Project Report on the project

"MIST CareerPedia"

INTERNET PROGRAMMING (SESSIONAL)

CSE 410

Group No: 04

Group Members:

- Tasbiraha Athaya (201414014)
- Sanjida Akter Sharna (201414021)
- **Fahim Ahmed (201414024)**
- Namrata Saha (201414025)
- Fariha Ahmed (201414026)
- Tasfia Shermin (201414041)
- Fahim Anzum Bivor (201314040)

Submission Date: 2nd May, 2017

MIST CAREERPEDIA

I. INTRODUCTION:

a. **Objective:** To create a dynamic intelligent platform for all graduate students from universities, so that each can be linked directly to their preferred and deserved area of jobs and higher study fields with ease, and efficiency. A lot of times we see (especially in Bangladesh) that a job offer or a Research Assistantship offer often don't reach the deserved candidate rather, the offer is given to the person favoured to the one with the news of the offer. Hence the deserving candidates often find it difficult to reach the platforms they deserve. Our objective is that every student would get a chance to display their expertise and achievements and interests in a public platform and the system would bring the best opportunities out there for them.

b. Where this application maybe used:

This application is suitable to be used as an independent web application where all the students, teachers, job recruiters would have the option to create an account and work from it. Furthermore, on the time of development this project was created specifically for the purpose of MIST graduates so that they would have a fair platform to represent their skills and achievements.

c. Main Features of this project:

- **A dynamic Web Application:**

MIST CareerPedia is going to be represented as a complete dynamic web application.

- **Personal profile for every user:**

Each graduate student will have their very own profile (upon registration), where the profile would contain all the required data to represent that specific person to the hiring companies/corporations, or to the Professors looking for a suitable Research Assistant/ Teaching Assistant. And all these data would be automatically shown as per requirement. That means, a Professor looking for TA/RA won't be shown any data related to job preference until s/he wishes to.

- **Automated profile classification based on 'to be appointed' and 'appointed':**

Each profile would be automatically monitored through an intelligent system, and as soon as any student is *hired to a corporation* or *granted a scholarship with TA/RA,* s/he would be automatically gain experience points and move to another classification of 'experienced' or 'appointed'. *Any registered user of the application whether he may be a student or a teacher or a job recruiter can sort out the profiles of students based on this classification or based on experience points.* Which may lead to create a lot of opportunities for the graduates at different stages.

- **Profiles with the option of notification:**

The profiles contain options for receiving notification when someone wishes to notify them about offering a job position or a Teaching/Research Assistantship.

- **Creation of a community about after graduation guidance:**

As the site would contain both experienced and newbie profiles, the newbies can get a lot of help and guidelines from the experts and alumni's through the site. Even more, anyone can find an expert from a preferred field as well and request for personal guidance himself. So this platform bears the possibility of creating a large community in the future.

- **Real-time newsfeed:**
  A feature that lets you see the latest events of the person you are acquainted with.

- **User to User messaging:**
  Any user will be able to message other users using the built-in messenger of the application.
- **Real-time Tinker:**
  This is a feature that will let a professor to get real-time reminders about the promising candidates who are best matched with him to work with him as a teaching assistant or research assistant based on the professors' interest and preferences.

d. The Application closest to ours and why ours is better:

The LinkedIn (https://linkedin.com) is the only application found so far that serves some career oriented purposes. But still, they lack in a lot of sectors as well. Such as:

- LinkedIn never searches the best opportunities for you automatically based on your profile.
- LinkedIn does not bring attention of other job recruiters or professors to your profile if you are a match to what they are looking for.
- LinkedIn is a simple social network that lets you to show your work portfolio but nothing more than that.

II. Development Framework:

a. **Database Based on:** MySQL, Oracle
b. **Server side language:** PHP
c. **Front End:** HTML, CSS, JavaScript
d. Reason behind choosing this framework:

1. For database platform Oracle has been being used as one of the most secured and persistent database platform hence we used oracle as the backbone of our main database. We also used mysql for webhosting and some other small purposes because mysql databases can be owned online for free.
2. For the case of server side language, PHP has always been the most popular one for several years now. It has a large community so it is easy to get help if we get stuck.

At the same time it provides structured OOP semantics that makes it easy to write code on PHP. Plus the fact that It has been being developed for some decades ensures the robustness of the language itself.

3. In case of frontend, the new HTML5 and CSS3 are both wonderful tools to create the user interface with proper control over what they are displaying on the page.

III. Database and UI Design:

- **Database View:**

The following is our complete database configuration:

```
create table st(
fname NVARCHAR2(50),
lname NVARCHAR2(50),
username NVARCHAR2(50),
dept NVARCHAR2(50) default 'Department Name',
dob DATE,
gender NVARCHAR2(10) default 'Male',
phone NVARCHAR2(50) default 'Phone No.',
institute NVARCHAR2(50) default 'Institute Name',
img_path NVARCHAR2(200) default 'img/user_default.png',
pubnum NUMBER(10,0) default 0
);
create table Inst(
fname NVARCHAR2(50),
lname NVARCHAR2(50),
username NVARCHAR2(50),
dept NVARCHAR2(50) default 'Department Name',
dob DATE,
gender NVARCHAR2(10) default 'Male',
phone NVARCHAR2(50) default 'Phone No.',
institute NVARCHAR2(50) default 'Institute Name',
img_path NVARCHAR2(200) default 'img/user_default.png',
pubnum NUMBER(10,0) default 0
);

create table Rec(
fname NVARCHAR2(50),
lname NVARCHAR2(50),
username NVARCHAR2(50),
dept NVARCHAR2(50) default 'Department Name',
dob DATE,
gender NVARCHAR2(10) default 'Male',
phone NVARCHAR2(50) default 'Phone No.',
institute NVARCHAR2(50) default 'Institute Name',
```

```
img_path NVARCHAR2(200) default 'img/user_default.png',
pubnum NUMBER(10,0) default 0
);

create table all_user(
email NVARCHAR2(50),
pw NVARCHAR2(50),
username NVARCHAR2(50),
role NVARCHAR2(50),
jdate DATE
);

create table ckpoint(
username NVARCHAR2(100)
);
Create table user_notification(
Username_rcvr NVARCHAR2(50),
Username_sender NVARCHAR2(50),
offer_id NVARCHAR2(50),
offer_type Number(3,0)
);

Create table user_msg(
Username_rcvr NVARCHAR2(50),
Username_sender NVARCHAR2(50),
Msg NVARCHAR2(344),
Time NVARCHAR2(34),
serial Number(20,0)
);

Create table edu(
Username NVARCHAR2(50),
Degree NVARCHAR2(50),
Grade NUMBER(4,2),
Institute NVARCHAR2(50),
Gyear NVARCHAR2(10),
Major NVARCHAR2(50),
Dept NVARCHAR2(50)
);
Create table expertise(
Username NVARCHAR2(50),
Category NVARCHAR2(50)
);
Create table interest(
```

```
Username NVARCHAR2(50),
Category NVARCHAR2(50)
);
Create table experience(
Username NVARCHAR2(50),
post NVARCHAR2(50),
Institute NVARCHAR2(50),
category NVARCHAR2(50)
);
Create table choice(
Username NVARCHAR2(50),
Ch NVARCHAR2(50) default 'Higher Study'
);
Create table publications(
Username NVARCHAR2(50),
Name NVARCHAR2(100),
Link NVARCHAR2(200),
Topic NVARCHAR2(250),
pDate NVARCHAR2(40),
pdesc long
);

CREATE SEQUENCE ta_seq
MINVALUE 0
START WITH 0
INCREMENT BY 1
NOCACHE;

/*
Resetting sql command for ta_seq sequence

alter sequence ta_seq increment by -2;
select ta_seq.nextval from dual;
alter sequence ta_seq increment by 1;


*/

Create table ta_circ(
C_id Number(10,0),
Dept NVARCHAR2(50),
Deg NVARCHAR2(50),
Gpa Number(6,2),
Topic NVARCHAR2(200),
```

```
Pubsum NUMBER(10,0),
Gyear NVARCHAR2(20),
avail NUMBER(2,0) default 1
);
```

- **Relationship among database using Context Diagram:**

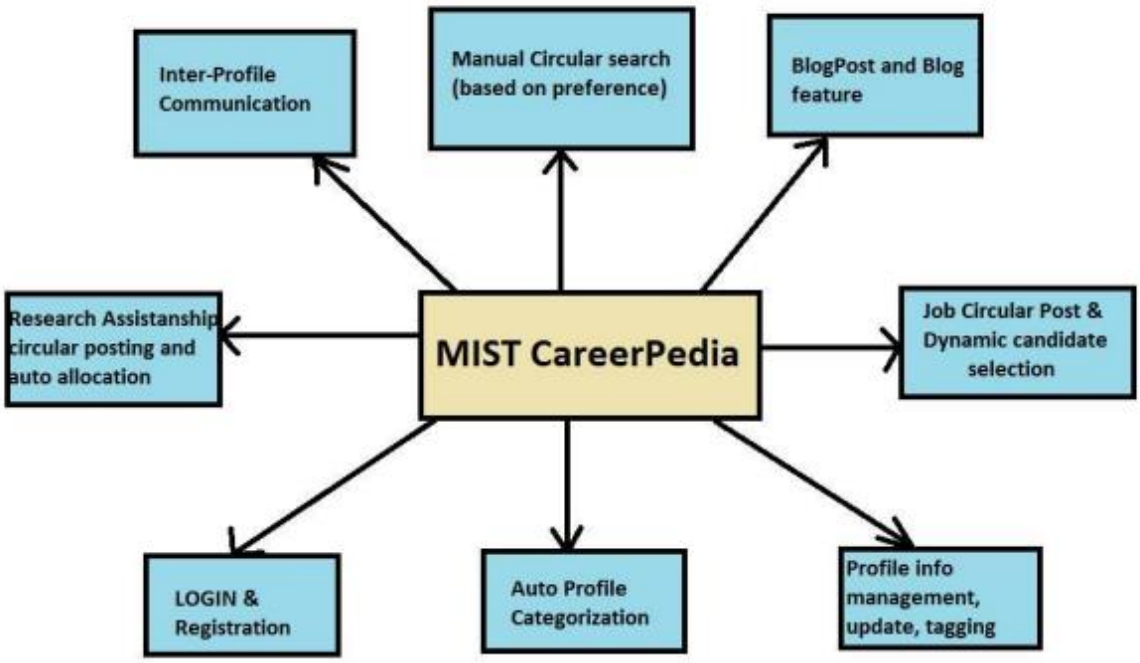


FIG: MIST CAREERPEDIA CONTEXT DIAGRAM

- **Sub-level Context diagrams:**

Context Diagram for User General Activity:

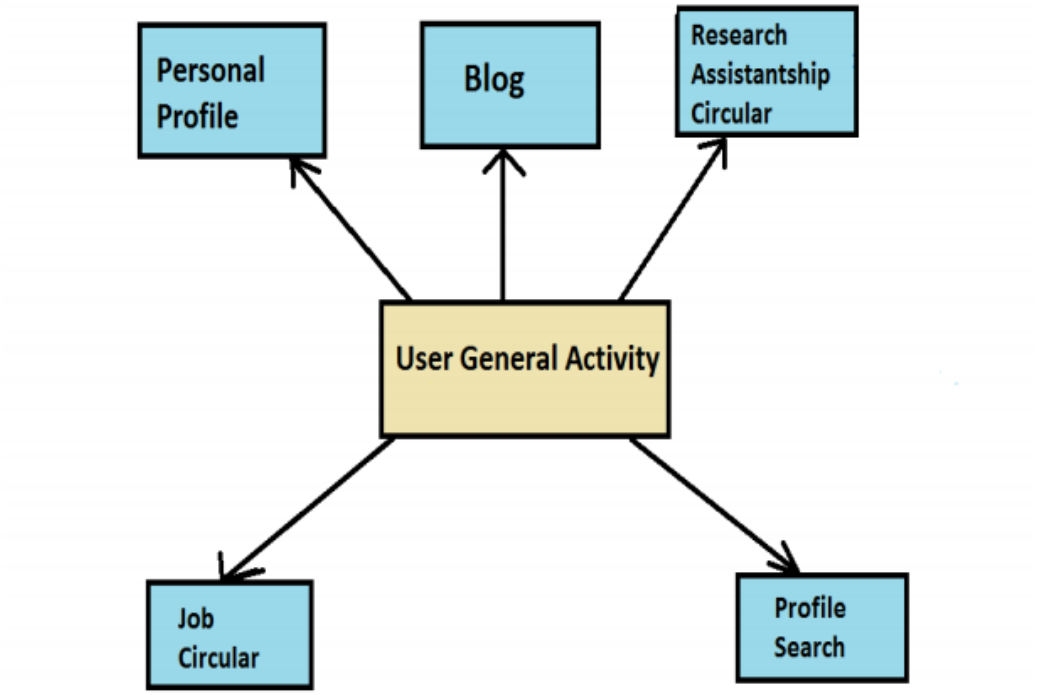


FIG: Context Diagram For User General Activity

Context Diagram for Search Module:

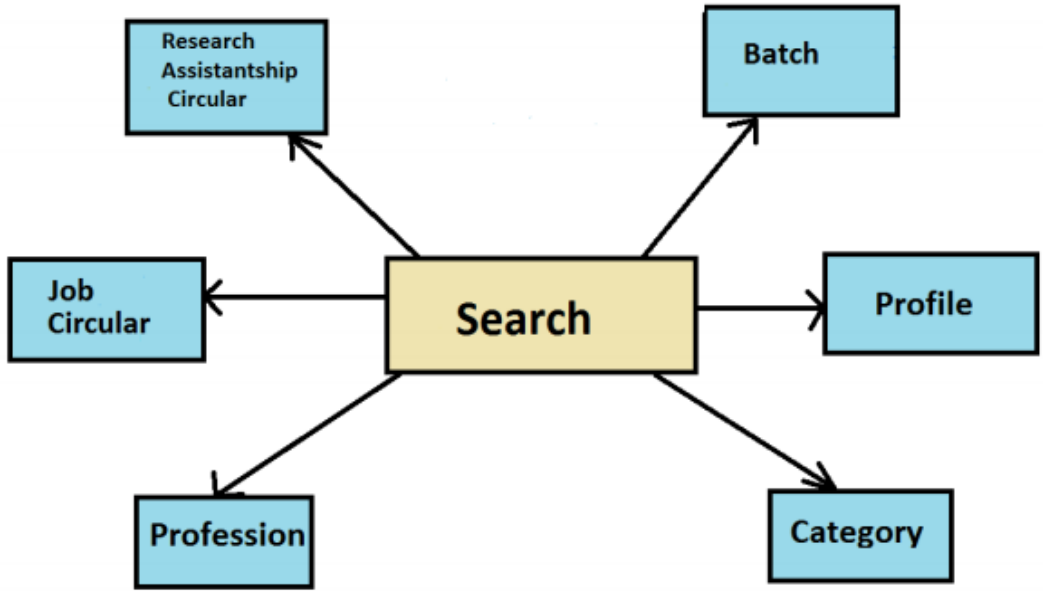


Fig: Context Diagram for Search Module

Context Diagram for Circular Post And Analysis:

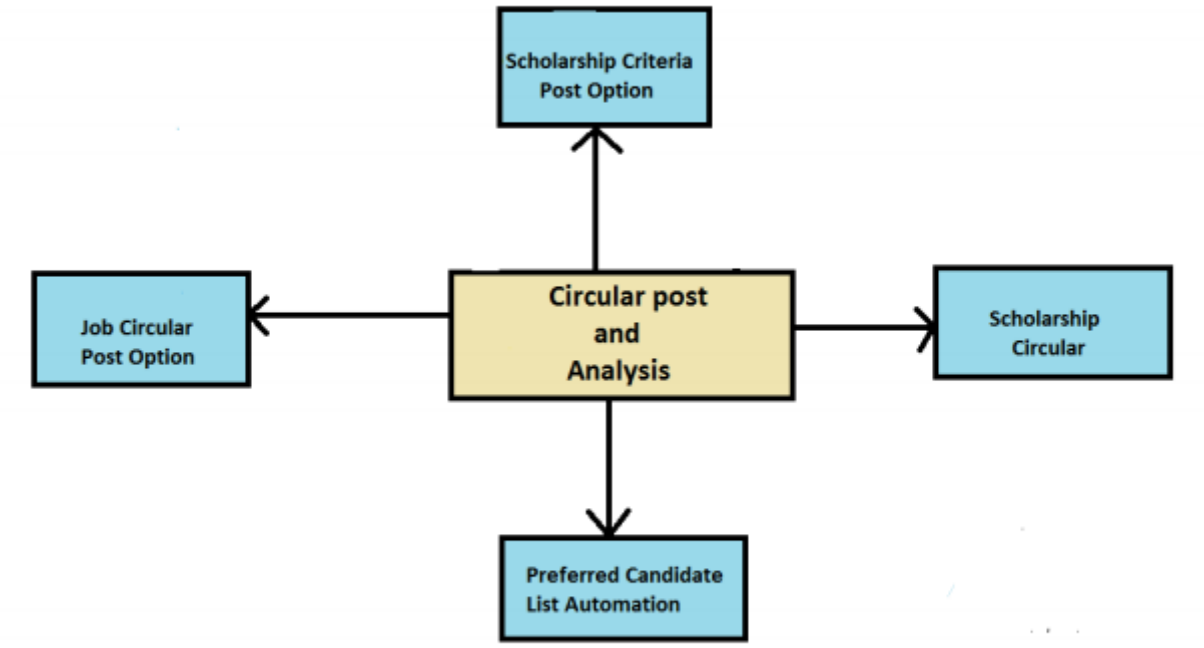


Fig : Context diagram for circular post and analysis

Context Diagram for Login And Registration:

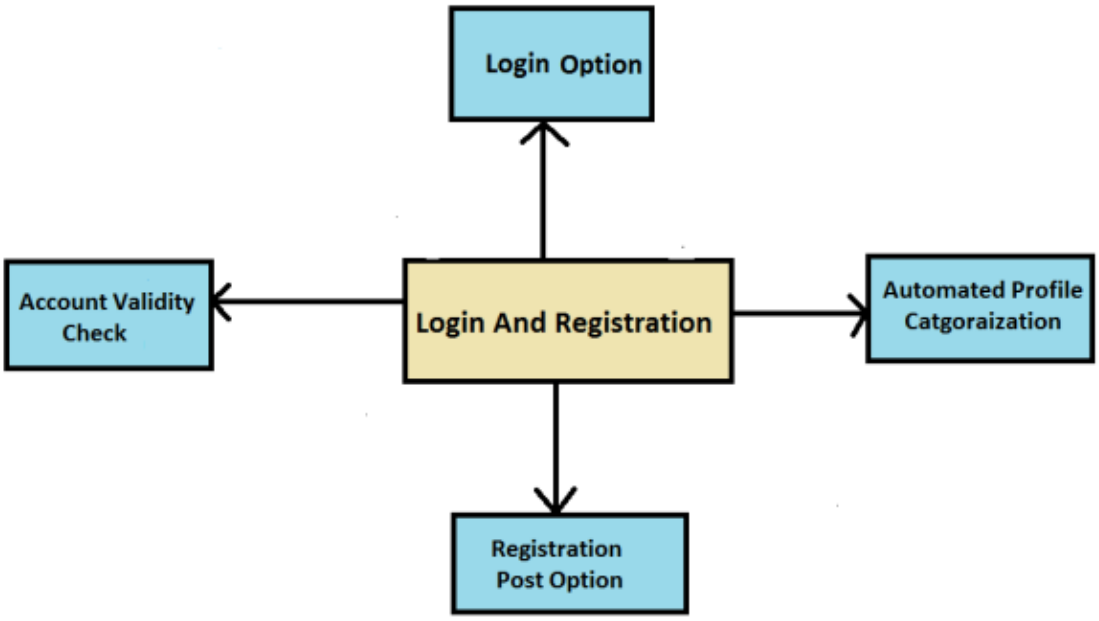


FIG: Context diagram for Login and Registration

- **Relationship among Database using Class Diagrams:**

The class diagram is the main building block of object-oriented modeling. It is used both for general conceptual modelling of the systematics of the application, and for detailed modeling translating the models into programming code. Class diagrams can also be used for data modeling. The classes in a class diagram represent both the main elements, interactions in the application, and the classes to be programmed.

Class : USER

Attributes :

a) Profile_id (private /-)
b) Profile_pw(private /-)
c) Name(public/+)
d) Profession(protected/#)
e) Profile_category(private/-)

Methods :

a) Protected Protected bool ViewEligibility(DB Ref)
b) Protected void Derive_category(String Profession)
c) Bool abstract ismatch(Set <String>attributes)

Here USER class extends Student class and Professional class.

Class : Student

Attributes :

a) Int grad_year(public/+)
b) Set <String>expertise,experience(protected/#)
c) Float current cgpa(protected/#)
d) String interested_field(protected/#)
e) Bool job_interest(public/+)

Methods :

a) Public bool isjobinterested()
b) Public bool isRA_interested()
c) Protected bool ismatch(Set <String> attribs)

Class : Professional

Attributes :

a) Portfolio CV(protected/#)

b) String Rank(protected/#)
c) int Rank_priority(protected/#)
d) bool jobinterested,RA_interested(public/+)

Methods :

a) Protected Show_protofolio(this->CV)
b) Protected bool ismatch(Set<String> attribs) [This is a override method]
c) Private Post_circular(String[] args)

Class diagram of User and its sub classes :

