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FundMe, an online fundraising platform helping to turn your dreams into reality

FundMe helps the next generation innovators to turn their ideas into realties making the world a better and a creative place. It allows users to post their projects and chose an appropriate tag for it so that other users can search all the projects related to that tag. Users can fund the projects of their interest and can pledge multiple values via multiple credit cards to the same project. Once project is successfully funded the team would work offline and the project status would be changed to execution indicating that they are working on the project and only the owner of the projects can post different project media like mp3, mp4 periodically indicating their progress. We assume the tag values are predefined and the user can choose multiple tag values to best describe his projects but this should be done at the time of project creation only as users are not allowed to modify tags once the project is posted. A user has a unique username which will be used for signing up also on login page the user will be asked to fill up email address, interest, hobbies and hometown but email id will be mandatory field (which can be used for sending password reset link or to send new updates and features of our website etc.) but will not appear in the sign up page.

Once the project is completed all the sponsors will be able to rate the project on a scale of 1 to 5. If the expected project completion date is passed but the project is not yet completed than sponsors can rate the projects lower once the user marks it as completed. All users can comment on any projects and can like any project but one user will be able to like one project only once whereas he can comment multiple times on the same project. Also users can follow other users so that they can instantly see all the updates made by the user they follow instantly.

Assumptions/Design Constraints –

1) In our ER design one user can have multiple credit cards and multiple users can share the same credit card.
2) User can pledge an amount which is greater than the max fund and in this case user will only be charged the amount which is required i.e. amount charged = pledged amount – max fund amount.
3) Tags are predefined and user can choose multiple tags at time of project creation but cannot modify them at a later stage.
4) One user can comment on the same project multiple times but can only like a project once.
5) One user can pledge on the same project multiple times with same or different credit cards.
6) We will be displaying the entire project details on a single page on our website and so we have not made UPDATE as a separate entity, so depending on contents in project and proj_media we will display our entire project on our webpage.
7) Timestamp of all the social networking features are stored with CURRENT TIMESTAMP as default value.
8) Users must enter all the credit card number while signing up as we have not allowed the users to add new credit card number at a later stage
9) In follow schema f_username follows username.

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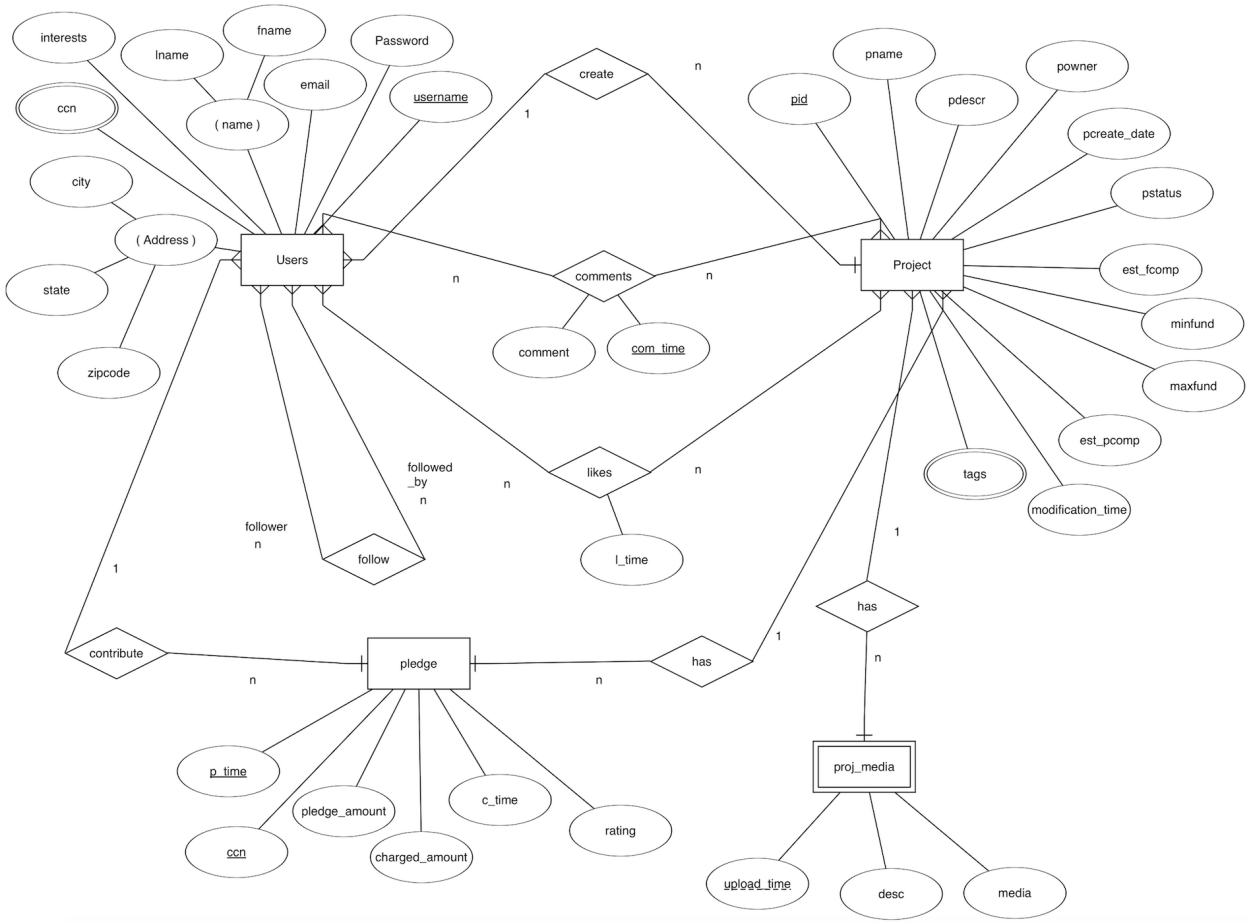
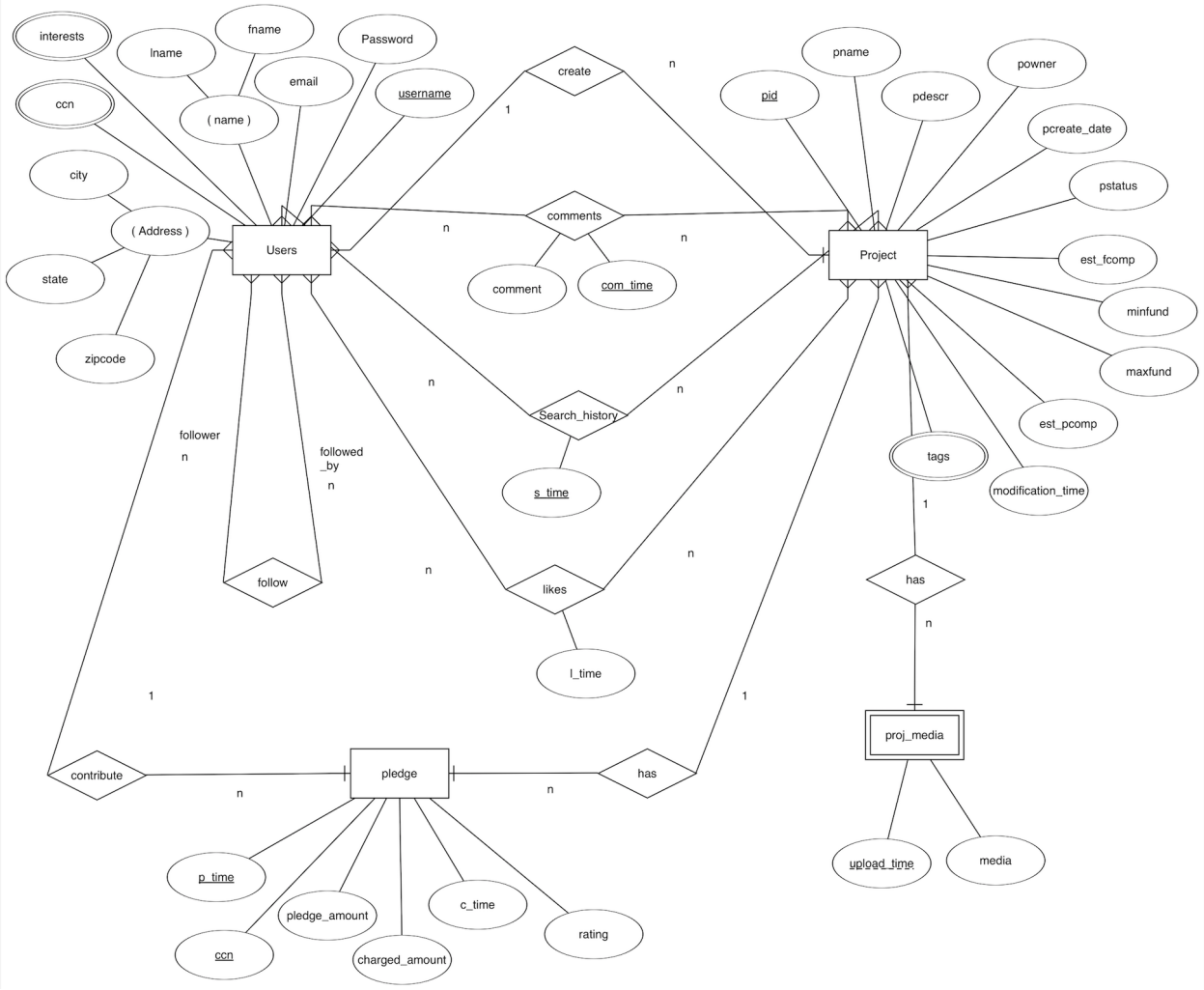
Original ER diagram:



Explanation of ER diagram -

1) In pledge table we have stored both the pledge value and charged value in order to reduce redundancy of data as creating separate table for this two events makes lot of unnecessary data to repeat, so charged_amount, c_time and rating will be initially set to null and will be modified according to the pledge amount of that user only when the max_fund is reached or estimated funding date is reached and fund gathered is more than the minimum required fund.
2) Also we have used modification_time as an attribute in Project table to track the time when the status of the project is changed either from pending to execution or from execution to complete the default value of pstatus will be set to PENDING upon project creation and default value of modification time will be NULL
3) Only proj_media which is a weak entitiy of project table and pstatus can be changed on a later stage.

