A PROJECT REPORT ON

CDAC APP

A Student Management Portal

SUBMITTED IN PARTIAL

FULFILLMENT OF

DIPLOMA IN ADVANCED COMPUTING (PG-DAC)

UNDER THE GUIDANCE OF

Mr. Shakir Hussain

PRESENTED BY

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AT

CENTER FOR DEVELOPMENT OF ADVANCED COMPUTING

C-DAC, PUNE

ACKNOWLEDGEMENT

The project “CDAC APP” was a great learning experience for us and we are submitting this work to Advanced Computing Training School (C-DAC ACTS, Pune).

We are very glad to mention the name of Mr. Shakir Hussain for his valuable guidance to work on this project.

We are highly grateful to Ms. Risha P. R., Manager of ACTS Training Centre, CDAC, for her guidance and support whenever necessary during the course of our journey to acquire PG-Diploma in Advanced Computing (PG-DAC) through CDAC ACTS, Pune.

Our heartfelt thanks go to Ms. Shilpi Shalini (Course Coordinator, PG-DAC) who gave us all the required support and kind coordination to provide all the necessities to complete the project and throughout the course up to the last day of the course.

We would like to express our sincere gratitude towards Mrs. Madhura Anturkar, our faculty for Core Java and Advanced Java, who was always there for us. Her guidance and supporthelped us overcome various obstacles and intricacies during the course of our project work. Without her tremendous support, guidance, and efforts, this project would not have been possible.

From:

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ABSTRACT

CDAC has been a major part on our career paths. It offered us courses in Online Mode due to Covid-19 situation. It was so convenient for students to attend the entire course and perform all its related activities sitting at their place. Due to this Online Mode, there was neither time consumption in travelling nor the risk of getting infected by other people. Understanding the need of the hour, this project is useful for courses that can be conducted in Online Mode in CDAC ACTS, Pune. This portal allows efficient student management at the comfort of our homes.

In our project, we aim to provide a portal for managing all the students which are admitted into CDAC ACTS for various online PG Diploma Courses wherein they can login to the portal and use it throughout the course.

1. INTRODUCTION

Centre for Development of Advanced Computing (C-DAC) is the premier R&D organization of the Ministry of Electronics and Information Technology (MeitY) for carrying out R&D in IT, Electronics and associated areas. Different areas of C-DAC, had originated at different times, many of which came out as a result of identification of opportunities.

C-DAC has today emerged as a premier R&D organization in IT&E (Information Technologies and Electronics) in the country working on strengthening national technological capabilities in the context of global developments in the field and responding to change in the market need in selected foundation areas.

C-DAC's Education and Training programmes are aimed at creating skilled manpower in the country by providing quality training programmes in the field of Electronics and ICT. This activity started almost two decades ago with a humble beginning of training about 20 students per year, but has today grown to an extent of training more than 5000 students per year. It also grew from just one training center to about 50 training centers across India and has even made its presence in several countries abroad.

In addition to conducting wide range of training programmes in the areas of Information, Communication and Electronics technologies, C-DAC also develops ICT tools and technologies for modern methods of imparting education and training to masses.

From a student point of view, the students can browse through the portal, give MCQ exams, see their results, performance, find the schedule and get the attendance report, provide feedback to faculties.

From an admin point of view, the admins can generate PRN, provide MCQ papers, collect feedback from students, set notice on dashboard etc.

2. PROJECT OVERVIEW AND SUMMARY

2.1. PURPOSE

Our project, “CDAC APP”, is a web-based online student management portal which aims to provide admin with functionalities to manage students in PG Diploma courses of CDAC ACTS Pune, efficiently.

2.2. SCOPE

“CDAC APP” aims to deliver a web-based portal that manages all the students admitted in the Online PG Diploma courses of CDAC ACTS Pune where Course-Coordinator is the Admin. Students can update their profile, get schedule, join lectures and their respective labs, write module-wise MCQ tests, get the results and also give their feedback for each faculty. Admins can generate PRN for registered students, upload exam papers, set results, get feedback list, etc. They also can upload links for lectures and labs as well as set notice.

We are assuming that the organization that implements it will be usingthird-party platform where lectures are conducted. Also, an API which can easily be integrated in our application can be created in future if needed. CDAC APP is a portal for both students (for course related activities) and admins (for managing students).

2.3. OVERVIEW

A.TECHNOLOGIES USED

i. FRONT END

- HTML
- CSS
- Bootstrap
- JavaScript
- Ajax
- JQuery

ii. BACK END

- Spring MVC
- Spring Boot
- Spring Data JPA
- Spring Security
- Java Mail API

iii. DATABASE MANAGEMENT SYSTEM

- MySQL

B. FEATURES PROVIDED

i. FOR STUDENTS

a. Register – Students can register themselves if they have appeared for CCAT entrance exam for PG Diploma courses and have valid CCAT number.

b. Login – Successfully registered candidates receive confirmation Email from CDAC and are now eligible to Login. They receive PRN to Login into the portal. For first time login, username and default password both are PRN.

c. View and Update Profile – After successful login, students can view and update their profile and password.

d. Join Link – Students can join lectures and labs using the links provided under the Join Link dropdown in navigation bar.

e. Exam – Students can give module-wise MCQ exam on the portal itself.

f. Result – Students get the result of MCQ test module-wise.

g. Give Feedback – Students can give feedback for faculties based on provided criteria.

h. Logout – After utilizing the portal, students can Logout of the portal.

ii. FOR ADMINS

a. Login & Logout – Similar to students, admins can login & logout to access their account.
b. Generate PRN – For successfully registered students, admin generates PRN which student will carry till the course end as their identities. This PRN is students' username and default password.
c. Upload Attendance – Admin will upload students' attendance.
d. Upload Question Paper – Admin will upload Question Paper for MCQ test for students.
e. Set Result – Admin will set result for students which students can access through the portal when they login.
f. Feedback List – Admin will receive the list of feedbacks provided by students.
g. Upload Link – Lecture and Lab Links are uploaded in the given section in the navigation bar.
h. Upload and Update Notice – Admin will be able to upload and update notice on floating notice board.

2.4. FEASIBILITY STUDY

Feasibility is the determination of whether a project is worth undertaking or not. Before actually recommending the new system, it is important to investigate if it is feasible to develop it.

Before developing and implementing a system, we have to make sure that the system is feasible in the following ways:

A. TECHNICAL FEASIBILITY

In this type of feasibility study, the system analyst has to check whether it is possible or not to develop the requested system with the available manpower, software, hardware, etc.
This project makes use of cross-platform software and solutions like Java, and hence can run on any operating system. JavaScript, used in front-end, is swift and versatile framework when it comes to delivering the requested page. Also, as JavaScript is popular, it is easy to learn it and utilizing it as front end technology. The combination of Spring Boot, Spring Data JPA and Spring Security for backend make for a fast, easy to set-up and reliable system to interact with the database, as they are secure and transactional in nature. Since the sensitive data ofcustomers and admins need to be stored in a robust and secure database, MySQL database management system was chosen as it is an industry standard.

B. OPERATIONAL FEASIBILITY

In this type of feasibility study, the operation of the system is considered. An analysis is performed on whether it is feasible for the user department to use the application. Thus, the proposed system is said to be operationally feasible only if clients are able to understand the system clearly and correctly, and can use it with ease.

In the design of this project, we always kept user experience in mind. We made an effort to have a good user interface with consistent theme and alluring design to keep the users interested and engaged. In our project, the use of universally known icons and instructions that are easy to understand makes sure that the user will not need any special technical know-how to use the application. We made sure that the information available throughout the application is arranged in a logically coherent and consistent manner, guaranteeing that the users will have a smooth and effortless experience and even enjoy using the application.

C. ECONOMIC FEASIBILITY

In this type of feasibility study, the benefits of the system to the organization are considered by taking into consideration the cost-benefit analysis. All the software and technologies used in our project free, open-source, and widely available, with each of the technologies having an extensive community support. This makes “CDAC APP” an economically feasible solution to the organizations that wish to implement it.

3. REQUIREMENTS FULFILLED

3.1. FUNCTIONAL REQUIREMENTS

Following are the functional requirements fulfilled by our project:

- Students can register themselves if they have appeared for CCAT entrance exam for PG Diploma courses and have valid CCAT number.
- Further, they are asked to fill in their personal details and address details.
- Once all students are registered, they get a confirmation Email from CDAC for successful registration.
- Admin generates PRNs for successfully registered students.
- Students can login for the first time with username and default password as their own PRN.
- Students now can edit their profile, change password and use all the functionalities effectively.
- Admins can update Notice Board, Schedule, Exam papers, etc.
- Admins can get the results and faculty feedbacks from students, too.

3.2. NON-FUNCTIONAL REQUIREMENTS

Following are the non-functional requirements fulfilled by our project:

- Since the application uses lightweight and established software components that are also cross-platform, it is remarkably performant and has good support for every operating system.
- The use of JavaScript and JQuery for front end and Spring Boot, Spring Data JPA and Spring Security for back end delivers quick response times to admins and students.
- Card-style UI and well-known icons and symbols used throughout the application provides a consistent theme and user-friendly interface that anyone can grasp easily, even without a technical background.

