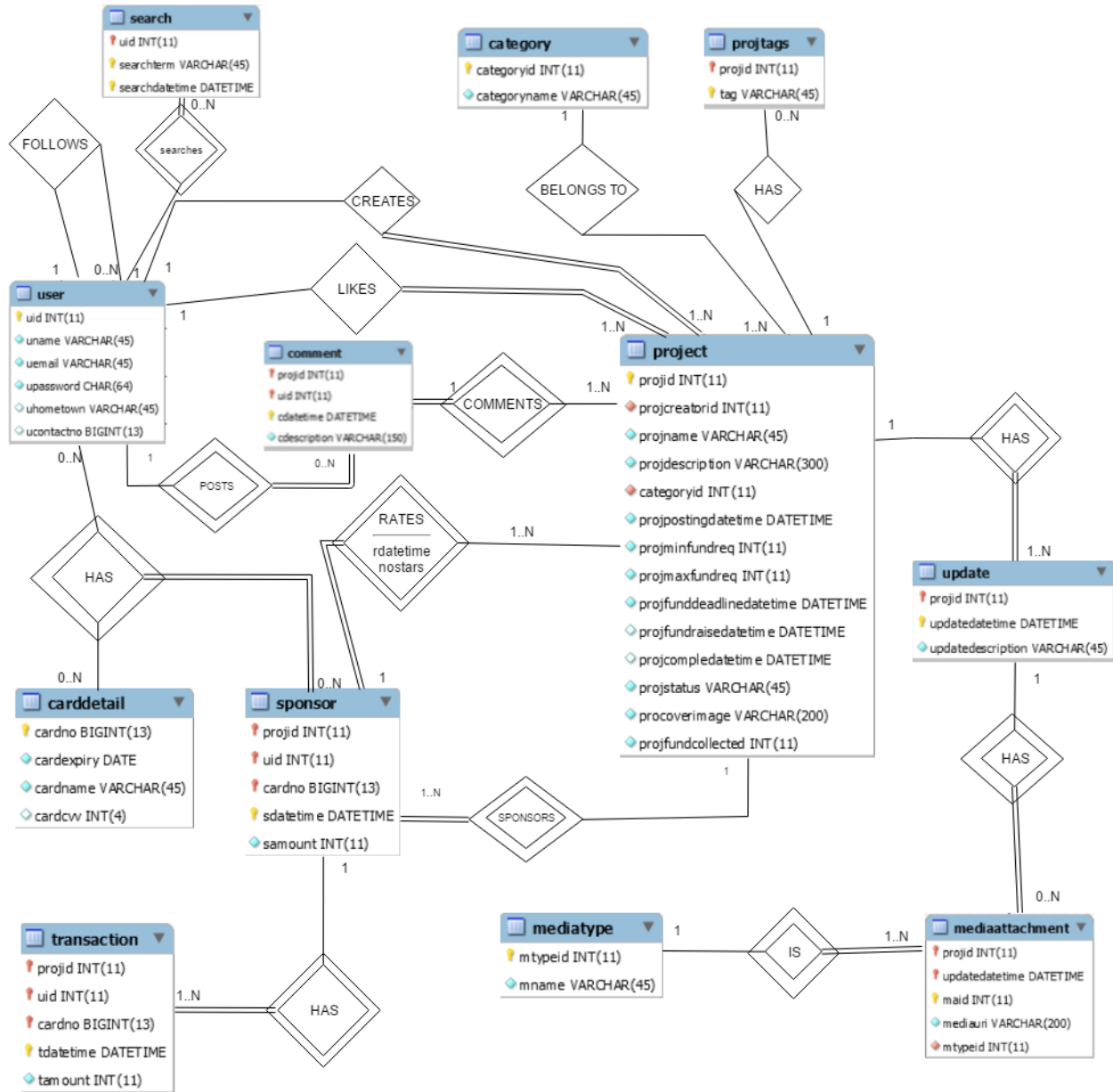


# Principles of Database Systems: Project Report

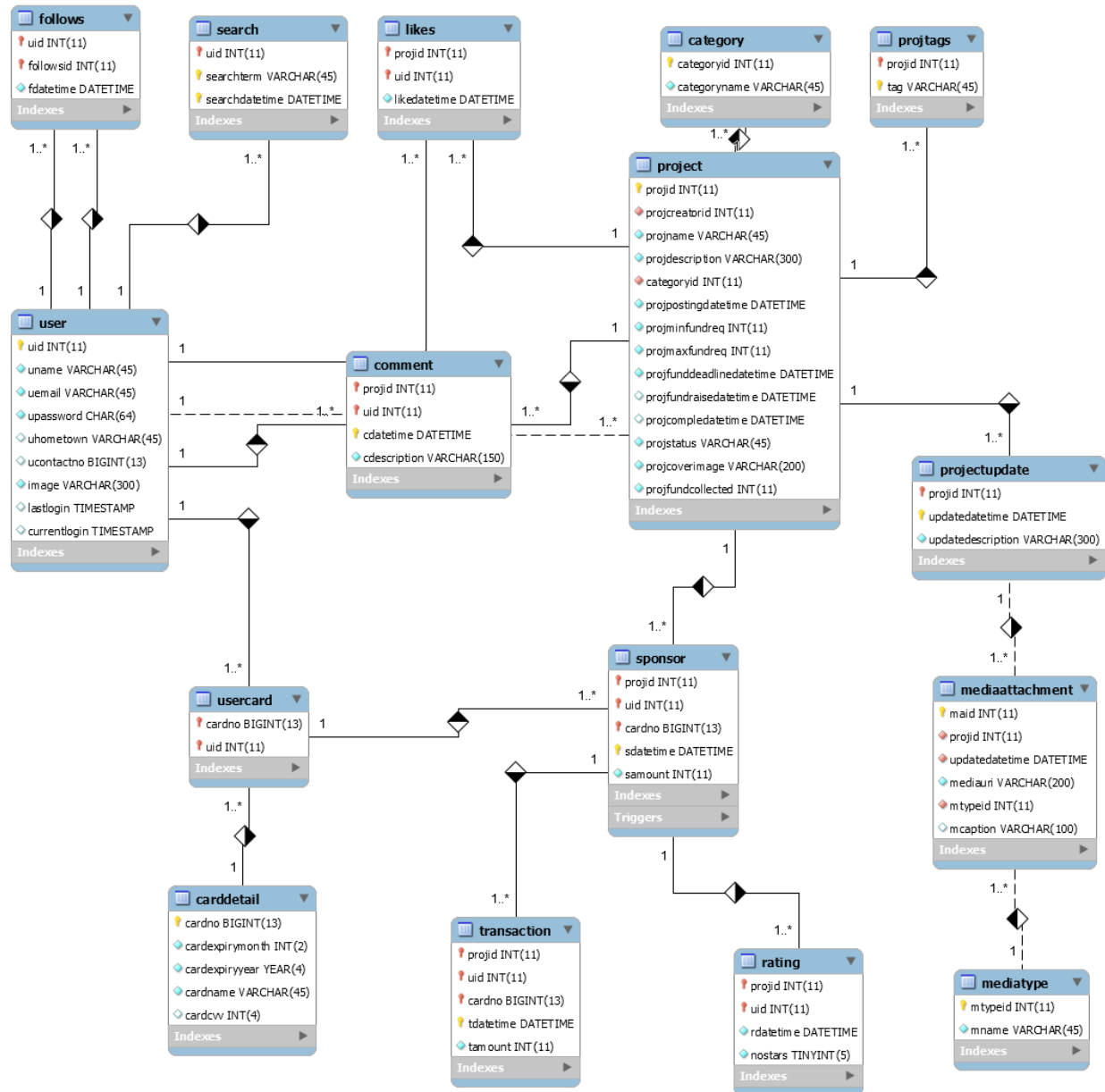
Aakar Deveshkumar Jinwala ([adj329@nyu.edu](mailto:adj329@nyu.edu))

Sagar Amar Patel ([sap590@nyu.edu](mailto:sap590@nyu.edu))