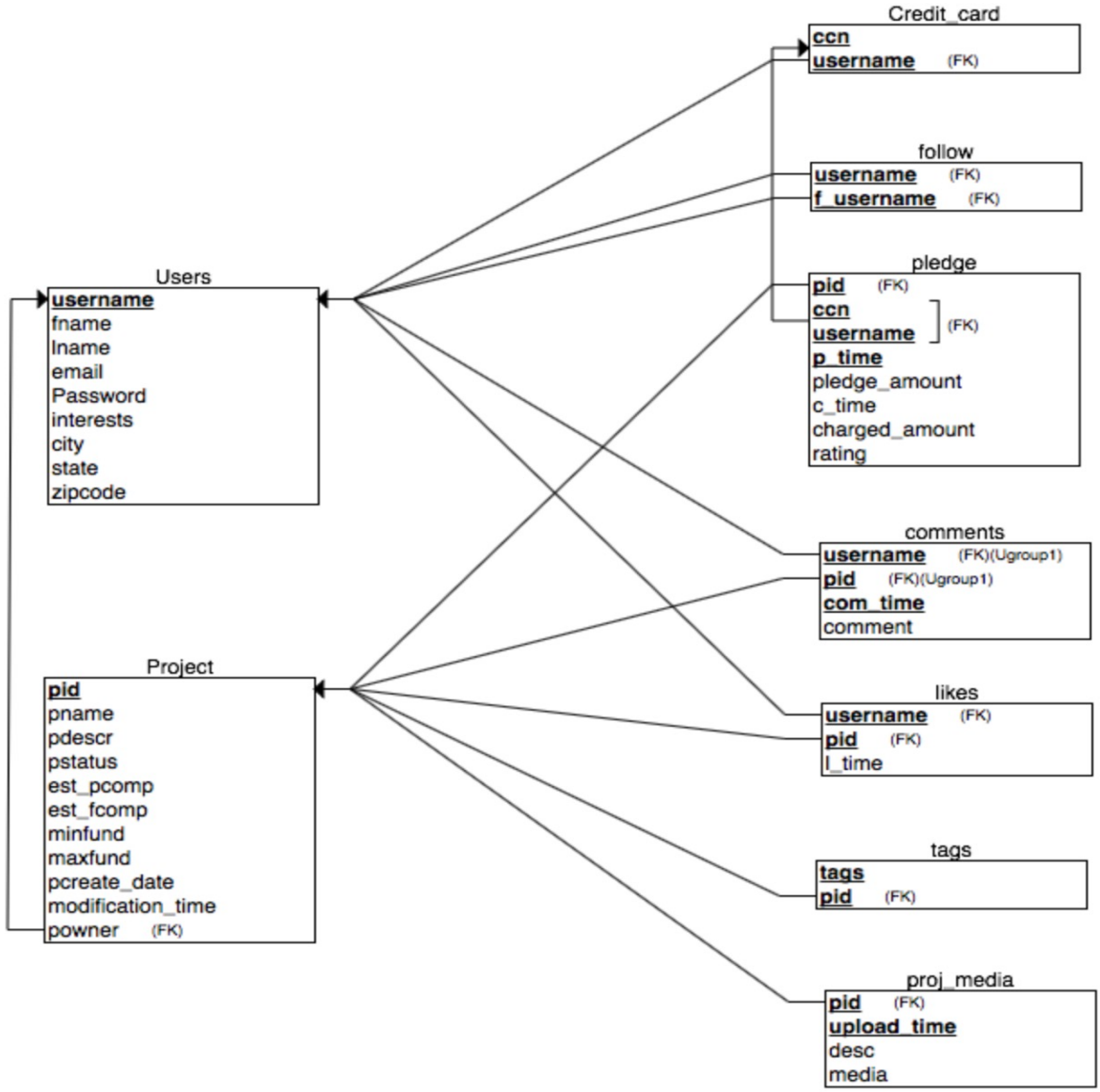
Modified ER diagram:



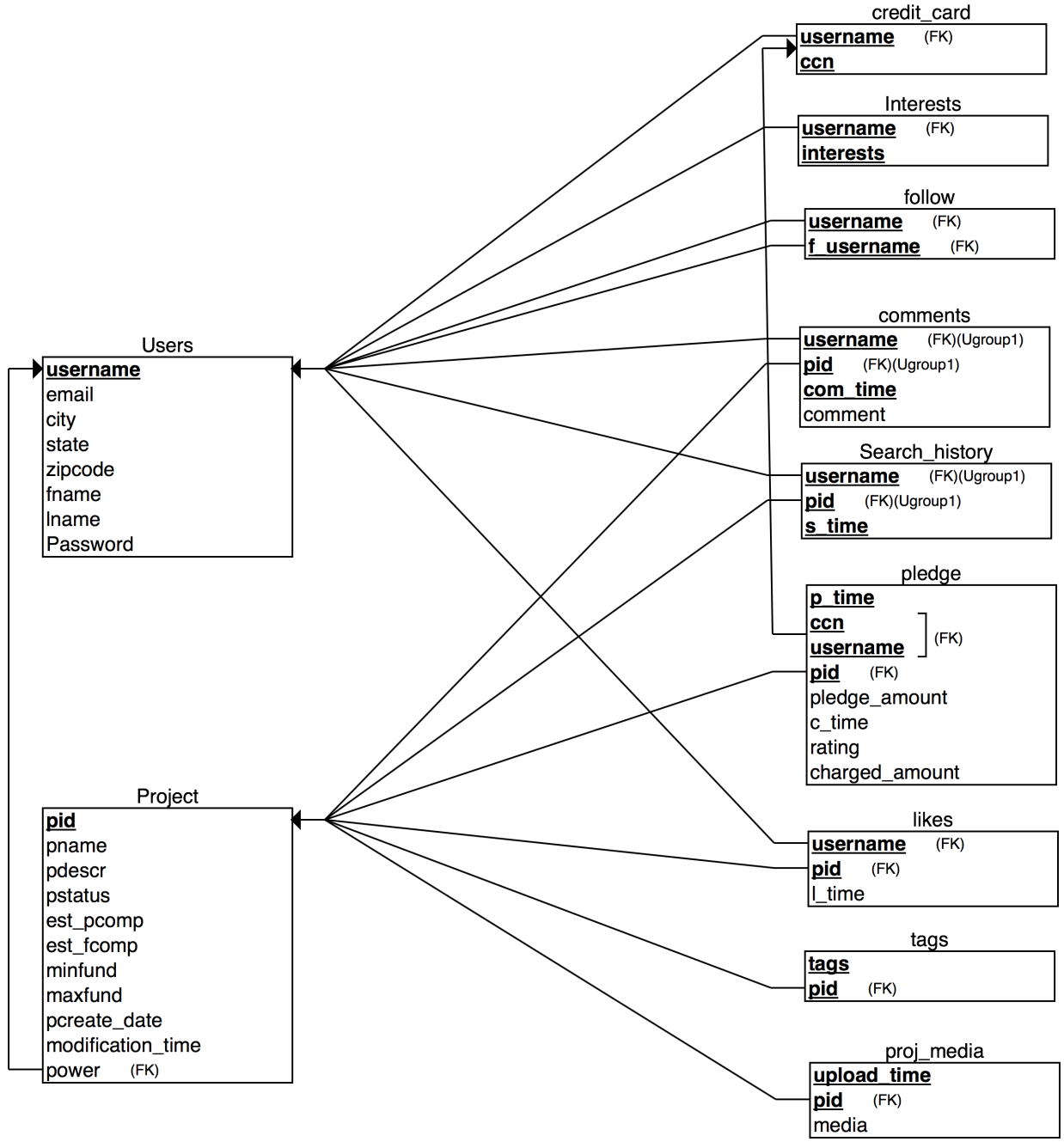
Change Explained:

1) We added a new table called search_history which keeps a track of projects the user recently visited, it has attributes – username, pid, s_time and all the three attributes together makes the primary key
2) We removed media description from Proj_media table as we were not displaying it anywhere on our site.
3) We made interests as multivalued attribute as one user can have interests in more than one field.

B) Relational Schema:



Modified Relational Schema:



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Relational Schema:

Users(<u>username</u>,fname,lname,email,password,city,state,zipcode)
Projects(<u>pid</u>,pname,pdescr,pstatus,est_pcomp,est_fcomp,minfund,maxfund,pcrete_date,modification_date,powner)
Credit_card(<u>username,ccn</u>)
Interests(<u>username, interests</u>)
Follow(<u>username,f_username</u>)
Pledge(<u>pid,username,ccn,p_time</u>,pledge_amount,c_time,charged_amount,rating)
Comments(<u>username,pid,com_time</u>,comment)
Likes(<u>username,pid</u>,l_time)
Search_history(<u>username,pid,s_time</u>)
tags(<u>pid,tags</u>)
Proj_media(<u>pid,upload_time</u>,media)

Foreign Key	**References**
Project(powner)	Users(username)
Credit_card(username)	Users(username)
Follow(username)	Users(username)
Follow(f_username)	Users(username)
Pledge(pid)	Projects(pid)
Pledge(username)	Credit_card(username)
Pledge(ccn)	Credit_card(ccn)
Comments(username)	Users(username)
Comments(pid)	Projects(pid)
Likes(username)	Users(username)
Likes(pid)	Projects(pid)
tags(pid)	Projects(pid)
Proj_media(pid)	Projects(pid)
Interests(username)	Users(username)
Search_history(pid)	Projects(pid)
Search_history(username)	Users(username)