4. PROJECT DESIGN

4.1. DATA MODEL

The following tables depict the database design used for “CDAC APP” application:

A. Tables for Registration and Login

a. CCAT Table and User Table

```
mysql> desc ccat_student;
+---------+-------------+------+-----+---------+-------+
| Field   | Type        | Null | Key | Default | Extra |
+---------+-------------+------+-----+---------+-------+
| ccat_no | bigint      | NO   | PRI | NULL    |       |
| f_name  | varchar(25) | NO   |     | NULL    |       |
| m_name  | varchar(25) | YES  |     | NULL    |       |
| l_name  | varchar(25) | YES  |     | NULL    |       |
| dob     | date        | NO   |     | NULL    |       |
| course  | varchar(10) | NO   |     | NULL    |       |
+---------+-------------+------+-----+---------+-------+
6 rows in set (0.03 sec)

mysql> desc user_table;
+---------+-------------+------+-----+---------+-------+
| Field   | Type        | Null | Key | Default | Extra |
+---------+-------------+------+-----+---------+-------+
| u_id    | bigint      | YES  |     | NULL    |       |
| f_name  | varchar(25) | YES  |     | NULL    |       |
| ccat_no | bigint      | NO   | PRI | NULL    |       |
| u_role  | varchar(10) | YES  |     | NULL    |       |
+---------+-------------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```

b. Personal Details Table and User Address

```
mysql> desc personal_details;
+---------------+-------------+------+-----+---------+-------+
| Field         | Type        | Null | Key | Default | Extra |
+---------------+-------------+------+-----+---------+-------+
| u_id          | bigint      | NO   | PRI | NULL    |       |
| ccat_no       | bigint      | YES  |     | NULL    |       |
| f_name        | varchar(25) | NO   |     | NULL    |       |
| m_name        | varchar(25) | YES  |     | NULL    |       |
| l_name        | varchar(25) | YES  |     | NULL    |       |
| gender        | varchar(1)  | NO   |     | NULL    |       |
| dob           | date        | NO   |     | NULL    |       |
| email         | varchar(60) | NO   |     | NULL    |       |
| phone         | bigint      | NO   |     | NULL    |       |
| qualification | varchar(15) | NO   |     | NULL    |       |
| photo         | longtext    | YES  |     | NULL    |       |
| course        | varchar(10) | NO   |     | NULL    |       |
| guardian_name | varchar(50) | YES  |     | NULL    |       |
| guardian_phone| bigint      | YES  |     | NULL    |       |
+---------------+-------------+------+-----+---------+-------+
14 rows in set (0.00 sec)

mysql> desc user_address;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| u_id      | bigint      | NO   | PRI | NULL    |       |
| add_line1 | varchar(30) | NO   |     | NULL    |       |
| add_line2 | varchar(30) | YES  |     | NULL    |       |
| state     | varchar(20) | NO   |     | NULL    |       |
| city      | varchar(20) | NO   |     | NULL    |       |
| pincode   | int         | NO   |     | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
6 rows in set (0.00 sec)
```

c. User Login Table

```
mysql> desc user_login;
+------------+--------------+------+-----+---------+-------+
| Field      | Type         | Null | Key | Default | Extra |
+------------+--------------+------+-----+---------+-------+
| u_id       | bigint       | NO   |     | NULL    |       |
| u_name     | varchar(50)  | YES  |     | NULL    |       |
| u_prn      | bigint       | NO   | PRI | NULL    |       |
| u_password | varchar(500) | YES  |     | NULL    |       |
| u_role     | varchar(10)  | YES  |     | NULL    |       |
| course     | varchar(10)  | YES  |     | NULL    |       |
+------------+--------------+------+-----+---------+-------+
6 rows in set (0.02 sec)
```

B. Tables after Student Login

a. Modules Table and Module 1 Table

```
mysql> desc modules;
+--------+-------------+------+-----+---------+-------+
| Field  | Type        | Null | Key | Default | Extra |
+--------+-------------+------+-----+---------+-------+
| course | varchar(20) | NO   | PRI | NULL    |       |
| mod1   | varchar(10) | YES  |     | NULL    |       |
| mod2   | varchar(10) | YES  |     | NULL    |       |
| mod3   | varchar(10) | YES  |     | NULL    |       |
| mod4   | varchar(10) | YES  |     | NULL    |       |
| mod5   | varchar(10) | YES  |     | NULL    |       |
| mod6   | varchar(10) | YES  |     | NULL    |       |
| mod7   | varchar(10) | YES  |     | NULL    |       |
| mod8   | varchar(10) | YES  |     | NULL    |       |
+--------+-------------+------+-----+---------+-------+
9 rows in set (0.00 sec)

mysql> desc module_1;
+------------+--------+------+-----+---------+-------+
| Field      | Type   | Null | Key | Default | Extra |
+------------+--------+------+-----+---------+-------+
| u_prn      | bigint | NO   | PRI | NULL    |       |
| lab        | bigint | YES  |     | NULL    |       |
| assessment | bigint | YES  |     | NULL    |       |
| attendance | bigint | YES  |     | NULL    |       |
+------------+--------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```

b. Lecture Link Table and Faculty Table

```
mysql> desc lecture_link;
+--------------+--------------+------+-----+---------+-------+
| Field        | Type         | Null | Key | Default | Extra |
+--------------+--------------+------+-----+---------+-------+
| id           | int          | NO   | PRI | NULL    |       |
| course       | varchar(10)  | YES  |     | NULL    |       |
| session_date | date         | YES  |     | NULL    |       |
| lect_link    | varchar(500) | YES  |     | NULL    |       |
| b1_link      | varchar(500) | YES  |     | NULL    |       |
| b2_link      | varchar(500) | YES  |     | NULL    |       |
| b3_link      | varchar(500) | YES  |     | NULL    |       |
| b4_link      | varchar(500) | YES  |     | NULL    |       |
+--------------+--------------+------+-----+---------+-------+
8 rows in set (0.00 sec)

mysql> desc faculty;
+-----------------+--------------+------+-----+---------+-------+
| Field           | Type         | Null | Key | Default | Extra |
+-----------------+--------------+------+-----+---------+-------+
| faculty_id      | bigint       | NO   | PRI | NULL    |       |
| faculty_name    | varchar(100) | YES  |     | NULL    |       |
| visibility_flag | varchar(1)   | YES  |     | NULL    |       |
| course          | varchar(10)  | YES  |     | NULL    |       |
+-----------------+--------------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```

c. Doubt Forum Table and Total Attendance Table

```
mysql> desc doubt_forum;
+---------------+--------------+------+-----+---------+-------+
| Field         | Type         | Null | Key | Default | Extra |
+---------------+--------------+------+-----+---------+-------+
| d_id          | bigint       | NO   | PRI | NULL    |       |
| u_prn         | bigint       | NO   |     | NULL    |       |
| u_name        | varchar(25)  | NO   |     | NULL    |       |
| email         | varchar(60)  | NO   |     | NULL    |       |
| sub_name      | varchar(10)  | NO   |     | NULL    |       |
| doubt_content | varchar(250) | NO   |     | NULL    |       |
| attachment    | longtext     | YES  |     | NULL    |       |
| active_doubt  | char(1)      | NO   |     | NULL    |       |
+---------------+--------------+------+-----+---------+-------+
8 rows in set (0.01 sec)

mysql> desc total_attendance;
+------------------+-------------+------+-----+---------+-------+
| Field            | Type        | Null | Key | Default | Extra |
+------------------+-------------+------+-----+---------+-------+
| u_prn            | bigint      | NO   | PRI | NULL    |       |
| module           | varchar(10) | NO   | PRI | NULL    |       |
| attended_lecture | int         | NO   |     | NULL    |       |
| total_lecture    | int         | NO   |     | NULL    |       |
+------------------+-------------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```

C. Tables Related to Exam:

a. Question Paper Table, MCQ Marks Table

```
mysql> desc question_paper;
+----------+--------------+------+-----+---------+-------+
| Field    | Type         | Null | Key | Default | Extra |
+----------+--------------+------+-----+---------+-------+
| question | varchar(700) | NO   | PRI | NULL    |       |
| option1  | varchar(700) | YES  |     | NULL    |       |
| option2  | varchar(700) | YES  |     | NULL    |       |
| option3  | varchar(700) | YES  |     | NULL    |       |
| option4  | varchar(700) | YES  |     | NULL    |       |
| answer   | varchar(700) | YES  |     | NULL    |       |
| module   | varchar(700) | YES  |     | NULL    |       |
+----------+--------------+------+-----+---------+-------+
7 rows in set (0.01 sec)

mysql> desc mcq_marks;
+--------+-------------+------+-----+---------+-------+
| Field  | Type        | Null | Key | Default | Extra |
+--------+-------------+------+-----+---------+-------+
| u_prn  | bigint      | NO   |     | NULL    |       |
| module | varchar(50) | YES  |     | NULL    |       |
| marks  | bigint      | YES  |     | NULL    |       |
+--------+-------------+------+-----+---------+-------+
3 rows in set (0.01 sec)
```

b. Final Result Table

```
mysql> desc final_result;
+-------+--------+------+-----+---------+-------+
| Field | Type   | Null | Key | Default | Extra |
+-------+--------+------+-----+---------+-------+
| u_prn | bigint | NO   | PRI | NULL    |       |
| mod1  | bigint | YES  |     | NULL    |       |
| mod2  | bigint | YES  |     | NULL    |       |
| mod3  | bigint | YES  |     | NULL    |       |
| mod4  | bigint | YES  |     | NULL    |       |
| mod5  | bigint | YES  |     | NULL    |       |
| mod6  | bigint | YES  |     | NULL    |       |
| mod7  | bigint | YES  |     | NULL    |       |
| mod8  | bigint | YES  |     | NULL    |       |
+-------+--------+------+-----+---------+-------+
9 rows in set (0.01 sec)
```