## E-R Diagram (Modified)



## Database Design (Modified):



**Relational Schema from the above diagram of Database design:**

user (uid, uname, uemail, upassword, ucontactno, uhometown, lastlogin, currentlogin) # uid is the primary key

carddetail (cardno, cardexpiry, cardname, cardcvv) # 16 digit identifier of the card is the primary key

usercard (cardno, uid)

comment (projid, uid, cdatetime, cdescription)

Follows (uid, followsid, fdatetime)

likes (projid, uid, ldatetime)

category (categoryid, categoryname)

proptags (projid, tag)

project (projid, projcreatorid, projname, projdescription, categoryid, projpostingdatetime, projminfundreq, projmaxfundreq, projfunddeadlinedatetime, projfundraiseddatetime, projcompleddatetime, projstatus, projcoverimage, projfundcollected)

sponsor (projid, uid, cardno, sdatetime, samount) # sdatetime is descriptor

transaction (projid, uid, cardno, tdatetime, tamount)

rating (projid, uid, rdatetime, nostars)

update (projid, updatedatetime, updatedescription)

mediaattachment (projid, updatedatetime, maid, mediaurl, mtypeid, maid)

mediatype (mtypeid, mname)

search (uid, searchterm, sdatetime)

**WEAK ENTITY TABLES From the above design are:**

- **comment** is a weak entity, with descriptor cadatetime
- **update** is a weak entity with updatedatetime as descriptor
- **mediaattachment** is a weak entity with maid as descriptor
- **sponsor** is weak entity with sdatetime as a descriptor
- **transaction** is a weak entity with tdatetime as a descriptor
- **search** is a weak entity with searchtime and sdatetime as descriptor

Changes we have made from our previous Database Diagram:

- Added timestamp for the tables likes, comments, follows, rating.
- We are maintaining user search history, whenever user searches for a project using search functionality we are logging that information in the search table with the uid, searchdatetime and searchterm.
- Also, we have modified the user table, we are storing two extra fields for timestamp like lastlogin and currentlogin. When the user logs in to the system, we are updating the user entry in the table by inserting the current login timestamp. When the user logs out of the system, we are storing the currentlogin value into the lastlogin field.
- So the reason behind modifying the above user table is:
- On the index page, we are showing details regarding the projects, user has searched for the last session.

#### **Implementation Design and Constraints:**

- Only registered users can follow other registered users.
- Here in the application, each and every user account has a unique email id, users can have same uname. Also user can have same mobile number. So, here email ID and uid both are unique. We can also use email ID as a primary key. But, having varchar for an index makes things complicated. It is best to have Integer OR numeric value as Indexes. So, we are using uid as Index value.
- User has to provide his name, unique email ID and his password, hometown while creating the account.
- We have also considered the scenario in which one credit card can be registered by multiple users. Similarly, one user can register multiple credit cards. Consider the design and primary keys for **card detail** and **usercard** table and their relationships for this consideration. This is the reason for which, we are having a separate table usercard having composite primary keys (**uid, cardno**) both, which enables the given scenario.
- Only registered users of the application can comment on the projects.
- If user is not having a single credit card registered with the system, user needs to register at least one credit card before sponsoring a project.

- Project table:

project (projid, projcreatorid, projname, projdescription, categoryid, projpostingdatetime, projminfundreq, projmaxfundreq, projfunddeadlinedatetime, projfundraiseddatetime, projcompleddatetime, projstatus, projcoverimage, projfundcollected)

- Here, *projcreatorid* refers to the user who has created the project, *projectpostingdate* is the time when project was posted for the funding, *projminfundreq* and *projmaxfundreq* both refers to the minimum and maximum funding required by the project, *projfunddeadlinedatetime* is the funding deadline set up by the user, it should also not be null,

***projfundcollected is the field which is updated by the trigger***, each and every time there is an entry in the sponsor table. Its default value is 0.

Also **projstatus** contains four values: “Active”, “Funded”, “Executed”, “Failed”
















*projfundraisedatetime = projfunddeadlinedatetime*, in the case when min fund is acquired, but it failed to reach the maximum fund deadline.

*projfundraisedatetime = current\_timestamp*, if the maximum fund has reached before the funding deadline.

- Only the users, who are having at least one credit card registered in the system, can sponsor a given project. So, for the sponsor table design, we are fetching uid and cardno from the usercard table. Also, if the user wants to sponsor for a particular project, he can sponsor the project multiple times.
- Similarly, only the sponsor can give rating to a project, for this scenario, we have Referential Integrity constraint, projid and uid both from sponsor table.
- Transaction table is updated by the event, which runs at every 60 minutes, It fires a procedure containing a nested cursor, which updates the fields of the project table on the basis of mentioned fields and constraints, and if **projfundcollected is NOT Null, and projstatus = “Funded”, all the entries of the sponsor table goes to the Transaction table. For the project having projstatus as failed, we are not charging the credit card of the sponsors, so there is no entry in the transaction table.**
- Suppose, for a given project maximum fund is \$1000 and the project has already received \$800. Now a sponsor wants to donate \$300 for the project, sponsor will not be able to do so. He will only be able to donate at the most \$200. This care needs to be taken by the application code (PHP or server side code) and for this database should not be loaded.
- If a given user has donated to a project thrice, using the same credit card, He will be charged the total amount only once on the same credit card when the project status changes to Funded from Active. This is taken care of by the procedure, we have implemented.

This can be verified as shown below.

#### Sponsor table entry

<input type="checkbox"/>	 Edit  Copy  Delete	101	1	1122445599222233	2017-04-14 00:00:00	8500
<input type="checkbox"/>	 Edit  Copy  Delete	101	4	1122445599222233	2017-04-15 12:15:30	3000
<input type="checkbox"/>	 Edit  Copy  Delete	101	4	1122445599222233	2017-06-15 11:59:59	4000
<input type="checkbox"/>	 Edit  Copy  Delete	101	4	7896541323652856	2017-03-15 12:15:30	6000
<input type="checkbox"/>	 Edit  Copy  Delete	101	6	1254256356982785	2017-05-15 17:15:30	7000

## Transaction Table

				projid	uid	cardno	tdatetime	tamount
	 Edit	 Copy	 Delete	101	1	1122445599222233	2017-04-19 15:19:28	8500
	 Edit	 Copy	 Delete	101	4	1122445599222233	2017-04-19 15:19:28	7000
	 Edit	 Copy	 Delete	101	4	7896541323652856	2017-04-19 15:19:28	6000
	 Edit	 Copy	 Delete	101	6	1254256356982785	2017-04-19 15:19:28	7000
	 Edit	 Copy	 Delete	102	2	9856854744521523	2017-04-19 15:21:49	2000
	 Edit	 Copy	 Delete	102	3	9856854744521523	2017-04-19 15:21:49	5000

- At the time of creating the project, the user has to upload a project cover image, give a description for the project.
- Also, the user while uploading any updates to the project has specify the update description and if the user wants to upload any images/videos/mp3 like media files. He can also upload that data along with the update description. But for a given update, user has to upload only images/ mp3/ video, it is mandatory for him to specify the required content.
- Also, if a particular user tries to sponsor a given project, if he tries to sponsor and the total fund exceeds the maximum fund required by the project, the user won't be able to sponsor. He only has to sponsor the amount = amount left to reach maximum fund.

### Trigger for sponsor table:

- Whenever there is an entry in the sponsor table for a particular project, We are calculating total funds collected for the project and updating the projfundcollected field of the project table for the corresponding project.
- So, this trigger is for INSERT AFTER and so whenever there is an Insert entry in the sponsor table, this trigger will be called and it will calculate the total funds collected for the project and will update the **projfundcollected field** of the project table for the corresponding project.