D) Database Creation:

```
-- -----------------------------------------------------
-- Schema Fund_Raising
-- -----------------------------------------------------
CREATE DATABASE Fund_Raising ;
USE Fund_Raising ;

-- -----------------------------------------------------
-- Table `Fund_Raising`.`users`
-- -----------------------------------------------------
CREATE TABLE users
(username VARCHAR(20) NOT NULL PRIMARY KEY,
fname VARCHAR(20),
lname VARCHAR(20),
email VARCHAR(50) NOT NULL UNIQUE,
password VARCHAR(15) NOT NULL,
city VARCHAR(10) DEFAULT NULL,
state VARCHAR(10) DEFAULT NULL,
zipcode INT(5) DEFAULT NULL );

-- -----------------------------------------------------
-- Table `Fund_Raising`.`projects`
-- -----------------------------------------------------
CREATE TABLE projects
(pid INT PRIMARY KEY AUTO_INCREMENT,
pname VARCHAR(25) NOT NULL,
pdesc VARCHAR(100) NOT NULL,
powner VARCHAR(20) NOT NULL REFERENCES users(username),
pstatus VARCHAR(20) DEFAULT "PENDING" NOT NULL,
est_pcomp DATETIME NOT NULL,
est_fcomp DATETIME NOT NULL,
minfund INT NOT NULL,
maxfund INT NOT NULL,
pcreate_time DATETIME DEFAULT CURRENT_TIMESTAMP NOT NULL, modification_time DATETIME
DEFAULT NULL);

-- -----------------------------------------------------
-- Table `Fund_Raising`.` pledge`
-- -----------------------------------------------------
CREATE TABLe pledge
(pid INT REFERENCES projects(pid),
username VARCHAR(20) REFERENCES credit_card(username),
ccn BIGINT(16) REFERENCES credit_card(ccn),
p_time DATETIME NOT NULL DEFAULT CURRENT_TIMESTAMP,
pledged_amount INT NOT NULL,
c_time DATETIME DEFAULT NULL,
```

```
charged_amount INT DEFAULT NULL,
rating int DEFAULT NULL,
PRIMARY KEY(pid,username,ccn,p_time));

-- ----------------------------------------------------
-- Table `Fund_Raising`.` likes`
-- ----------------------------------------------------
CREATE TABLE likes
(pid INT REFERENCES project(pid),
username VARCHAR(20) REFERENCES users(username),
l_time DATETIME DEFAULT CURRENT_TIMESTAMP,
PRIMARY KEY(pid,username));

-- ----------------------------------------------------
-- Table `Fund_Raising`.` comments`
-- ----------------------------------------------------
CREATE TABLE comments
(pid INT REFERENCES project(pid),
username VARCHAR(20) REFERENCES users(username),
com_time DATETIME DEFAULT CURRENT_TIMESTAMP,
comments VARCHAR(100),
PRIMARY KEY(pid,username,com_time));

-- ----------------------------------------------------
-- Table `Fund_Raising`.` follow`
-- ----------------------------------------------------
CREATE TABLE follow
(username VARCHAR(20) REFERENCES users(usernsme),
f_username VARCHAR(20) REFERENCES users(username),
PRIMARY KEY(username,f_username));

-- ----------------------------------------------------
-- Table `Fund_Raising`.`tags`
-- ----------------------------------------------------
CREATE TABLE tags
(pid INT REFERENCES projects(pid),
tags VARCHAR(20),
PRIMARY KEY(pid, tags));

-- ----------------------------------------------------
-- Table `Fund_Raising`.`interests`
-- ----------------------------------------------------

CREATE TABLE interest
(username VARCHAR(20) REFERENCES users(username),
 interests VARCHAR(20),
PRIMARY KEY(username,interests));
```

```
-- ----------------------------------------------------
-- Table `Fund_Raising`.`search_history`
-- ----------------------------------------------------

CREATE TABLE search_history
(username VARCHAR(20) REFERENCES users(username),
pid INT(11) REFERENCES projects(pid) ,
s_time DATETIME DEFAULT CURRENT_TIMESTAMP,
PRIMARY KEY(username,pid,s_time));

-- ----------------------------------------------------
-- Table `Fund_Raising`.`credit_card`
-- ----------------------------------------------------

CREATE TABLE credit_card
(username VARCHAR(20)NOT NULL,
ccn BIGINT(16) NOT NULL,
PRIMARY KEY(username,ccn));

-- ----------------------------------------------------
-- Table `Fund_Raising`.`proj_media`
-- ----------------------------------------------------
CREATE TABLE proj_media
(pid INT REFERENCES projects(pid),
media_path VARCHAR(50) NOT NULL,
med_desc VARCHAR(50),
upload_time DATETIME DEFAULT CURRENT_TIMESTAMP,
PRIMARY KEY(pid,upload_time));
```

```
-- ----------------------------------------------------------------------------------------------
-- Event Scheduler for checking estimated fund completion date
-- ----------------------------------------------------------------------------------------------

DROP EVENT IF EXISTS event1;
DELIMITER $$
CREATE EVENT event1
ON SCHEDULE EVERY 1 SECOND
DO
        BEGIN
   UPDATE pledge
   SET c_time = CURRENT_TIMESTAMP, charged_amount=pledged_amount
   WHERE pid IN
   (select x.pid FROM
   (SELECT p.pid,p.minfund, sum(pl.pledged_amount) as total_pledge from projects p natural join
pledge pl where p.est_fcomp <= CURRENT_DATE and p.pstatus='PENDING' group by p.pid) as x
            where x.minfund<=total_pledge);

   UPDATE projects
   SET pstatus='EXECUTION'
   WHERE pid IN
   (select x.pid FROM
   (SELECT p.pid,p.minfund, sum(pl.pledged_amount) as total_pledge from projects p natural join
pledge pl where p.est_fcomp <= CURRENT_DATE and p.pstatus='PENDING' group by p.pid) as x
            where x.minfund<=total_pledge);


   UPDATE projects
   SET pstatus='FAILED'
   WHERE pid IN
   (select x.pid FROM
   (SELECT p.pid,p.minfund, sum(pl.pledged_amount) as total_pledge from projects p left outer join
pledge pl on p.pid=pl.pid where p.est_fcomp <= CURRENT_DATE and p.pstatus='PENDING' group by
p.pid) as x
            where x.minfund>total_pledge or total_pledge is null);

 END;
 $$
 DELIMITER ;
```

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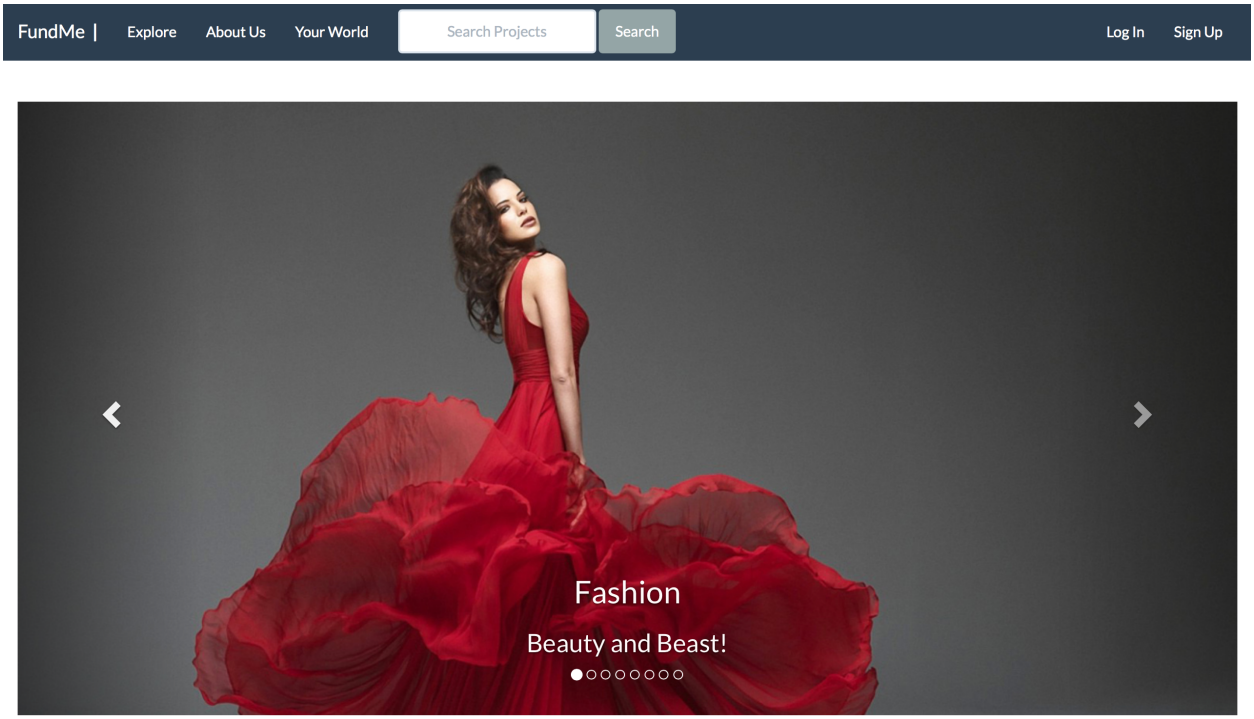
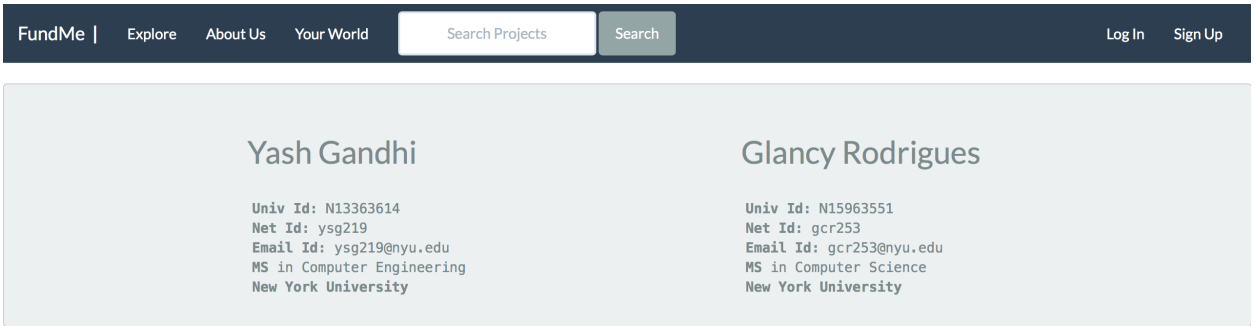
Description:

WELCOME PAGE –

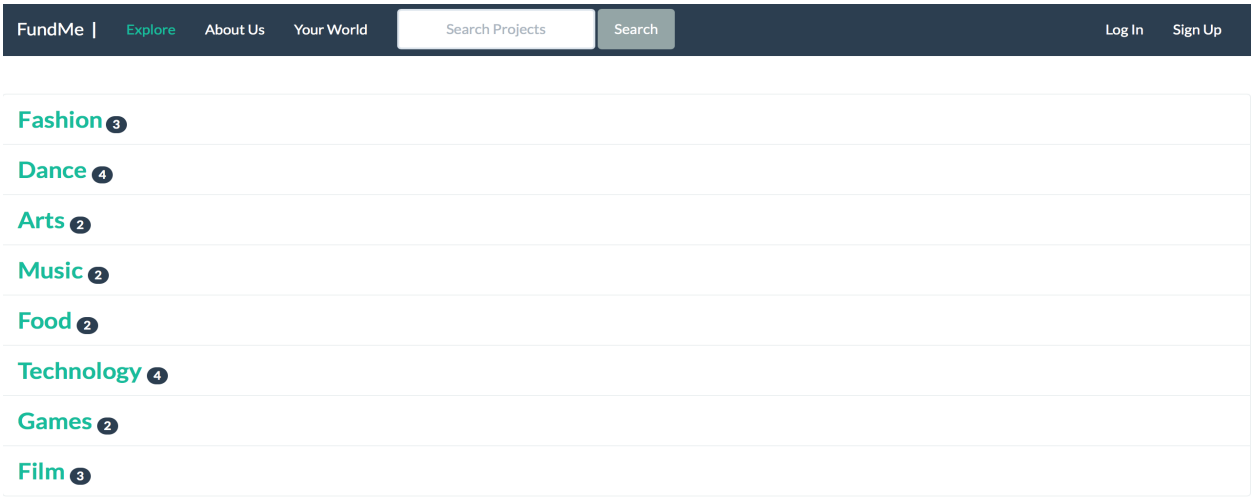


This is the FundMe welcome page, the page is a carousel which plays automatically and has images for all the tags that we currently support. Here users can search projects and have options to login or signup or can explore the projects by tags, the About us link gives a brief description about us. If user does not enter anything and press Search button all the projects will be displayed and if he enters keyword projects matching keyword will be shown, if nothing matches than an error message will be displayed on screen. Search, about us and and explore page works without logging in and displays project names only, for further details user needs to be signed in. A user cannot view any other pages apart from the ones mentioned earlier as we check in every page whether a user is logged in or not.

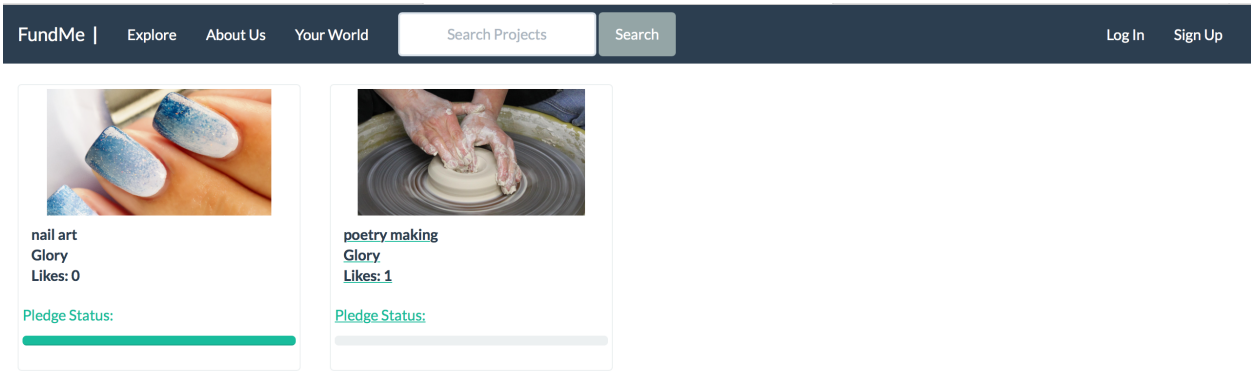
ABOUT US PAGE –



EXPLORE PAGE without logging in –

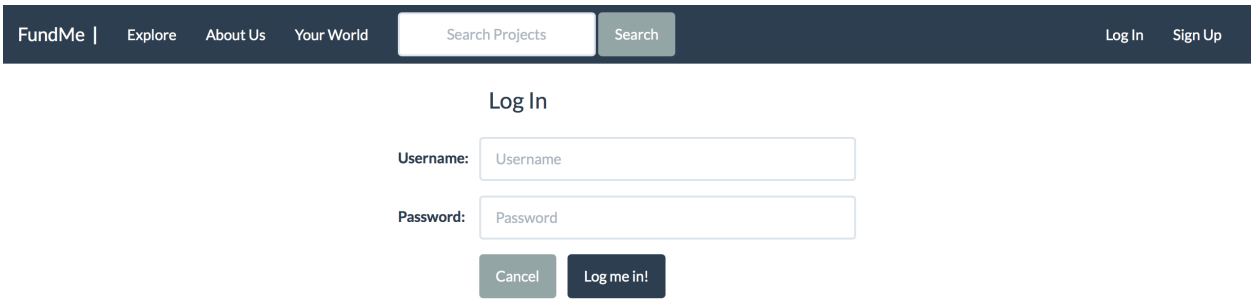


We currently support 8 tag values for projects to be categorized in, so all the tag values are displayed and the count represents the number of projects currently present in each tag. Clicking on a tag displays all the projects corresponding to that tag value, below is the screen shot when Arts is clicked –



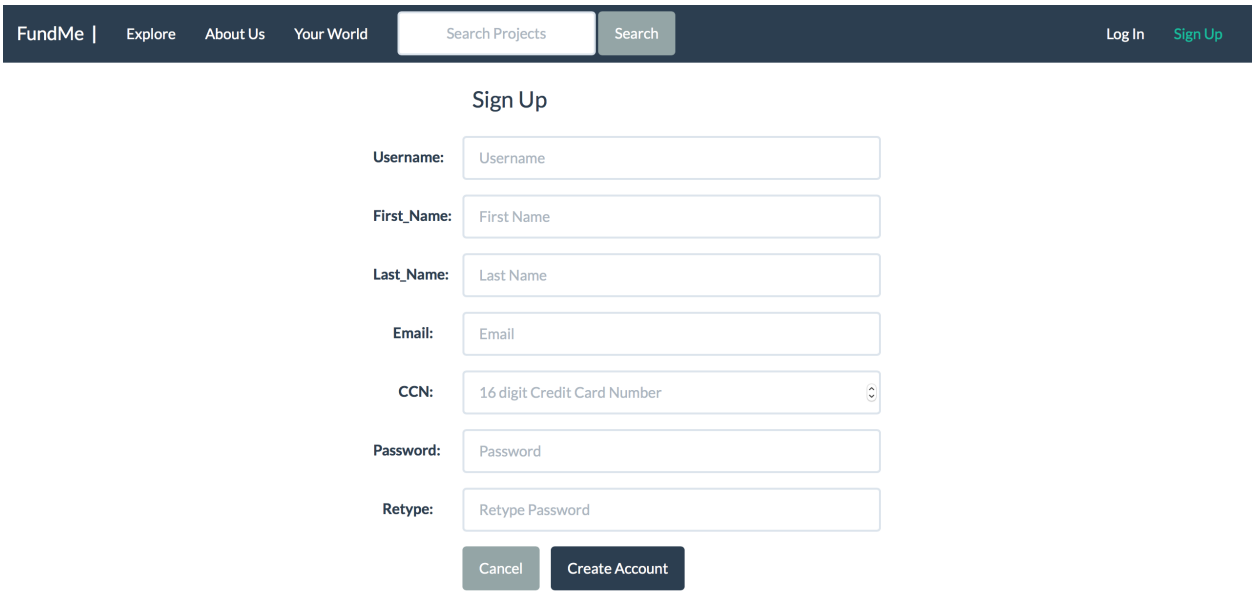
This displays the name of the project, Owner of the project, total number of likes and current pledge status. Similar display logic is present for search page as well. To view further details about the project the user must sign in.

LOGIN PAGE –



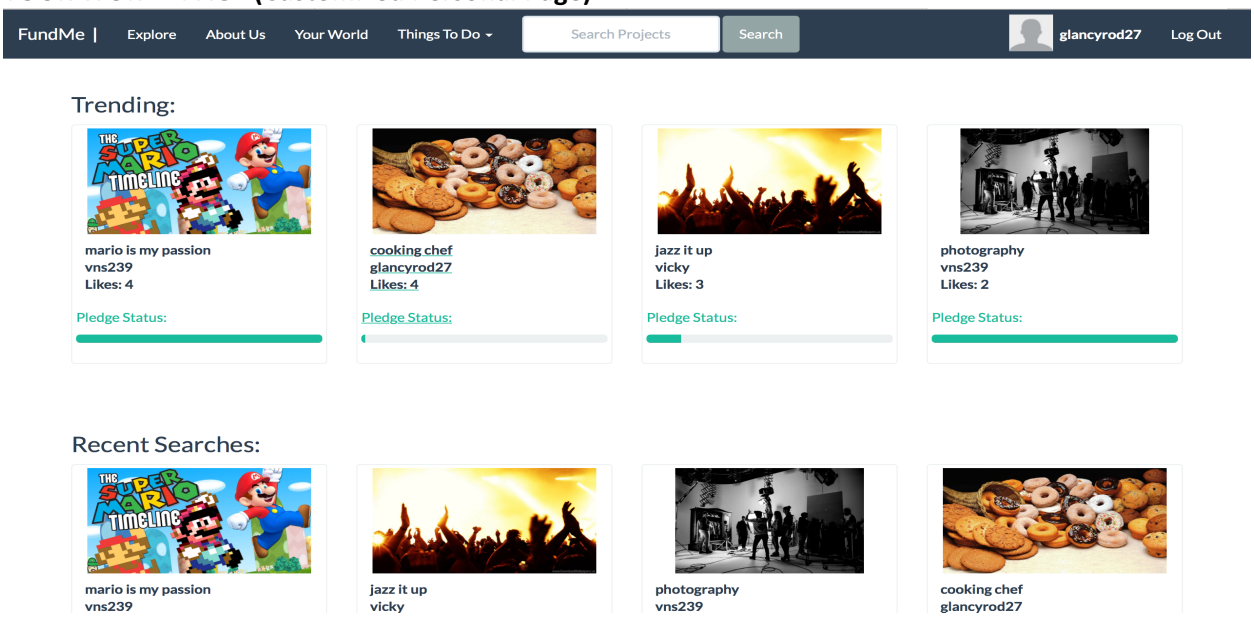
Proper validations are present to ensure that username is already present in the database and also the password matches the username, if not appropriate error messages are thrown. Also the input from the user is first sanitized before passing it to the query to avoid SQL injection and cross-site scripting attacks. Once the user logs in username and Logout options appear on the right hand side of the navigation bar.