D. Feedback Table:

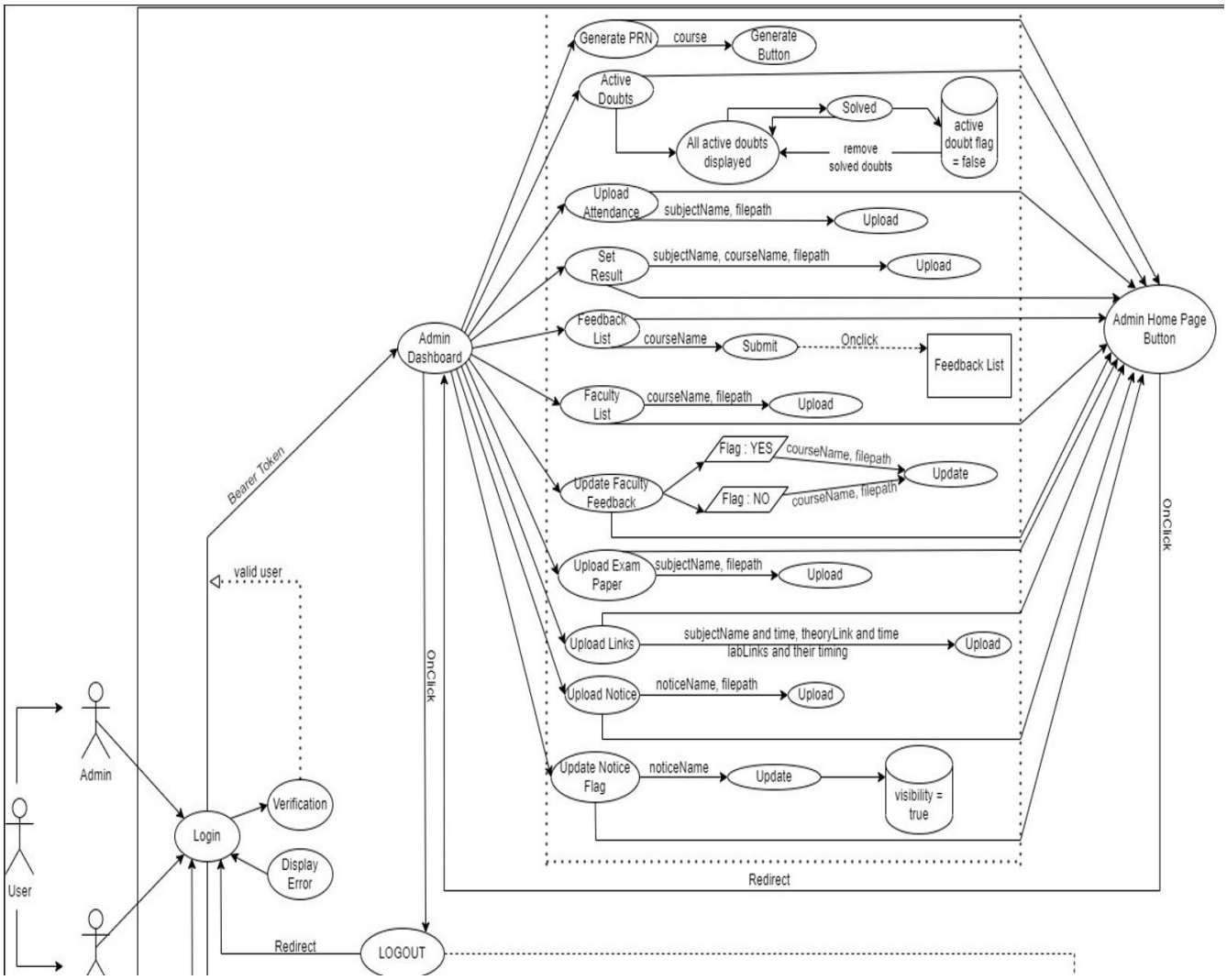
```
mysql> desc feedback;
+-----------------+-------------+------+-----+---------+-------+
| Field           | Type        | Null | Key | Default | Extra |
+-----------------+-------------+------+-----+---------+-------+
| u_prn           | bigint      | NO   | PRI | NULL    |       |
| course          | varchar(10) | YES  |     | NULL    |       |
| faculty         | varchar(100)| YES  |     | NULL    |       |
| module          | varchar(50) | YES  |     | NULL    |       |
| parameter_1     | int         | YES  |     | NULL    |       |
| parameter_2     | int         | YES  |     | NULL    |       |
| parameter_3     | int         | YES  |     | NULL    |       |
| parameter_4     | int         | YES  |     | NULL    |       |
| parameter_5     | int         | YES  |     | NULL    |       |
| parameter_total | int         | YES  |     | NULL    |       |
| suggestion      | varchar(300)| YES  |     | NULL    |       |
+-----------------+-------------+------+-----+---------+-------+
11 rows in set (0.00 sec)
```

E. User Token Table and Notice Table:

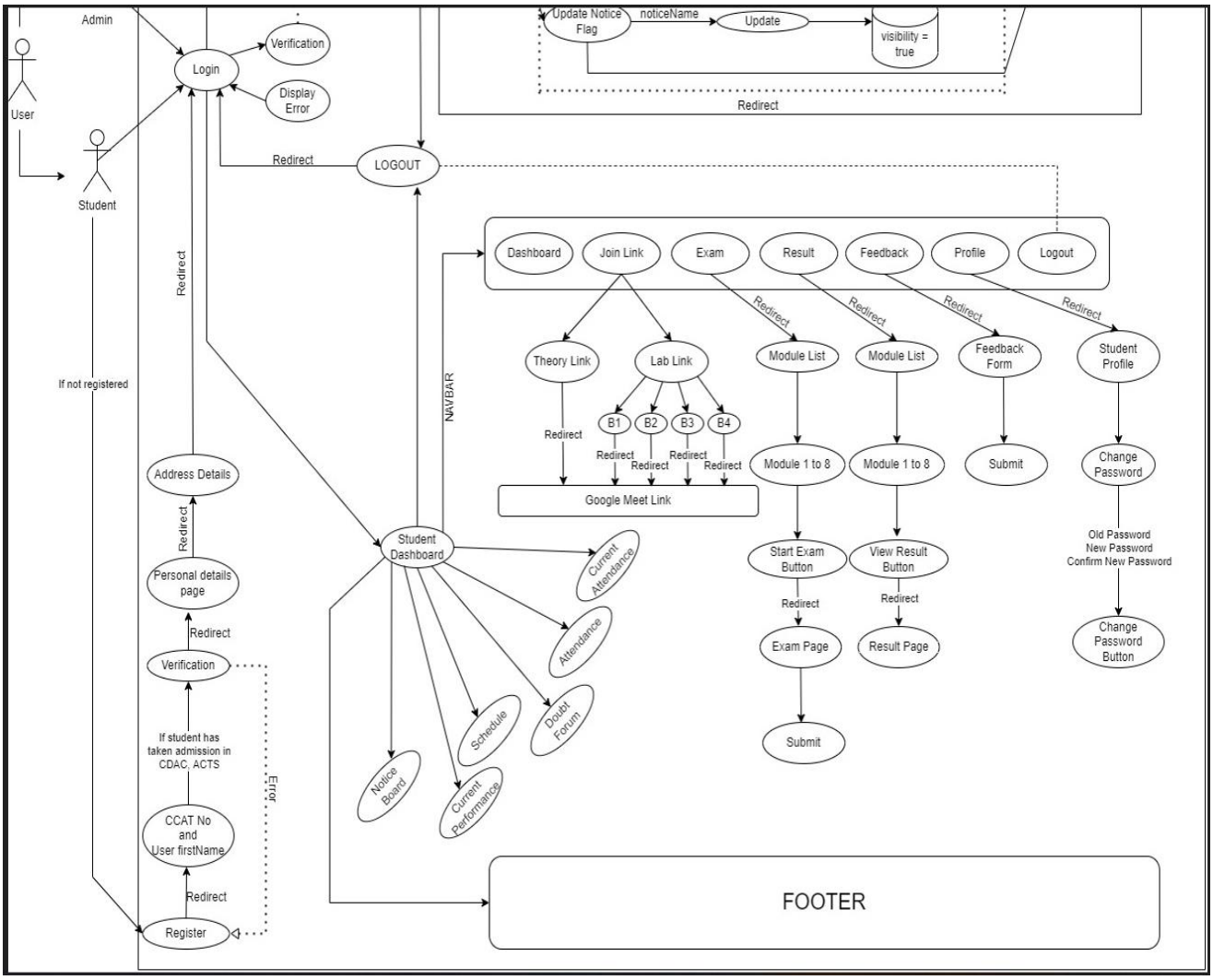
```
mysql> desc user_token;
+--------+-------------+------+-----+---------+-------+
| Field  | Type        | Null | Key | Default | Extra |
+--------+-------------+------+-----+---------+-------+
| u_prn  | bigint      | NO   | PRI | NULL    |       |
| token  | varchar(500)| YES  |     | NULL    |       |
| u_role | varchar(10) | YES  |     | NULL    |       |
+--------+-------------+------+-----+---------+-------+
3 rows in set (0.02 sec)

mysql> desc notice;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| notice_name | varchar(100)| YES  |     | NULL    |       |
| notice_link | varchar(100)| YES  |     | NULL    |       |
| visibility  | varchar(100)| YES  |     | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
3 rows in set (0.01 sec)
```

4.2. USE CASE DIAGRAM

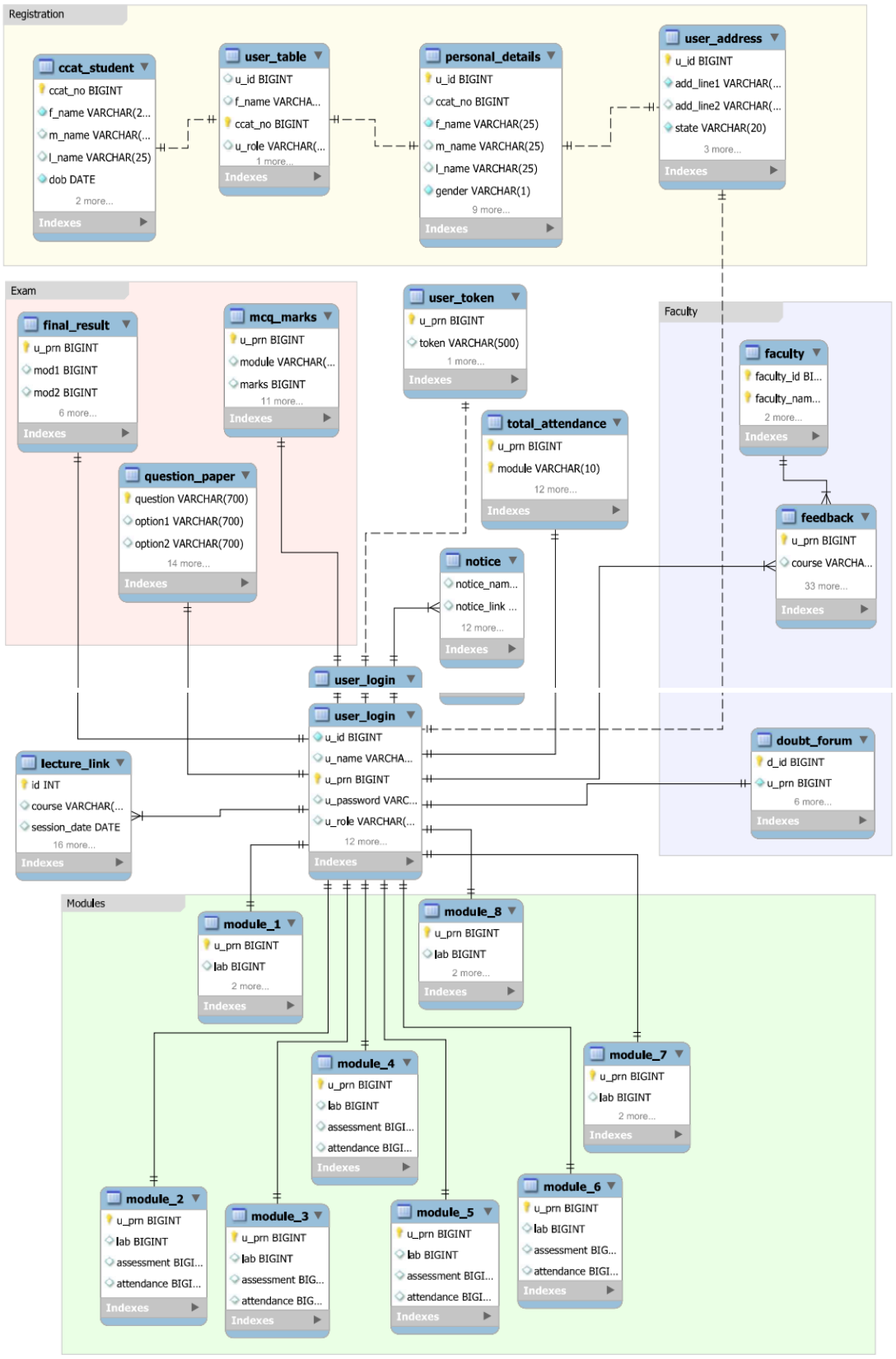
A. Admin



B. Student


Admin
User
Student
Login
Verification
Display Error
Redirect
LOGOUT
Update Notice Flag
noticeName
Update
visibility = true
Redirect
Dashboard
Join Link
Exam
Result
Feedback
Profile
Logout
Redirect
Theory Link
Lab Link
Module List
Module List
Feedback Form
Student Profile
B1
B2
B3
B4
Redirect
Module 1 to 8
Module 1 to 8
Submit
Change Password
Google Meet Link
Old Password
New Password
Confirm New Password
Change Password Button
Start Exam Button
View Result Button
Exam Page
Result Page
Submit
NAVBAR
If not registered
Address Details
Personal details page
Verification
If student has taken admission in CDAC, ACTS
CCAT No and User firstName
Register
Error
Student Dashboard
Current Attendance
Attendance
Schedule
Doubt Forum
Notice Board
Current Performance
FOOTER

