

# DBMS Project Report

By :

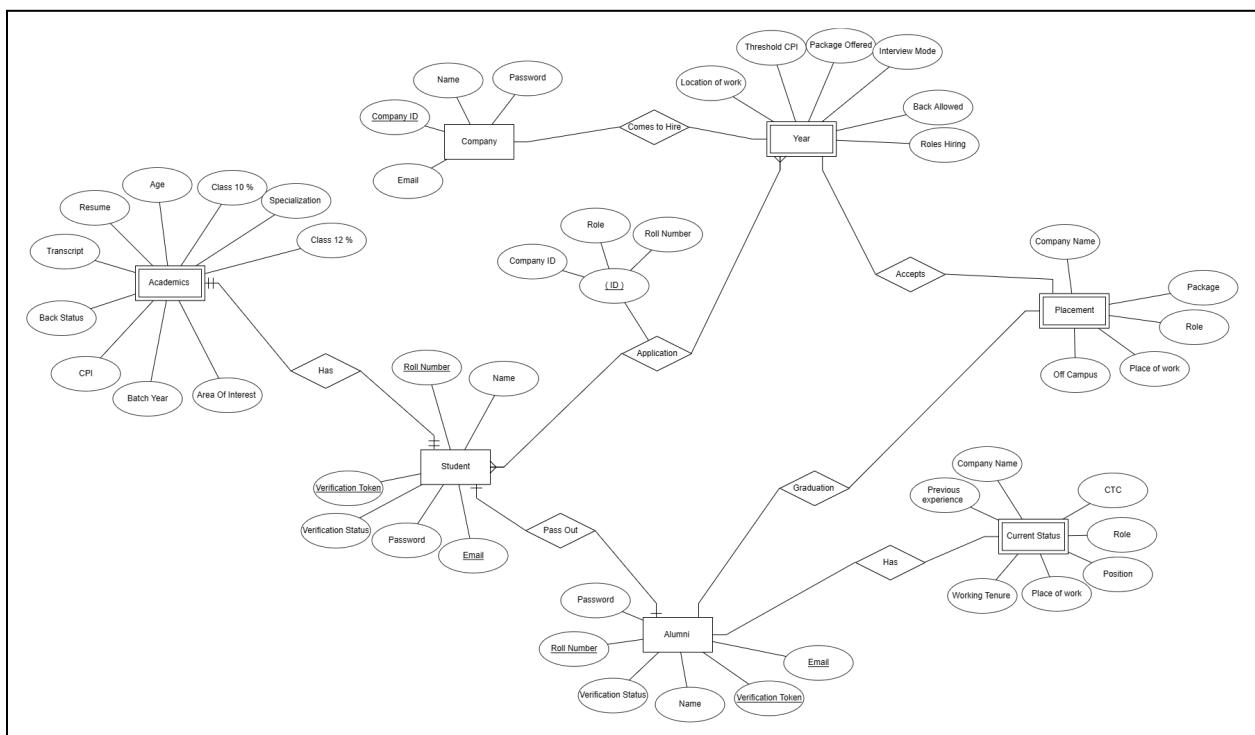
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<https://drive.google.com/file/d/1ekHf9JLTJcJxCwCIaEVo8xtJzIrvoETe/view?usp=sharing>

**ER diagram:**



erdig.png

Click on the above link to view the full resolution image

## Tables used:

### alumni\_login

```
mysql> desc alumni_login;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| roll_number | char(8) | NO | PRI | NULL | 
| email | varchar(100) | YES | | NULL | 
| first_name | varchar(100) | YES | | NULL | 
| last_name | varchar(100) | YES | | NULL | 
| password | varchar(100) | YES | | NULL | 
| verification_token | varchar(100) | YES | | NULL | 
| verified | tinyint(1) | YES | | NULL | 
+-----+-----+-----+-----+-----+-----+
7 rows in set (0.00 sec)
```

2NF

The table does not satisfy the requirements of the third normal form (3NF) because it has a transitive dependency between roll\_number and the remaining columns.

### alumni\_academic\_profile

```
mysql> desc alumni_academic_profile;
+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+
| roll_number | char(8) | NO | PRI | NULL | 
| class10 | float | YES | | NULL | 
| class12 | float | YES | | NULL | 
| cpi | float | YES | | NULL | 
| back | varchar(3) | YES | | NO | 
| age | tinyint | YES | | NULL | 
| specialization | varchar(100) | YES | | Please Update your details | 
| area_of_interest | varchar(100) | YES | | Please Update your details | 
| batch_year | year | YES | | 2008 | 
| transcript_link | varchar(500) | YES | | NULL | 
| resume_link | varchar(500) | YES | | NULL | 
+-----+-----+-----+-----+-----+
11 rows in set (0.01 sec)
```

## 3NF

The table has no transitive dependencies, and each non-key column is fully functionally dependent on the primary key.

### alumni\_graduation\_placement

```
mysql> desc alumni_graduation_placement;
+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+
| roll_number | char(8) | NO | PRI | NULL | 
| company | varchar(50) | YES | | Not Placed | 
| role_ | varchar(50) | YES | | Please Update | 
| package | int | YES | | NULL | 
| place_of_work | varchar(50) | YES | | NULL | 
| off_campus | tinyint(1) | YES | | 0 | 
+-----+-----+-----+-----+-----+
6 rows in set (0.01 sec)
```

## 3NF

The table has no transitive dependencies, and each non-key column is fully functionally dependent on the primary key.

### alumn\_current\_details

```
mysql> desc alumni_current_details;
+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+
| roll_number | char(8) | NO | PRI | NULL | 
| company | varchar(100) | YES | | NULL | 
| ctc | varchar(100) | YES | | NULL | 
| role_ | varchar(100) | YES | | NULL | 
| position | varchar(100) | YES | | NULL | 
| place_of_work | varchar(100) | YES | | NULL | 
| working_tenure | int | YES | | NULL | 
| previous_experience | varchar(10000) | YES | | NULL | 
+-----+-----+-----+-----+-----+
8 rows in set (0.01 sec)
```

## 3NF

The table has no transitive dependencies, and each non-key column is fully functionally dependent on the primary key.

Companies:

```
mysql> desc companies;
+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+
| id    | int  | NO   | PRI | NULL    | auto_increment |
| name  | varchar(100) | YES  |     | NULL    |                |
| email | varchar(100) | YES  |     | NULL    |                |
| password | varchar(100) | YES  |     | NULL    |                |
+-----+-----+-----+-----+-----+
4 rows in set (0.00 sec)
```

2NF

The given table doesn't have any redundancy and it meets the requirements of the first normal form (1NF) as all its fields are atomic, i.e., they can't be further divided into smaller units. Additionally, it also meets the requirements of the second normal form (2NF) since it has a primary key (id) and no non-prime attribute (columns other than the primary key) is dependent on only a part of the primary key. Therefore, this table is in 2NF.

year\_XXXX:

```
mysql> desc year_2023;
+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+
| id    | int  | NO   | PRI | NULL    |                |
| MinimumQualification | varchar(100) | YES  |     | NULL    |                |
| ThresholdMarks | float | YES   |     | NULL    |                |
| SalaryPackage | int   | YES   |     | NULL    |                |
| InterviewMode | varchar(100) | YES  |     | NULL    |                |
| RecruitingSince | int   | YES   |     | NULL    |                |
| Back | varchar(10) | YES  |     | NULL    |                |
| Role  | varchar(100) | NO   | PRI | NULL    |                |
| locations | varchar(200) | YES  |     | NULL    |                |
+-----+-----+-----+-----+-----+
9 rows in set (0.01 sec)
```

3NF

The table has no transitive dependencies, and each non-key column is fully functionally dependent on the primary key.

## student\_login

Field	Type	Null	Key	Default	Extra
roll_number	char(8)	NO	PRI	NULL	
email	varchar(100)	YES		NULL	
first_name	varchar(50)	YES		NULL	
last_name	varchar(50)	YES		NULL	
password	varchar(100)	YES		NULL	
verification_token	varchar(100)	YES		NULL	
verified	tinyint(1)	YES		0	

7 rows in set (0.00 sec)

## 3NF

The table has no transitive dependencies, and each non-key column is fully functionally dependent on the primary key.

## student\_details:

Field	Type	Null	Key	Default	Extra
roll_number	char(8)	NO	PRI	NULL	
class10	float	YES		NULL	
class12	float	YES		NULL	
cpi	float	YES		NULL	
back	varchar(3)	YES		NO	
age	tinyint	YES		NULL	
specialization	varchar(100)	YES		Please Update Your Deatils	
area_of_interest	varchar(100)	YES		NULL	
batch_year	year	YES		NULL	
transcript_link	varchar(500)	YES		NULL	
resume_link	varchar(500)	YES		NULL	

11 rows in set (0.00 sec)

## 3NF

The table has a primary key (roll\_number), and each column depends on the primary key, which satisfies the first normal form (1NF).

There are no repeating groups in the table. Each column stores atomic data (2NF).

There are no transitive dependencies between non-key columns. Each non-key column depends only on the primary key (3NF).