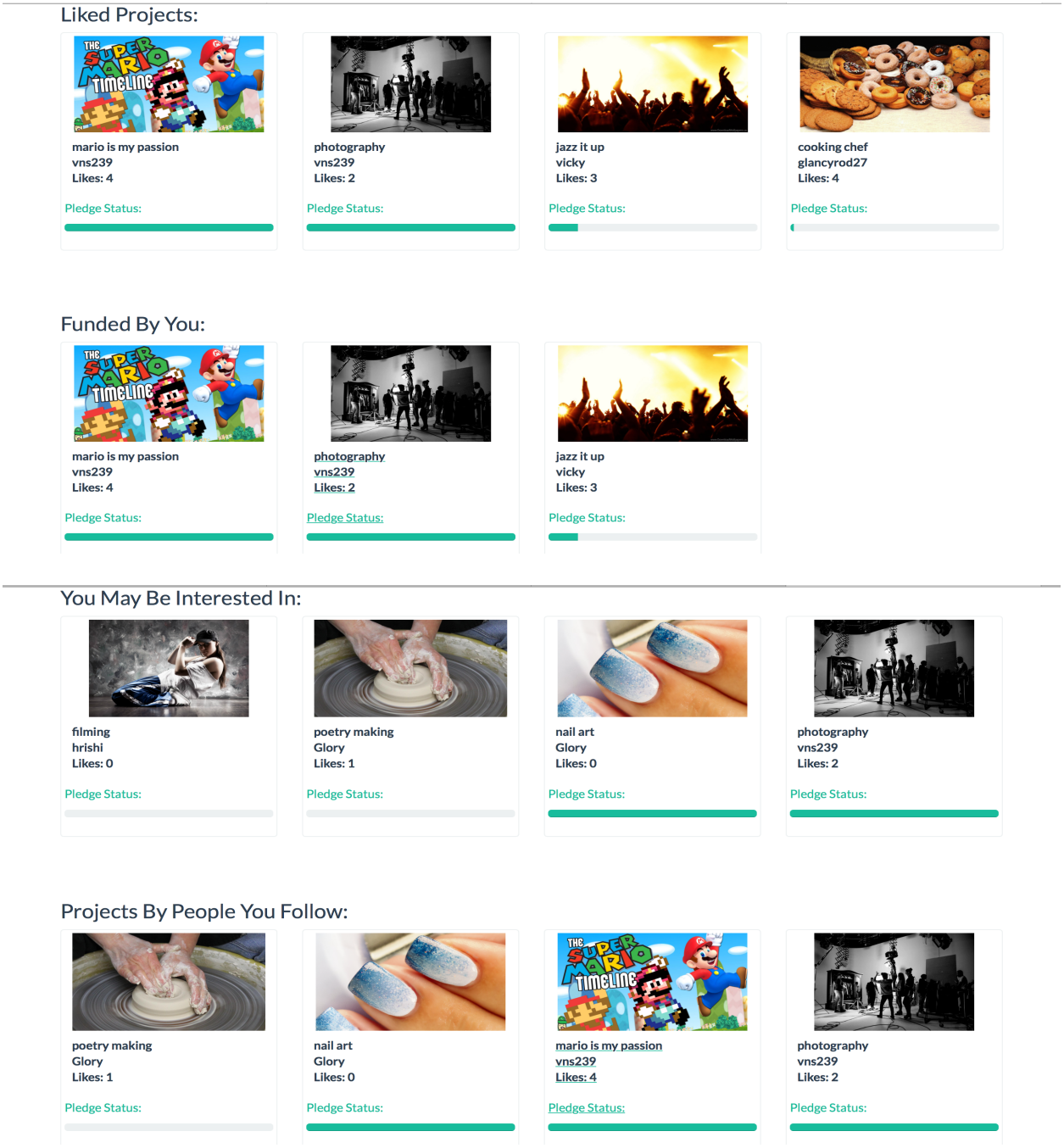
SIGNUP PAGE –



All the fields are mandatory fields and proper checks are present to ensure all the details entered are accurate. Here, also the input from the user is first sanitized before passing it to the query to avoid SQL injection and cross-site scripting attacks. If user with same username is already present, then system will not allow the new user to register successfully.

YOUR WORLD PAGE (Customized Personal Page) –





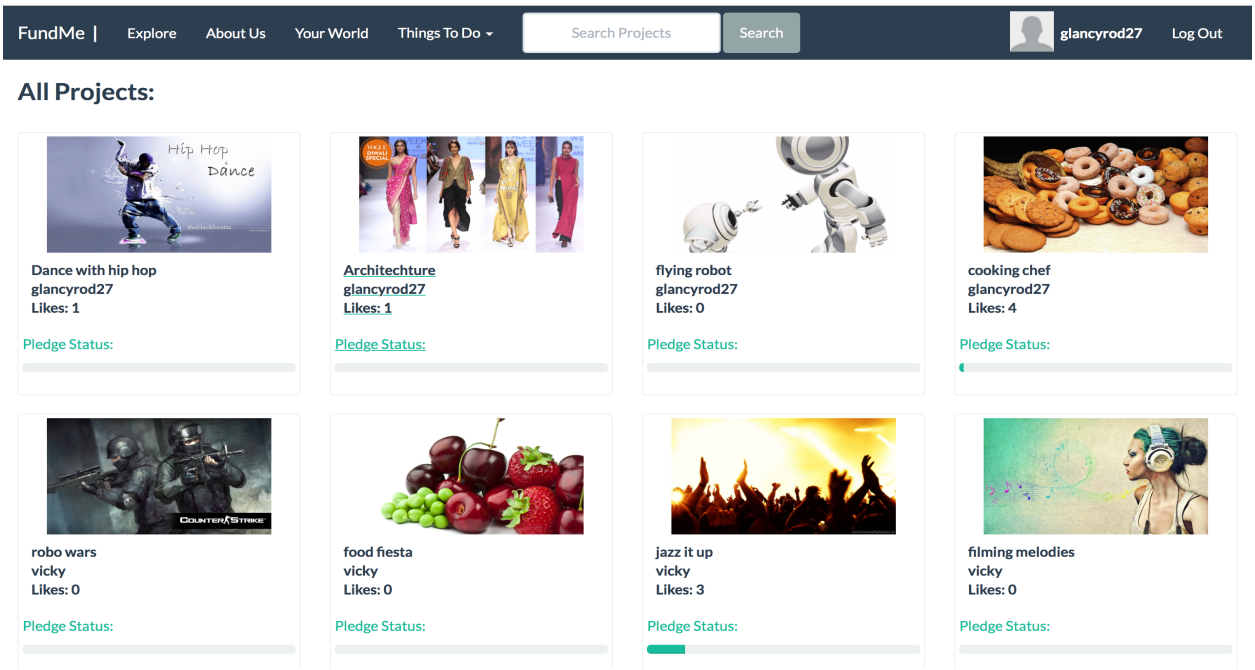
Projects under the **Trending** category are the ones that are most liked and this will be shown the same for all the users.

Projects under the **Recent Search** category are the ones that the user has viewed recently, if user has not viewed any projects Recent Search category will not appear on the screen and directly next category will be shown. The track of recent searches by the user is maintained in search_history table.

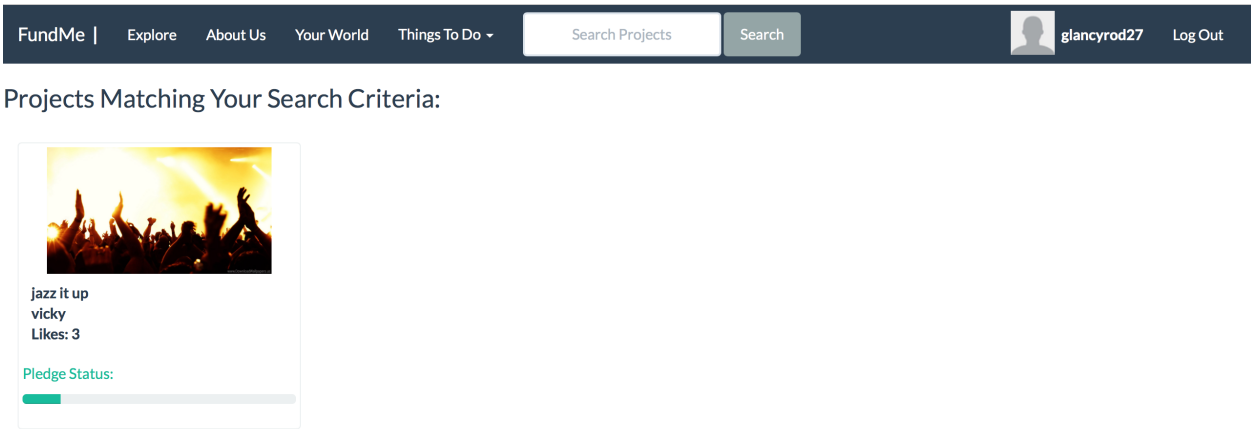
Projects under **Liked Projects** category are the ones that the user has liked, if user has not liked and projects Liked Projects will not appear on the screen and directly next category will be shown.

Projects under **Funded By You** category are the ones that the user has pledged on, if user has not pledged on any projects Funded By You will not appear on the screen and directly next category will be shown.
Projects under **You May Be interested In** category are the ones that matches the users interest with project's tag, if none of the projects matches user's interest or user has not updated any interest then You May Be Interested In will not appear on the screen and directly next category will be shown.
Projects under **Projects By People You Follow** category are the ones that are created by the users that the logged in user is following, if logged in user is not following anyone then it will not appear.