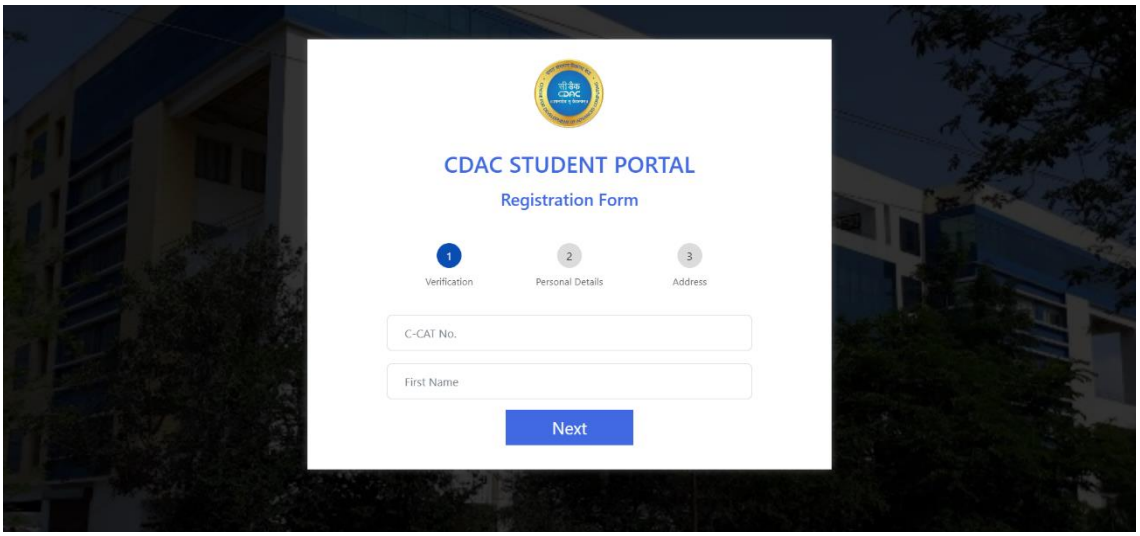
4.3.ER-DIAGRAM



5. PROJECT SCREENSHOTS

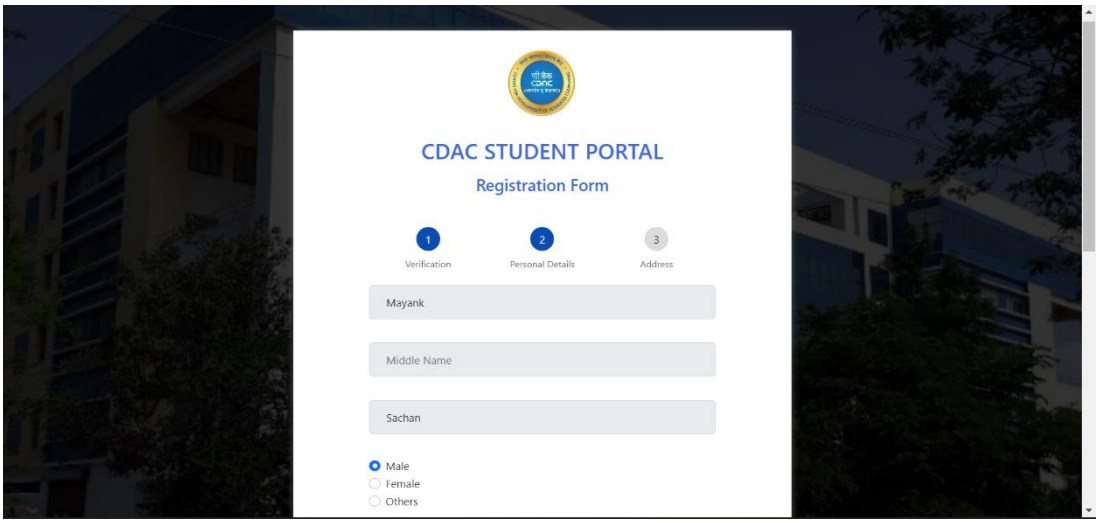
5.1. STUDENT

Register

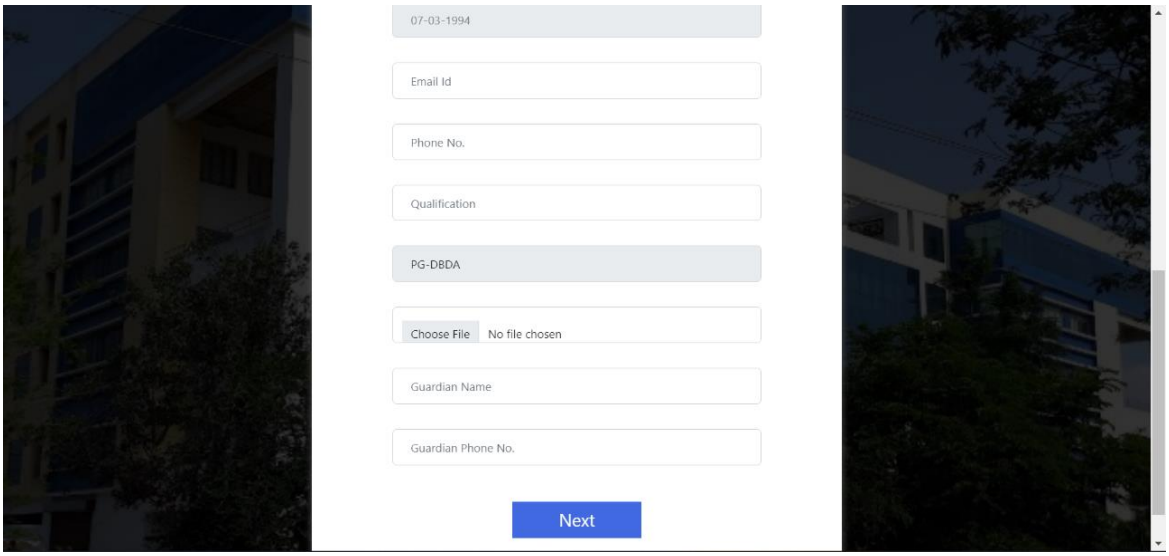


- Only those users are allowed to register further who have valid CCAT No and First Name
- Now they are asked to fill their personal details