## Student\_application:

```
mysql> desc student_application;
+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+
| roll_number | char(8) | NO | PRI | NULL | 
| company_id | int | NO | PRI | NULL | 
| role | varchar(100) | NO | PRI | NULL | 
+-----+-----+-----+-----+-----+
3 rows in set (0.01 sec)
```

## 2NF

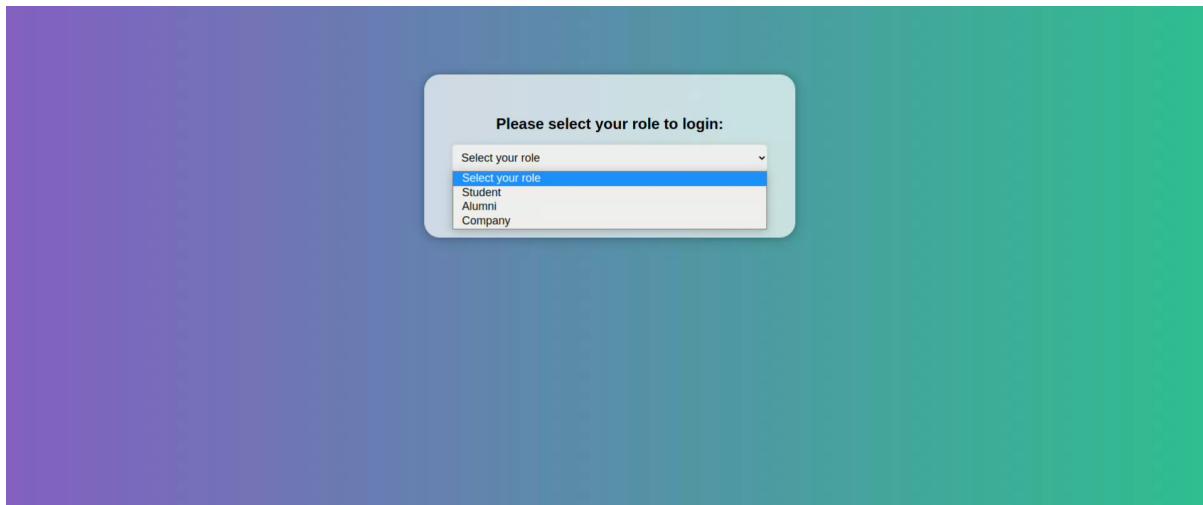
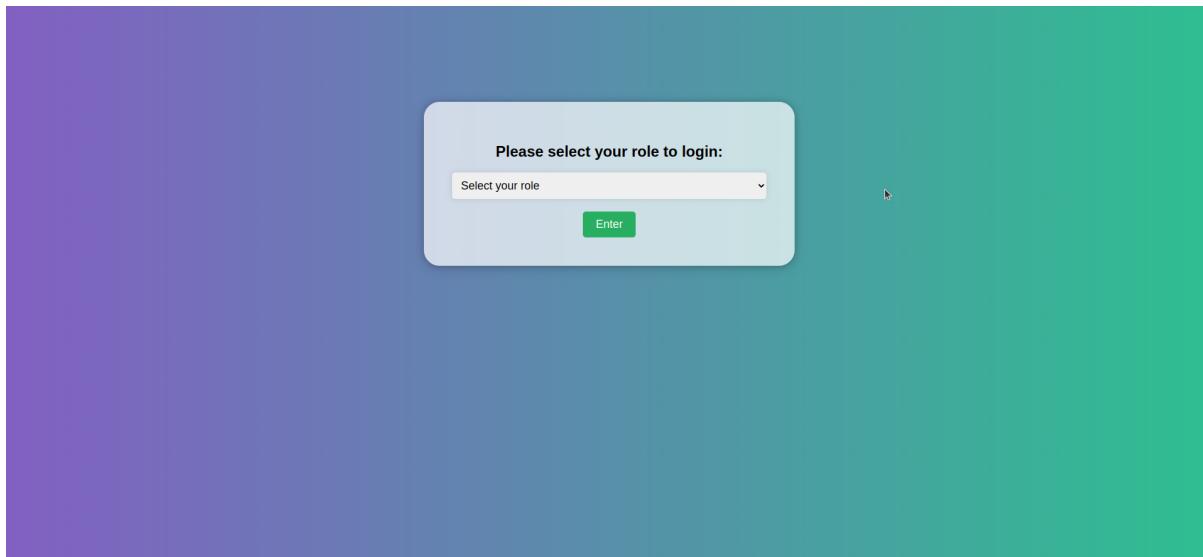
"roll\_number" field is a foreign key referencing the student, and the "company\_id" field is a foreign key referencing the company, the table seems to be in at least 2nd normal form.

## student\_placement:

```
mysql> desc student_placement;
+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+
| roll_number | char(8) | NO | PRI | NULL | 
| company | varchar(50) | YES | | Not Placed | 
| role | varchar(50) | YES | | Not Applicable | 
| package | int | YES | | 0 | 
| place_of_work | varchar(50) | YES | | NULL | 
| off_campus | tinyint(1) | YES | | 0 | 
+-----+-----+-----+-----+-----+
6 rows in set (0.01 sec)
```

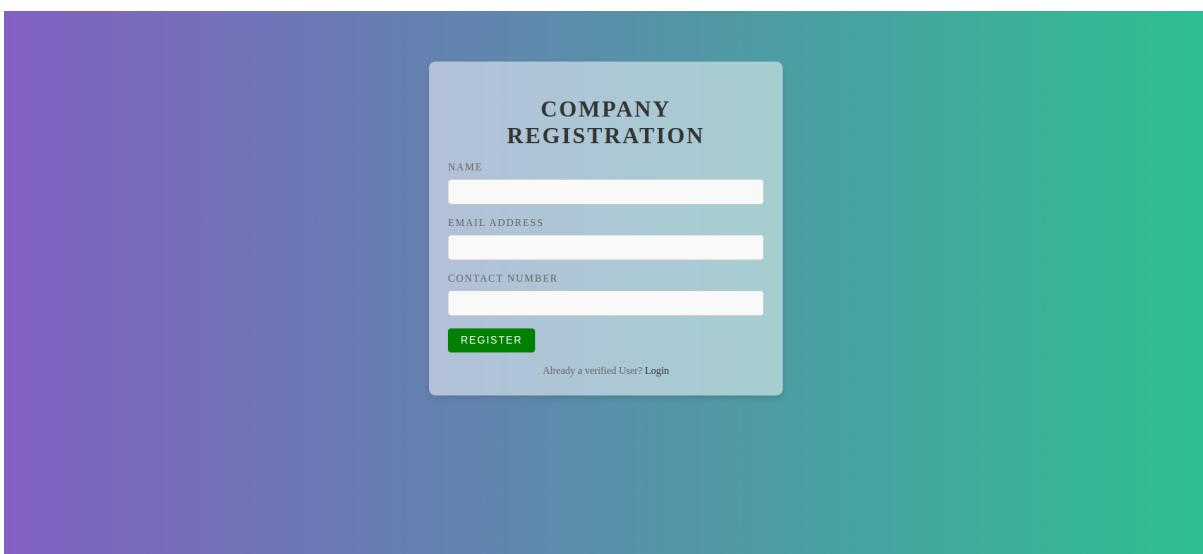
## Denormalized

## The Main Page of the Portal:



## A) Company

A company has to apply on our TPC Portal which will be approved only after verification by our TPC officer.



For implementing this functionality, we used SMTP protocols i.e. Email API.

**Explanation:** As soon as the company applies on the portal to register for hiring on campus, our TPC officer receives an automatic email which informs him about the application. The officer then verifies the legitimacy of the application and then, he just has to click on a link which takes him to a registration page for the company.

**Automatic - Email to TPC officer for verification of the company.**

## Company Verification Inbox



randomuserchosen@gmail.com  
to me ▾

Fri, 14 Apr, 16:20 (4 days ago) ⭐ ⓘ ⋮

**Respected Sir,**

Below are the credentials of a company trying to register on the TPC portal. If you find the domain name of the Email-Id, and the company to be legitimate, kindly click on the link below to register the company on the portal.

Name: Tesla

Email-Id: [randomuserchosen@gmail.com](mailto:randomuserchosen@gmail.com)

Contact Number: 0000000000

Initial Password: passTesla

[Register the firm!](#)

Thank You.

✉ Reply ↗ Forward

**The form will here will be auto-filled for the office to cause him minimal efforts. He just has to click on the register button which will then register the company on the TPC portal. Note that this is a one time verification process and can be avoided in the coming years.**

**Auto-filled form for the TPC officer.**

COMPANY REGISTRATION - PIC TPC

NAME

EMAIL ADDRESS

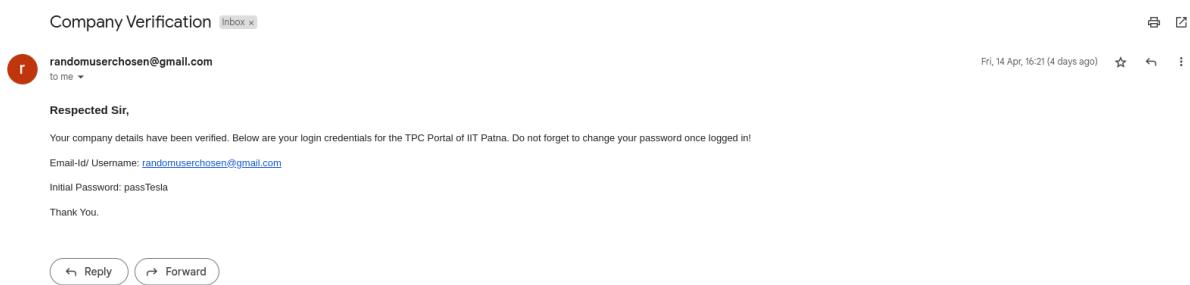
PASSWORD

**REGISTER**

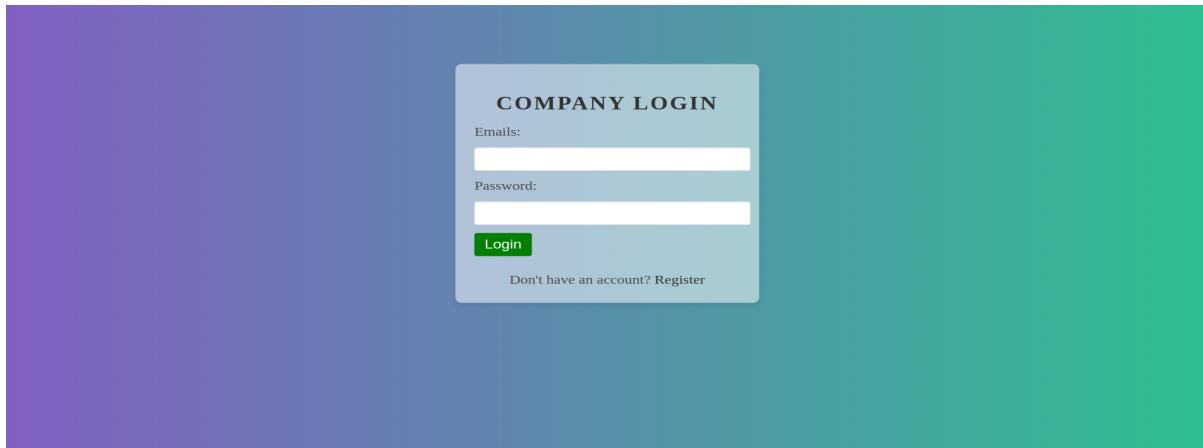
After the TPC officer registers the company, the company will receive an automatic email stating that their verification was successful and they can login on the portal. The credentials are generated by a random function in the backend.