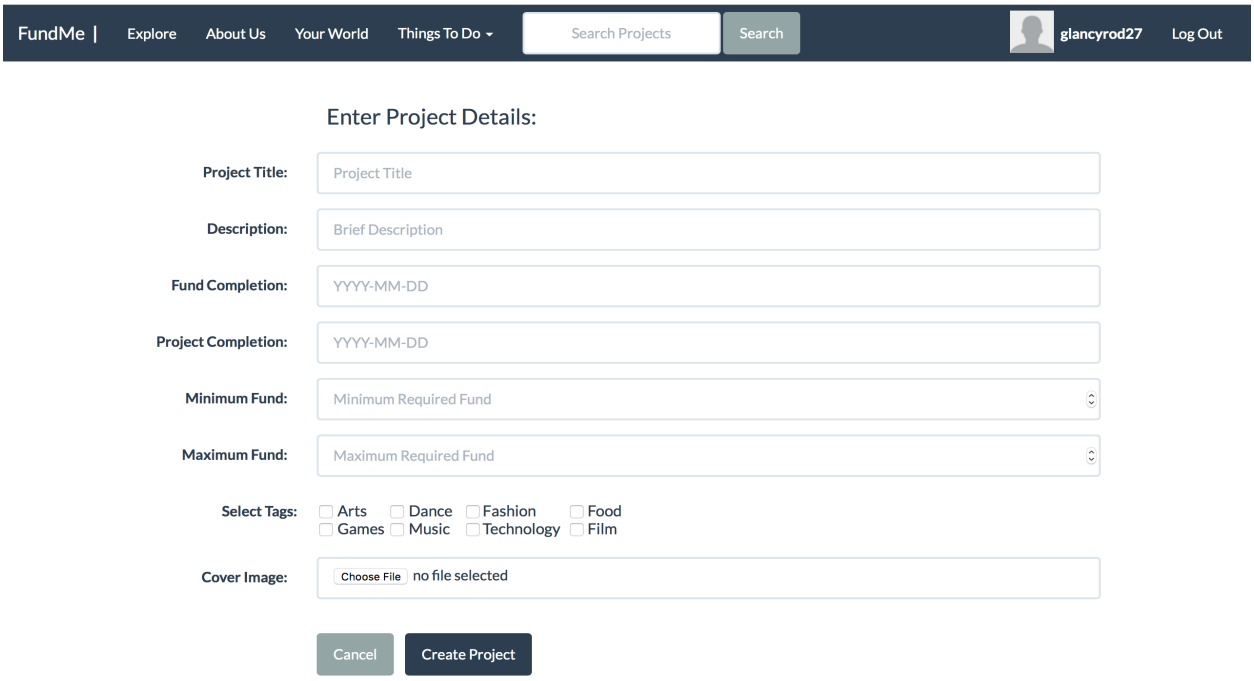
SEARCH PAGE –



Displays all the projects when search button is pressed without entering any keyword, if keyword is entered than only the projects matching the keyword will be displayed, below screen shot shows the projects matching **JAZZ** keyword –

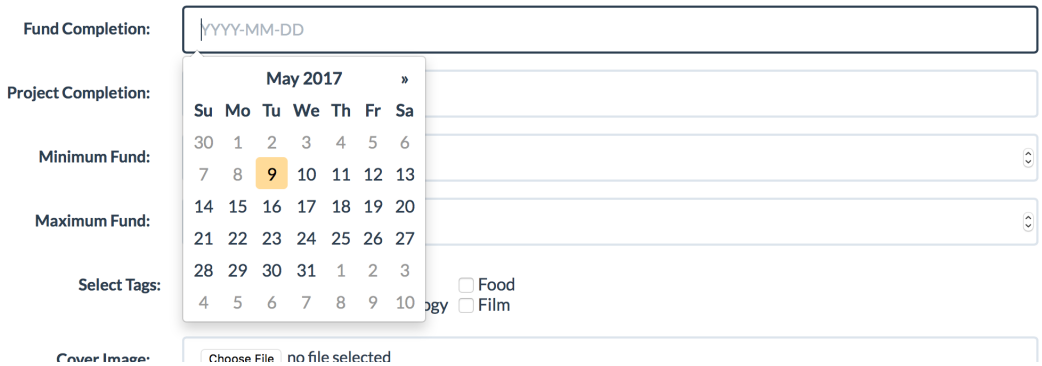


CREATE PROJECT PAGE –

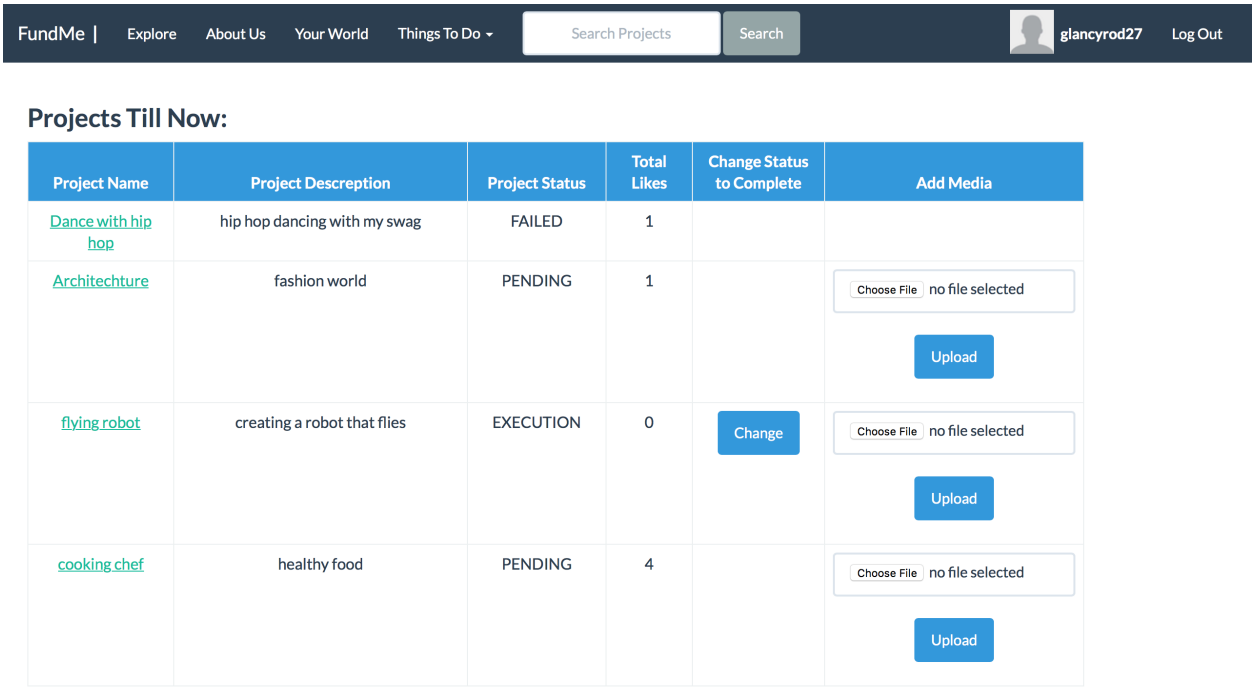


Under **Things To Do** drop down there are options for a user to create a project, manage payments, update projects and update profile, this is a create project page where all the fields are mandatory and fund completion and project completion dates appear as drop down with all the past dates blocked out to ensure user makes a correct date selection. Also Cover Image field accepts only .jpg/.jpeg/.png/.gif file formats as this image is used as a cover picture which is displayed when a users search a project, options to add media like audio/video/image files are further provided in update my projects page. Here, also the input from the user is first sanitized before passing it to the query to avoid SQL injection and cross-site scripting attacks.