Personal Details

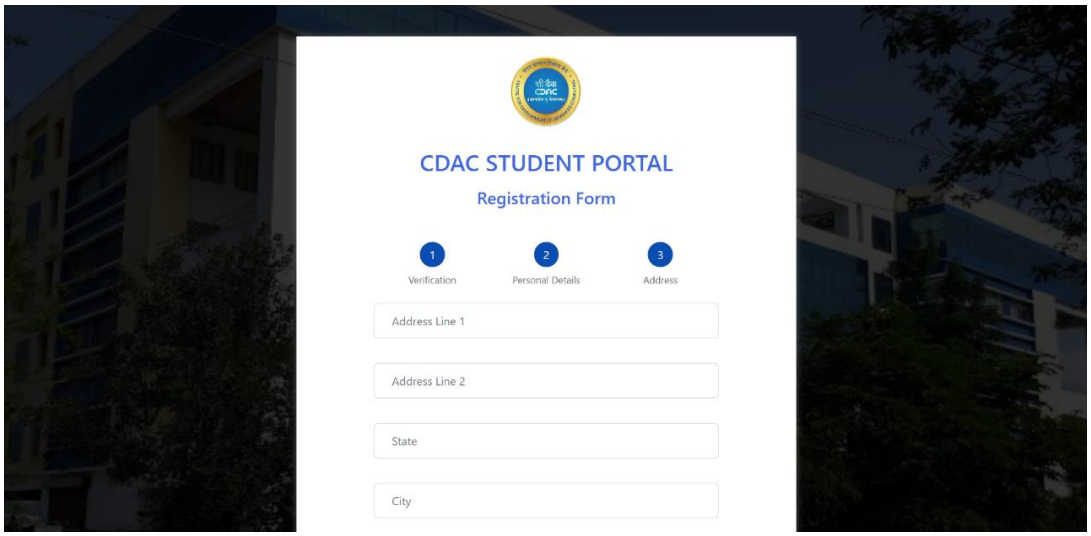


Personal Details

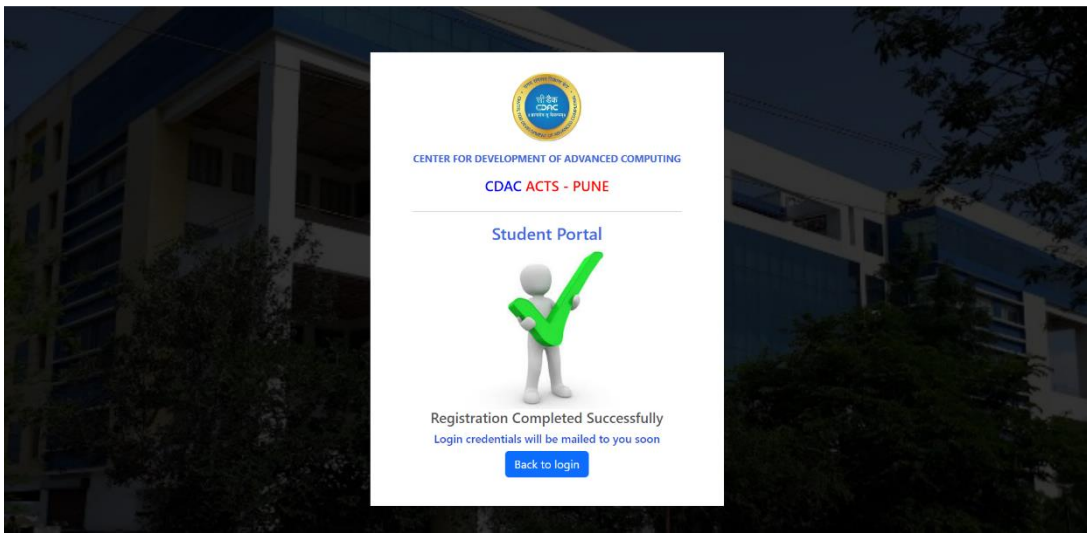


- After filling personal details, next page is for filling Address Details

Address Details

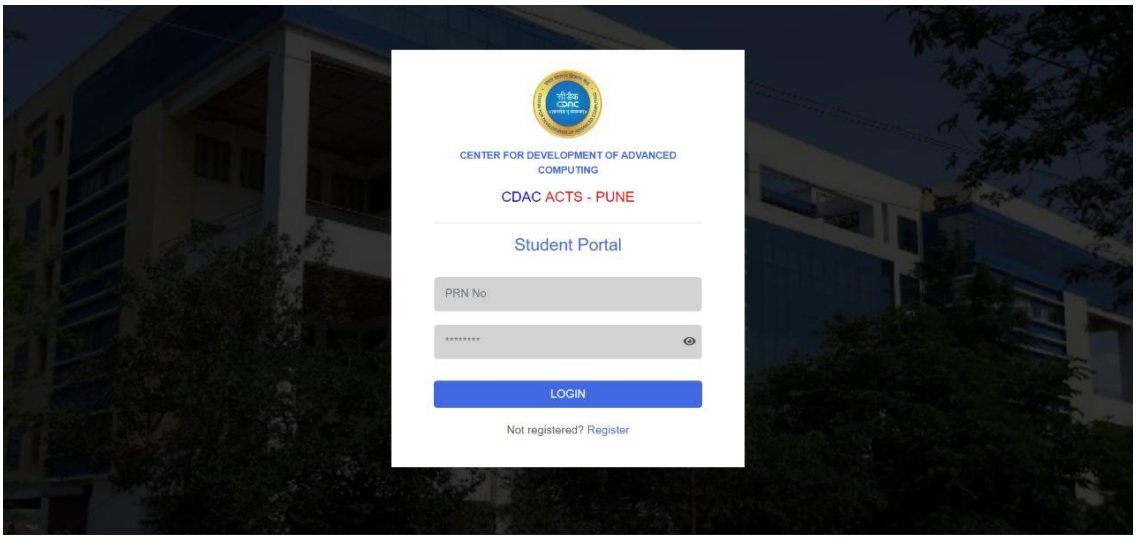


- After successful registration, students will receive an email from CDAC



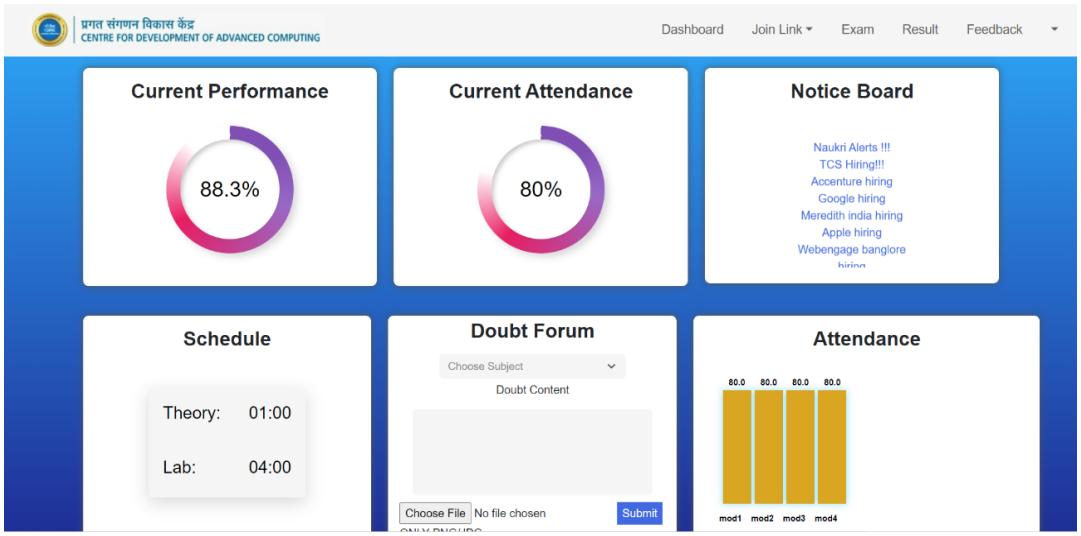
- Once all students are registered successfully, their PRNs are generated.
- Now, users can Login into their portal using PRN as the username and default password.

Login

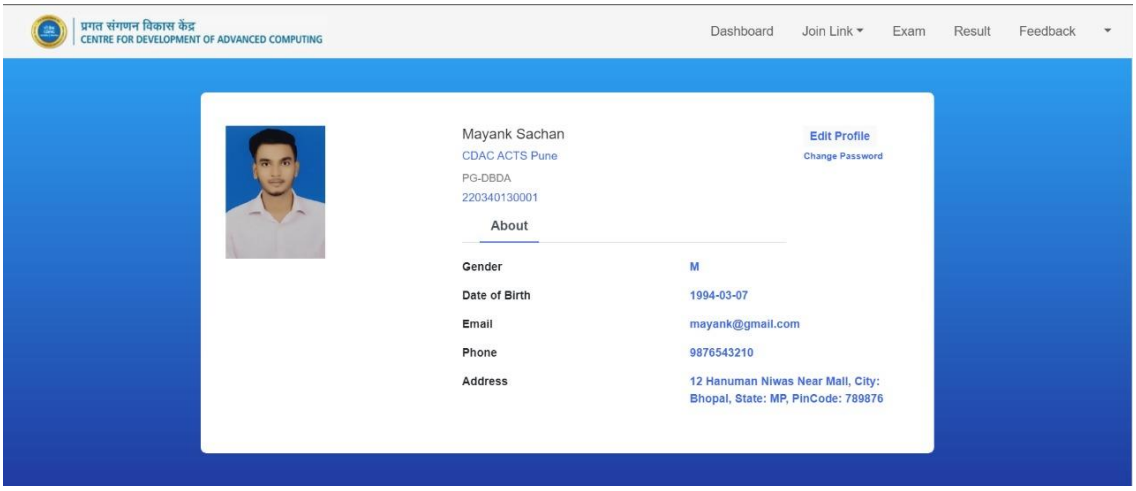


- On successful login, student enters into Dashboard
- There are separate home screens after login for Student and Admin
- Let us first see how Student Portal looks like