The email provides these credentials to the company for first login after which they can change their password.

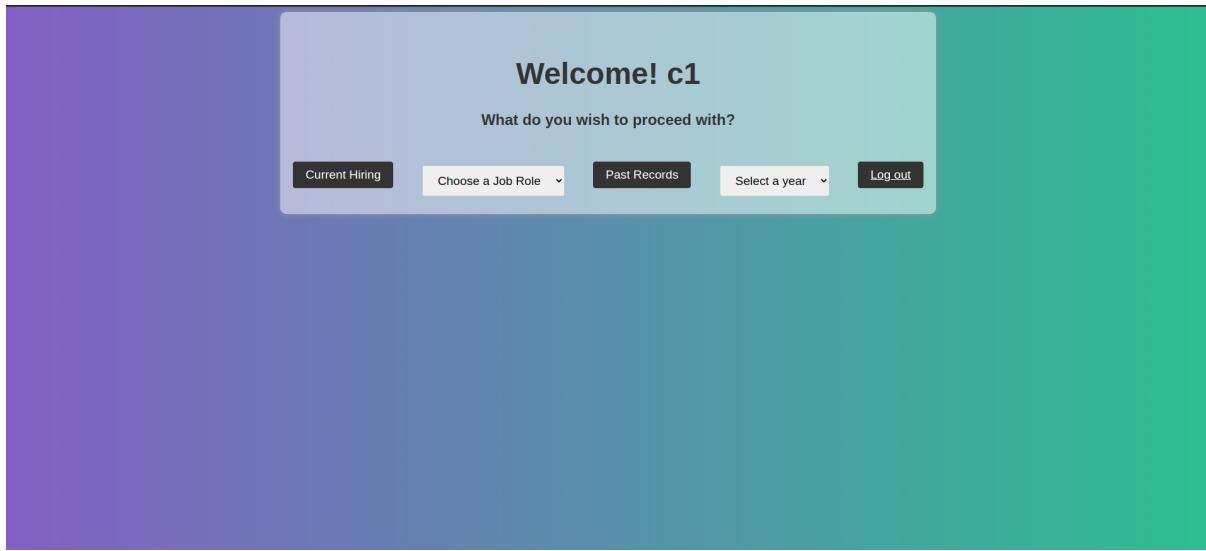
#### Automatic - Email to company post verification by TPC officer



#### Login page for company:



#### The company Dashboard:



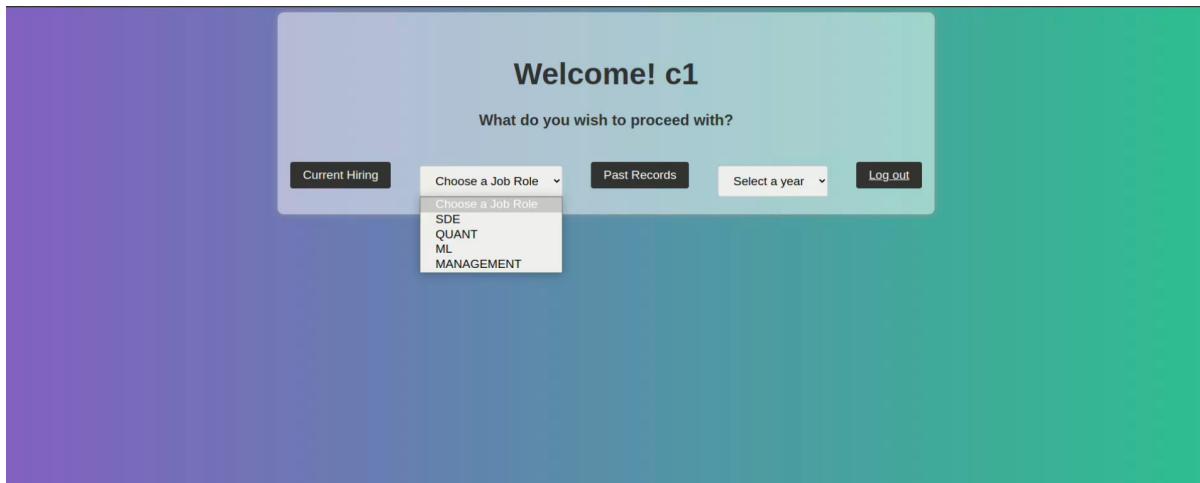
It asks the company whether it wants to see its previous records of hiring from IIT Patna or just wants to proceed on with the current year hiring process.

If the company goes on with the current hiring process, it has to select a Job Role for which it is hiring or wants to hire.

Else, it has to select a year to view that year's records.

Note the feature: The TPC officer has minimal work to do since the portal automatically creates each new year's table.

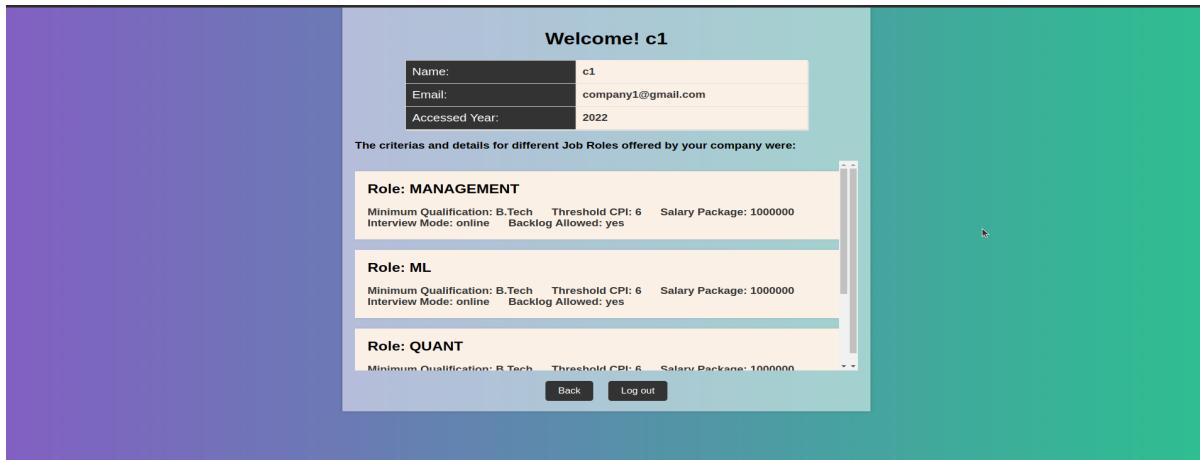
Selecting Job Role for viewing current hiring process:



### Selecting Year for viewing Past Records:



### The past records of a company named C1:



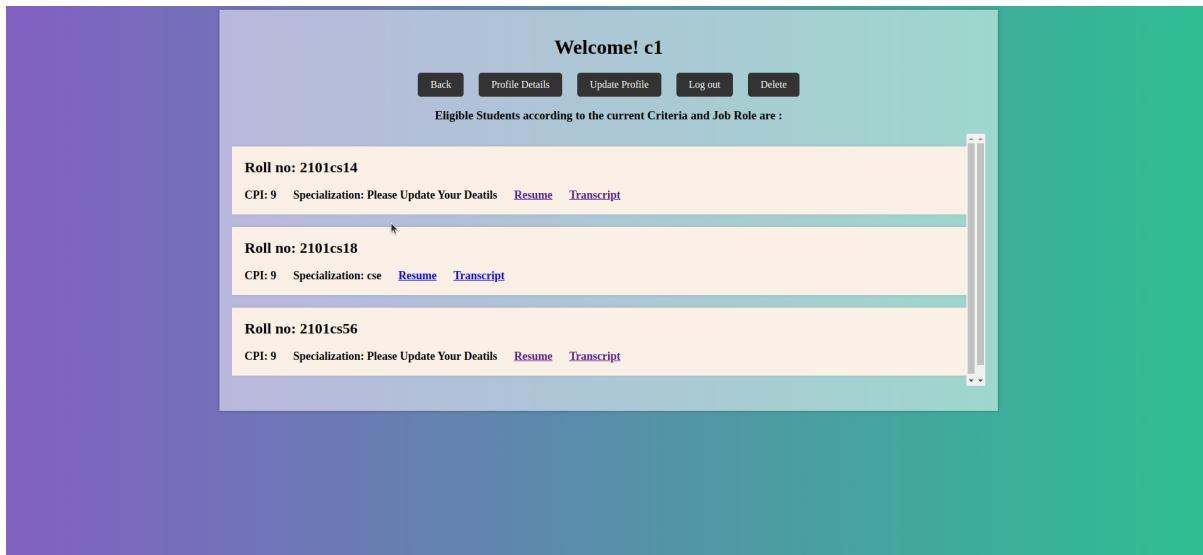
The data is shown in a scroll-view. It shows all the set criteria by the company for a particular role that year.

In current hiring, the company can see the list of eligible students for its offered job role. Also, it has the options to see its profile, update the criteria, delete its currently offered job role data and stop the hiring process.

Note that: the students are sorted by the criteria set by the company. Also, the company can see only the list of students who have applied for its offered role.

The sorting can be on the basis of branch/specialisation, cpi, salary package, qualification, backlogs etc.

The company can also view the students' resume, transcript which we have implemented via cloud API using google cloud.



Profile details of a company:

**Company's Profile**

Name:	c1
Email:	company1@gmail.com
Accessed Year:	2023

**Hiring Criteria**

Minimum Qualification:	B.Tech
Threshold CPI:	7
Salary Package:	600000
Interview Mode:	online
Recruiting From IIT Patna Since:	2012
Backlog Allowed:	yes
Job Role:	SDE
Job Locations:	Mumbai, Pune

[Back](#)

This shows all the criteria set up by the company for hiring as well as the credentials of the company.

The company can also update its criteria in view of less number of eligible students with respect to its current criteria.