#### **1) INSERT AFTER Trigger**

```
DROP TRIGGER IF EXISTS insertprojfund;
DELIMITER $$
CREATE TRIGGER INSERT_projfund
AFTER INSERT ON `sponsor`
FOR EACH ROW
BEGIN
    DECLARE fundraised INT;
    DECLARE projectid INT;
    SET @projectid = NEW.projid;

    SET @fundraised = (SELECT SUM(samount) FROM sponsor WHERE projid = @projectid
GROUP BY projid);
    UPDATE project SET projfundcollected = @fundraised WHERE projid = @projectid;
END $$
```

**Event which calls a procedure for updating project table entries and adding to transaction table.**

- Here, we are creating an event which is running every 40 seconds. What the event does is, it call the UPDATE\_PROJECT Procedure.
- UPDATE\_PROJECT procedure contains two nested cursors. We are fetching each and every entry of the project table and checking whether the project deadline has arrived. If the deadline has arrived but project var\_projfundcollected < var\_projminfundreq. In that case, status of that project is updated to 'Failed'. If, for the projminfundreq, sufficient funds are met, we are updating it to "Funded", also updating the projfundraisedatetime to projfunddeadlinedatetime. Similarly, we are doing same if the maximum funding is acquired before the project deadline.
- Also, We are using second trigger, here in this case, which fetches the rows from the sponsor table for the project whose status is Funded and for those entries, it is entering those entries in the transaction table. Also, for a given sponsor for a project, if the sponsor has used same credit card while sponsoring multiple times, his/ her credit card is only charged once.

```
DELIMITER $$
```

```
CREATE EVENT Project_EVENT2  
  ON SCHEDULE EVERY 60 MINUTE  
  DO  
    CALL UPDATE_PROJECT();
```

```
$$
```

```
DELIMITER ;
```

```
DROP PROCEDURE IF EXISTS UPDATE_PROJECT;
```

```
DELIMITER $$
```

```
CREATE PROCEDURE UPDATE_PROJECT()  
BEGIN
```

```
  DECLARE done INT DEFAULT FALSE;  
  DECLARE var_projid INT(11);  
  DECLARE var_projminfundreq INT(11);  
  DECLARE var_projfunddeadline DATETIME;  
  DECLARE var_projfundcollected INT(11);  
  DECLARE var_projmaxfundreq INT(11);  
  DECLARE var_projstatus VARCHAR(45);  
  DECLARE cur1 CURSOR FOR SELECT projid, projminfundreq,  
projmaxfundreq, projfunddeadlinedatetime, projfundcollected,  
projstatus FROM project;  
  DECLARE CONTINUE HANDLER FOR NOT FOUND SET done = TRUE;  
  OPEN cur1;  
  read_loop: LOOP  
    FETCH cur1 INTO var_projid, var_projminfundreq,  
var_projmaxfundreq, var_projfunddeadline, var_projfundcollected,  
var_projstatus;
```



```

IF done THEN
    LEAVE read_loop;
END IF;
IF current_timestamp >=var_projfunddeadline THEN
    IF var_projfundcollected < var_projminfundreq THEN
        # Set the status of the project to failed
        UPDATE project SET projstatus = "Failed" WHERE projid =
var_projid;
    ELSE
        # Set the status of the project to successful Funded
        UPDATE project SET projstatus = "Funded",
projfundraisedatetime = var_projfunddeadline WHERE projid = var_projid
AND projstatus <> "Executed" AND projstatus <> "Failed";
    END IF;
ELSE IF var_projfundcollected = var_projmaxfundreq THEN
    UPDATE project SET projstatus = "Funded",
projfundraisedatetime = current_timestamp WHERE projid = var_projid
AND projstatus <> "Executed";
END IF;
END IF;
BLOCK2: BEGIN
    DECLARE done1 INT DEFAULT FALSE;
    DECLARE var_spon_projid INT(11);
    DECLARE var_spon_uid INT(11);
    DECLARE var_spon_cardno BIGINT(13);
    # DECLARE var_spon_sdatetime DATETIME;
    DECLARE var_spon_samount INT(11);
    DECLARE cur2 CURSOR FOR SELECT
projid,uid,cardno,sum(samount) from sponsor where projid=var_projid
AND
        projid NOT IN (SELECT projid FROM transaction) group
by projid,cardno,uid;
    DECLARE CONTINUE HANDLER FOR NOT FOUND SET done1 = TRUE;
    OPEN cur2;
    read_sponsor_loop: LOOP
        FETCH cur2 INTO
var_spon_projid,var_spon_uid,var_spon_cardno,var_spon_samount;
        IF done1 THEN
            LEAVE read_sponsor_loop;
        END IF;
        IF var_projstatus='Funded' OR var_projstatus='Executed'
THEN
            #Req fund collected then create transaction entry
            INSERT INTO transaction values
(var_spon_projid,var_spon_uid,var_spon_cardno,current_timestamp,var_sp
on_samount);

```

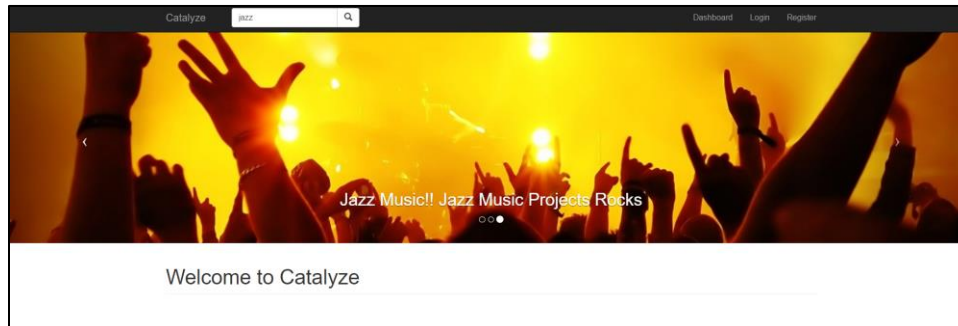
```
        END IF;
    END LOOP read_sponsor_loop;
    CLOSE cur2;
    END BLOCK2;
END LOOP read_loop;
CLOSE cur1;
END;
$$
DELIMITER ;
```

## Design and Implementation

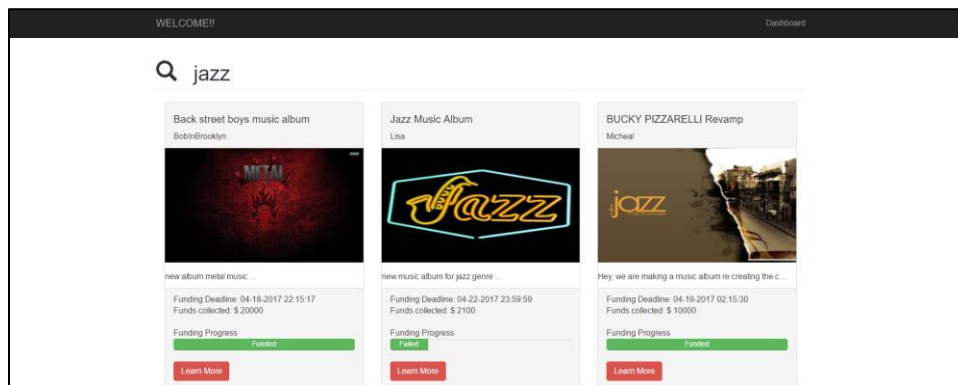
### Unique features of our project:

Searching the projects in the search functionality provided:

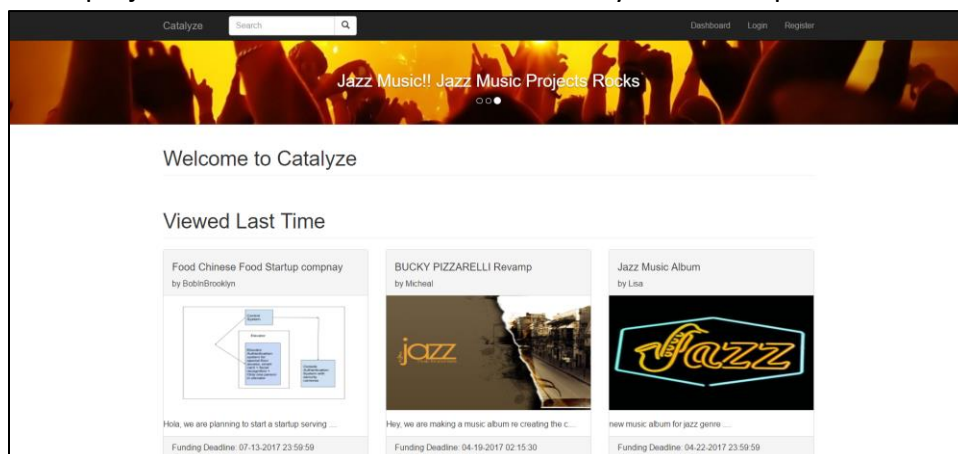
Users of the application can search the project with the search box provided. The website will search all the projects on the basis of tags, categories, project name, project description and will give the list of projects to the user.