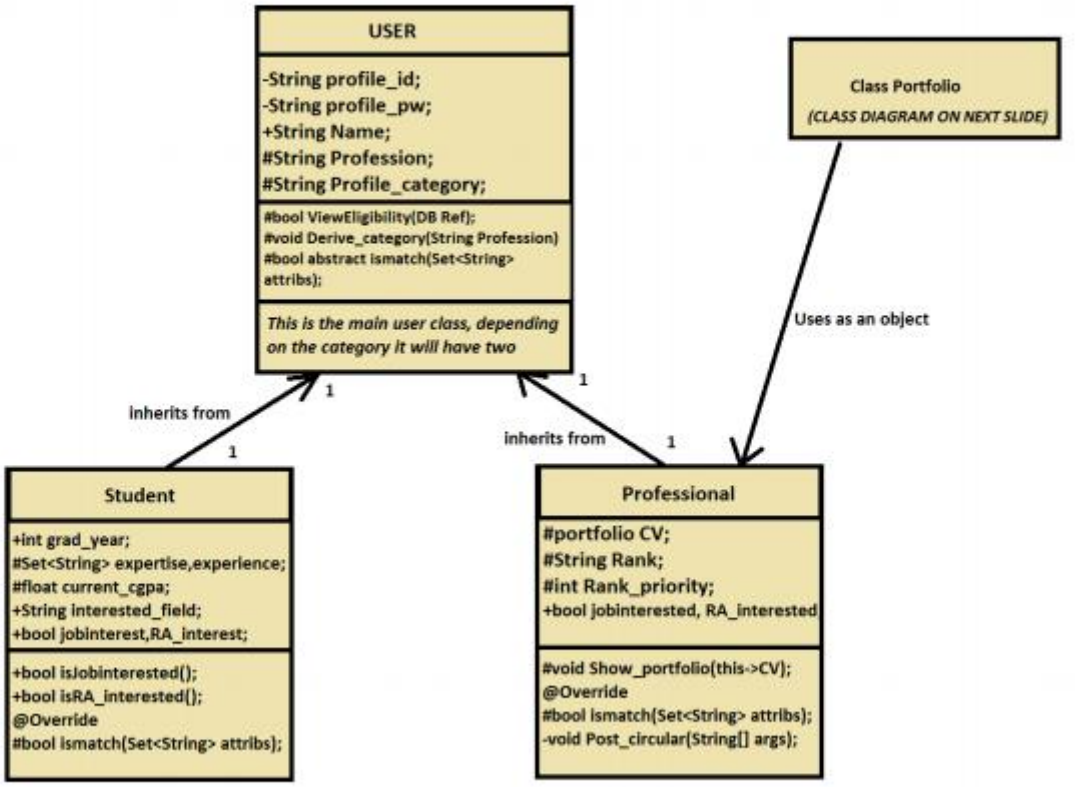
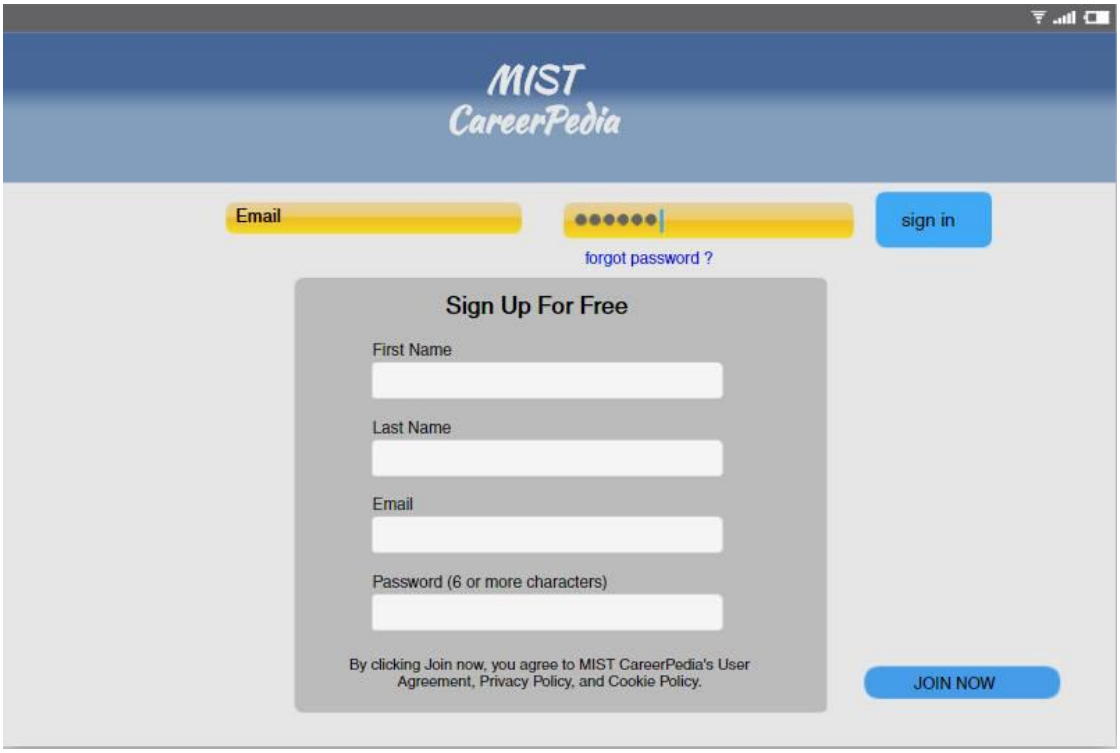
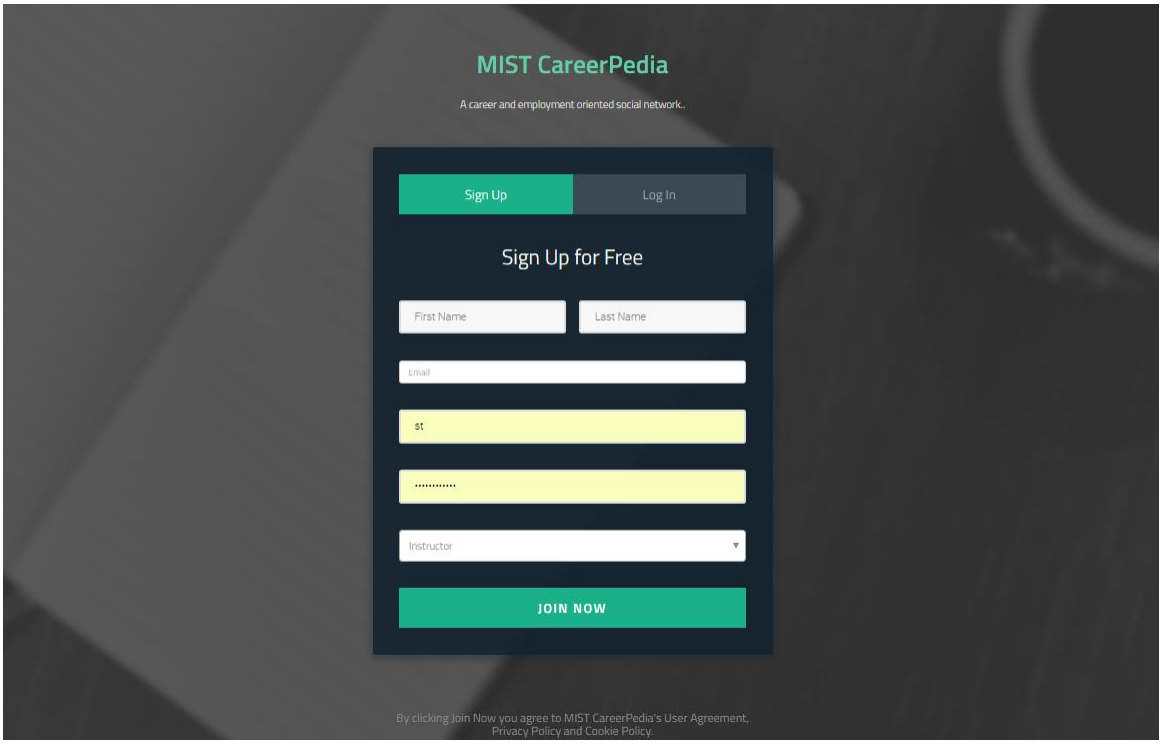


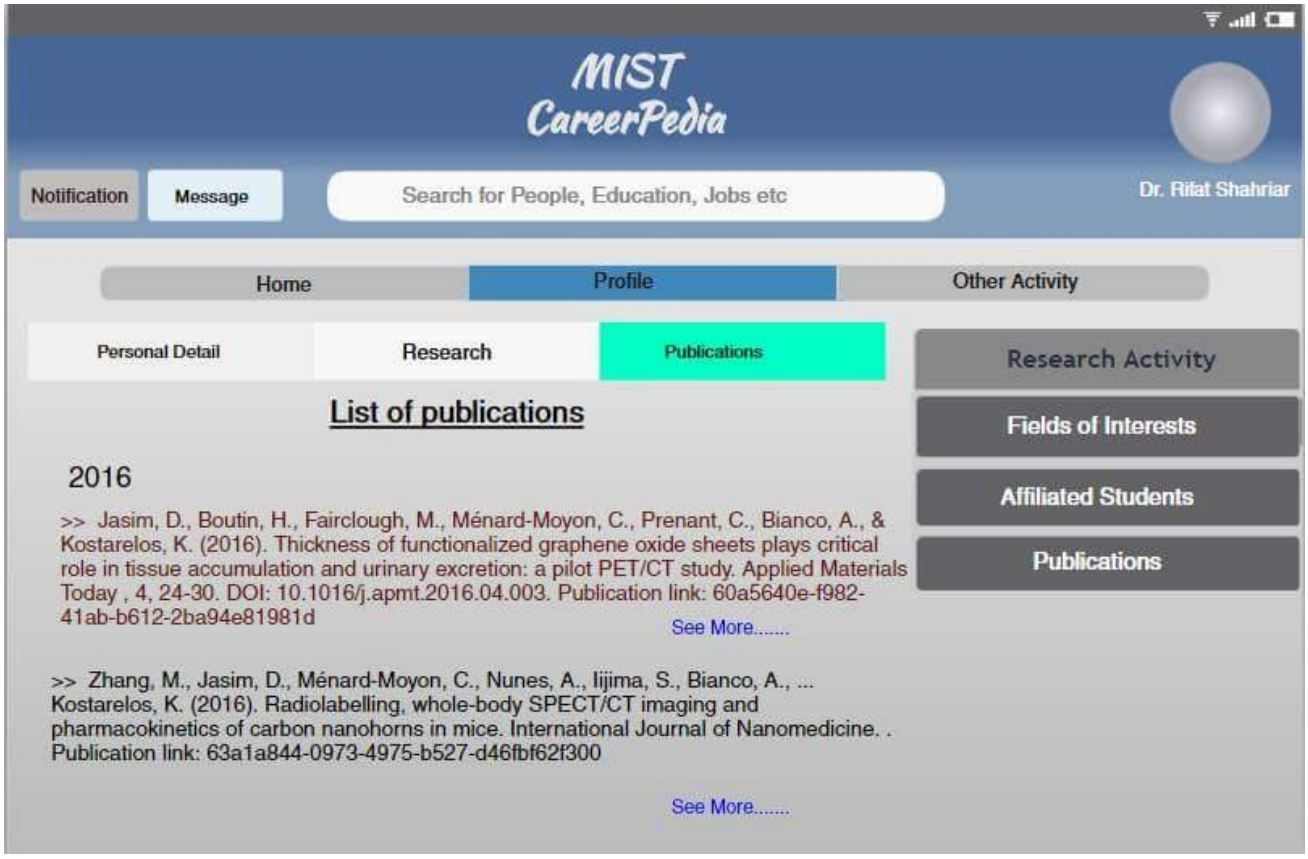
FIG: Class diagram of USER and its' subclasses

- **Some Sketches of Initial UI:**

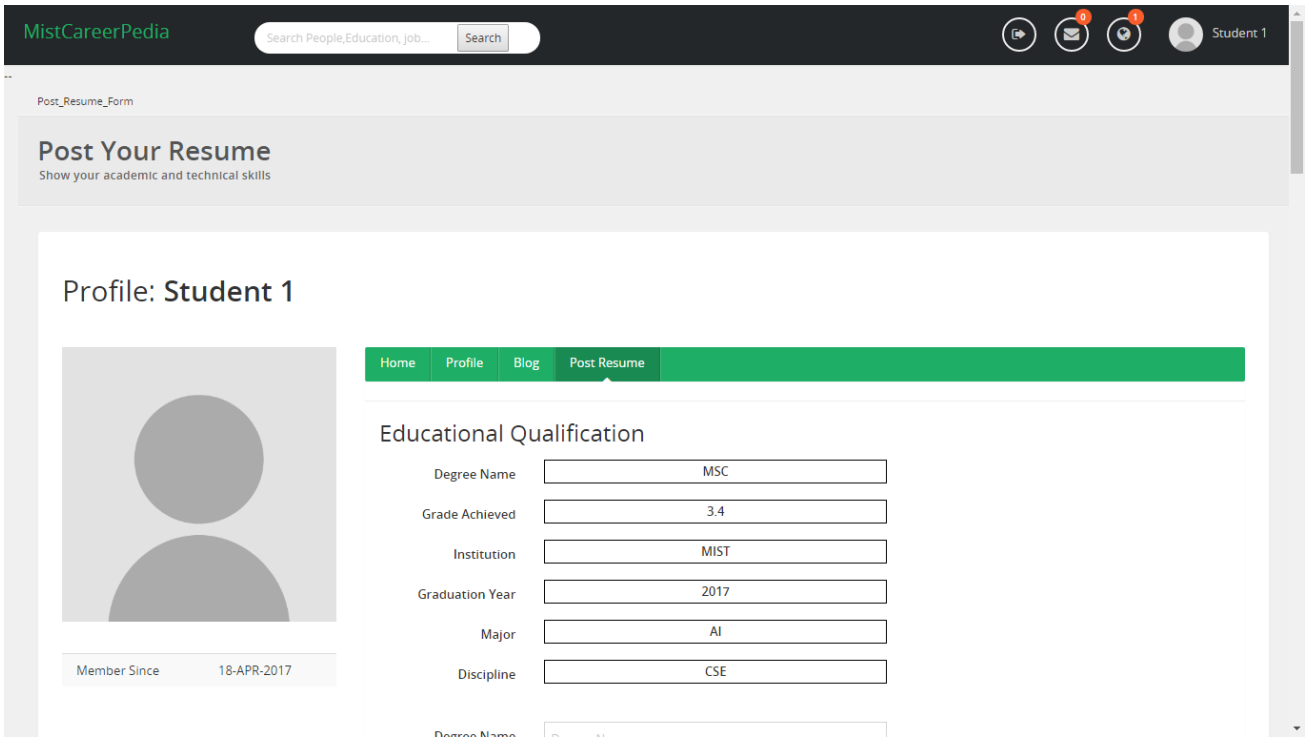


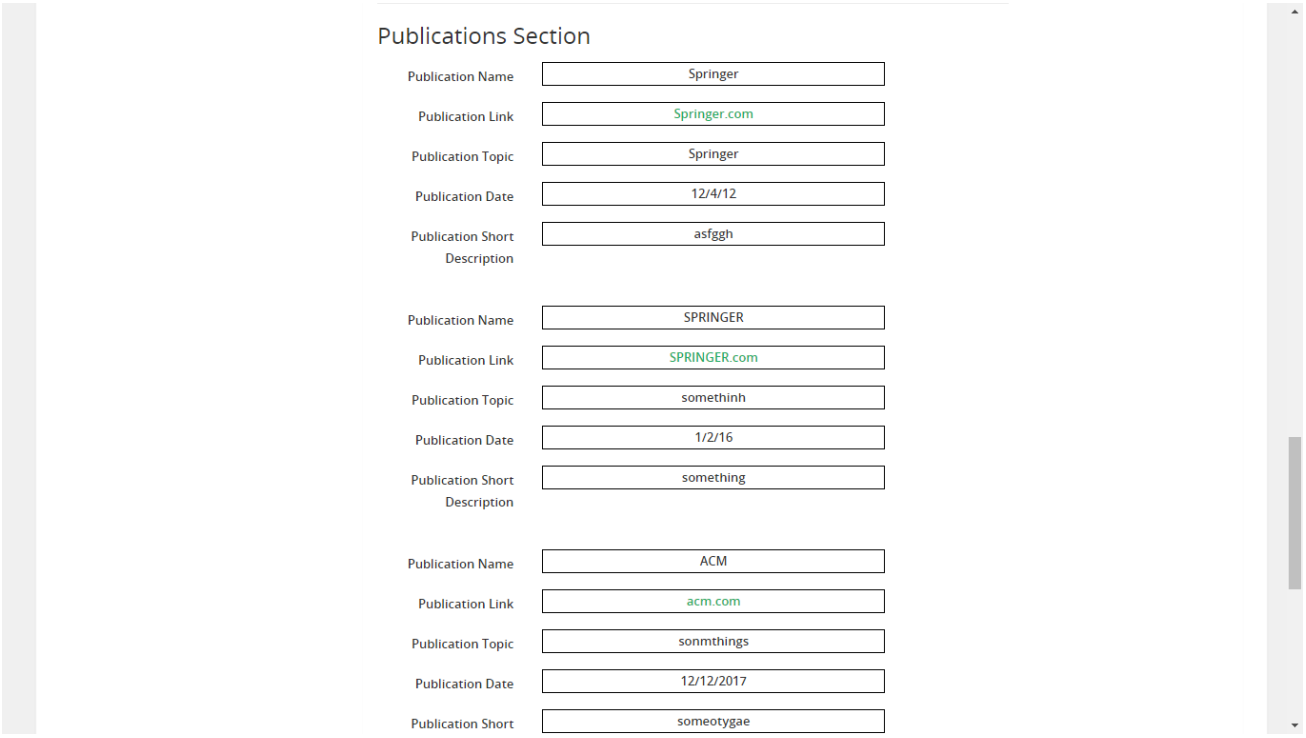
Finished UI:




MIST
CareerPedia
Notification
Message
Search for People, Education, Jobs etc
Dr. Rifat Shahriar
Home
Profile
Other Activity
Personal Detail
Research
Publications
List of publications
2016
>> Jasim, D., Boutin, H., Fairclough, M., Ménard-Moyon, C., Prenant, C., Bianco, A., & Kostarelos, K. (2016). Thickness of functionalized graphene oxide sheets plays critical role in tissue accumulation and urinary excretion: a pilot PET/CT study. Applied Materials Today , 4, 24-30. DOI: 10.1016/j.apmt.2016.04.003. Publication link: 60a5640e-f982-41ab-b612-2ba94e81981d
See More.....
>> Zhang, M., Jasim, D., Ménard-Moyon, C., Nunes, A., Iijima, S., Bianco, A., ... Kostarelos, K. (2016). Radiolabelling, whole-body SPECT/CT imaging and pharmacokinetics of carbon nanohorns in mice. International Journal of Nanomedicine. . Publication link: 63a1a844-0973-4975-b527-d46fbf62f300
See More.....
Research Activity
Fields of Interests
Affiliated Students
Publications

Finished UI:


MistCareerPedia
Search People,Education, Job...
Search
Student 1
Post_Resume_Form
Post Your Resume
Show your academic and technical skills
Profile: Student 1
Home
Profile
Blog
Post Resume
Educational Qualification
Degree Name
MSC
Grade Achieved
3.4
Institution
MIST
Graduation Year
2017
Major
AI
Discipline
CSE
Member Since
18-APR-2017



IV. Project Overview:

- **List of features:**

1. Login and Signup with Email Confirmation:
2. Session Based Login System
3. Mail Integration
4. User counter and hit counter
5. Newsfeed & search:
6. Messenger
7. Tinker

- **Features with description:**

1. **Login and Signup with Email Confirmation:**

   We have created an email based login and sign up system in our software for security assurance. When a user wants to sign up to our system, he has to complete his registration by clicking a confirmation link sent to his valid email address. Initially before clicking on the confirmation link the confirmed variable

in the MySQL database will be set to zero. When the user clicks the link and the confirmation link matches the value, the variable's value will be 1 and the user will be registered successfully and will be permitted to log into his profile.

For better security, database stores user's password with encryption. We have used "md5" encryption algorithm in our system.

The login and sign up process is shown below sequentially in the diagram:

- Step – 1: User Signup

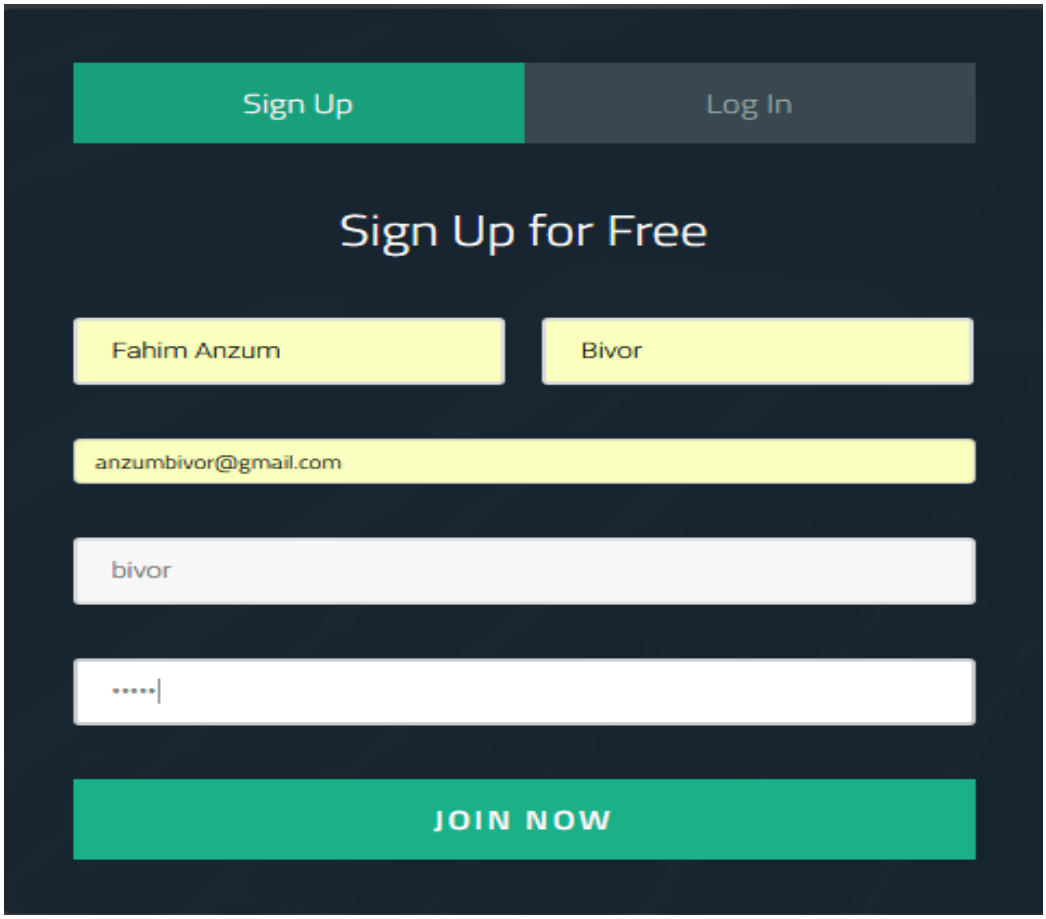


Fig: User Signup

- Step – 2: Confirmation Message Sent to Email Address

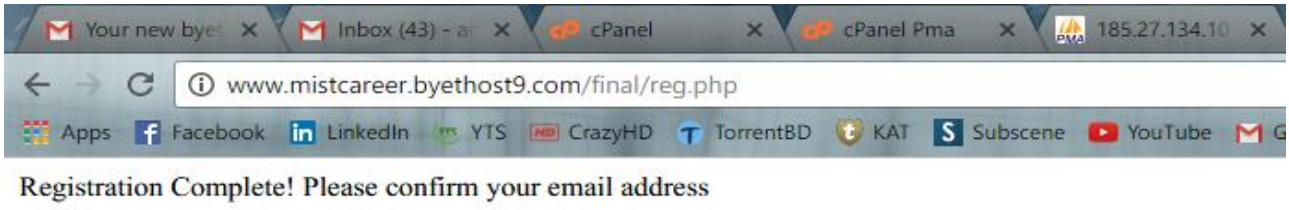


Fig: Completion of Registration and Waiting for verification

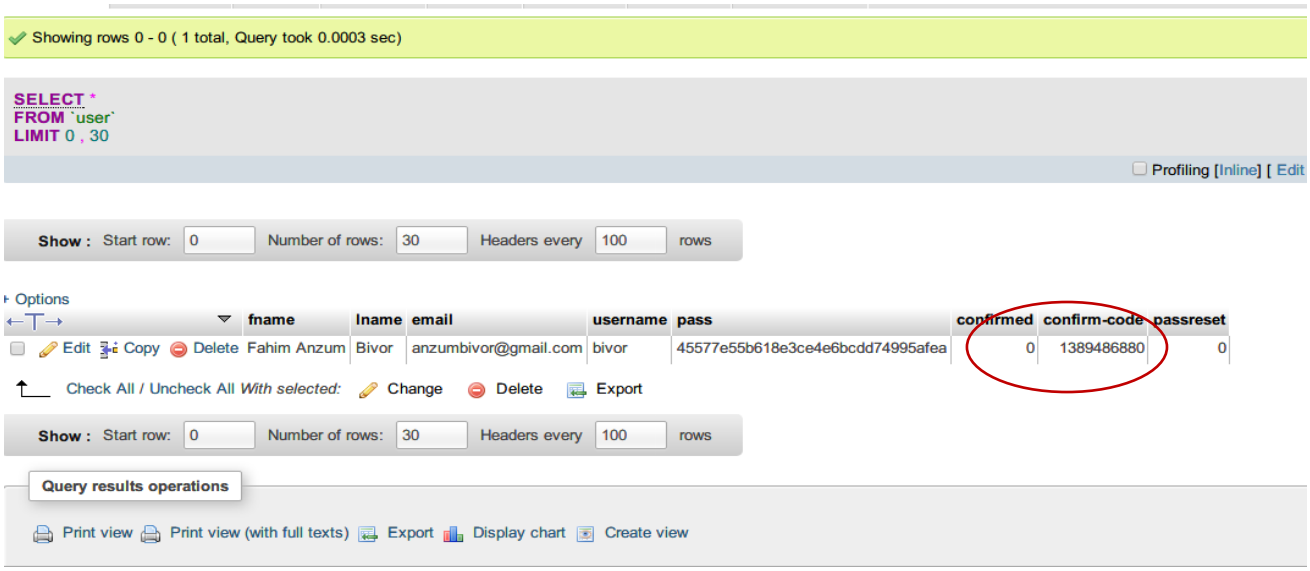


Fig: Database status before verification

- Step – 3: Complete Verification with Email Address

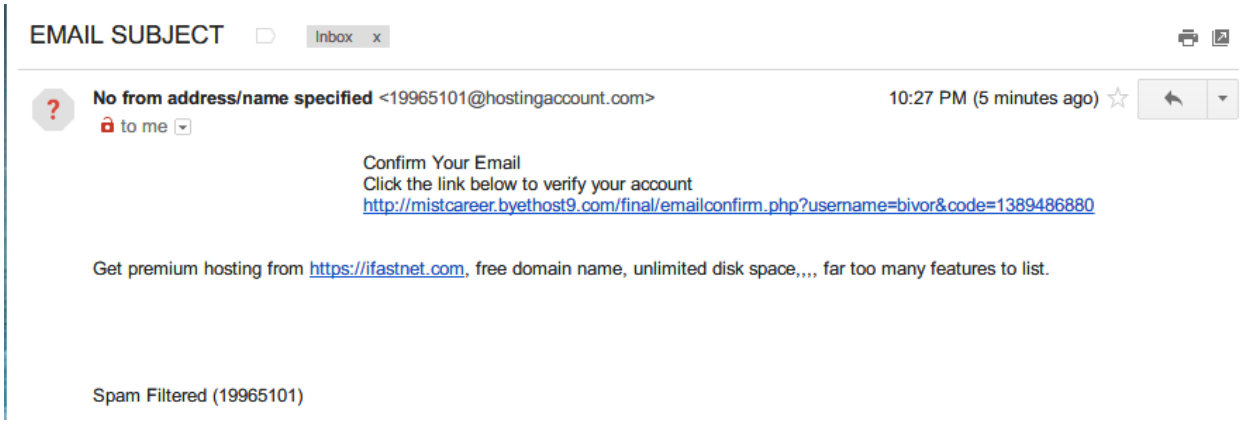


Fig: Sent Mail to Email Address with confirmation code from the software

Thank You. Your email has been confirmed and you may now login
Login Now

Fig: Verification Completion

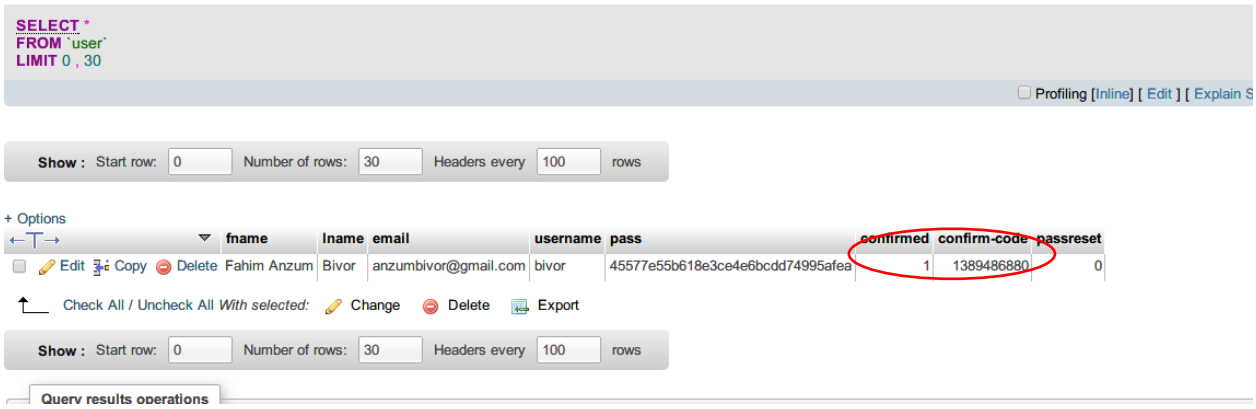


Fig: Database Status After Verification and Completion of Signup Process

2. Session Based Login System:

We have created a session based login system which means after logging into the system, if the user remains inactive for certain amount of period he will be automatically logged out and to access his profile he needs to login again.

