except he/she should choose the artist radio button at the bottom. Also, filling a biography is highly recommended because it helps others know about them.

4.6.2 Login

Login process is totally the same as a general user.

4.6.3 Artist Profile Details

4.6.3.1 My upcoming concerts

The artists can see their recent upcoming concert schedule here, so they can be fully prepared for their performance.

4.6.3.2 All my concerts

This panel shows all previous concerts by this artist.

4.6.3.3 Post new Concert

An artist can post concerts he/she is going to perform. You just need to fill in the date and time, a link to purchase tickets, and choose a venue in the dropdown menu.

The screenshot shows the artist public page for Bob Dylan on the LiveVibe platform. The top navigation bar includes links for HOME, TREND, GENRE, SEARCH, and LOG OUT. The main profile area features a circular portrait of Bob Dylan, his name in large green capital letters, and a brief biography: "FOR ALMOST 50 YEARS, BOB DYLAN HAS REMAINED, ALONG WITH JAMES BROWN, THE MOST INFLUENTIAL AMERICAN MUSICIAN ROCK & ROLL HAS EVER PRODUCED." Below the bio, under the heading "Genre:", are two buttons: "Alternative rock" and "Pop rock". A green "Follow" button is located below the genre section. At the bottom of the profile area, there are three metrics: 3 Followers, 2 Concerts, and a "Home Page" link. The background of the page has a colorful, geometric polygonal pattern.

BOB DYLAN

FOR ALMOST 50 YEARS, BOB DYLAN HAS REMAINED, ALONG WITH JAMES BROWN, THE MOST INFLUENTIAL AMERICAN MUSICIAN ROCK & ROLL HAS EVER PRODUCED.

Genre:

Alternative rock

Pop rock

Follow

3 Followers

2 Concerts

Home Page

UPCOMING CONCERTS

2015-07-01 20:00:00
MADISON SQUARE GARDEN
4 Pennsylvania Plaza
New York , NY ,
10001
[CONCERT DETAILS](#)

ALL BOB DYLAN CONCERTS

2014-11-10 19:00:00
MUSIC HALL OF WILLIAMSBURG
66 North 6th St.
Brooklyn , NY ,
11211
[CONCERT DETAILS](#)

2015-07-01 20:00:00
MADISON SQUARE GARDEN
4 Pennsylvania Plaza
New York , NY ,
10001
[CONCERT DETAILS](#)

4.6.4 Artist Public Page

The artist public page has not too much difference with the artist profile page. And the layout of the info panel is also almost the same as user info panel, but instead of user's location, the biography of the artist is shown under the artist's name, following the genres of the artist. There is a button users can click on to follow or unfollow this artist. If you follow an artist, his/her recent concerts will be recommended to you by LiveVibe.