**Update Criteria and update profile options for the company:**

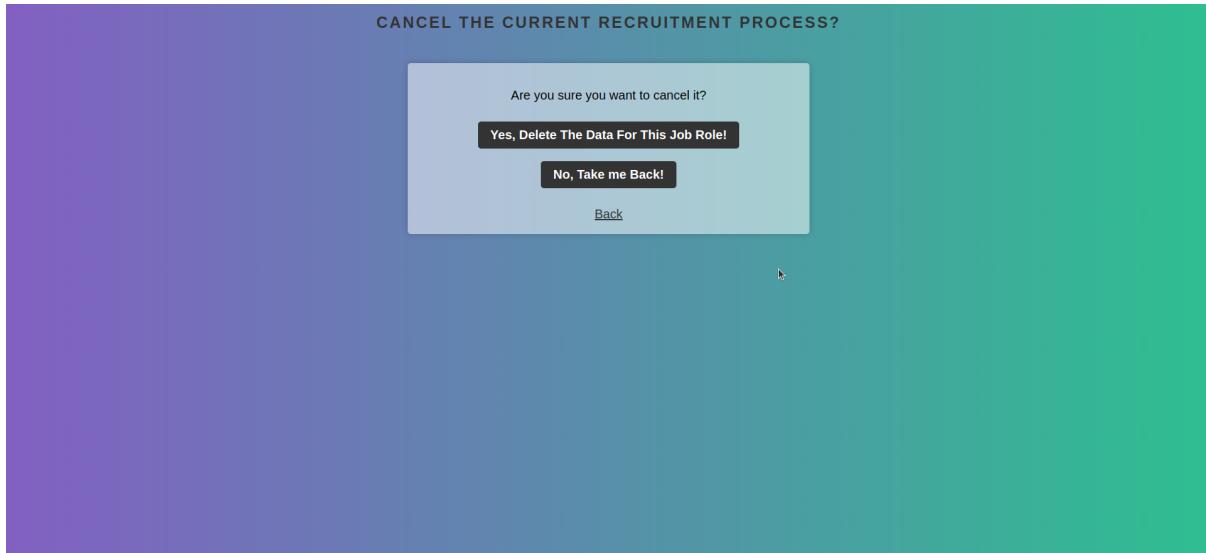
**Update Profile**

Name:	c1
Email:	company1@gmail.com
Password:	*****
Confirm Password:	*****
<a href="#">Update Profile</a>	

**Add Criteria**

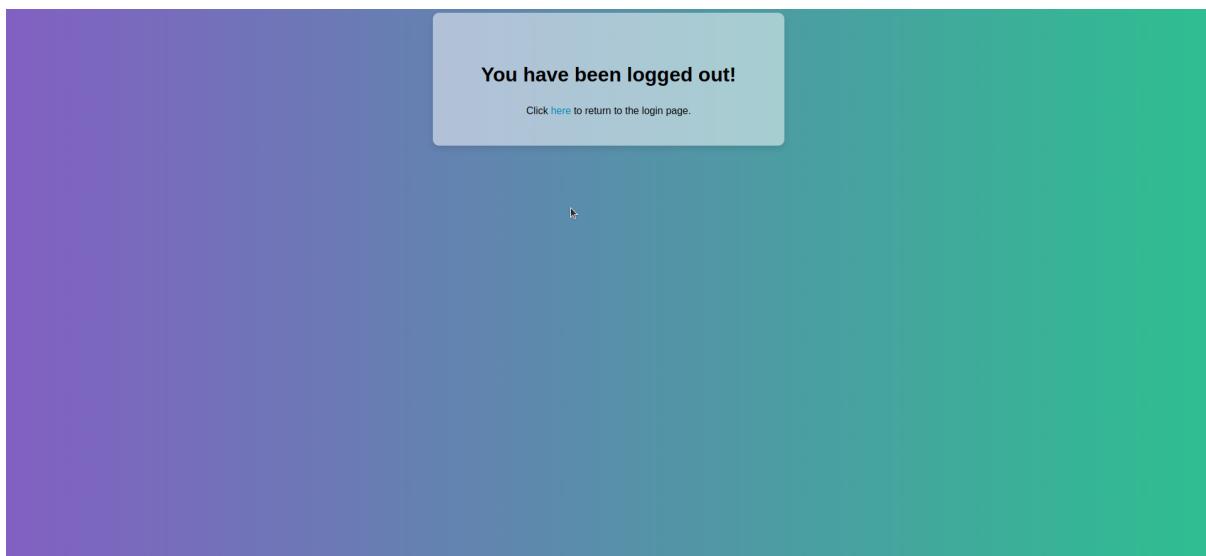
Minimum Qualification: (B.Tech/ M.Tech/ PhD)	B.Tech
Threshold CPI:	7
Salary Package:	600000
Interview Mode: (online/ offline)	online
Recruiting from IIT Patna since (year):	2012
Backlog Allowed (yes/ no):	yes
Job Role: (SDE/ QUANT/ ML/ MANAGEMENT)	SDE
Job Locations:	Mumbai, Pune
<a href="#">Add Criteria</a>	
<a href="#">Back</a>	

The company also has the option to stop the current hiring process by deleting its job role data from our database.



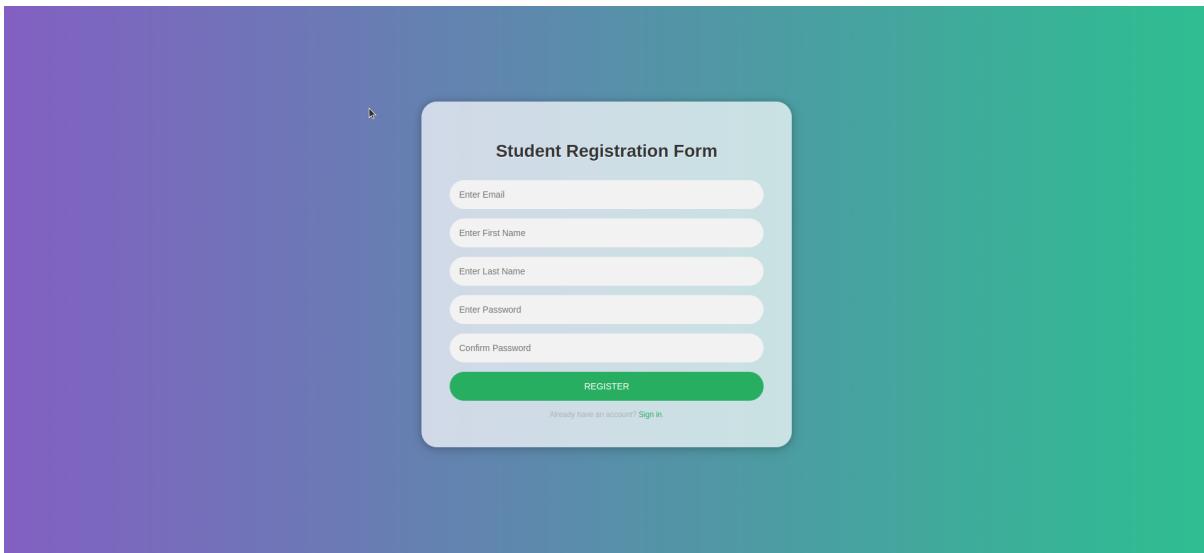
**The logout page:**

It destroys the current session data and requires the user to login again.

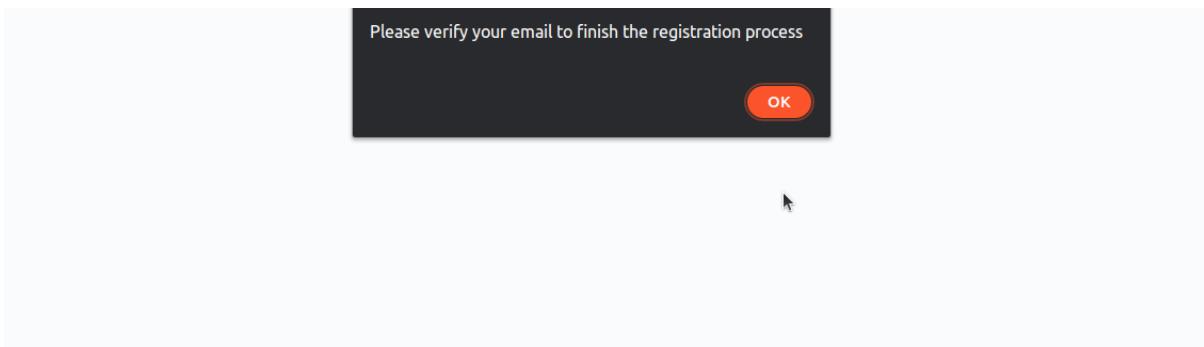


## B) Student Portal

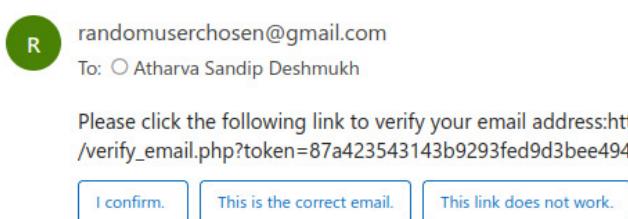
**Registration form for student:**



When a student registers on the portal, he receives an automatic verification email which is implemented using Email API and SMTP protocols. The student then has to verify his email after which he can login on the portal.