The result of the query jazz is:



Also, we are logging the searches made by the user into the database, so next time the users logs into the web application, we are showing the list of projects, he had searched in the past using the search functionality. When the user logs into the database again, we are showing the list of projects on the basis of searches made by him in the past.



## Personalized user feed:

- We are showing a personalized user feed on the dashboard regarding the updates from other users whom we are following.
- For example, as shown below, user X is following the user Y, we are showing all the recent comments on user Y projects as feed to user X.
- We are also showing recent likes by other users on user Y project to user X.
- Similarly, we are showing newly created projects of user Y to user X.

The screenshot displays the 'Catalyze' dashboard interface. The top navigation bar includes the 'Catalyze' logo, a notification bell, and a user profile icon for 'Lisa'. The left sidebar contains a menu with the following items: 'Activity Feed' (selected), 'Your Projects', 'Create New Project', 'Your Sponsored Projects', 'Projects Liked', 'User's Followed', 'User's Following', 'Your Own Profile', 'Update Project', and 'Add Card'. The main content area is divided into two sections. The first section, titled 'Activity Feed', contains two sub-sections: 'Comments' and 'Likes'. The 'Comments' section lists two entries: 'Lisa commented on project Back street boys music album' and 'John commented on project driverless car'. The 'Likes' section lists four entries, all from 'Lisa': 'Lisa liked project Back street boys music album', 'Lisa liked project driverless car', 'Lisa liked project cup cake business', and 'Lisa liked project Food Special Cart'. The second section, titled '\$ Sponsor', lists seven entries, all from 'Lisa', showing sponsored amounts for various projects: 'vidya vox music', 'Jazz Music Album', 'cup cake business', 'BUCKY PIZZARELLI Revamp', and three instances of 'Food Special Cart'.

**Catalyze**

**Activity Feed**

**Comments**

- Lisa commented on project Back street boys music album
- John commented on project driverless car

**Likes**

- Lisa liked project Back street boys music album
- Lisa liked project driverless car
- Lisa liked project cup cake business
- Lisa liked project Food Special Cart

**\$ Sponsor**

- Lisa sponsored amount for project vidya vox music
- Lisa sponsored amount for project Jazz Music Album
- Lisa sponsored amount for project cup cake business
- Lisa sponsored amount for project BUCKY PIZZARELLI Revamp
- Lisa sponsored amount for project Food Special Cart
- Lisa sponsored amount for project Food Special Cart
- Lisa sponsored amount for project Food Special Cart

## Project Creation:

At the time of project creation, user has to fill up details like: project name, project fund campaign deadline, minimum fund required, maximum fund required, any image as project cover image, associate the page with the predefined categories.

Also, user can add tags associated with the project.

## +Create New Project

Create a New Project

\* Fields are required.

S

Project Name\*

NYU Jazz Music Cpnert

Project Description\*

We are students at NYU university, we are galmnin

Please provide meaningful project description

Project Minimum Fund Required\*

Project Minimum Fund

Please enter minimum project funding

Project Maximum Fund Required\*

Project Maximum Fund Required

Please enter minimum project funding

Please Provide Fund Raising Deadline

Please Provide fuding campaign deadline

Project Category\*

Art

Project Tags

nyu jazz nyutlish tish

Please choose your Project Cover Image

Choose File | No file chosen

This field is required.

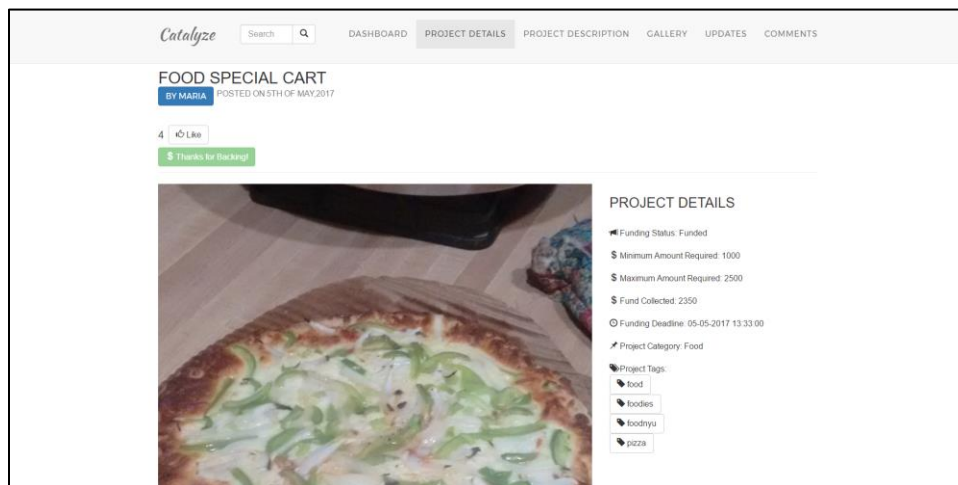
## Project Page:

We have created a page for the project on which we are showing the details related to project like max funding required, its status whether active or funded or completed, amount of funding it has collected up till now, how many days left for the fund deadline.

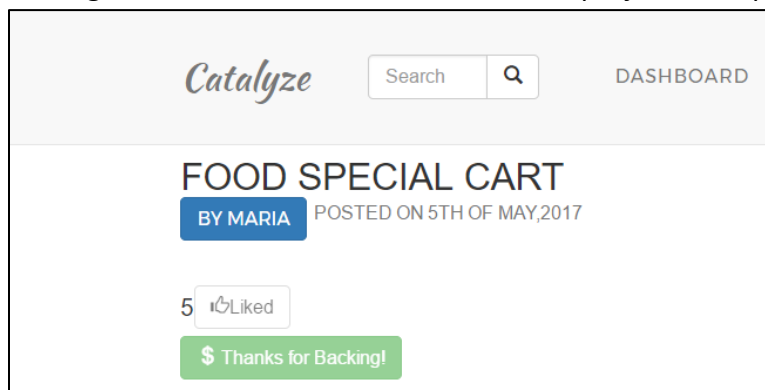
Also, users can like a project, sponsor the project.

The project page also displays all multimedia associated with the project in the 'Gallery' section. Below that we can see the update timeline displaying all the updates till date posted for that particular project.

Lastly we can see the comments section where any comments posted by users can be seen and new comments can be added.



If you have liked the project already, you won't be able to like it now as shown below: Also by clicking on the button user who created the project, user profile page will open



## Project Description:

Catalyze

Search

Q

DASHBOARD

PROJECT DETAILS

PROJECT DESCRIPTION

GALLERY

UPDATES

COMMENTS

PROJECT DESCRIPTION

*I want some bucks for making my food delivery business sucefull. can you please help me with the venture.*

## Project Gallery:

Catalyze

Search

Q

DASHBOARD

PROJECT DETAILS


PROJECT DESCRIPTION

GALLERY


UPDATES

COMMENTS

GALLERY



2017-05-10 19:23:15



0:00 / 0:08

2017-05-10 19:23:15

## Project Update Timeline

Catalyze

Search

Q

DASHBOARD

PROJECT DETAILS

PROJECT DESCRIPTION


GALLERY

UPDATES

COMMENTS

UPDATES

*Keep track of the project's progress.*




MAY 10,2017

See our new images and videos regarding our new food items, we are organizing free meetup for our sponsors. Please join

MAY 5,2017

Helloz Friends, This is the first video i am posting for my venture please support me



BE PART OF OUR STORY!