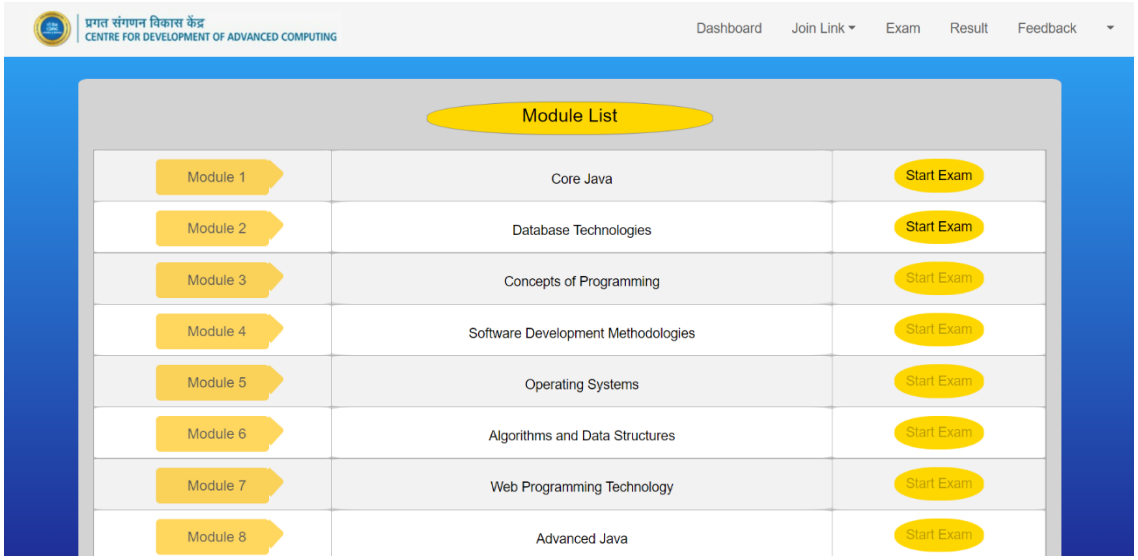
Student Dashboard



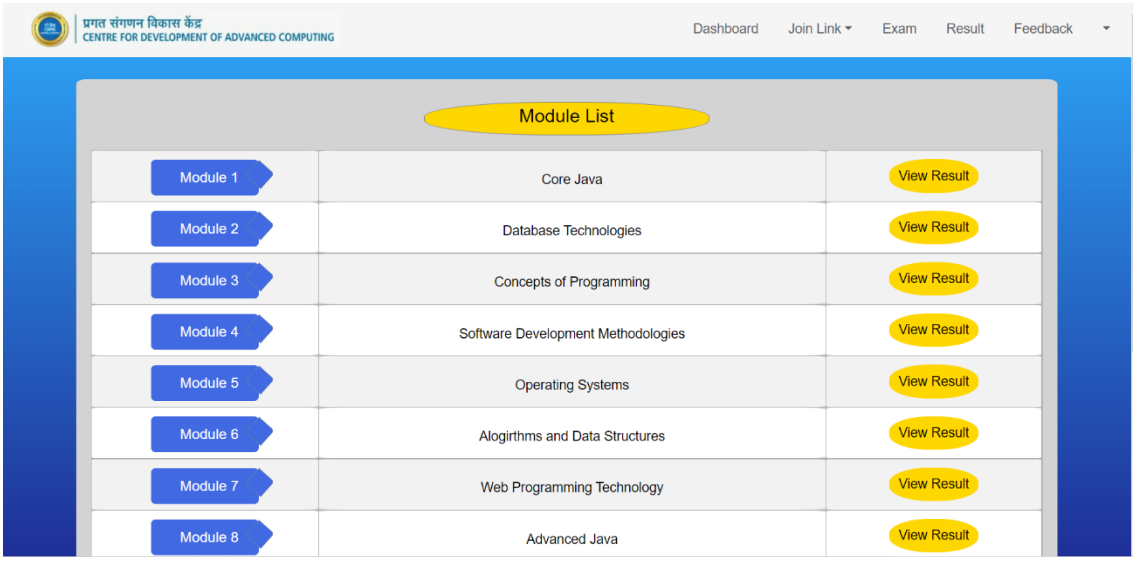
My Profile



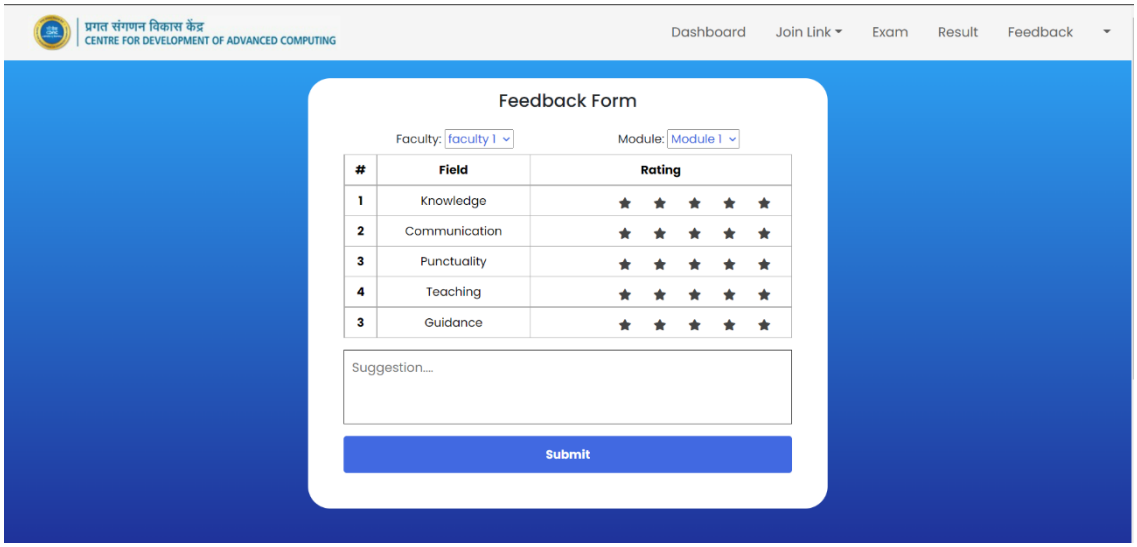
Exam Page



Result Page

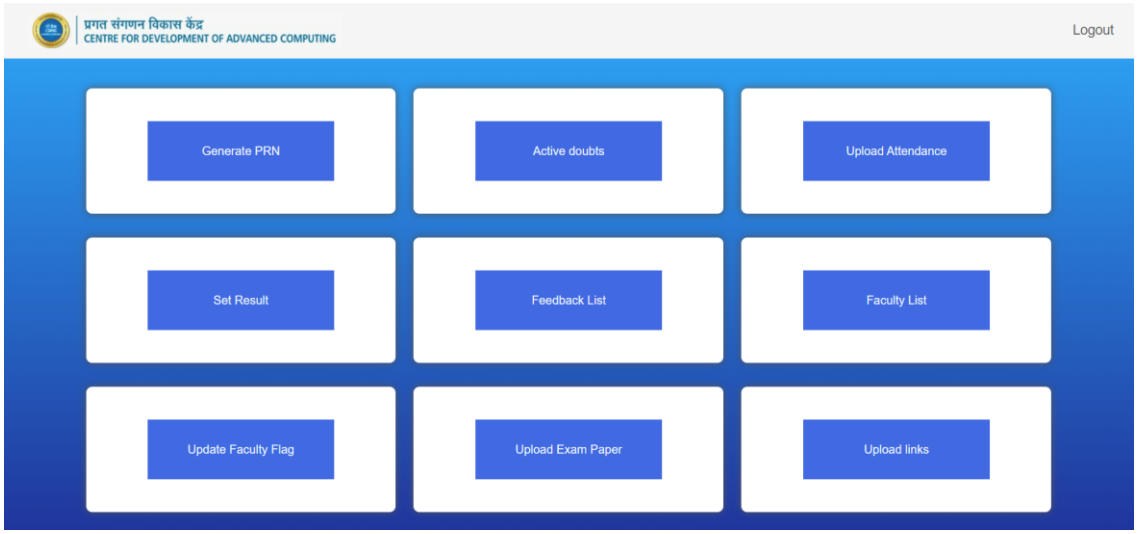


Feedback Form

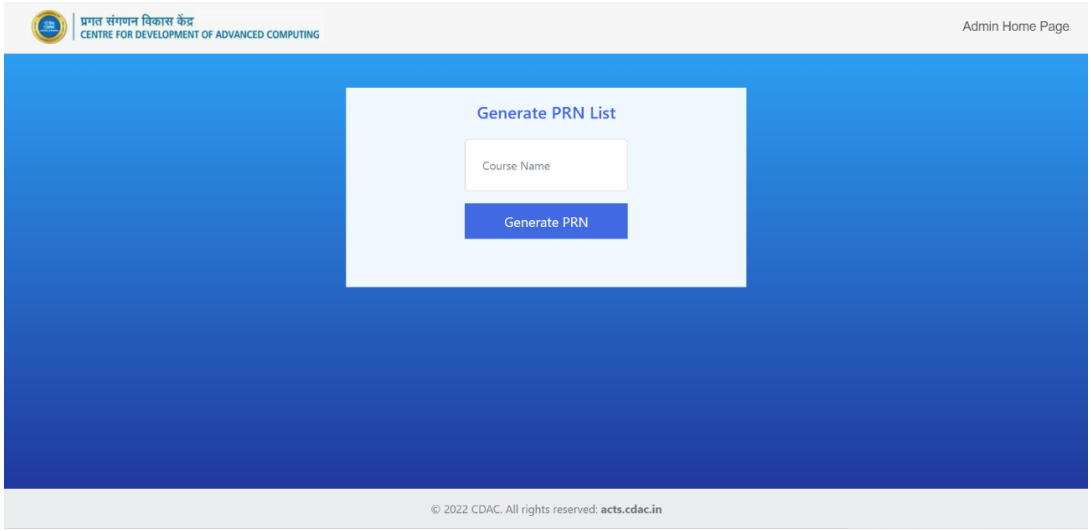


5.2. ADMIN

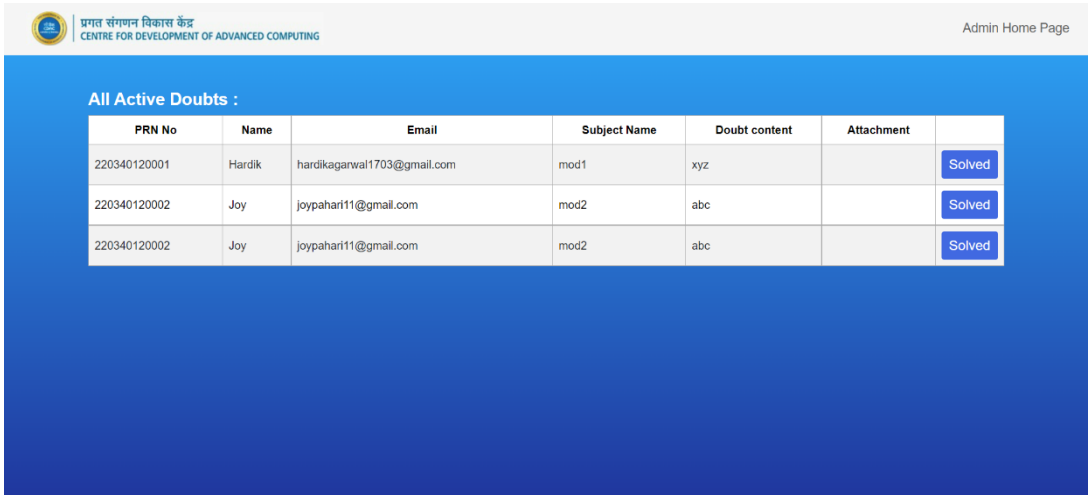
Admin Dashboard



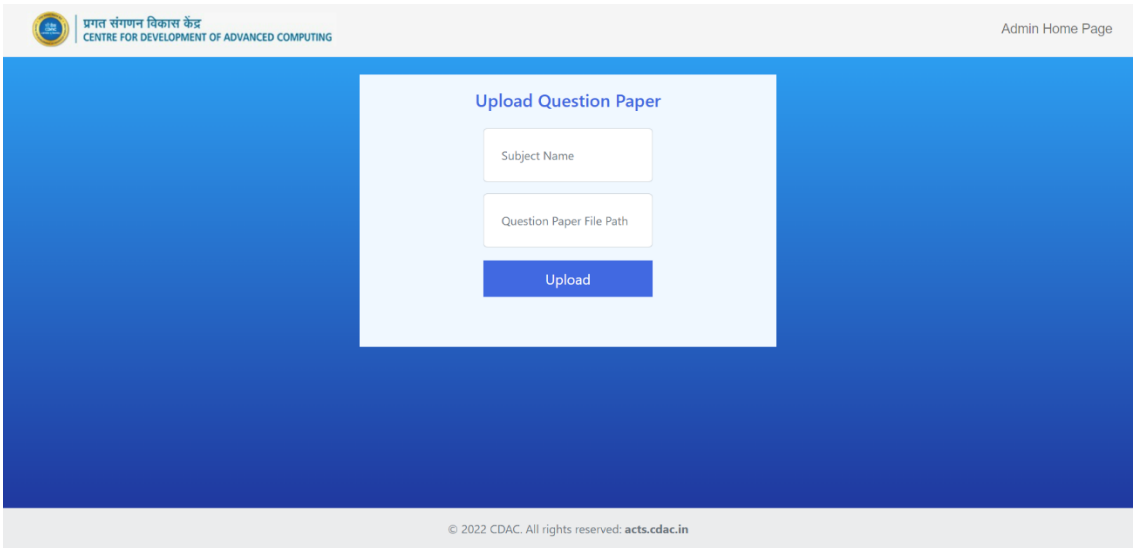
Generate PRN



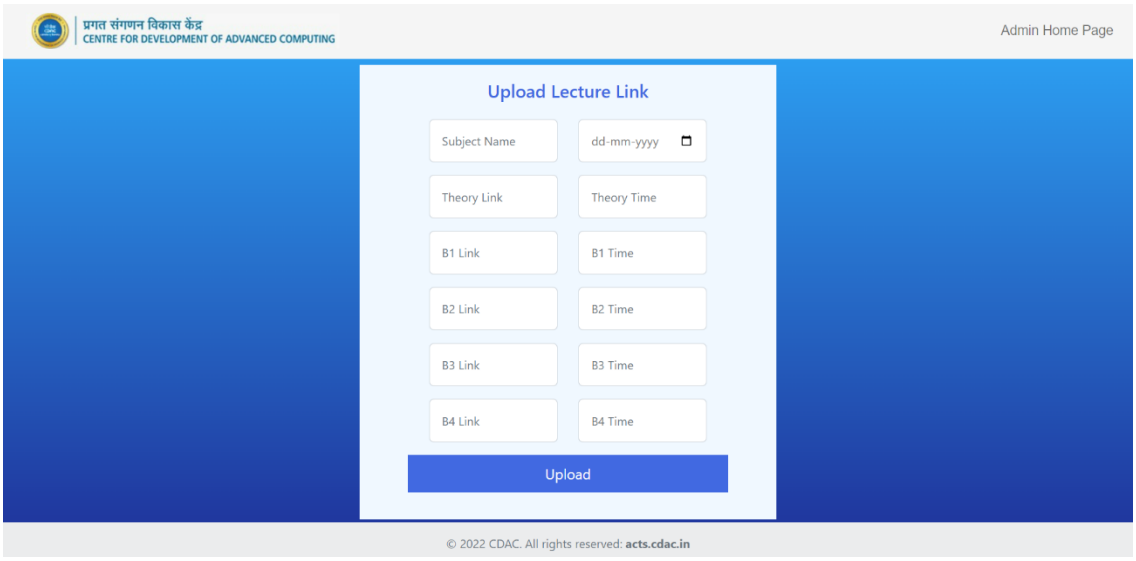
All Active Doubts



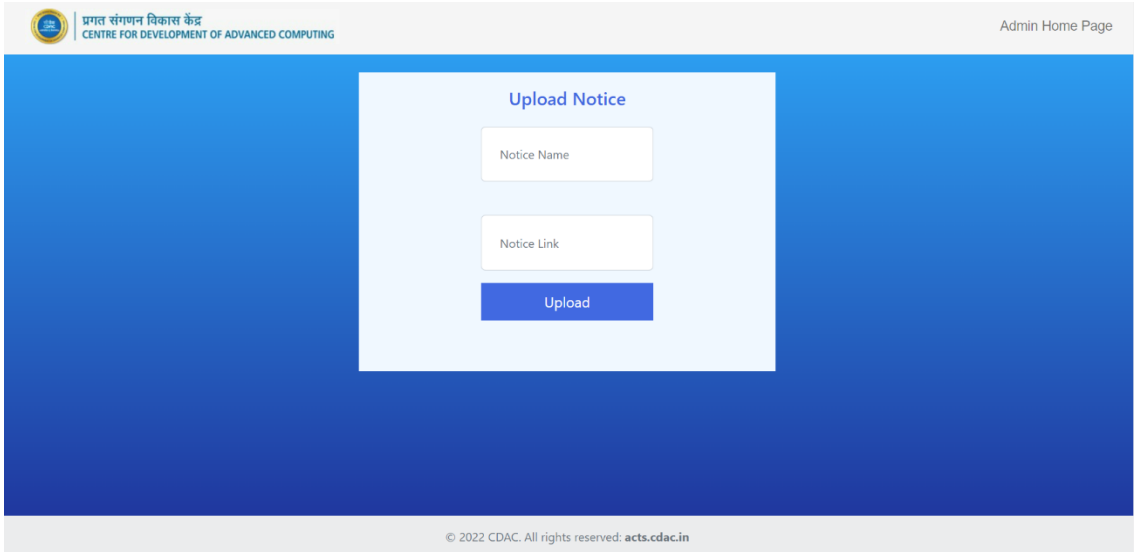
Upload Question Paper



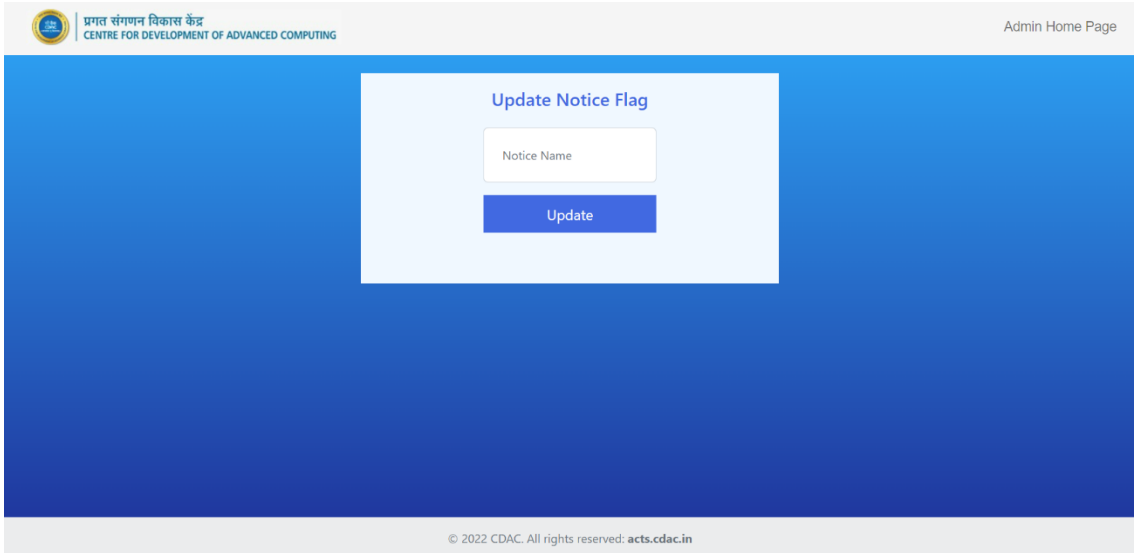
Upload Lecture Link



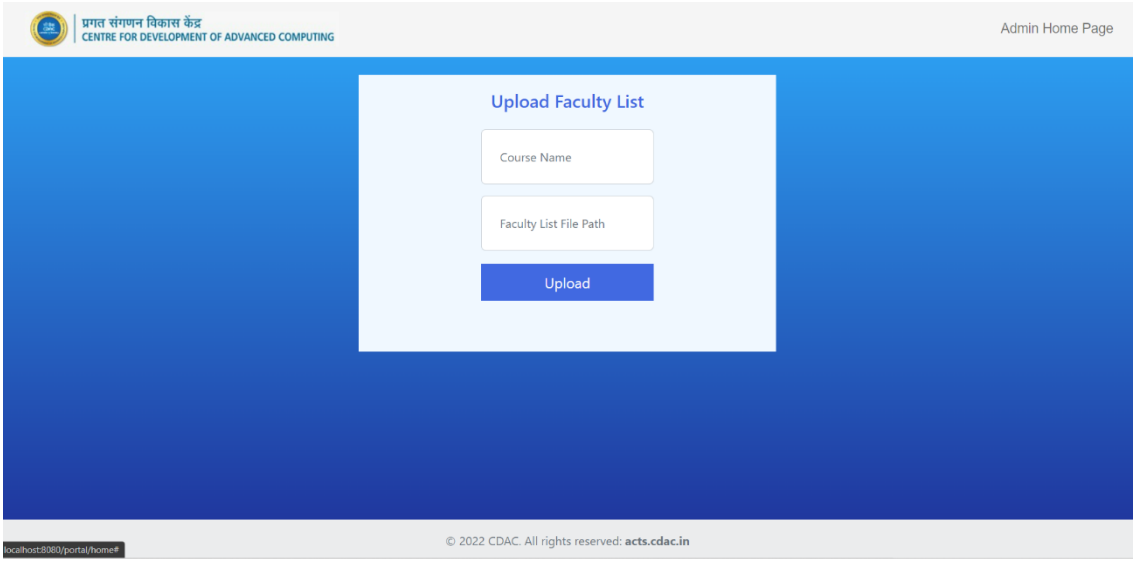
Upload Notice



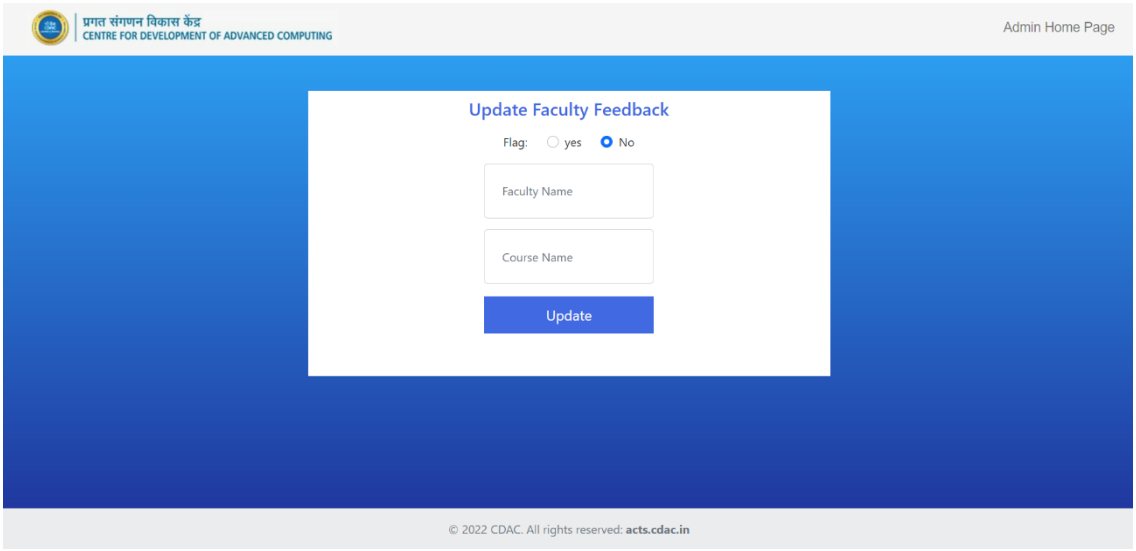
Update Notice Flag



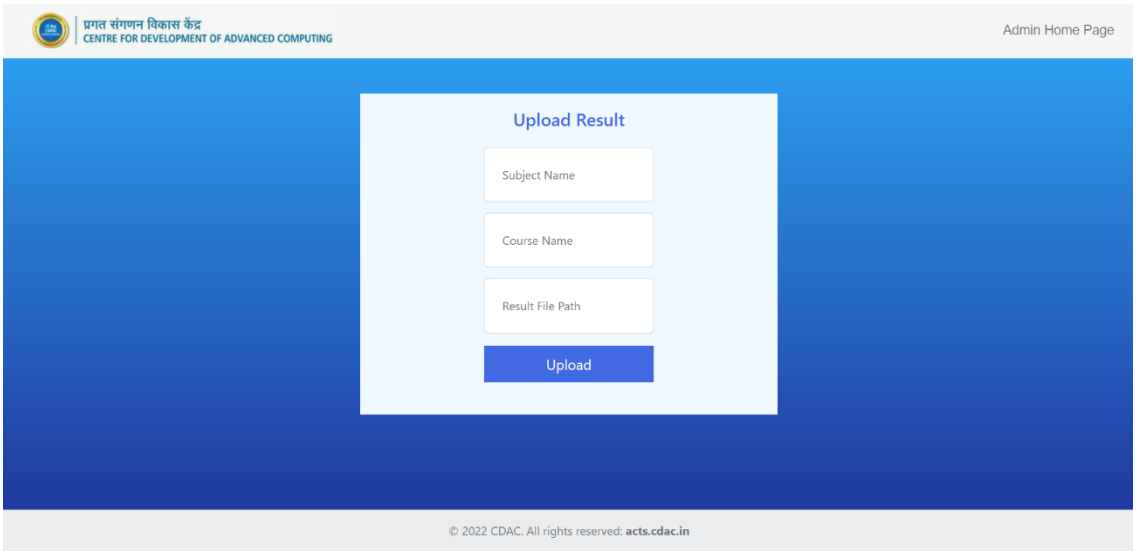
Upload Faculty List



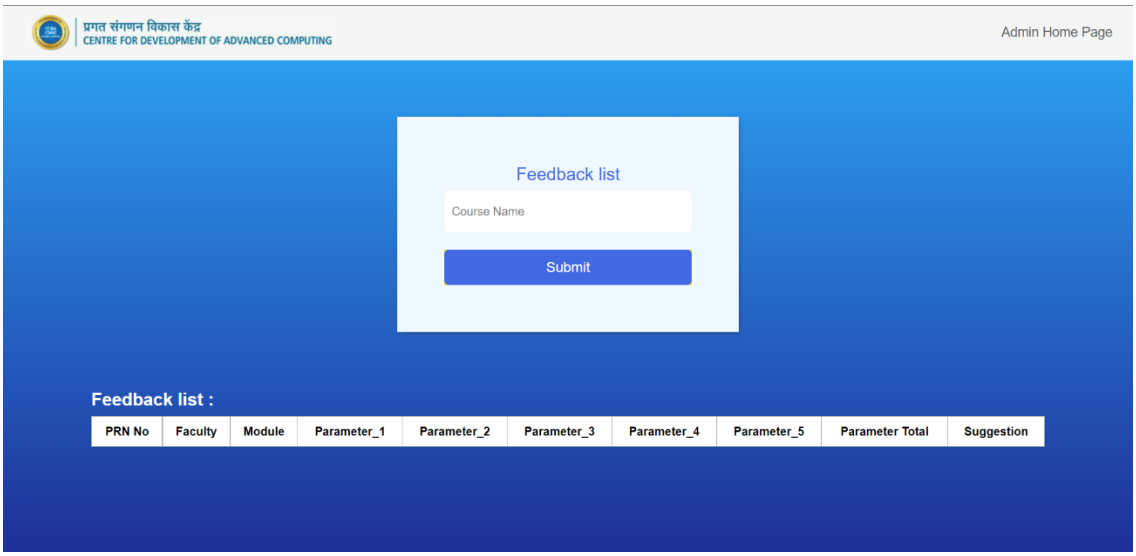
Update Faculty Feedback



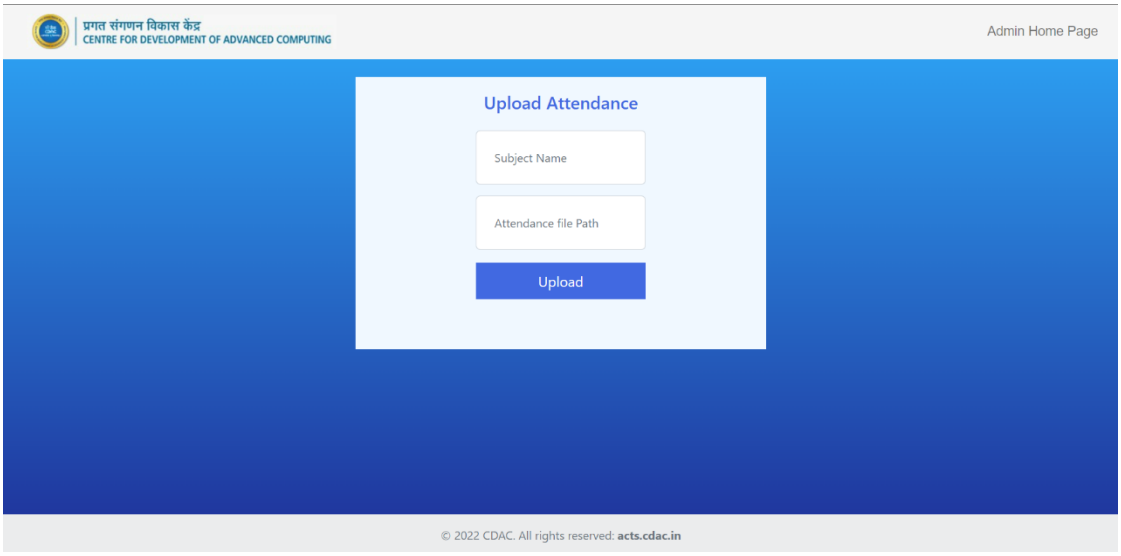
Upload Result



Feedback List



Upload Attendance



6. TESTING

One of the main purposes of testing is to validate and verify that the system works as intended. No program or system design is perfect. However, if we implement the system without proper testing, then it may cause problems and lead to a bad user experience.

Testing and checking outcomes of each test gives us the best chance to detect and correct errors before the system is implemented in a production environment.

In the course of our project, we made an effort to manually test each component. In all cases, we obtained the desired results as demonstrated below.

A. STUDENT FEATURES TEST

#	Description	Outcome	Result
1.	Register as Student	Students having valid CCAT number only are allowed to register.	Passed
2.	Login as Student	PRNs of students are fetched from database, otherwise login failure message will be printed accordingly.	Passed
3.	Join Link	Lecture and Lab links are fetched from database.	Passed
4.	Attempt Exam	MCQ Exam Papers are fetched after clicking the Start Exam button.	Passed
5.	View Result	MCQ Exam Results are fetched after clicking the View Result button.	Passed