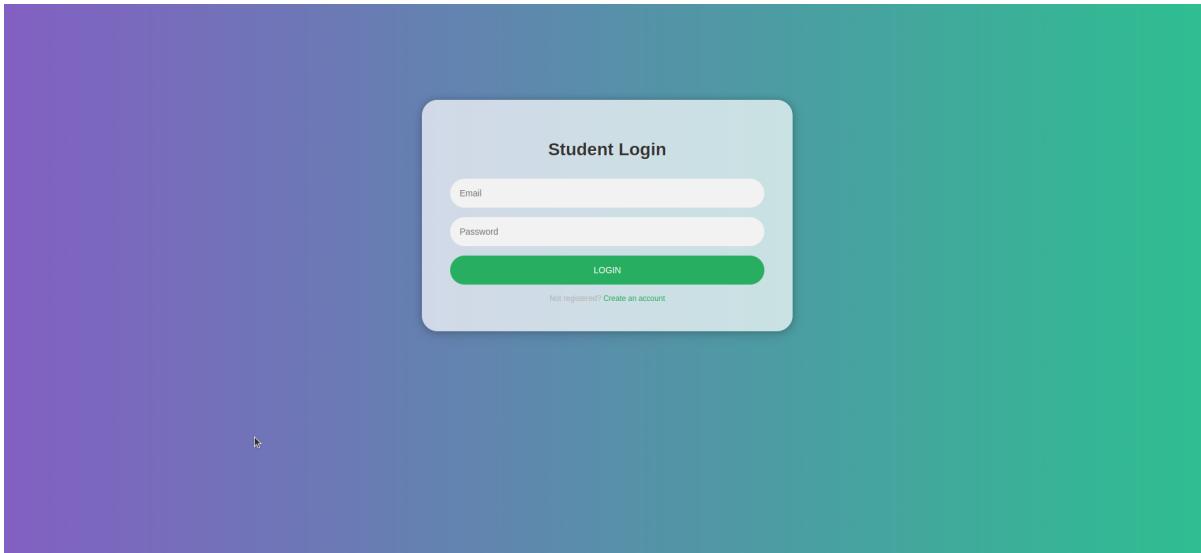


This feature is to prevent any ill practice by the community.

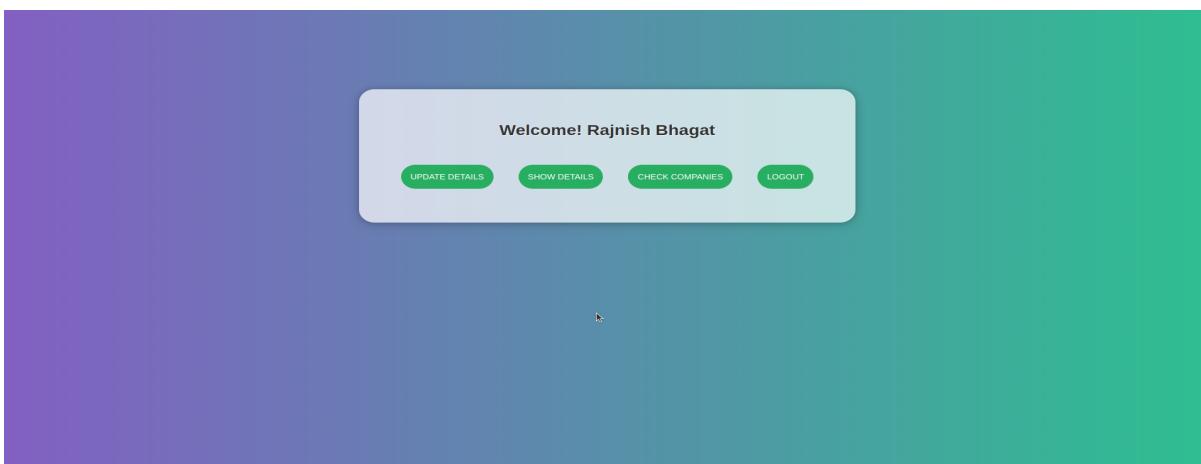


The password is handled with care using password hashing and de-hashing which is for security purposes.

## Login Page:



## Student Dashboard:



The student has options to see his/her profile, update the details and check which companies he is eligible for as per the company criteria.

The companies which the student can see are already filtered in the backend using the cpi, branch, specialisation and the current placement of the student.

The student has the option to apply to the company of his choice.

## Student Profile:

**Student Details**

**Personal Information**

Roll No: 2101CS18  
Name: Rajnish Bhagat  
Age: 19  
Specialization: cse  
Area of Interest: cse

**Academic Information**

Class X Percentage: 92  
Class XII Percentage: 89  
CGPA: 8  
Batch Year: 2020  
Failed in any course: no

**Placement Details**

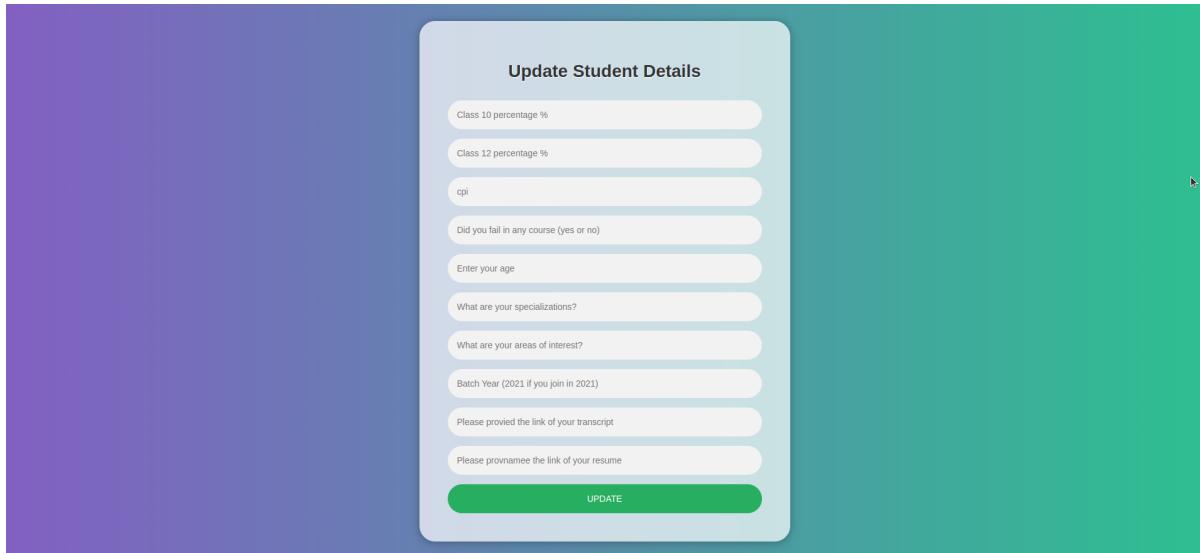
Company Placed: Not Placed  
Package: 0  
Role: Not Applicable  
Place of work:  
Was the placement off campus: NO

## Companies for which the student is eligible:

**Available Companies**

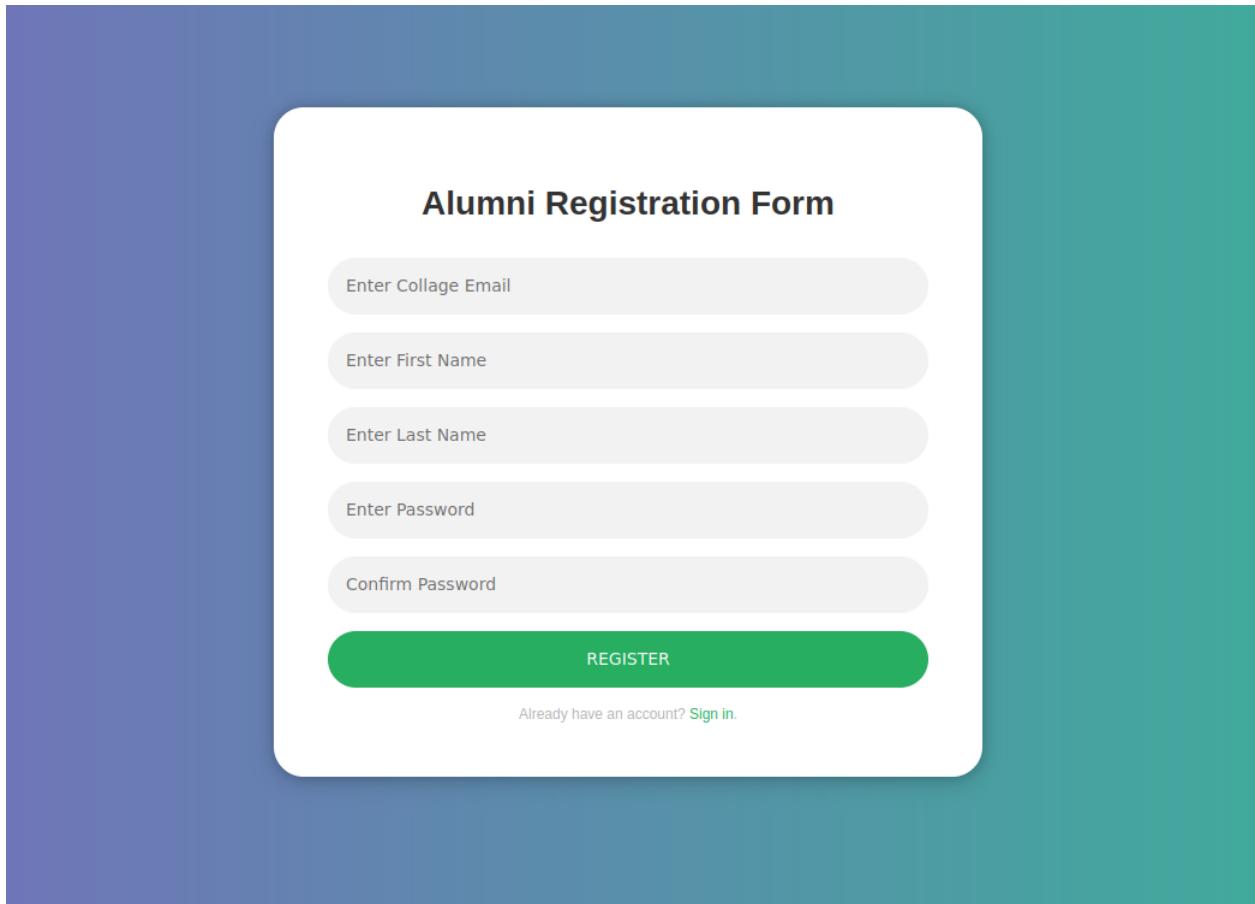
Company Name	Role	Salary Offered	Interview Mode	Recuriting Since	Role	Apply
TATA	MANAGEMENT	900000	online	2011	MANAGEMENT	<a href="#">Apply</a>
TATA	ML	800000	online	2018	ML	<a href="#">Apply</a>
TATA	QUANT	700000	online	2013	QUANT	<a href="#">Apply</a>
TATA	SDE	600000	online	2012	SDE	<a href="#">Apply</a>
WHITE HEAVENS	MANAGEMENT	500000	online	2011	MANAGEMENT	<a href="#">Apply</a>
RED CHILLIES	MANAGEMENT	700000	online	2011	MANAGEMENT	<a href="#">Apply</a>

## Page to update student details:



## Alumni Registration Form

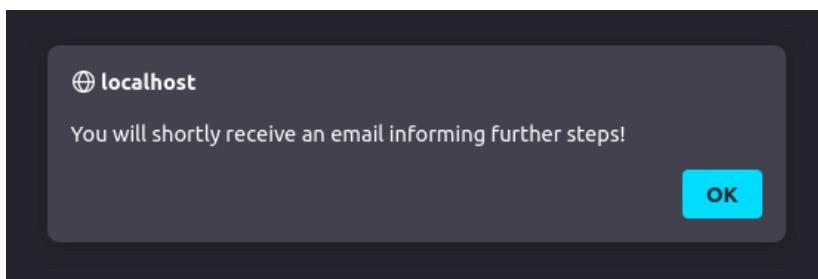
The alumni enters his college email id (Domain is restricted to @iitp.ac.in) . From the email id we directly extract the roll number. After registration the user is shared a token through which he will verify.