## Project Comment

### COMMENTS

*Discussions about the project.*



Idea is not appropriate.

by Gary at 11:59am, 15th January 2017



(Y) Keep going.

by Mark at 11:35am, 10th April 2017



Hi Give

by BobinBrooklyn at 7:39pm, 10th May 2017

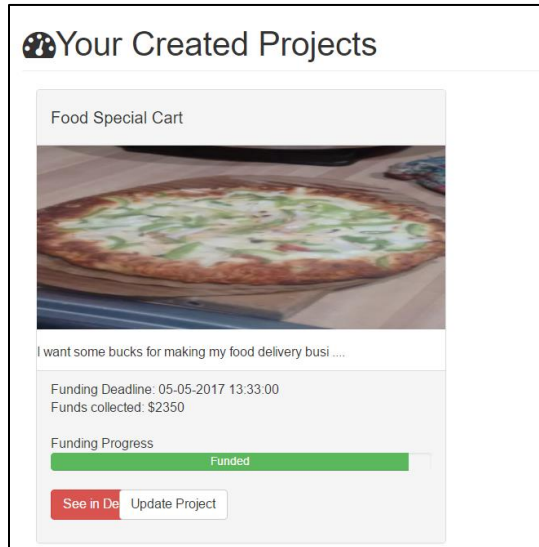


Also see recently added comment by Bobthebrooklyn above.

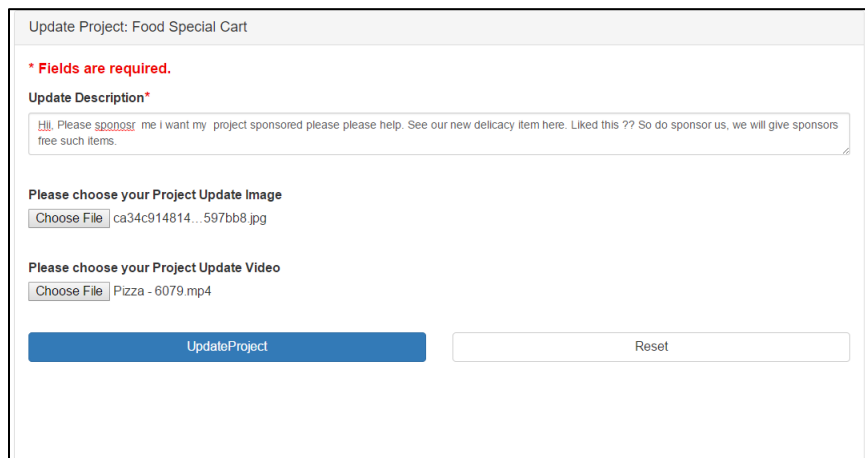


## Project Updation:

User can also send up updates periodically to the project, whenever he wants. If are not having any conditions, that he can only give updates at the time of completion or at the time of funding is completed. We value project owners and so they can post update multiple times, so their idea looks impressive and finally people will sponsor them. Also the project owner can upload image, video as an update, which are optional.

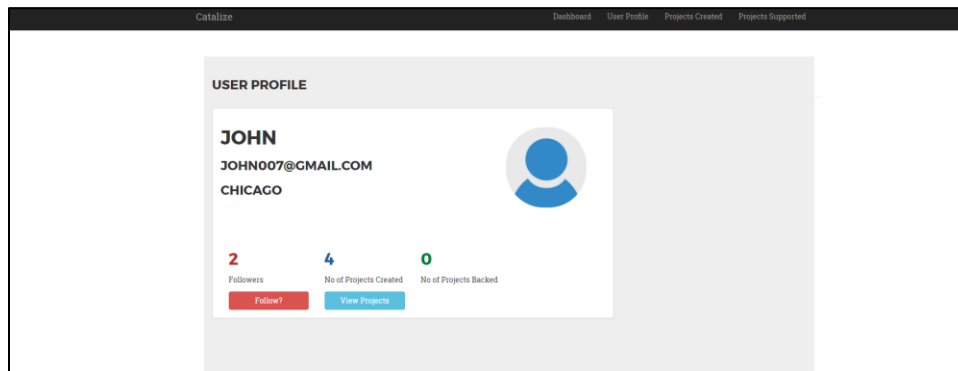


On clicking on the update project button,

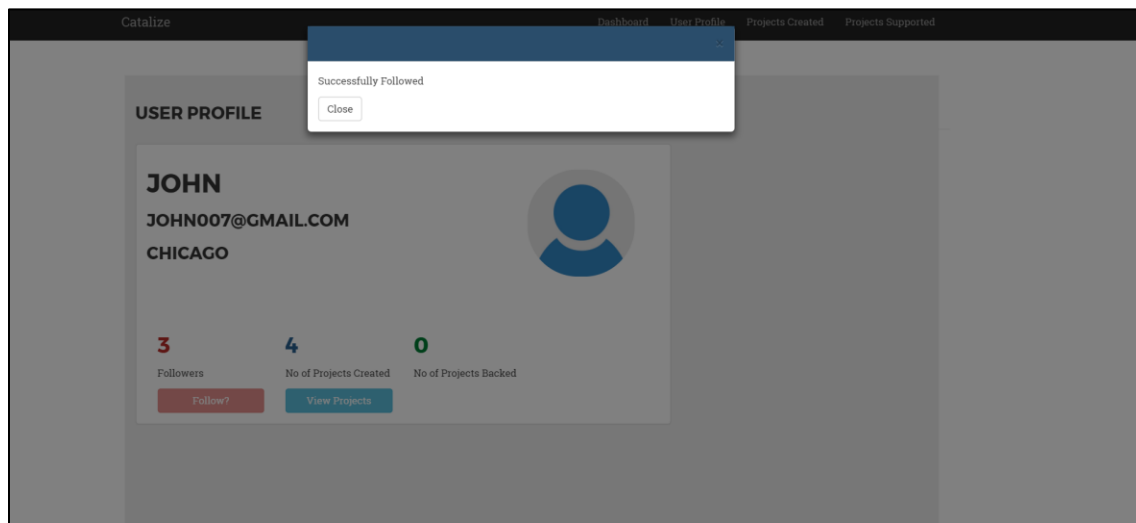
A screenshot of the "Update Project: Food Special Cart" form. At the top, a red message states "\* Fields are required.". Below this is the "Update Description\*" section with a text area containing the text: "Hi. Please sponsor me I want my project sponsored please please help. See our new delicacy item here. Liked this ?? So do sponsor us, we will give sponsors free such items.". The next section is "Please choose your Project Update Image", featuring a "Choose File" button and the filename "ca34c914814... 597bb8.jpg". Below that is the "Please choose your Project Update Video" section, also with a "Choose File" button and the filename "Pizza - 6079.mp4". At the bottom of the form are two buttons: "UpdateProject" (blue) and "Reset" (white).

Also, finally we can see the update on the project page, in next section

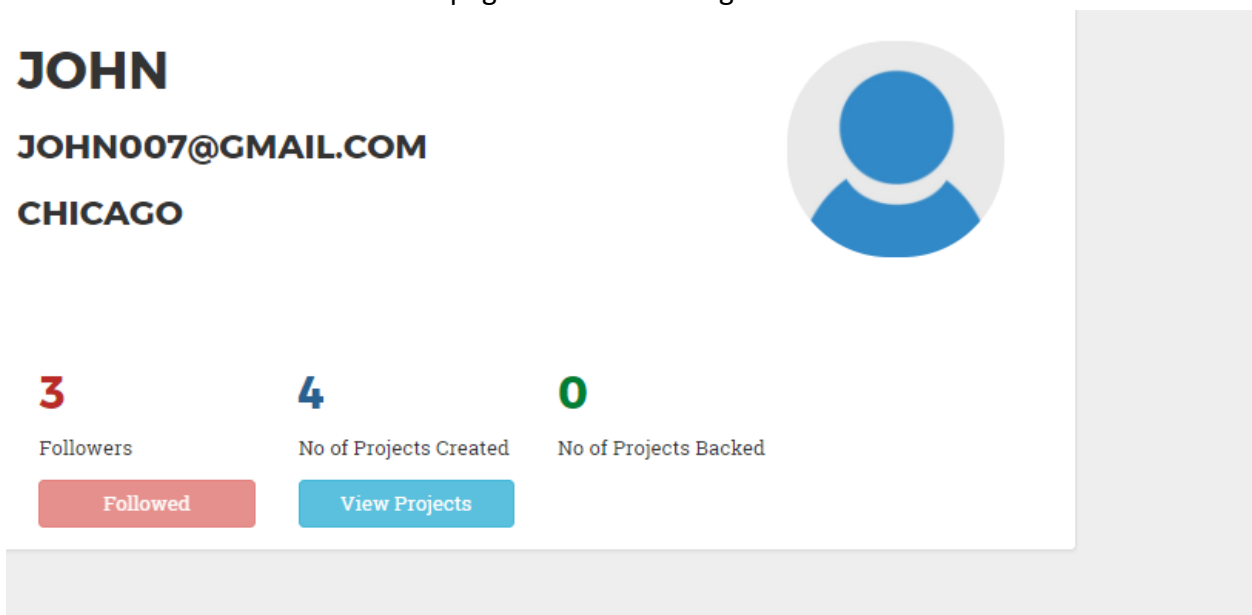
## User Profile page:



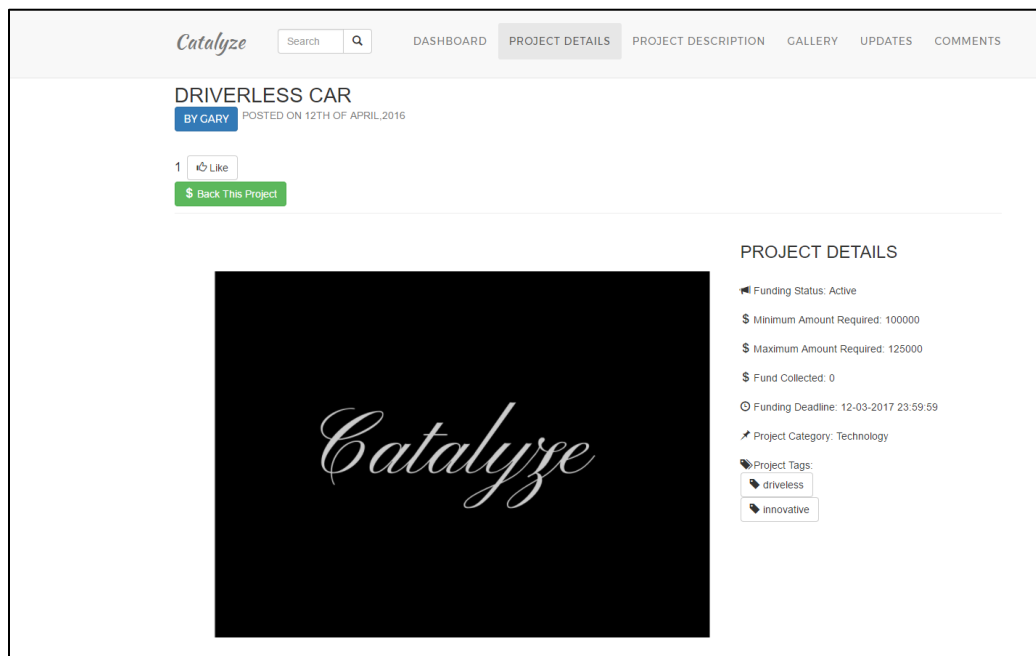
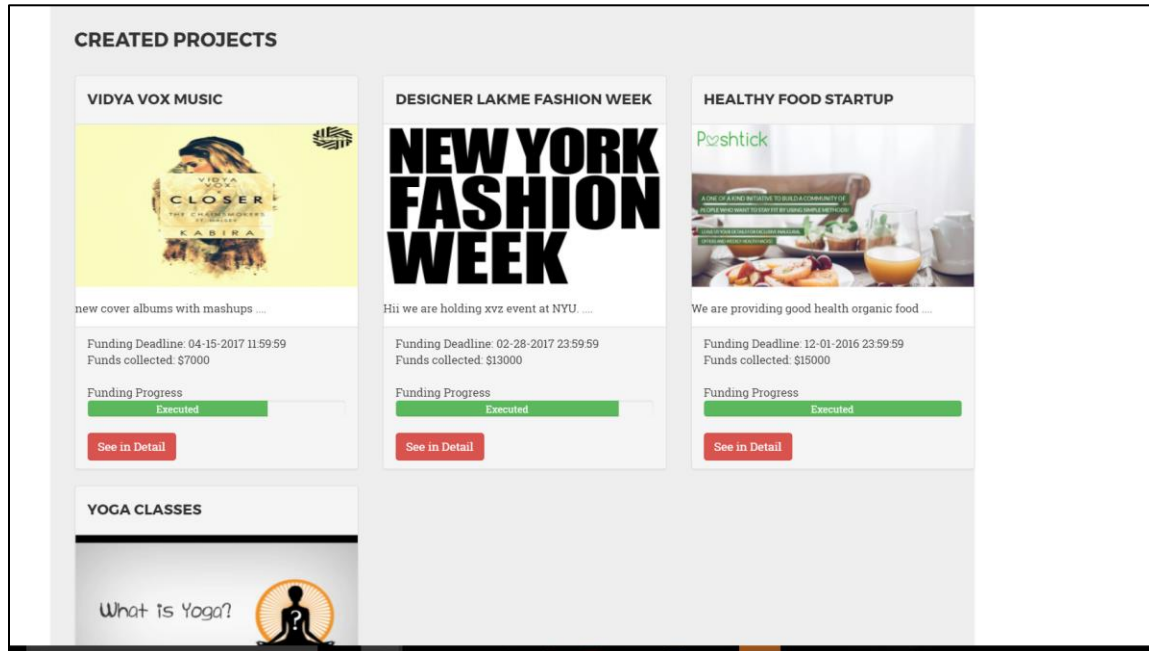
Now let's follow John, follower count is incremented by one.



We can see next time we visit the page the status changed to followed.



We can also see the projects created by user on the user page



Since user has no credit cards associated with his/her account, he has to add credit card before sponsoring a project

PLEDGE FUNDS Home Dashboard Add Card

SPONSOR PROJECT: driverless car

Sorry! But we did not find any stored payment method. Please add your card details.

Enter Amount \$ 99.00

Card Please select your stored card

Send

## Add card form

Payment details

Card Number  
7777888899992222

Expiry Date (mm/yy)  
09 / 20

Security Code/ CVV  
212

Name On The Card  
Das John|van

ADD CARD

GO BACK

So, we can see the card which we have recently added in the drop down menu:

PLEDGE FUNDS Home Dashboard Add Card

SPONSOR PROJECT: driverless car

Enter Amount \$ 125000

Card  
7777888899992222  
Please select your stored card  
7777888899992222

Send

We cannot sponsor more than what is required, error message is shown

Also, we are showing simultaneously the event which we are running, the user decides to sponsor 125000 \$ exact amount. So status will change to completed.

Data entry before adding the project:

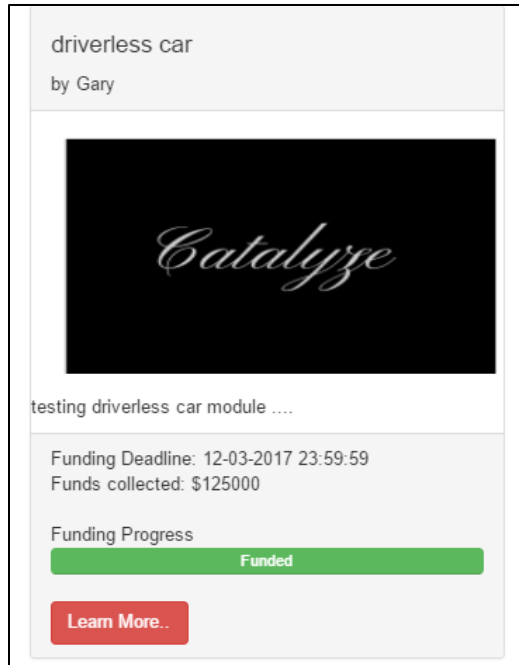
104	3	driverless car	testing driverless car module	313	2016-04-12 01:05:00	100000	125000	2017-12-03 23:59:59	0	Active	NULL	NULL
107	6	Hip Hop Dance Show	Hi! we are holding a Hip Hop event in washington D	307	2016-12-15 11:59:59	5000	10000	2017-01-15 23:59:59	0	Failed	NULL	NULL
111	8	test event	jhhahfbciajcnogwcnawkic:ocscisaevcnj	306	2017-05-03 16:33:25	5000	5500	2017-05-04 23:59:59	0	Failed	NULL	NULL