6.	View and Update Profile	Profile can be edited and password can be changed.	Passed
7.	Get Schedule	Current Day Schedule is displayed on the dashboard.	Passed
8.	Ask Doubt on Forum	Doubts asked on Forum are mailed to the respective faculty of the respective module.	Passed
9.	Get Performance Analysis	Current and Overall Performance is calculated and is made accessible to students on their dashboard.	Passed
10.	Get Notice on Noticeboard	Students get notice on notice board which is fetched from admin side.	Passed
11.	Get Attendance Report	Module-wise Attendance of students is fetched from csv uploaded by admin.	Passed
12.	Logout	The session was cleared.	Passed

B. ADMIN FEATURES TEST

#	Description	Outcome	Result
1.	Login as Admin	Fetched authenticated user details saved in database.	Passed
2.	Generate PRN for students	Registered students' PRN will be generated in alphabetical orders of their names.	Passed
3.	Upload MCQ Paper	MCQ papers are uploaded as a csv file and can be accessible to students to solve	Passed
4.	Set Result	Result of MCQ test will be calculated and students will be assigned marks.	Passed
5.	Active Doubts	Doubts raised by students are displayed as a list in tabular form.	Passed
6.	Update Active Flag	Doubts that are solved will be removed from the Active Doubts section	Passed
7.	Get Faculty List	List of faculties can be accessed as a file for given course.	Passed
8.	Get Feedback List	Feedbacks given to faculties by students are accessible to admin.	Passed
9.	Upload Attendance	Attendance record is uploaded by the admin using csv file.	Passed
10.	Upload Links	Links for lectures and labs are uploaded to the database.	Passed
11.	Upload Notice	Notice can be uploaded on floating notice board.	Passed

7. CONCLUSION

“CDAC APP”, an online student management portal, was developed by our project team to provide a platform for PG Diploma courses of CDAC ACTS Pune students and to simplify the admin’s work. We tried using the latest technologies that are cross-platform and robust. Each and every software we used was open-source in nature, which keeps the cost of production at a minimum.