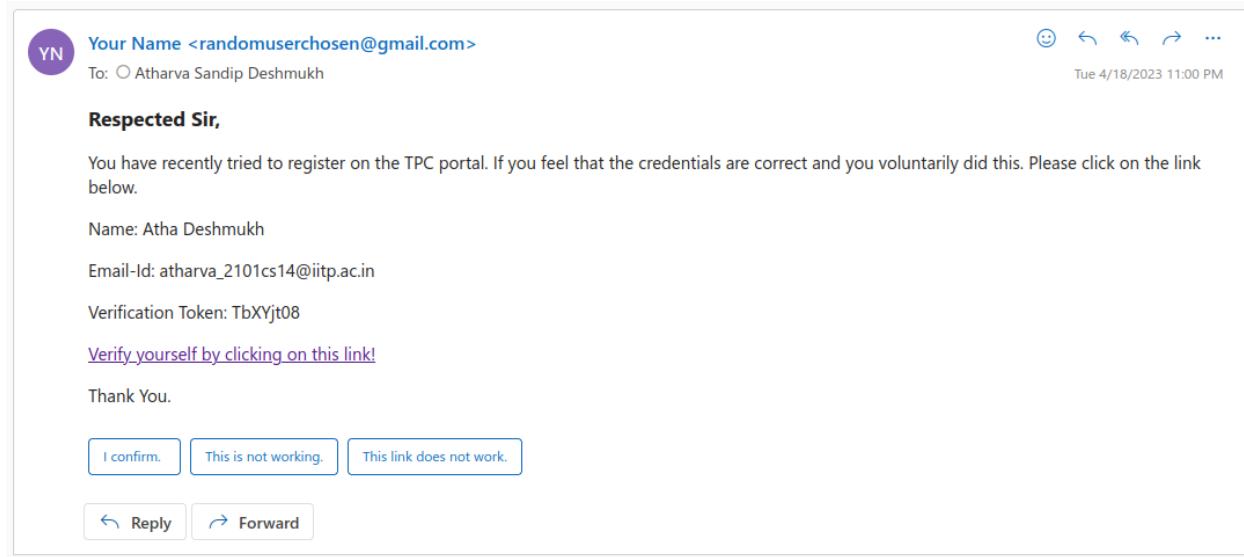


The image shows a mobile-style registration form titled "Alumni Registration Form". It features five input fields: "Enter Collage Email", "Enter First Name", "Enter Last Name", "Enter Password", and "Confirm Password". Below these fields is a large green "REGISTER" button. At the bottom of the form, there is a link "Already have an account? [Sign in.](#)". The background of the form is white, and it is centered on a gradient background transitioning from purple to teal.

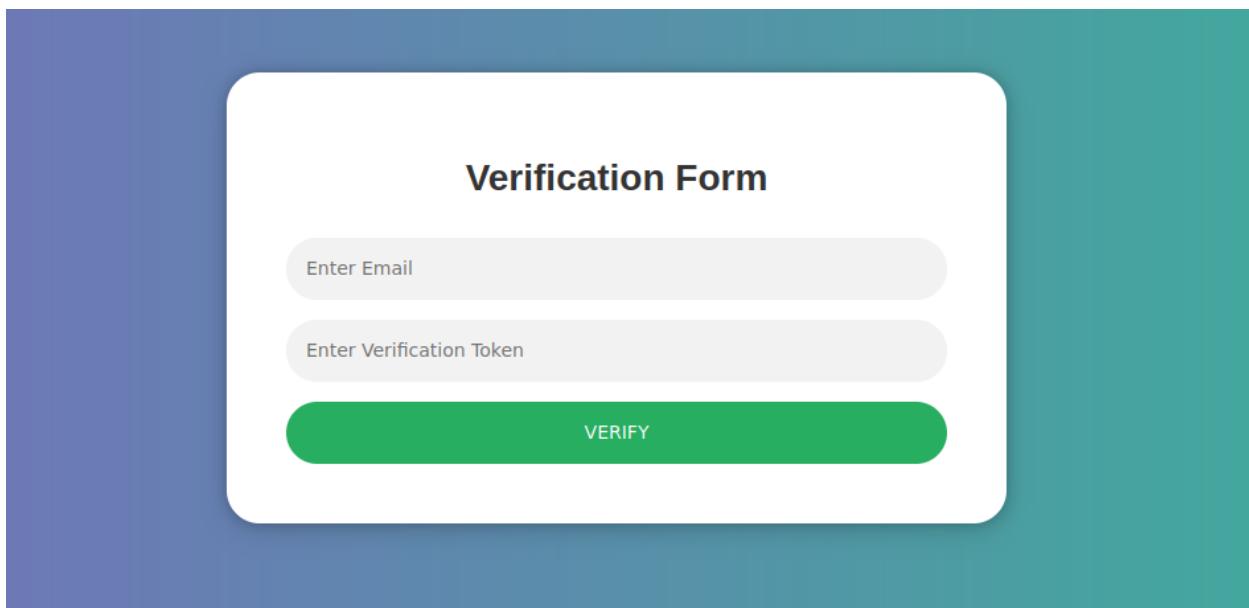
After entering the data for 2101cs14:  
The verified token is 0, after verification it will be set to 1.

-----+-----+		
	verified	
-----+-----+		
lww	0	
-----+-----+		

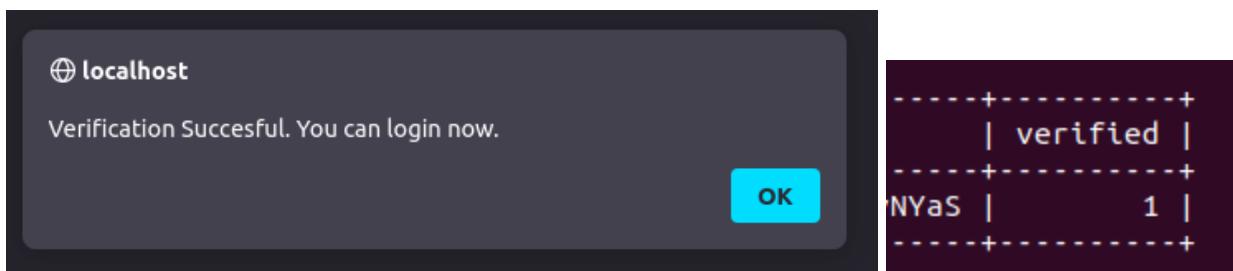




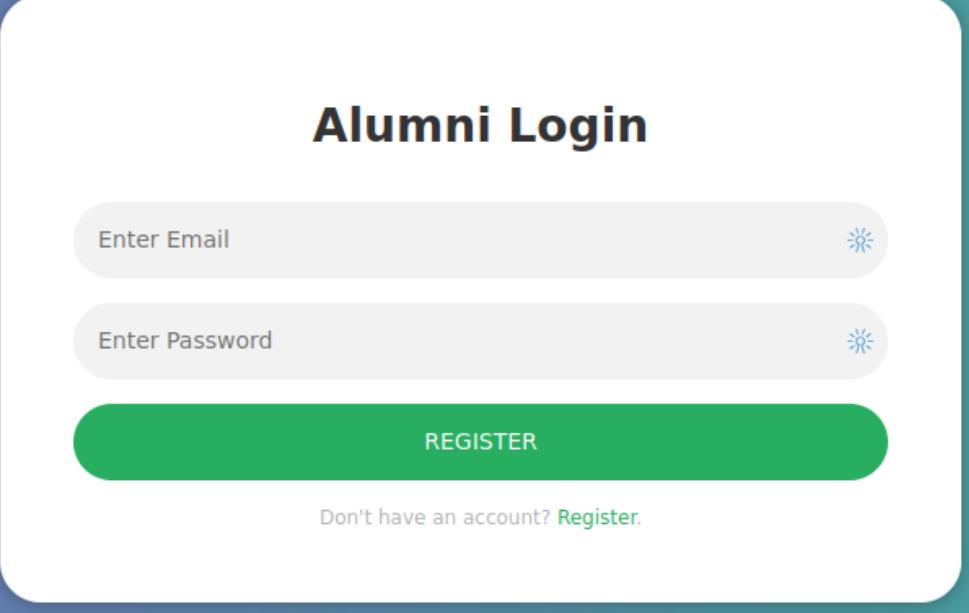
User is then directed to verification form



After the verification is complete the verified button is switched to 1.

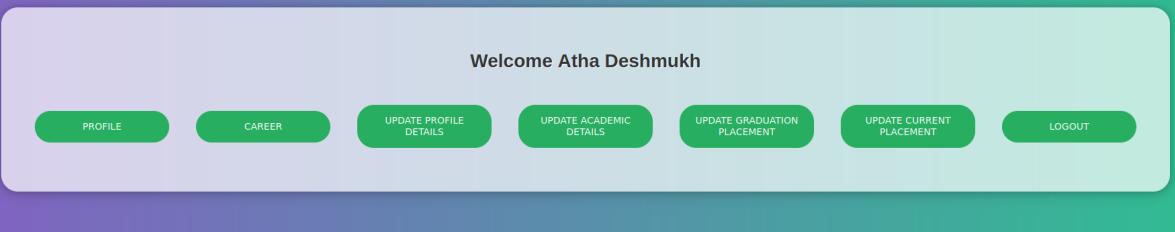


## Login



The image shows a mobile-style login form titled "Alumni Login". It features two input fields: "Enter Email" and "Enter Password", each accompanied by a blue eye icon for password visibility. Below the inputs is a large green "REGISTER" button. At the bottom of the form, there is a link "Don't have an account? [Register.](#)".