Image showing date selection menu for project and fund completion dates –

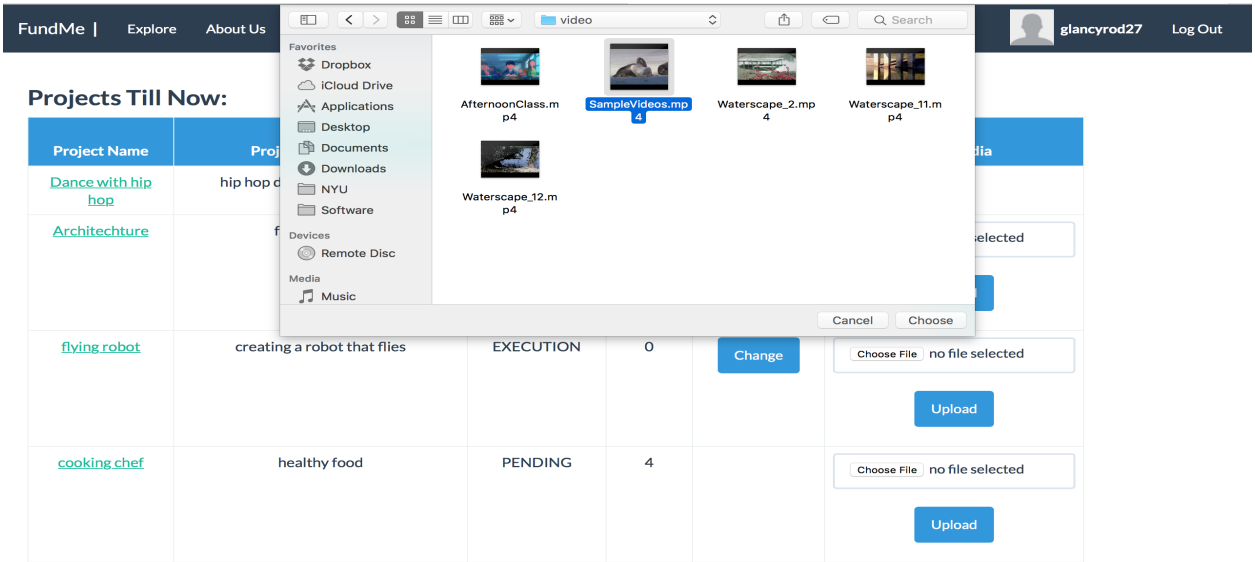


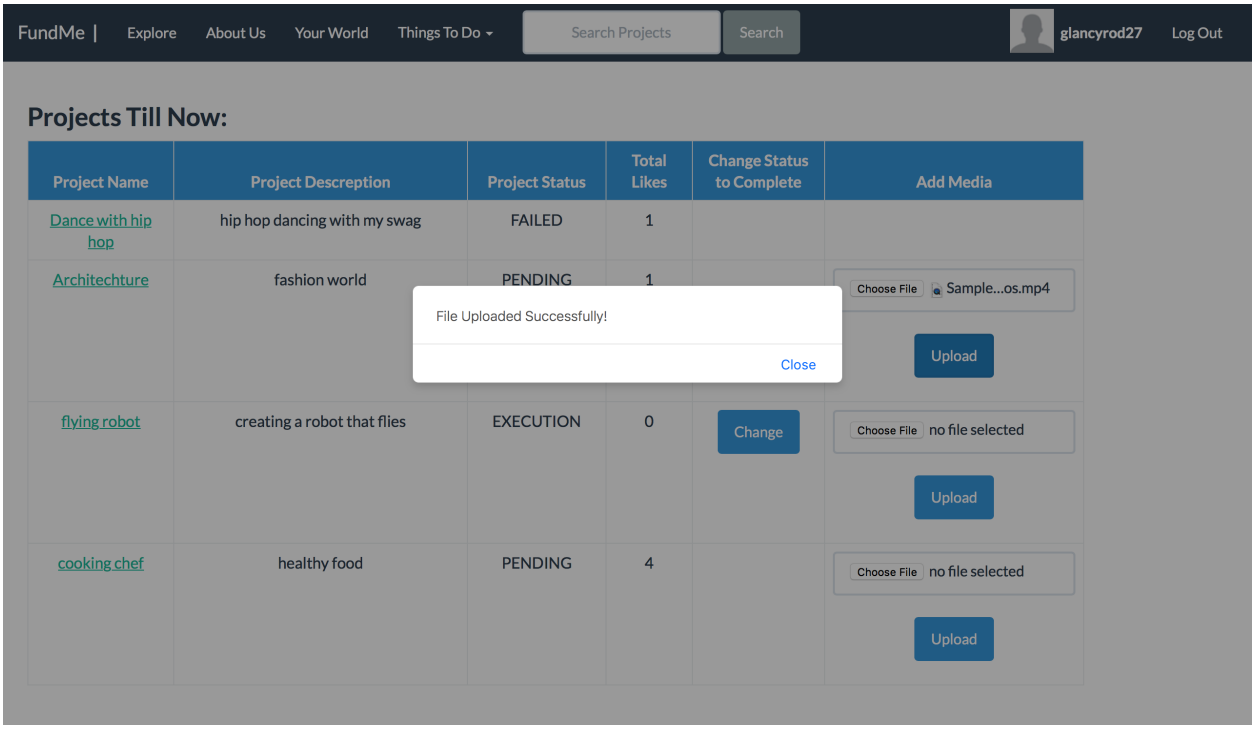
UPDATE MY PROJECTS PAGE –



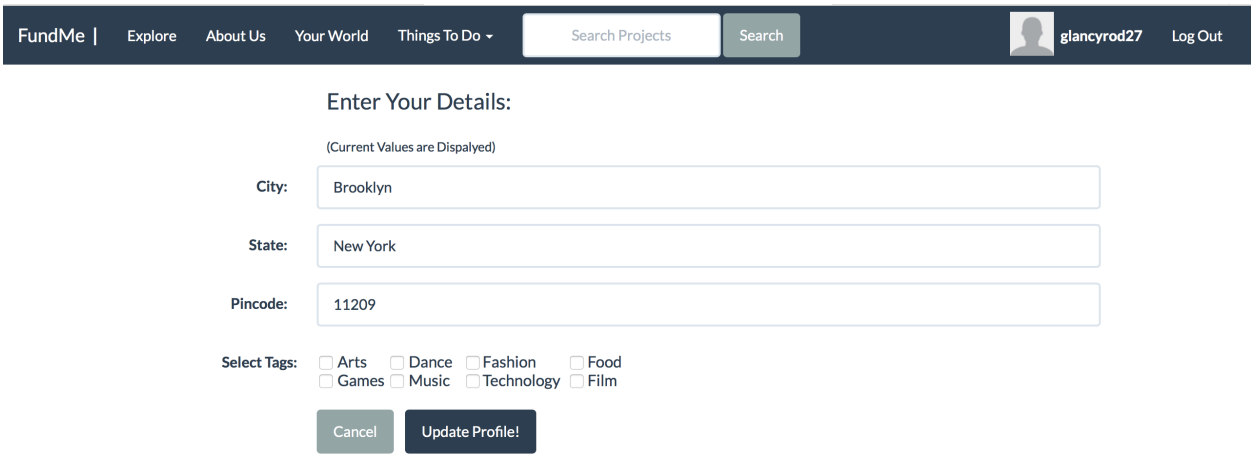
This page shows all the projects that are created by the user with all the details, here all the projects are hyperlinked clicking on them takes to the projects page where user has options to like, comment and rate the project, users are allowed to change status only from EXECUTION to COMPLETE and add media allows user to upload audio/video and image files. The change button will show up only for projects that are in EXECUTION status and add media will show up only for projects in PENDING and EXECUTION status.

Adding and play back of media –



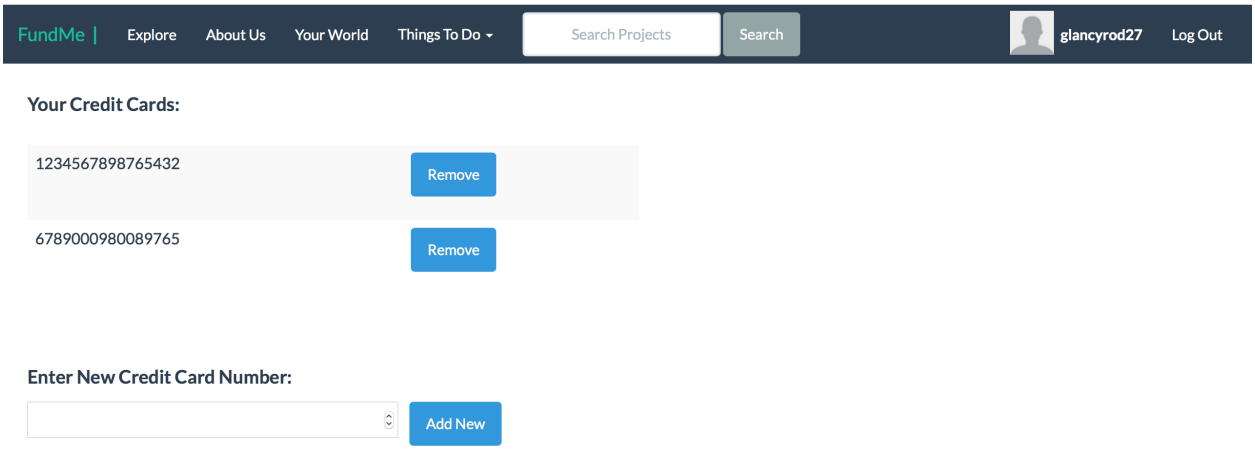


UPDATE PROFILE PAGE –



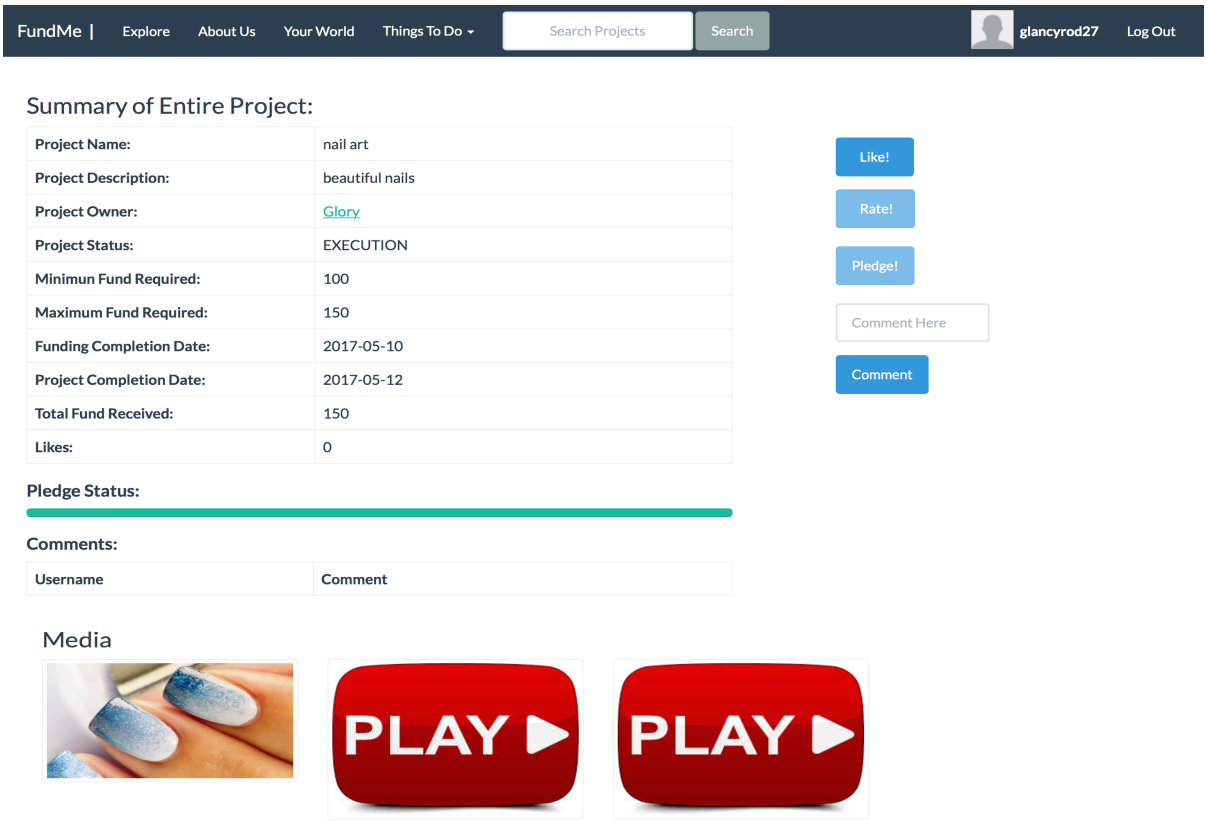
Here user is given option to update interests and change address details, current values are displayed in the fields letting the user know what are the latest values in the respective fields. Here, also the input from the user is first sanitized before passing it to the query to avoid SQL injection and cross-site scripting attacks.