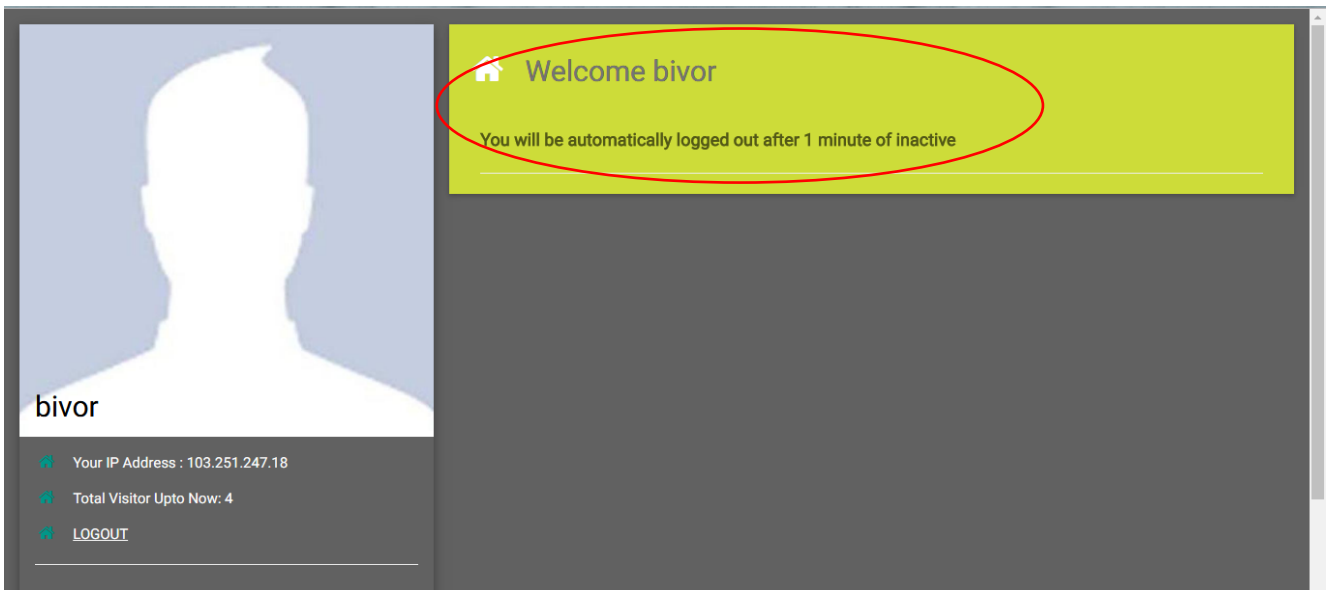


Fig: Session-based Login System

3. Mail Integration:

If a user wants to reset password for security purpose or can't remember previous password, then the user is provided with this facility by sending password resetting request using email address which was provided while registration. If the email address and user name matches, then a confirmation code will be sent to his email and he will be able to reset his password.

Figures below show the whole mail integration process sequentially.

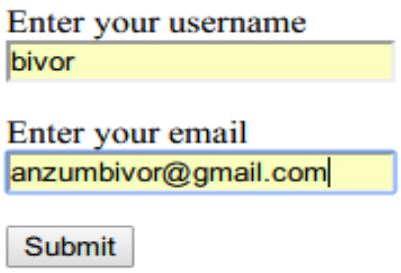


Fig: Sending Confirmation Code to Registered Email and User Name

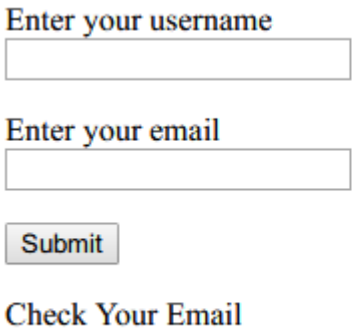


Fig: Confirmation Code Sent to Email Address

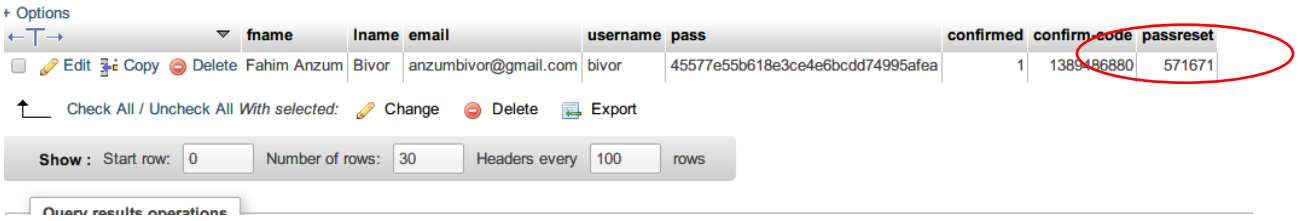


Fig: Database Status

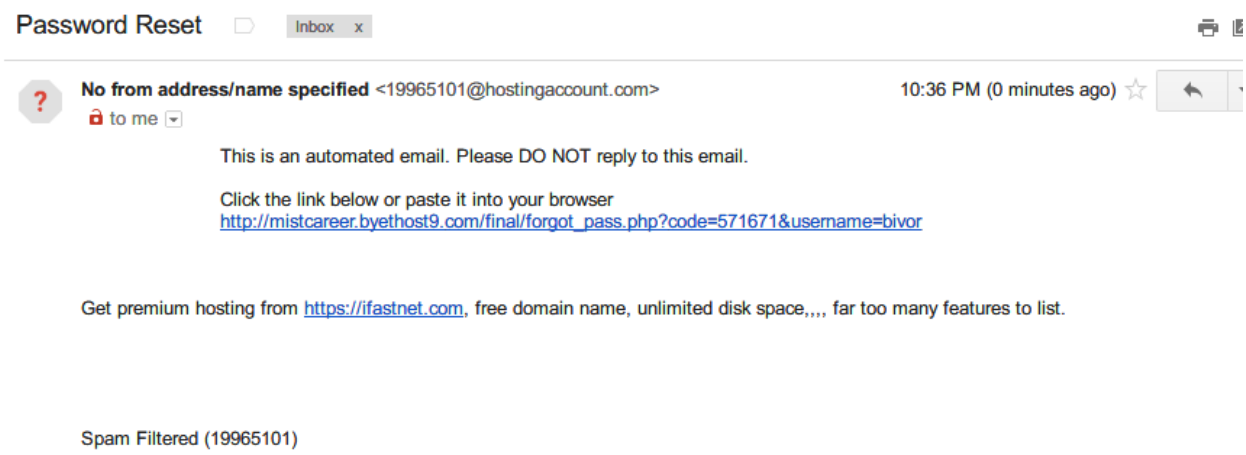


Fig: Confirmation Code in Email Inbox

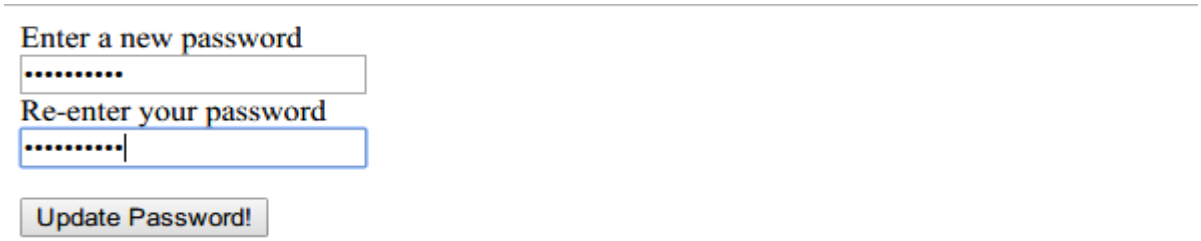


Fig: Resetting Password

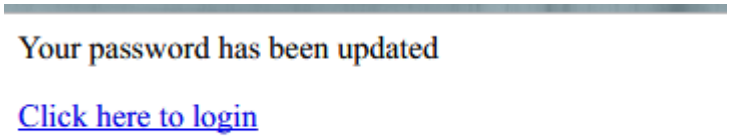


Fig: Updating Password Complete

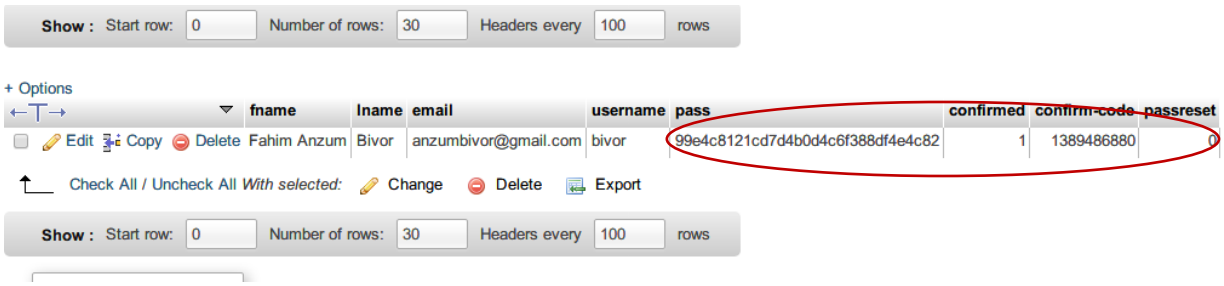


Fig:Updated Password in Database

4. User Counter and IP Hit Counter:

We have added a feature in our system which counts the total number of visitors from same IP address and from different IP addressed. Every time our system is browsed, the counter will increase and will be shown in our home page. Also, we count the visitors for unique IP address. Here, the time period is tracked when a user of a particular IP address enters in our system. In the figure below we can see that total number of visitors and also the IP address is tracked in the system.

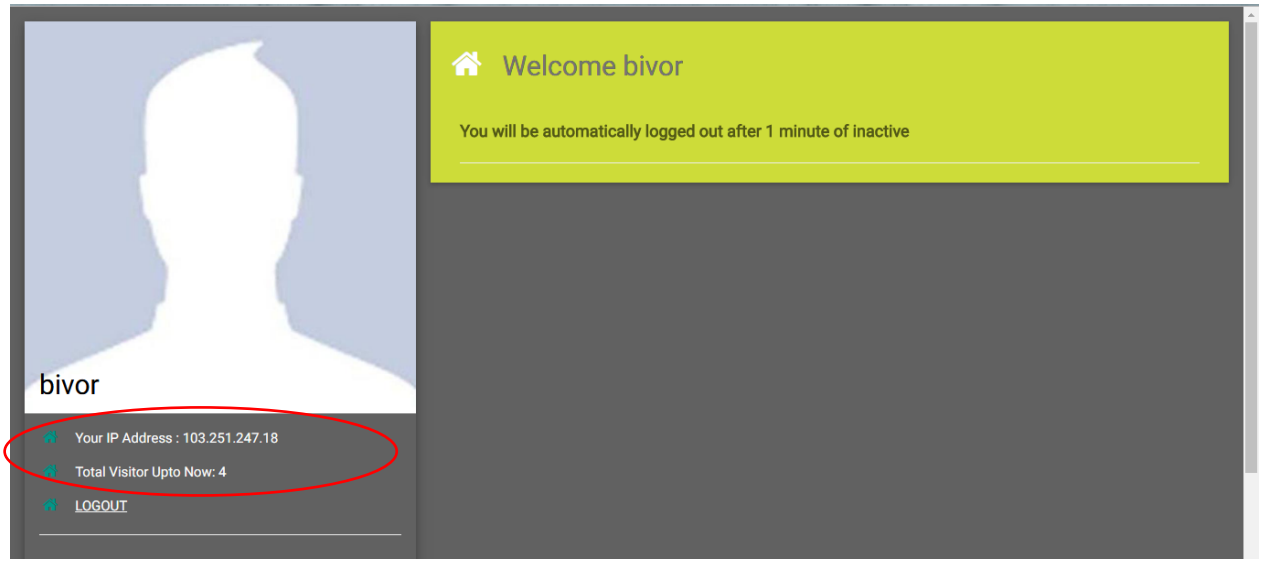


Fig: User and IP Hit Counter

5. Newsfeed & search:

In our project newsfeed has been provided for every user. In newsfeed every user can get information of other users. If any student follows a particular professor then all recent activities like publications, research interest fields of that professor will be shown in his newsfeed. Same thing will be happened in case of job recruiters .If any user update his job information or expertise field then other users who are following him get this information. Thus newsfeed in our project will help user to get all updates of other users using our project. In our project search option is also available to see the information of a particular user.