## Home Page



The image shows the "Home Page" interface. At the top, it displays a welcome message "Welcome Atha Deshmukh". Below the message is a horizontal row of seven green buttons with white text, labeled: PROFILE, CAREER, UPDATE PROFILE DETAILS, UPDATE ACADEMIC DETAILS, UPDATE GRADUATION PLACEMENT, UPDATE CURRENT PLACEMENT, and LOGOUT.

We can check the profile of the alumni. Initially all the values are default so first let's update the profile details.

Note, we can change only one value out of all the fields if the remaining unchanged fields remain the same. This is true for all the forms after this.

## Profile Details

Atharva

Last Name

Email

Password

Confirm Password

UPDATE PROFILE

Back

Welcome Atharva Deshmukh

PROFILE    CAREER    UPDATE PROFILE DETAILS    UPDATE ACADEMIC DETAILS    UPDATE GRADUATION PLACEMENT    UPDATE CURRENT PLACEMENT    LOGOUT

Now Update Academic Details,

## Academic Details

97.5

100

9.5

No

20

CSE

Machine Learning

2015

[file/d/1WL3COltW82h2yjBdG40wa\\_SadHLxgHma/view?usp=sharing](#)

[file/d/1WL3COltW82h2yjBdG40wa\\_SadHLxgHma/view?usp=sharing](#)

UPDATE PROFILE

Back

We can now check the profile page:

The image shows a mobile application interface titled "Student Details". The main title "Student Details" is at the top in a large, bold, dark font. Below it is a section titled "Personal Information" in a bold, dark font. Under this section, there are five pieces of information listed: "Roll No: 2101cs14", "Name: Atharva Deshmukh", "Age: 20", "Specialization: CSE", and "Area of Interest: Machine Learning". Below this is another section titled "Academic Information" in a bold, dark font. Under this section, there are five pieces of information listed: "Class X Percentage: 97.5", "Class XII Percentage: 100", "CPI: 9.5", "Batch Year: 2015", and "Failed in any course: No". At the bottom of the screen is a green horizontal button with the word "BACK" in white capital letters.

## Student Details

### Personal Information

**Roll No:** 2101cs14  
**Name:** Atharva Deshmukh  
**Age:** 20  
**Specialization:** CSE  
**Area of Interest:** Machine Learning

### Academic Information

**Class X Percentage:** 97.5  
**Class XII Percentage:** 100  
**CPI:** 9.5  
**Batch Year:** 2015  
**Failed in any course:** No

BACK

Now coming to the placement details.

This form asks for the Placement Details just after graduation.

## Graduation Placement Details

Company

Package

Role

Location

Offcampus[1/0]

**UPDATE DETAILS**

**Back**

Another form asks for the current job details.

## Current Job Details

Company

CTC

Role

Position

Location

Working Tenure

Experience before this job

UPDATE DETAILS

Back

After filling the values in both tables we can see the Career Web Page,

The screenshot displays a mobile application interface titled "Career Details". The top section is titled "Graduation Placement" and lists the following information:

- Company:** Google
- Package:** 8000000
- Role:** SDE
- Location:** Banglore
- OffCampus:** Yes

The bottom section is titled "Current Placement" and lists the following information:

- Company:** Microsoft
- CTC:** 1.5Cr
- Role:** SDE
- Position:** Senior Manager
- Location:** Banglore
- Employment duration:** 4
- Previous Experience:** I worked in Google, for 3 years. Later I joined Microsoft.

A green button at the bottom is labeled "BACK".

Then we can directly logout.

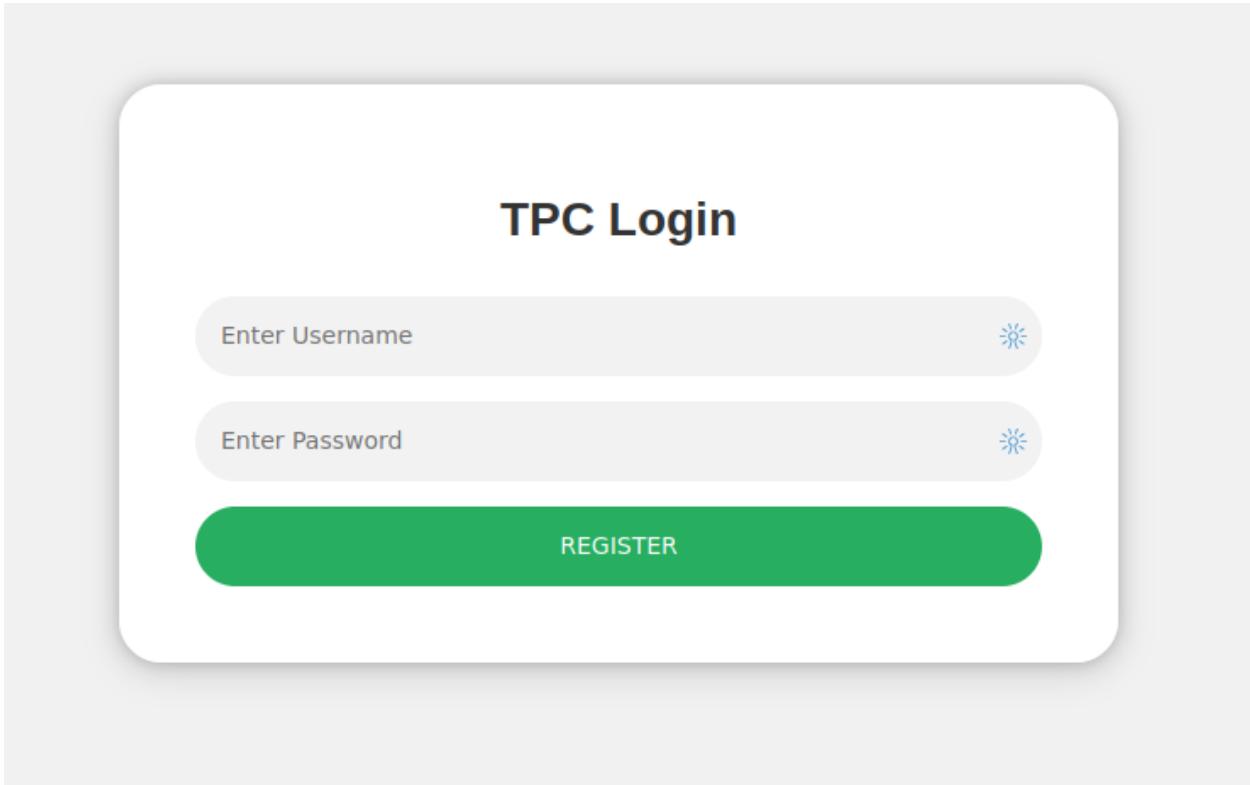
## **TPC Admin**

There are different admins for different users,

**Username:** Admin

**Password:** (\$er@!:)

Admin gets access to all the portals like Student, Company and Alumni.