Confirming same from the project page

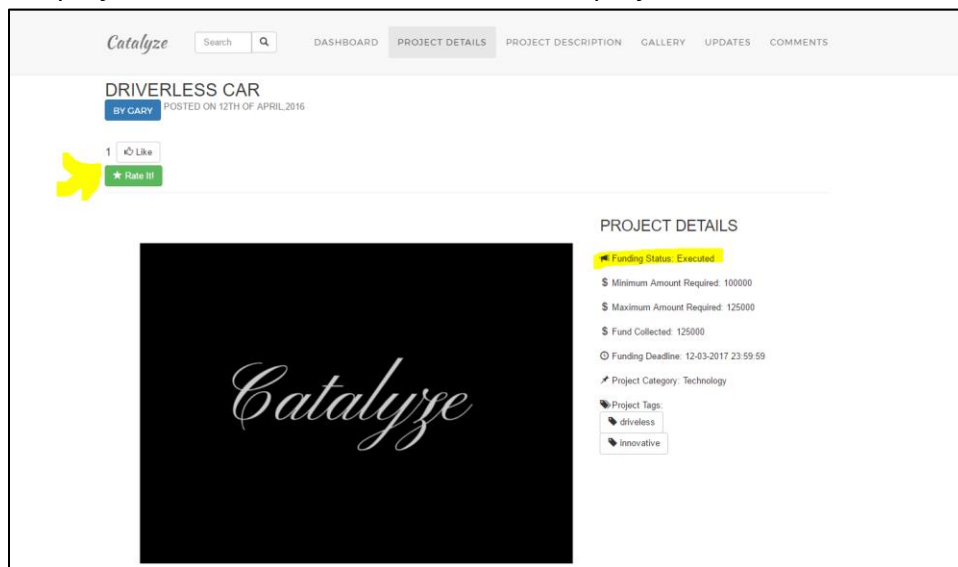
After sponsoring the project using above sponsor form The entry in the database, trigger update the project status from Active to Funded, and with funding amount 125000 in the funds collected entry of the table

104	3	driverless car	testing driverless car module	313	2016-04-12 01:05:00	100000	125000	2017-12-03 23:59:59	125000	Funded		
-----	---	----------------	-------------------------------	-----	---------------------	--------	--------	---------------------	--------	--------	--	--

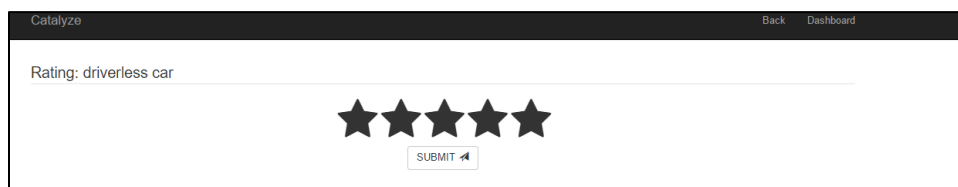
We can also see this in the below project snap, it is showing funded with funding collected = \$ 125000, also this project is funded before time, before the project deadline.



Now, let's check when the project is executed, the project status is Executed as shown. So the sponsor is able to rate the project. The user can rate from 1 to 5 stars. Once the sponsor rates the project he will not be able to re-rate the project.



## Rating Page



## Dashboard Pages:

We can see list of projects created:

Catalyze

Your Projects

Your Projects

Create New Project

Your Sponsored Projects

Project's Liked

User's Followed

User's Following


Your Own Profile

Update Project

Your Created Projects

No. Created Projects : 2

Back street boys music album



new album metal music ....

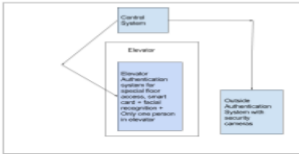
Funding Deadline: 04-18-2017 22:15:17  
Funds collected: \$20000

Funding Progress

Funded

See in Detail Update Project

Food Chinese Food Startup compnay



Hola, we are planning to start a startup serving ....

Funding Deadline: 07-13-2017 23:59:59  
Funds collected: \$0

Funding Progress

0%

See in Detail Update Project

We can see list of projects sponsored:

Catalyze

Dashboard

Your Projects

Create New Project

Your Sponsored Projects

Project's Liked

User's Followed

User's Following

Your Own Profile


Update Project

Your Sponsored Project's

No. Project Sponsored : 4

cup cake business

By Andrew



FOOD ...

Funding Deadline: 02-09-2017 23:59:59  
Funds collected: \$270000


Funding Progress

Funded

See in Detail

Healthy Food Startup

By John



We are providing good health organic food ....

Funding Deadline: 12-01-2016 23:59:59  
Funds collected: \$15000


Funding Progress

Executed

See in Detail

Yoga Classes

By John



Fitness Yoga Class, every week at Times Square ....

Funding Deadline: 12-15-2016 23:59:59  
Funds collected: \$20000


Funding Progress

Executed

See in Detail

BUCKY PIZZARELLI Revamp

By Micheal



Dashboard also contains pages regarding a list of projects liked by user X:

Catalyze

Dashboard

Your Projects

Create New Project

Your Sponsored Projects

Project's Liked

User's Followed

User's Following

Your Own Profile

Update Project


RobinBrooklyn

Project's Liked

No. Project's Liked : 4

Back street boys music album

By RobinBrooklyn



new album metal music ....

Funding Deadline: 22 days, 4 hours  
Funds collected: \$20000

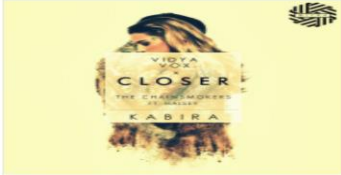
Funding Progress

Funded

See in Detail

vidya vox music

By John



new cover albums with mashups ....

Funding Deadline: 25 days, 14 hours  
Funds collected: \$7000


Funding Progress

Executed

See in Detail

Designer Lakme fashion week

By John



Hi! we are holding xvz event at NYU .....