Features of newsfeed & search:

- In search option, every user can search other user by using “name” as parameter. When one user wants to know information about any particular user he can get his profile by using search option. Then all profile related to that name will be shown in a list.
- Then there will be “view profile” option. Using this option user can see the all information about that person.
- In each individual’s profile, follow option is given. If any user wants to follow a particular person, he can click this button. Then all recent update of job or publication of that person will be shown in

newsfeed who are following him. Other users can get his all updated information in their newsfeed if they start following him.

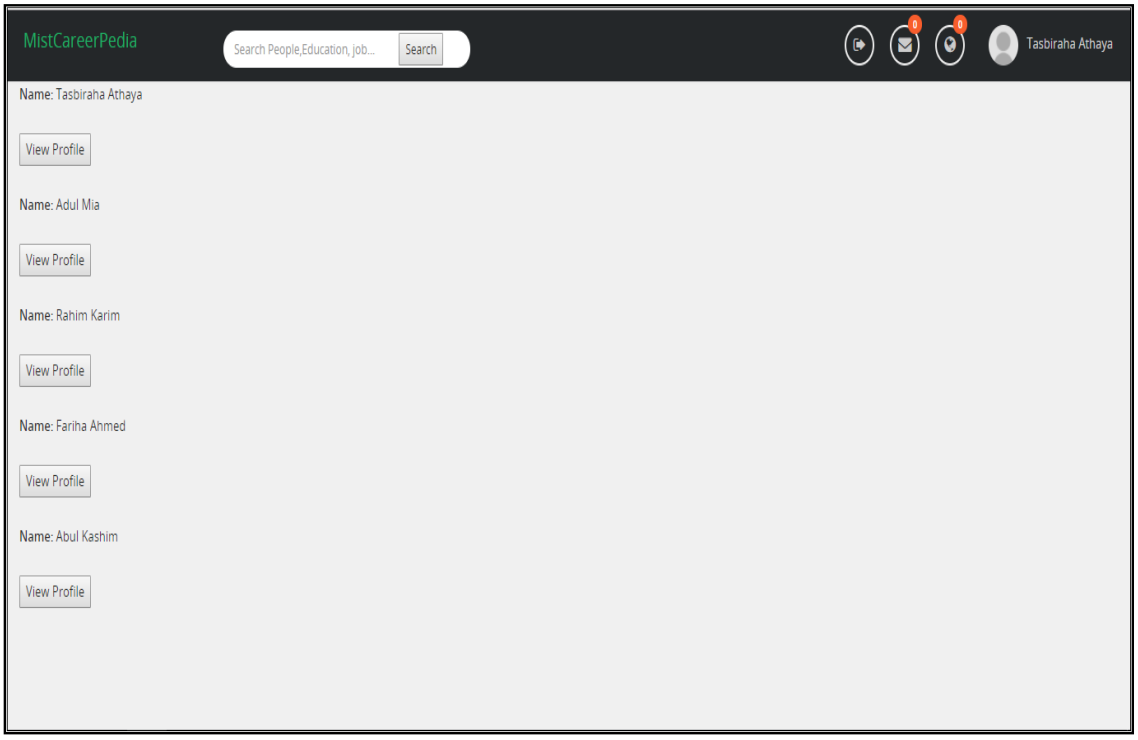


Figure: Search List

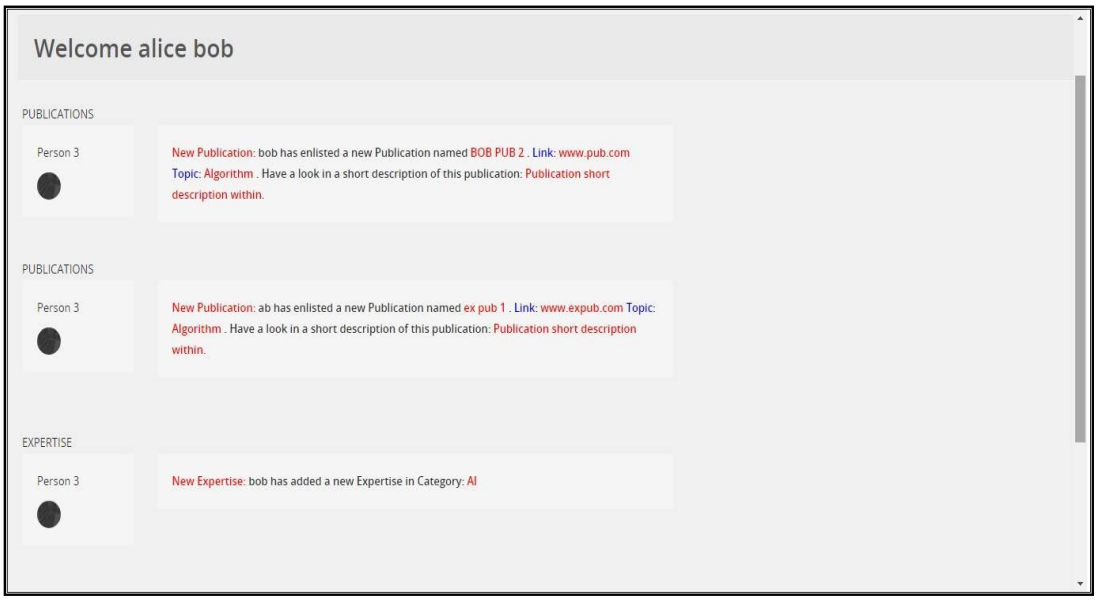


Figure: Newsfeed

6. Messenger:

Messenger lets MIST CareerPedia users send messages to each other. This Instant messenger delivers one users messages to other users in real-time.

- **Importance of messenger in MIST CareerPedia:**

This messenger plays a vital role in the field of communication. In MIST CareerPedia students can text to their professors and talk about scholarships, projects and research. On the other hand professors and job recruiters can easily communicate with their desired candidates sending them private messages. Moreover Instant Messenger will help users to collaborate worldwide and extends their network beyond seas.

The advantage of this messenger over other normal interaction systems is users can easily be connected with professor, recruiters and friends through this selected service even if they are unavailable that time. Also, Using the private Instant Messenger in this project , user can transmit and circulate all information within the premises with high level of security with risk assessments.

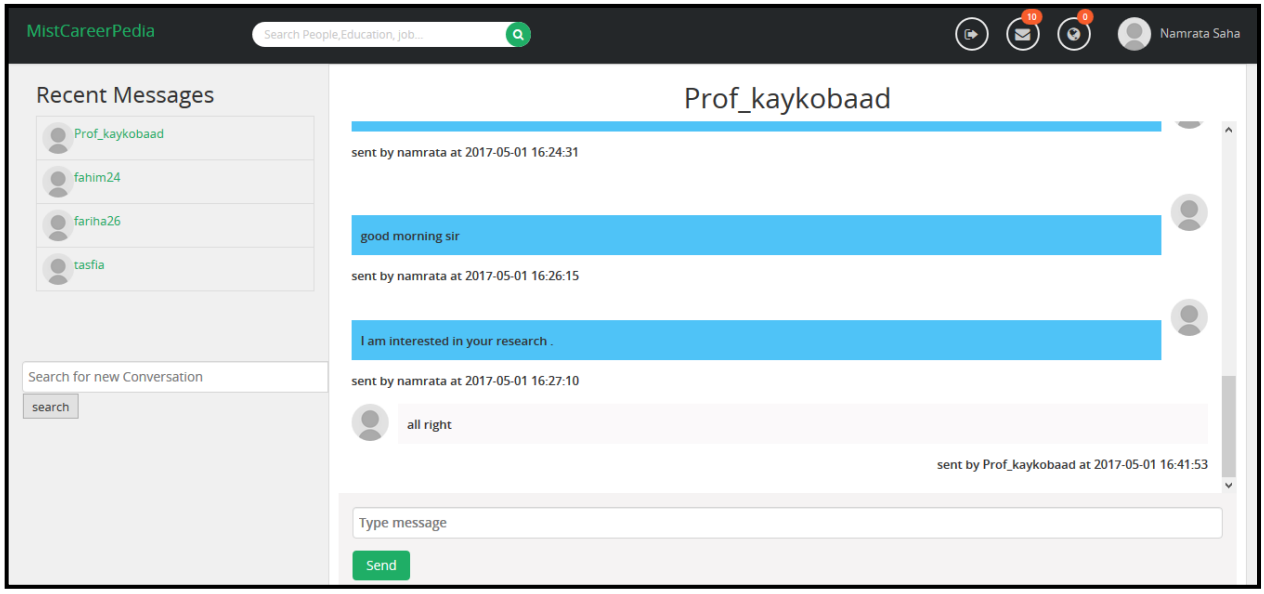


Fig: Messenger

- **Features of messenger:**

1. **Text Messages**: User can type their text messages in message box and send to others using "Send" button. Users can see their previous conversation by scrolling up and this messaging will be done in real time.
2. **Recent Messages**: All the recent messages of any user will be shown in top left section. Whenever a user gets messages or sends messages the sender or receiver name will be shown in Recent Messages section.
3. **Conversation Search**: A user can search another user's /user's messages history using the conversation search.
4. **Message notification**: User will be notified if he/she gets messages from other users.

7. Tinker:

Tinker is such a feature of our software where a professor or job recruiters will get the list of most eligible applicant or candidate lists according to the requirements he posted in the resume for TA/RA or job circular. We have created a weight factor function which calculates the students or job applicant's eligibility

according to the institute he studied in, the grades he occupied, the number of publications or experiences and so on. According to the weight factor the candidates are sorted and the professors hiring students for TA/RA or job recruiters hiring for his company can get the lists and can go through the candidates' profile and can verify with related documentation.

The Figures below show the tinker system of our software:

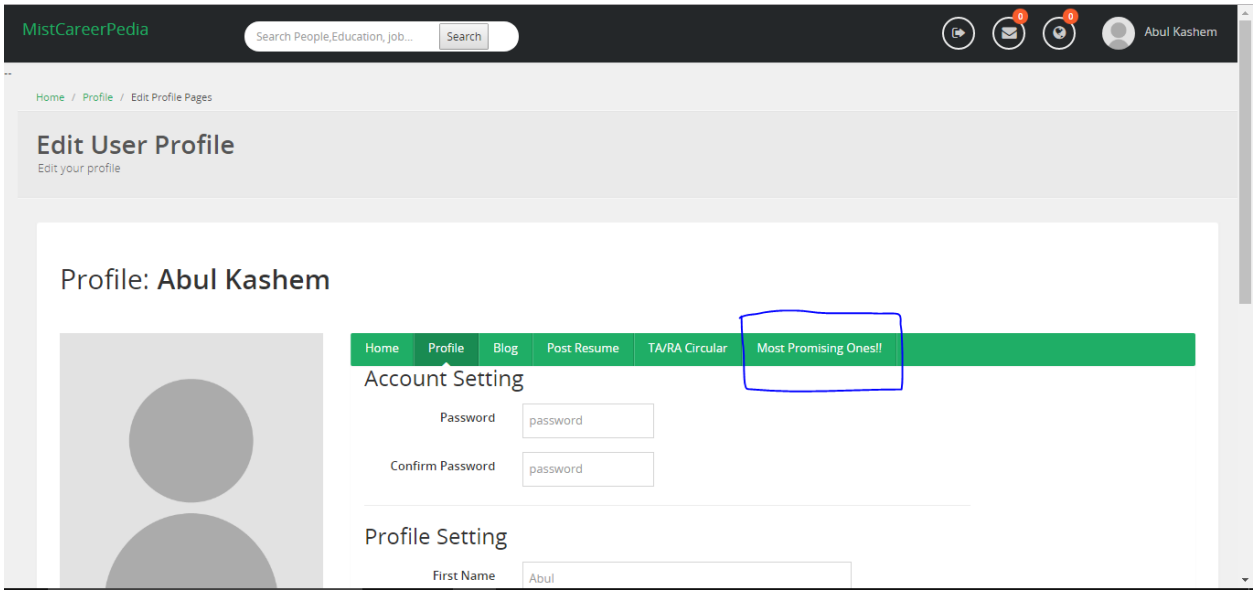


Fig: Professor finding students for TA/RA

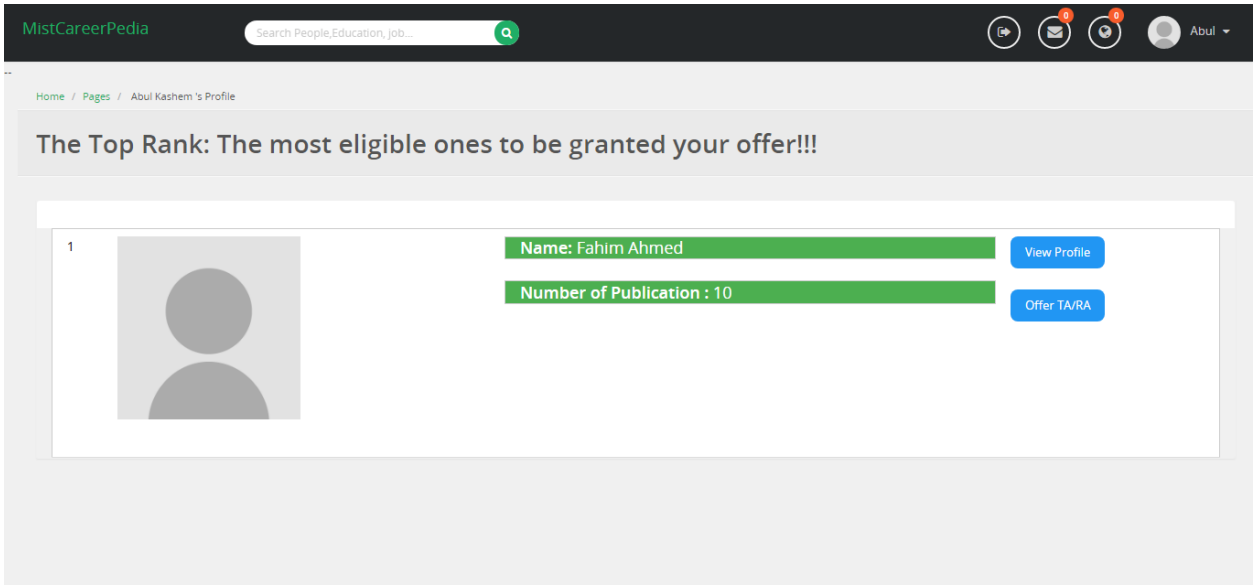


Fig: Most Eligible Student List According to The Requirements

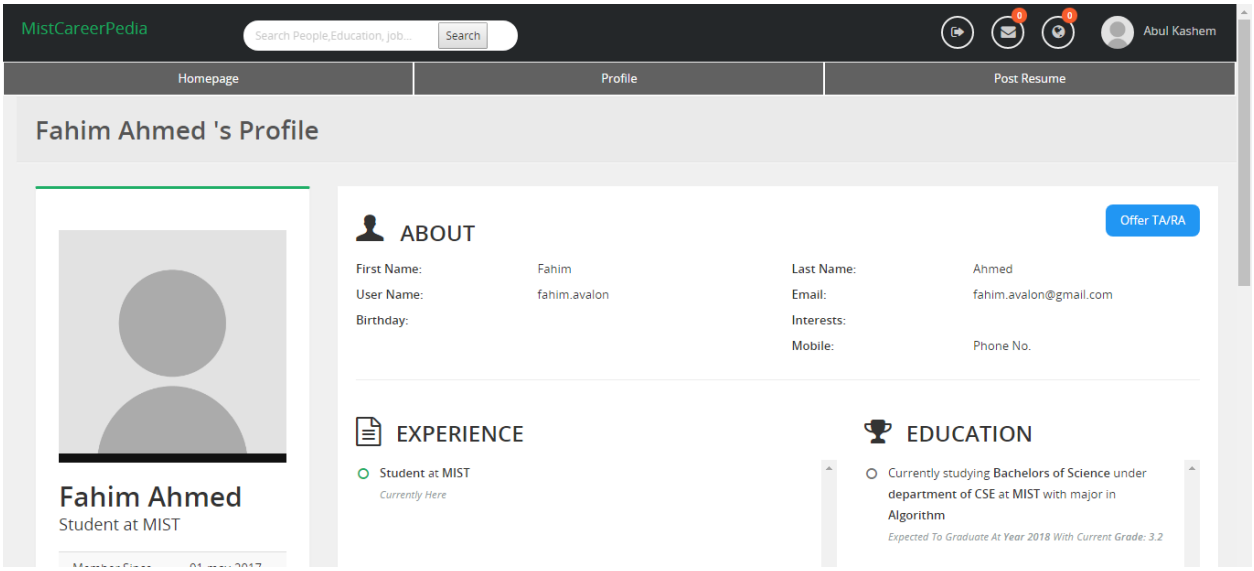


Fig: Eligible Student's Profile

- **User-scenarios with screenshots:**

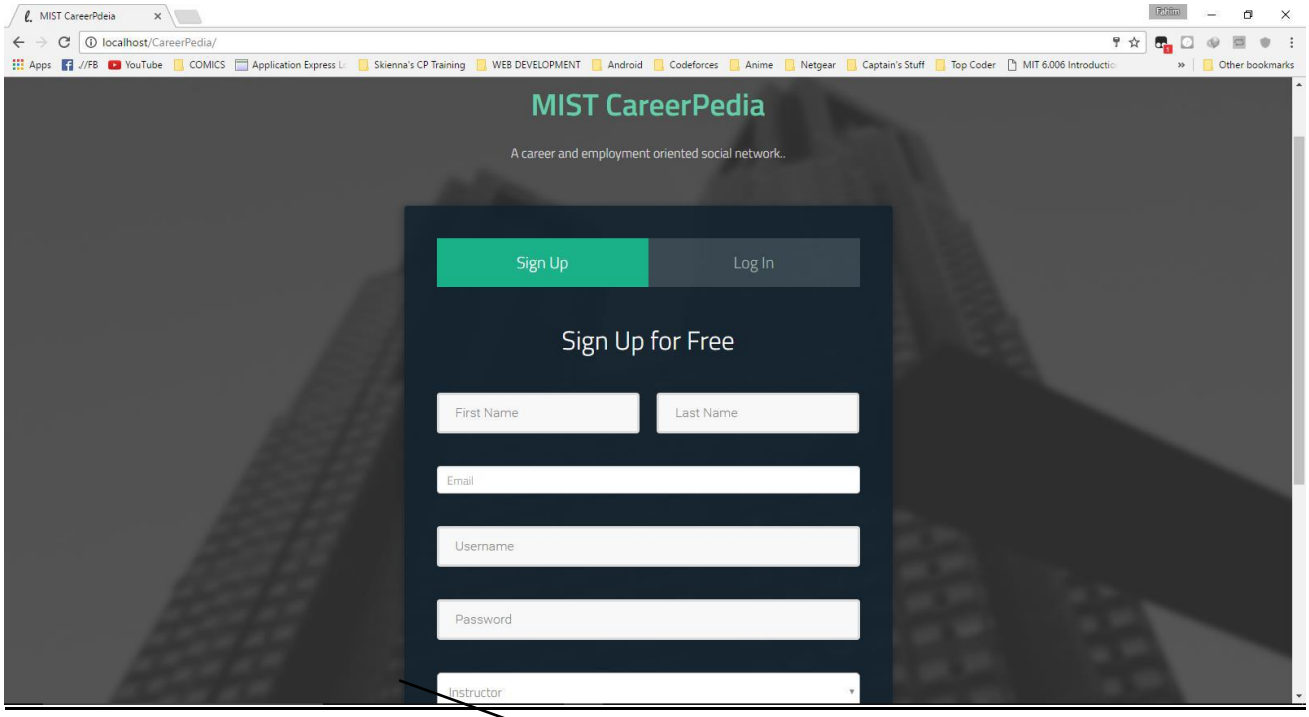
1. **Address of the Software**

   To enter the software, open any html, CSS enabled browser i.e: Chrome. And type the following URL:
   https://localhost/CareerPedia

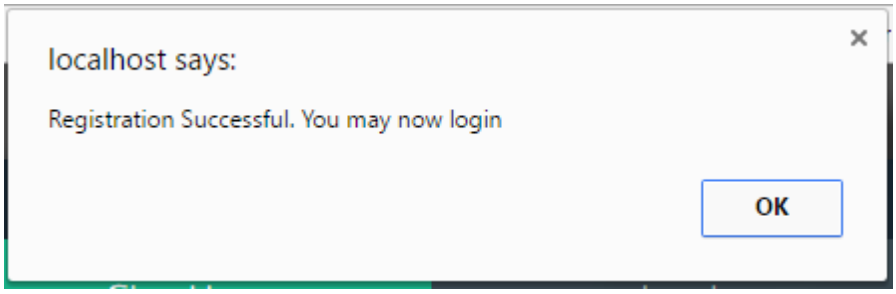
2. **Registration Procedure:**

After you enter the address you will be greeted with the registration page. If you already have an account on the system you can simply switch to login and continue.

Else you will have to provide necessary information in all the fields in order to register. It is to be mentioned that all the information provided will have to be valid and furthermore, ***the password must be at least 8 characters*** in length and the ***email of every profile owner will have to be unique***.



While registering you will also have to select your profession so the system can smartly categorize you.

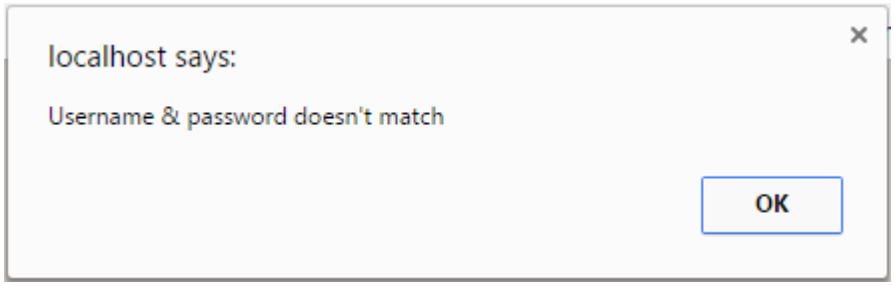


After registration is successful the system will reply you with a confirmation message.

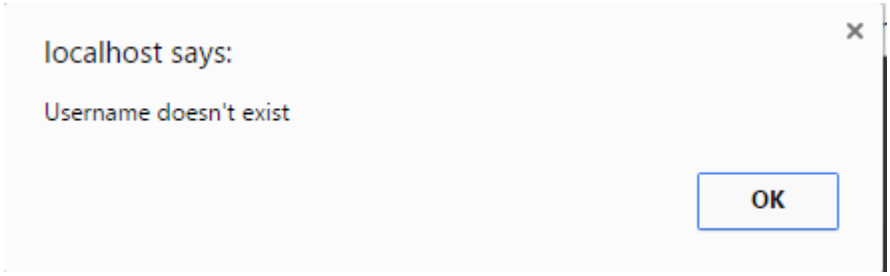
3.**Login**

Now in the login page simply enter your own login credentials. If the match you will get a message like this:

If you have entered a valid username but wrong password you will have a reply like this:



If you enter a username that is invalid you will get a message like this:



After logging in for the first time you will be taken to a profile page.