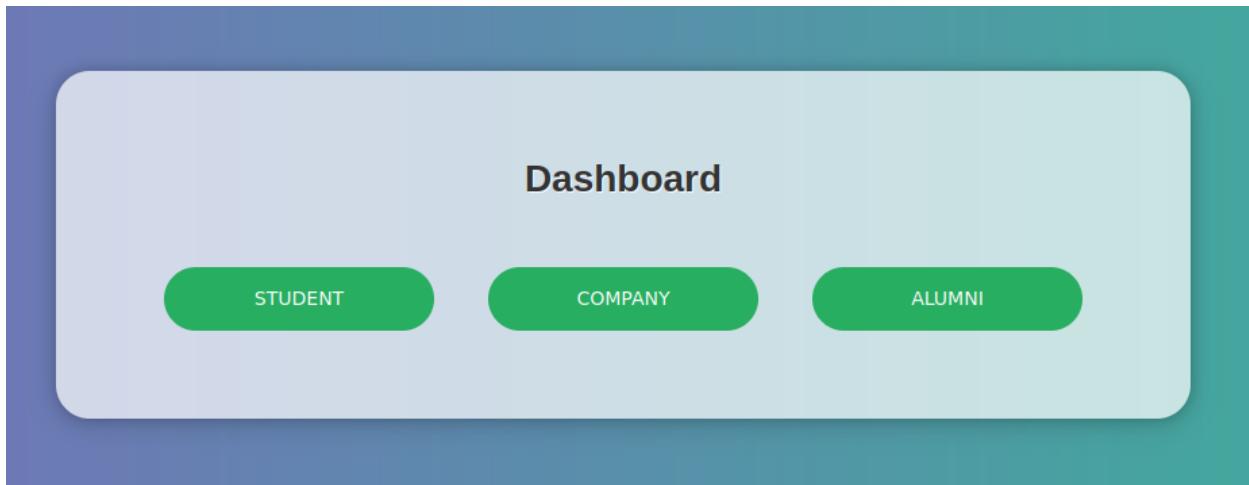


**For Username:** Student Admin

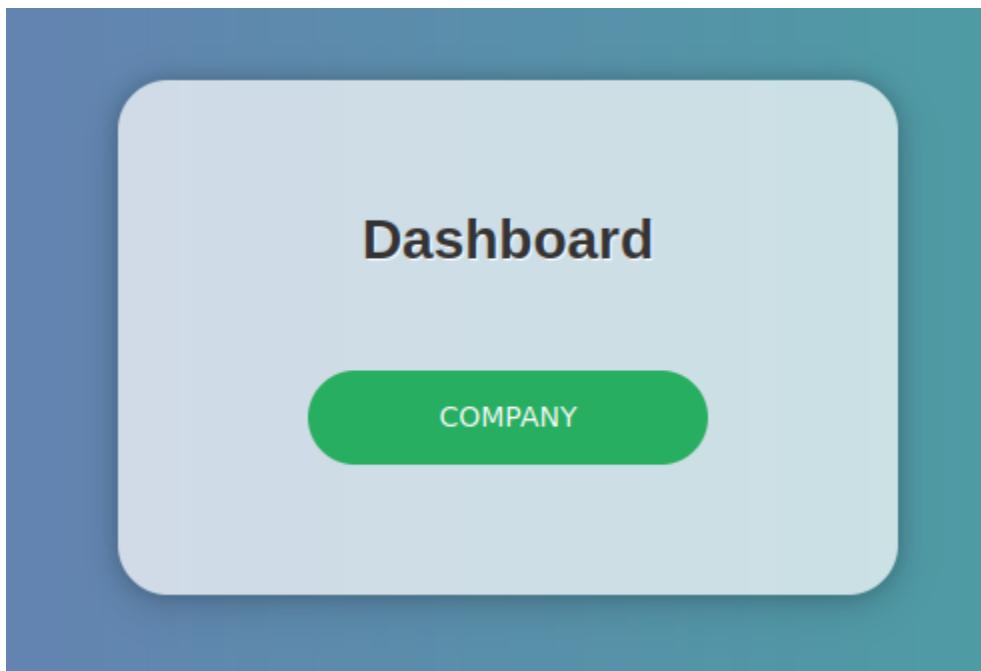
**Password:** \$5\*8^aR!k

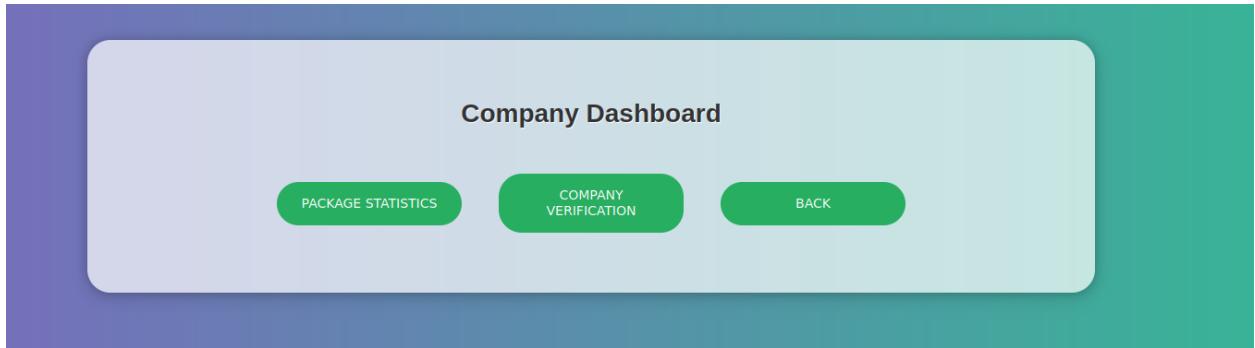
Student Admin can access only the company portal.

## For Admin



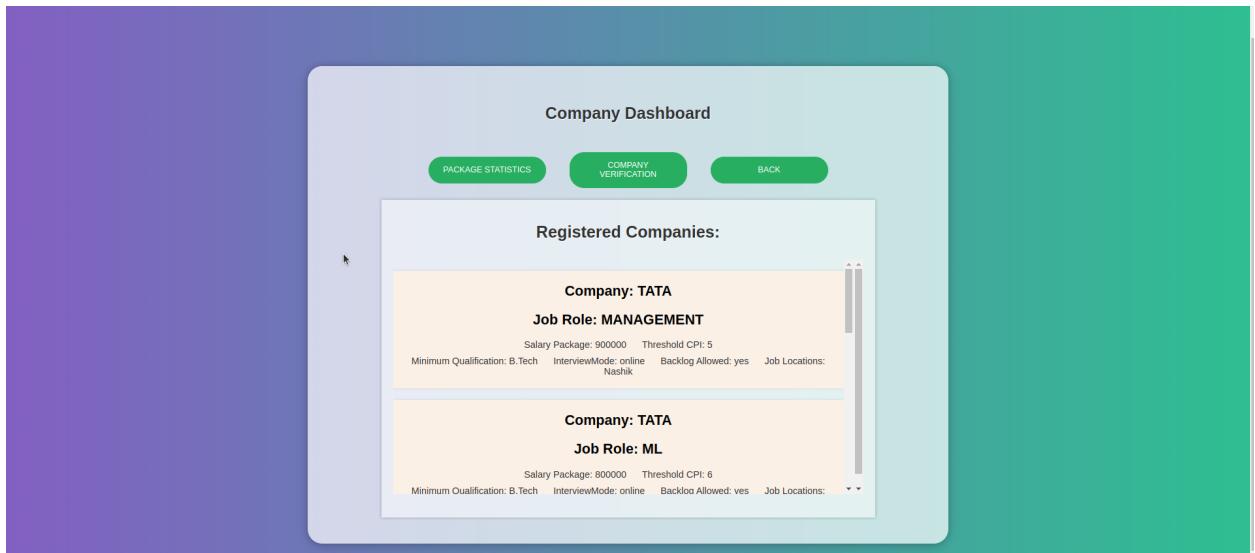
## For Student Admin



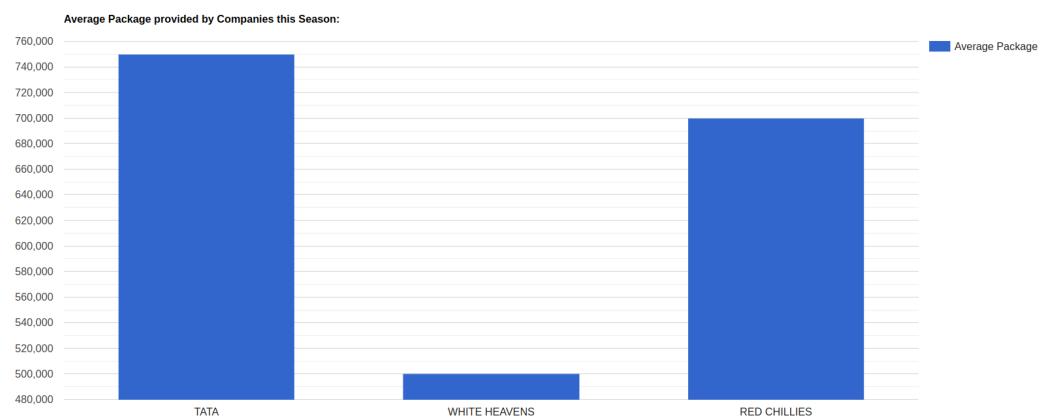


Inside the company's page we have

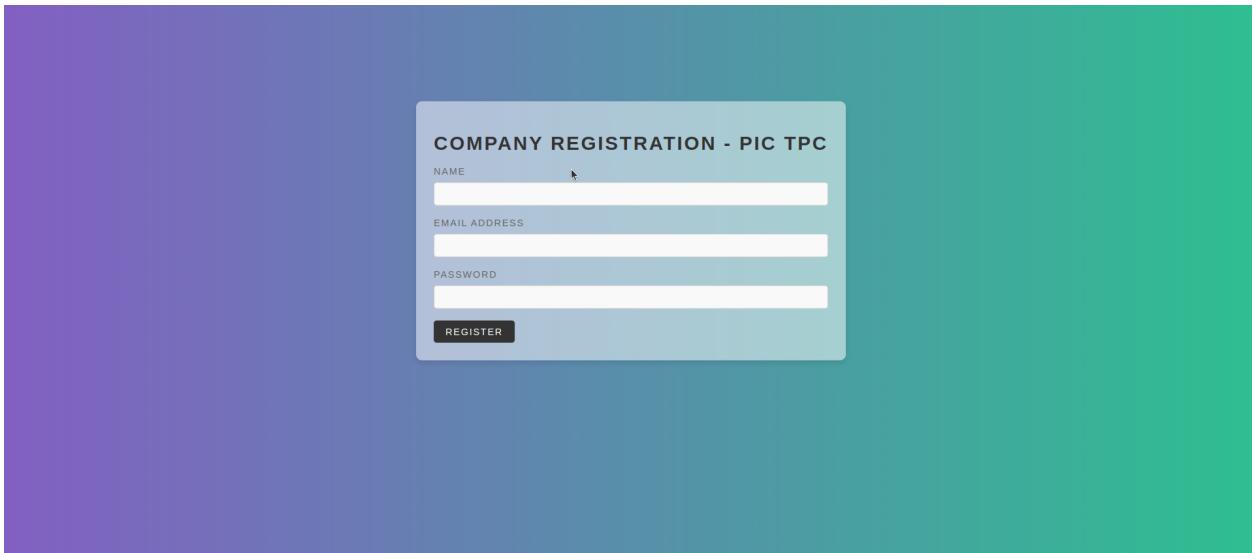
Dashboard:



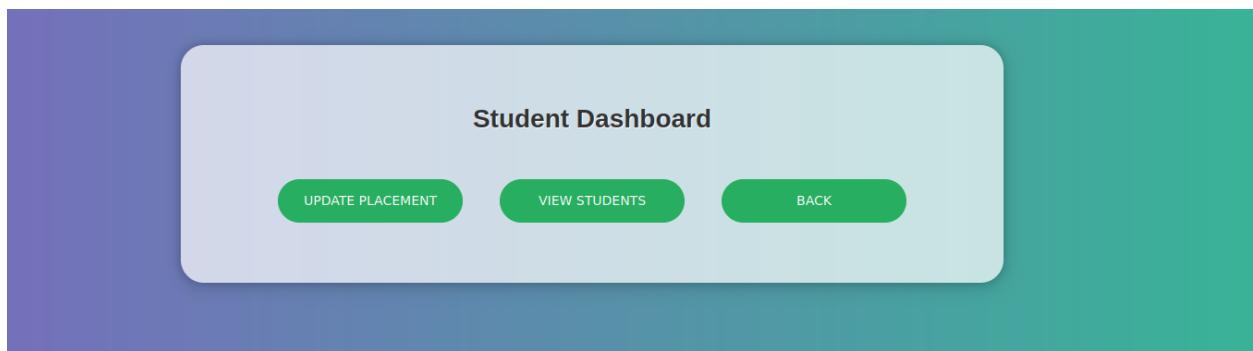
Package Statistics on the company's page:



## Company Verification and registration by the TPC Officer:



Then inside students dashboard



We can view the students and update the placement of students who are accepted by the company.