Funding Deadline: 71 days, 2 hours  
Funds collected: \$13000


Funding Progress

Executed

See in Detail

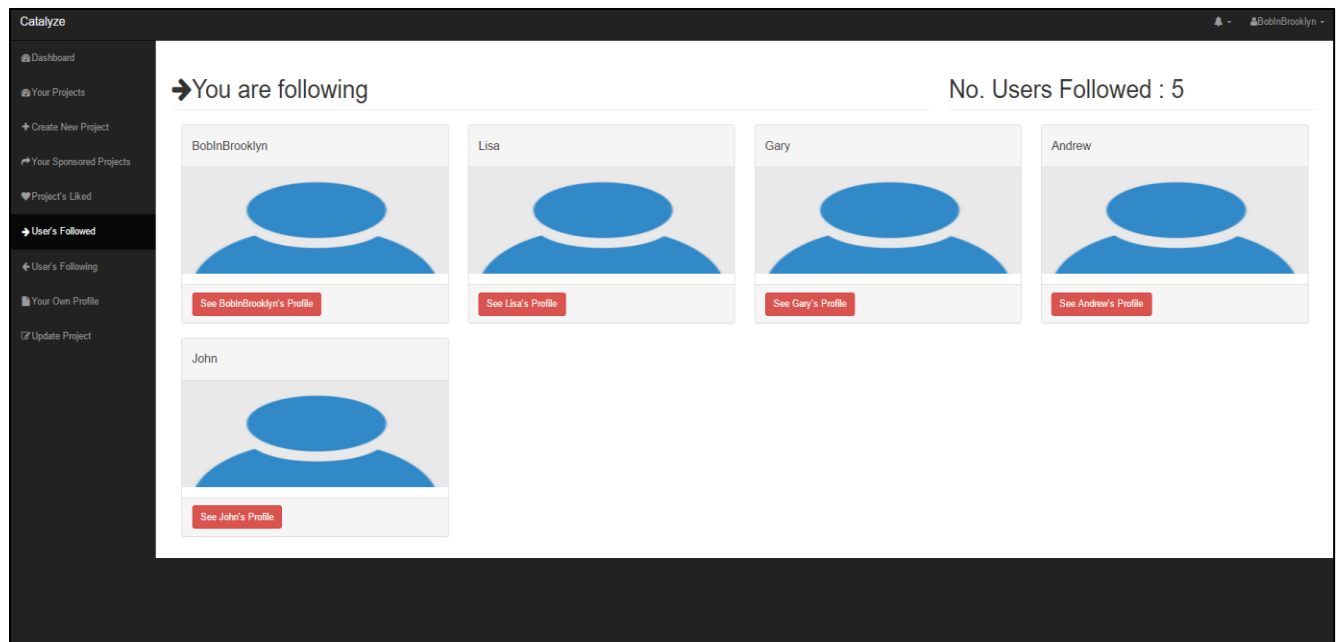
Food Special Cart

By Maria

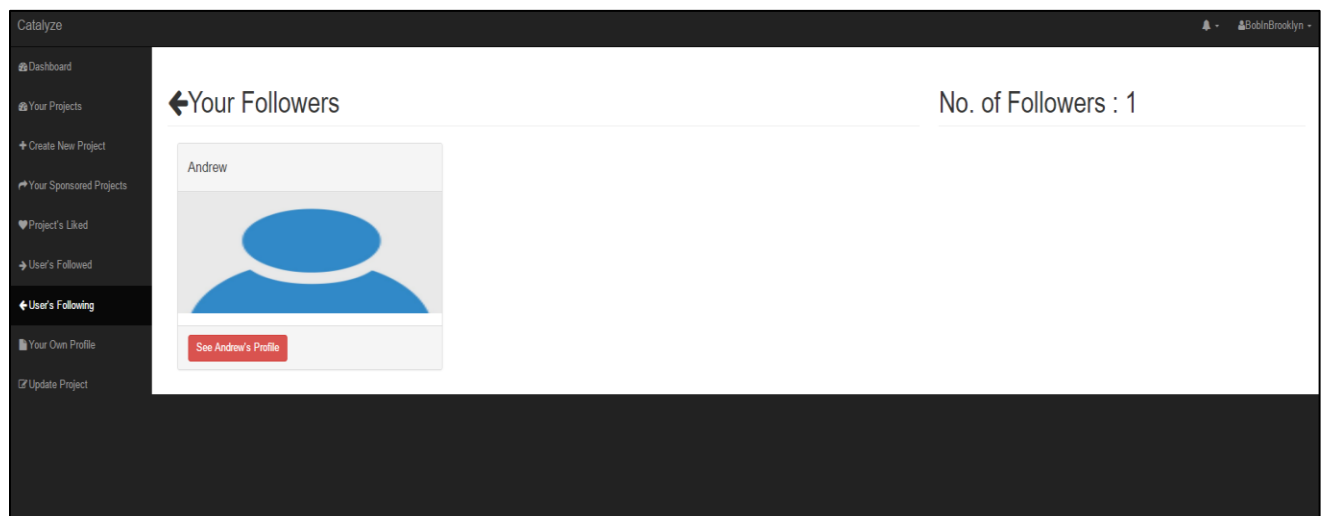




Dashboard page containing list of users X is following

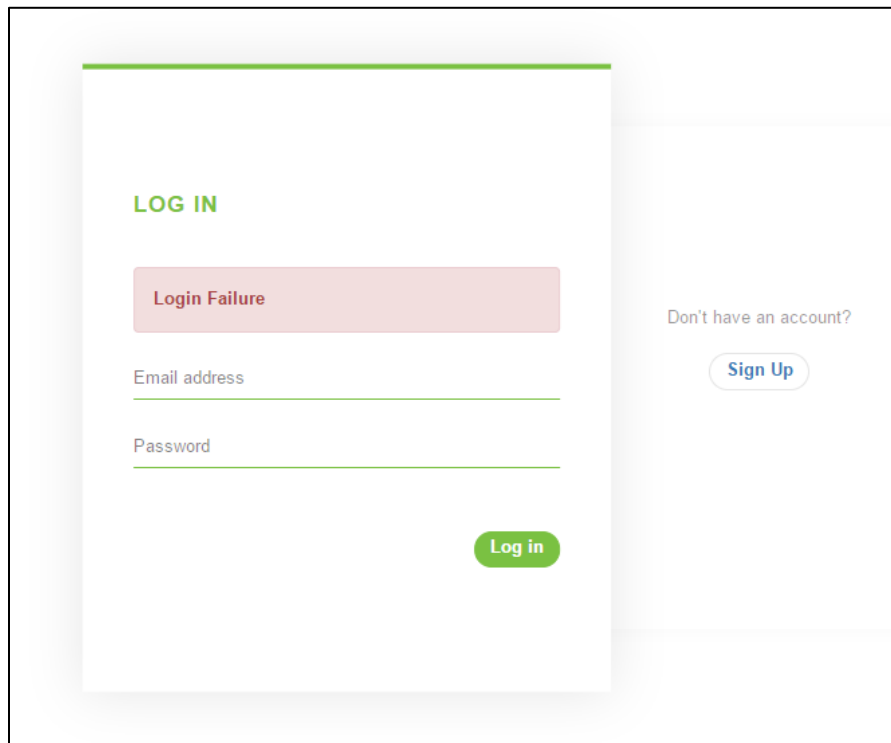


List of follower of X

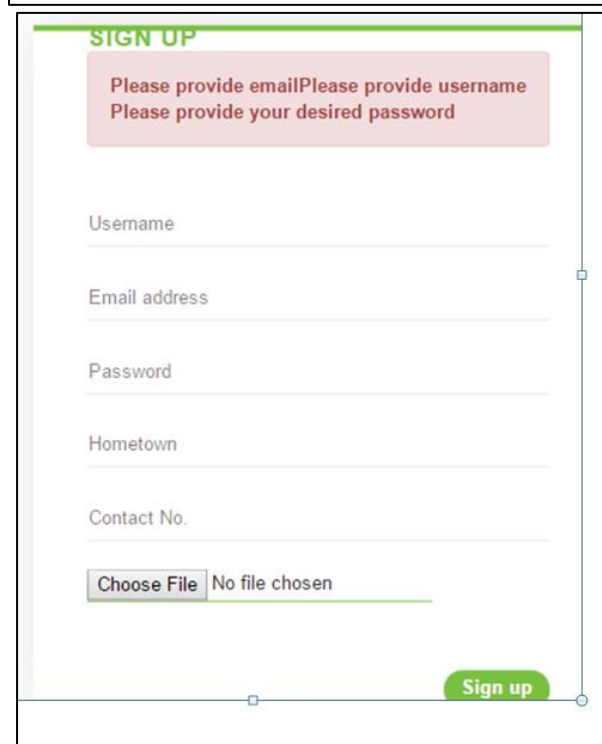


Lastly, consider the login and register page functionalities:

We have implemented PHP sanitize functions for checking the user input too. Also for inserting into the database we have implemented prepared statements so SQL injection and XSS attacks are also prevented which are also tested by grader. Also all validations are done back-hand for these two pages. Back-hand error, login failure



A mockup of a login page. It features a white card with a green header bar. The title "LOG IN" is in green. Below it, a red error box says "Login Failure". There are two input fields: "Email address" and "Password". A green "Log in" button is at the bottom right of the card. To the right of the card, the text "Don't have an account?" is followed by a blue "Sign Up" button.



A mockup of a sign up page. It features a white card with a green header bar. The title "SIGN UP" is in green. Below it, a red error box contains three lines of text: "Please provide email", "Please provide username", and "Please provide your desired password". There are five input fields: "Username", "Email address", "Password", "Hometown", and "Contact No.". Below these is a file upload section with a "Choose File" button and the text "No file chosen". A green "Sign up" button is at the bottom right of the card.