We were also meticulous about the user experience aspect of our application so that navigating our website is an easy and seamless experience.

In conclusion, “CDAC APP” as a portal would definitely be beneficial for CDAC ACTS Pune for managing their PG Diploma students in Online Mode efficiently. We are confident that the numerous features and visually appealing look of the portal will definitely make this portal effective for all the students and admins. This portal can be scaled on higher side to add more features to it.

8. FUTURE SCOPE

Using whatever we have learnt over the duration of this course, we tried to make our project as user-friendly and gave it as many features as possible in the limited time allotted for the project work. That said, there are certainly more features that can be added to our application. Some of those are mentioned below:

1. Admin functionalities can be improved for larger scale.
2. More number of courses can be added in the app.
3. If a user forgets password, OTP can be sent to his/her registered mobile number and registered Email Id to reset password.
4. Students can have Doubt Sessions with faculties.
5. To improve the app on very large scale, lectures and labs can be conducted in the portal only.
6. CAPTCHA can be added to login page.
7. Overall portal can be built on a higher scale so that all functionalities of student management for all courses offered in CDAC ACTS work inside this one portal only.

9. REFERENCES

Following is the list of websites we referred during the course of our project:

1. https://getbootstrap.com/docs/5.1/getting-started/introduction/
2. https://www.baeldung.com/
3. https://www.w3schools.com/
4. https://docs.spring.io/spring-data/jpa/docs/current/reference
5. https://javaee.github.io/javaee-spec/javadocs/
6. https://javadoc.io/doc/org.springframework.data/spring-data-jpa/latest/index.html