MANAGE PAYMENTS PAGE –

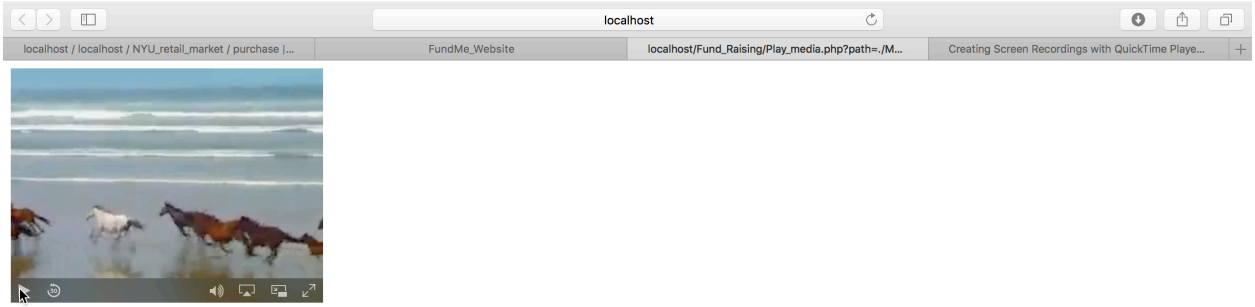


Here user can enter and remove credit cards, before removing credit cards several validations are performed to check whether it is fine to remove the selected credit card or not, check is present to see if the user has pledged with that credit card on a project but the project is still on PENDING status than user will not be able to remove the credit card also user cannot remove a credit card if only one card is present in his account. Checks are present to make sure a valid credit card of 16 digits is entered.

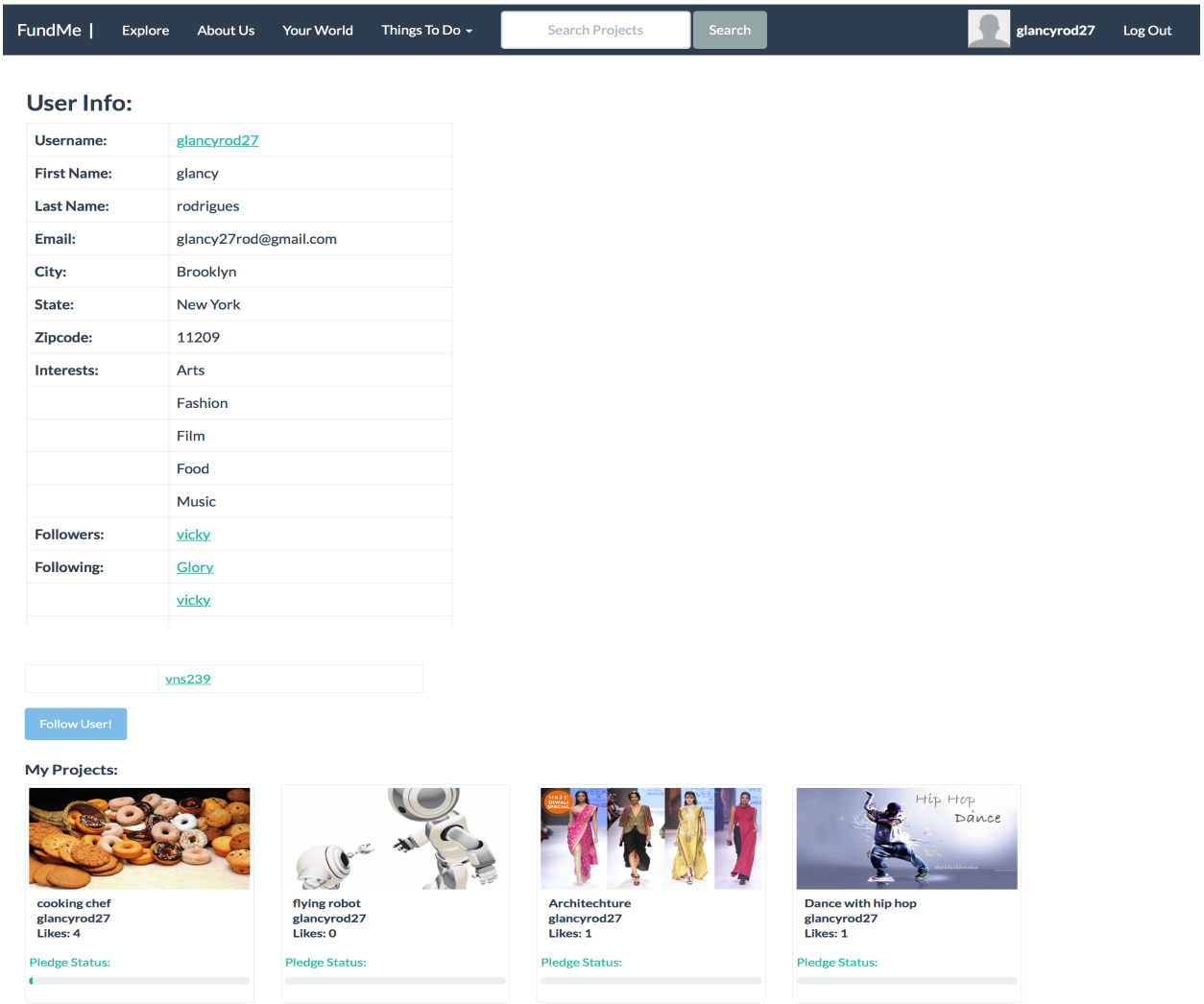
PROJECTS PAGE (opens up when a project is clicked) –



Here user has options to like, comment or rate a project, all the details of the project including all the media files are displayed here, this page also shows average rating once the user who have pledged start to rate. Pledge button is blocked once project moves to execution status and rate button is blocked if the user has not pledged on that project or project is still not in COMPLETE status, like button is blocked once the user likes a project allowing the user to like the same project only ones. All the blocked buttons show appropriate tooltip messages to let user know the reason behind why they are not able to click on them. The Comments shows all the comments and same user can post multiple comments. All the media are hyperlinked which when clicked starts to play.

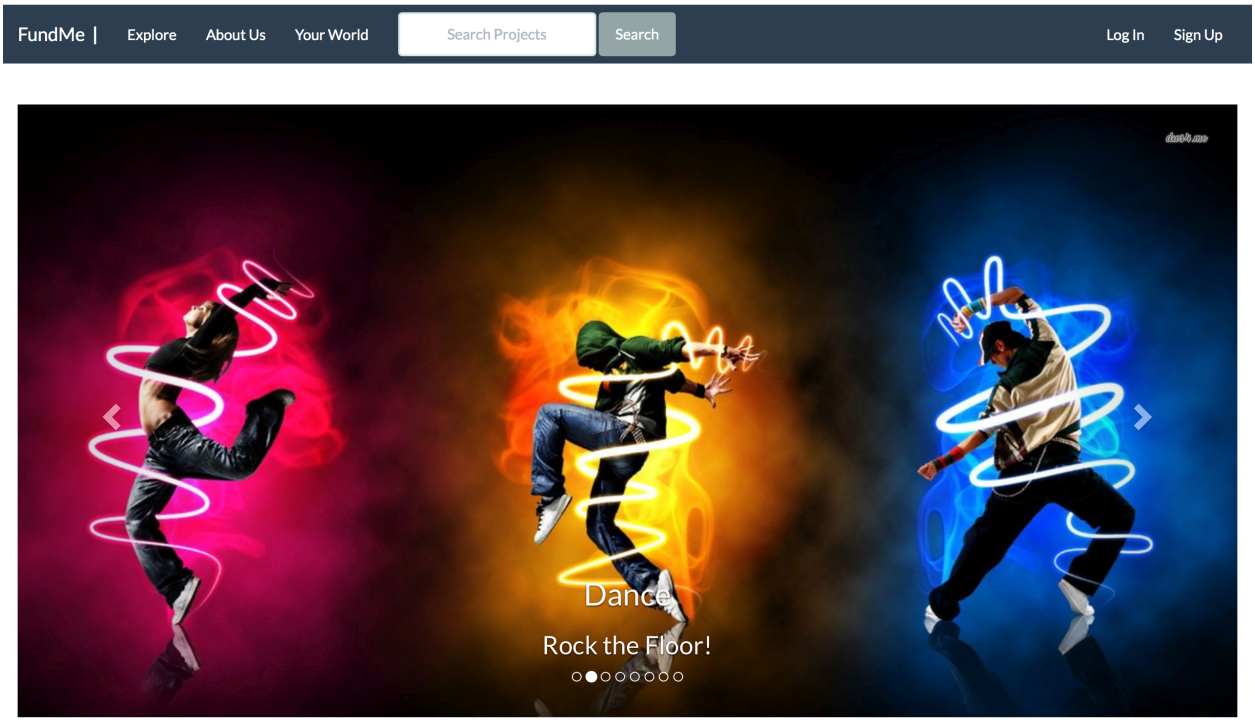


USER INFO PAGE (opens up when username is clicked) –



The above page opens when username is clicked, username is hyperlinked everywhere even on the top right corner of navigation bar which opens users profile the one shown above, here user has **Follow User** option, the button is blocked if the user has already followed that user or if the user is viewing his own profile, proper tooltip message is displayed when the user hovers over the Follow User button to let the user know why is the button blocked out. This page shows all the people following user and also all the people that the user follows.

Once the user logs out by clicking on the Log out button the user is again redirected to the WELCOME PAGE and again can see Login and Sign up option on the top right corner of the navigation bar



Clicking on FundME on left corner of navigation bar will always redirect user to the WELCOME PAGE irrespective of the page he is on. Depending upon whether the user is logged in or not the navigation bar will change to show the username and sign out or login and sign up options on the right corner of the navigation bar.