After you've update the information there you will be taken to your homepage.
The homepage will contain a navigation bar that will contain the

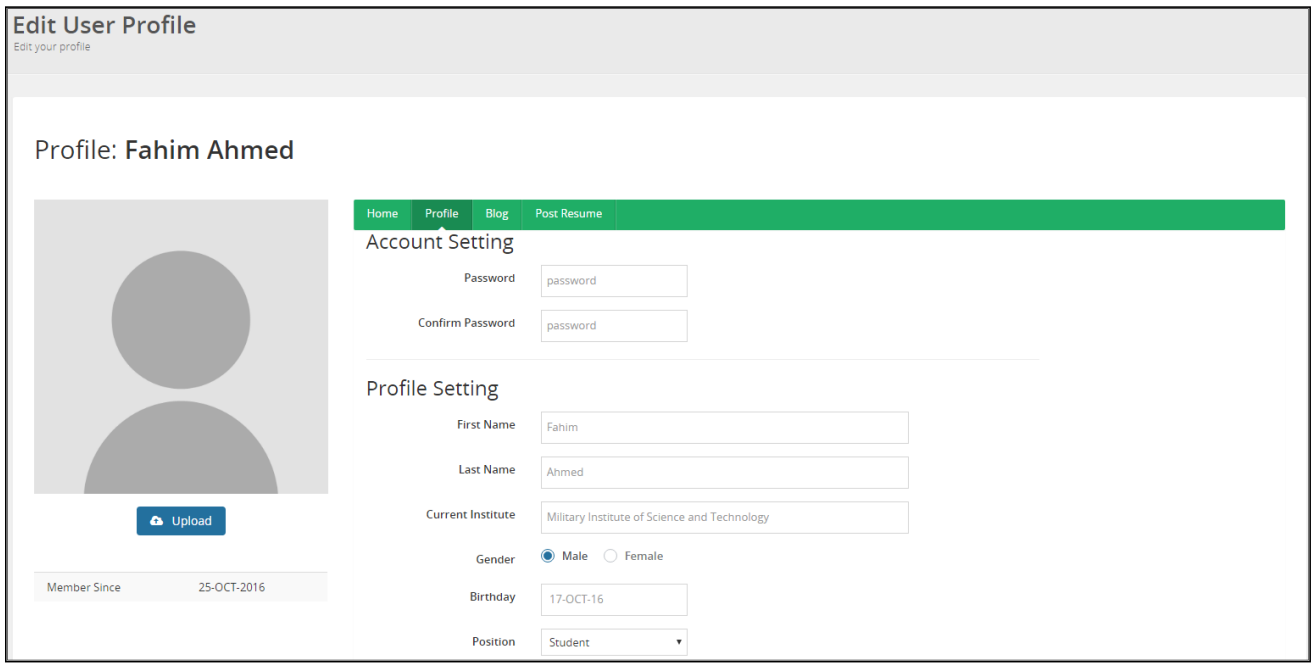
i. **The logout button:** Use this to destroy the session and logout of the system.

ii. **The message button:** Use this to see all the conversations you have had with all your connections.

iii. **The notification button:** Lets you know about the offers which you are given from the professors and others.

iv. **The Search field:** Search any user with a certain name or has a substring of that name.

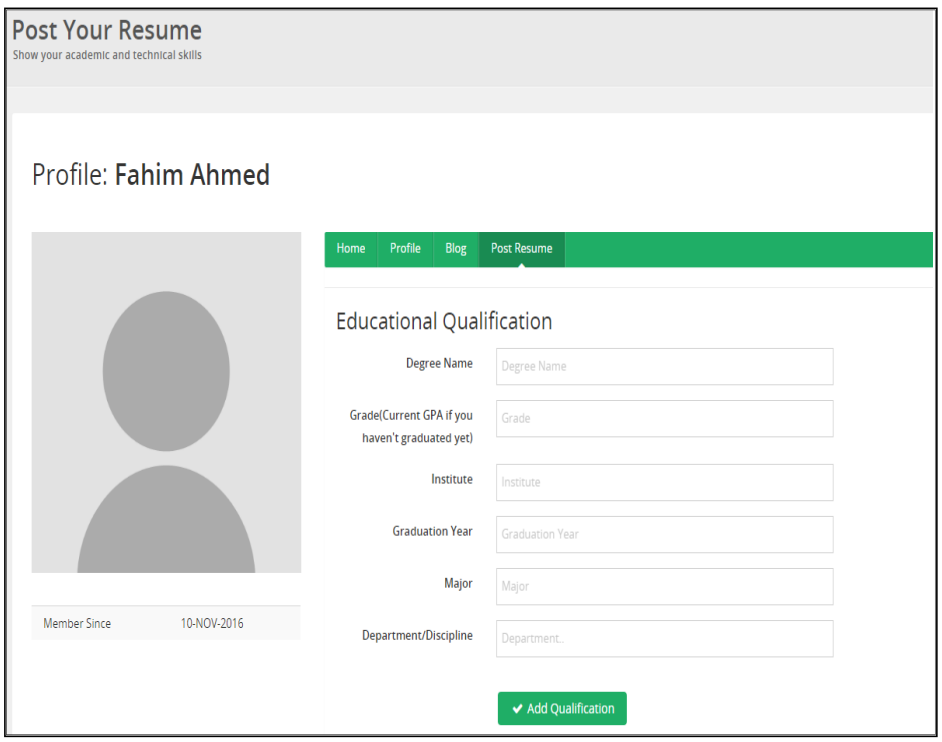
4.Update Profile Information:



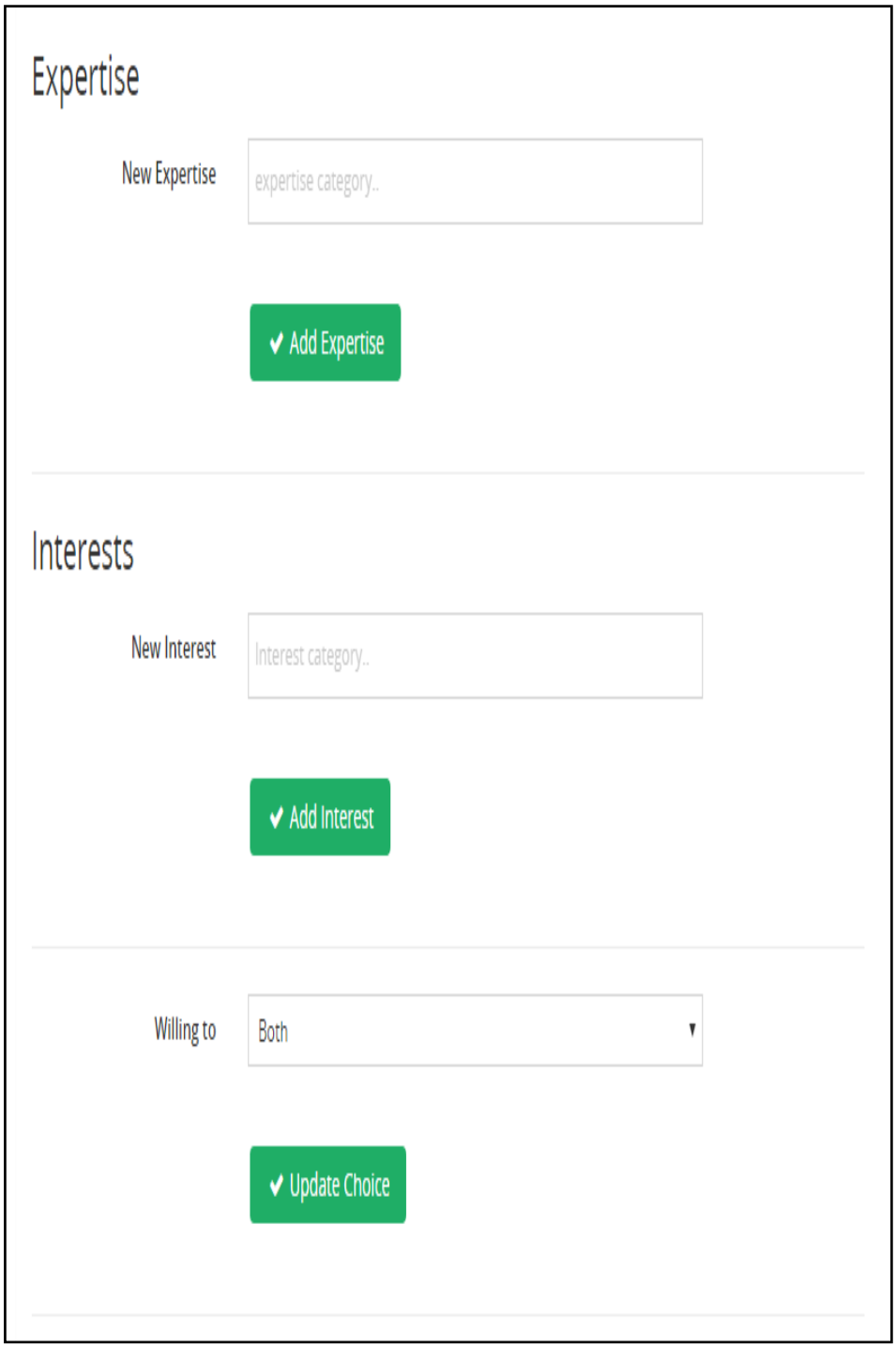
Here you can update
your Birthday,
current profession,
contact Number, etc.
Also you can use this page in order to set a new password.

5.Update Career Information, The Post Resume Page :

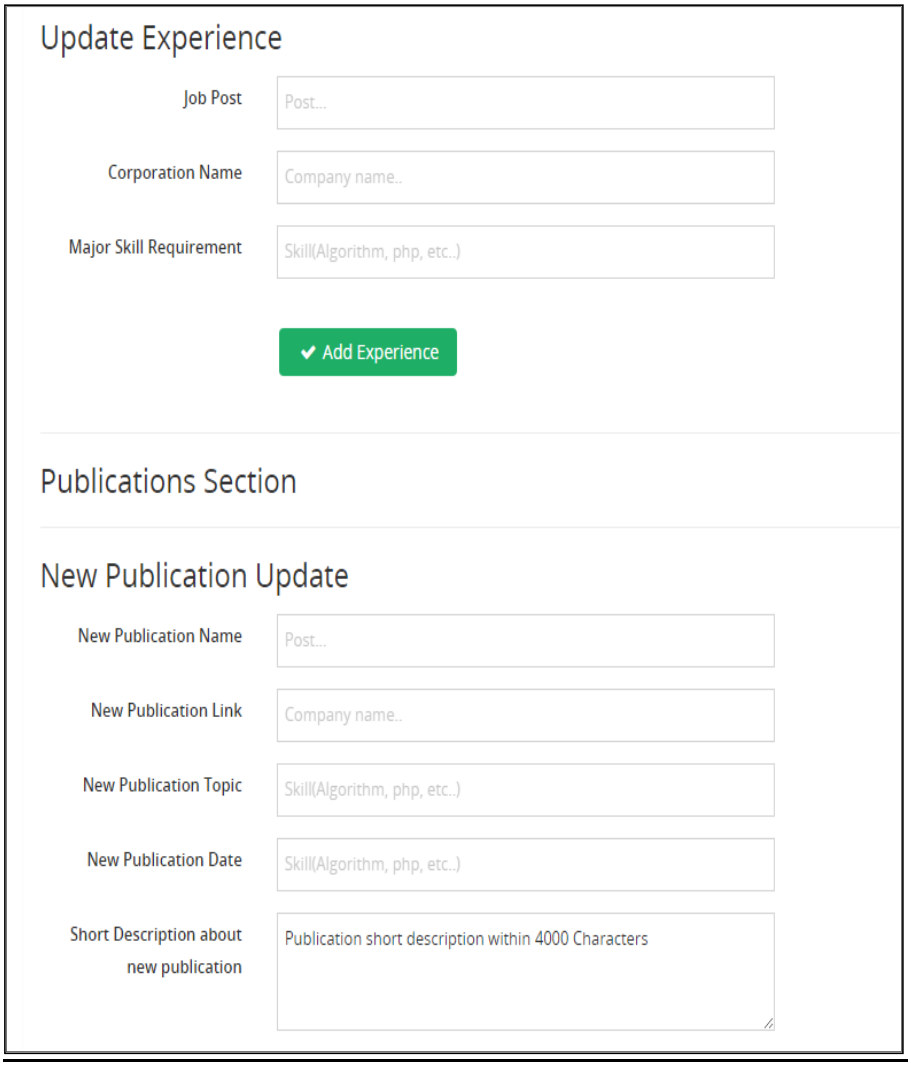
i. Update educational qualifications



ii. Update expertise and interest:



iii. Update previous experiences and Publications :



V. Conclusion:

Our goal was to create a dynamic intelligent platform for all graduate students of MIST (Military Institute of Science & Technology), so that each can be linked directly to their preferred and deserved area of jobs and higher study fields with ease, and efficiency. So we implemented different features like newsfeed, tinker, messaging etc. Our software is a platform of interaction among students, teachers and job recruiters. All the features we decided in respect to accomplish the task were implemented properly. We learned to use various field of web designing in our project.

By and large developers use multi-threaded server functions for their web applications but we've tried to give a shot in a bit different atmosphere for CPU utilization. And so we've coded the whole application in a single thread to make use of less resource. If we could have a server based system then we could have implemented the Search in a multi-threaded algorithm that would be able to serve multiple users more efficiently.

- **Future work:**

    1. We will develop our UI as better as possible and make user friendly
    2. All of our features will be workable and we will make sure this.
    3. In future we will buy actual domain and host our website
    4. We will launch our website.

5. We will campaign for our website and advertise for its marketing so that people can communicate with it and know about it.

6. Some features will be added in future according to the need of users.

7. We will try to resolve all of bugs of our website and make it well-furnished as possible.

8. We will try to cover a several number of universities to advertise our website purpose and to make sure as much people know about it.