IRJET- Django Framework based ERP for an Institution

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Django Framework based ERP for an Institution

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Abstract - *In a real world scenario, such as a college campus, the data revolves within a sort of notice board. These days it has become essential to not solely use the foreseeable styles of statement, but new forms of technologies like online applications, for quicker and easier communication among scholars. The core plan of this system is to implement an automatic implementation based College Management application for advancement and establishment of the academic system among students. In this system the main aim is to develop an associate degree application that provides information like assignments, time-table, result, attendance, notices, the department details and other details related to college campus and administration. Here we tend to conjointly use One Time Password (OTP) that plays a significant role for authentication and higher level security. Student's academic details are being monitored by the application.*

Key Words: CMS, College Management System, Admin, Student, Faculty, application, attendance, marks, notice, time-table, notes, assignments, placement, records, information, module, system, college

1. INTRODUCTION

In the current scenario, mobile devices have become a crucial part of human life. Users access all the important things via mobile devices through websites and applications. Ancient approaches have been based on notice boards based notices concept where faculties and students have to see notice boards for information on a daily basis, this method is time overwhelming for teachers and students. These days it has become necessary to implement and use new forms like mobile applications, for quicker and easier information transmission among students and faculties. This system is being developed for engineering faculties to update and modify data of students where they have to register on application as a faculty so that they will get permissions to modify and update student's data record. This system will feature the automation of college related activities which often leads to paperless work and will be accessed remotely. We have discussed all the extraordinary features that has been added to the system where the main focus is on purely automation of attendance and placement module part where:- (i)current attendance of students will be analysed and it will show how much attendance is needed now to fulfill the asked criteria according to university norms. (ii)the student's marks will be analysed and only those students will get notification to register for placement drives whose academic percentage aggregate will be fulfilled as per the company's certain criteria.

2. LITERATURE SURVEY

'S.R. Bharamagoudar, Geeta R.B., S.G.Totad' et. al, 2013, '(Web Based Student Information Management System)' elaborates This Paper had been developed for engineering faculties for quick information access. The faculties must be registered in the system to modify the data of students. This system is based on a college based application to manage all the college activities and can be accessed by all faculties, students and staff members.

'Lalit Mohan Joshi' et. al, 2015, '(A Research Paper on College Management System)' elaborates In this Paper the robot based mobile application is developed to provide students various information related to library books due dates, notices, placement activities and marks of them. All these information should be provided to students in a price effective and efficient way. Therefore to realize an equivalent, we've got this system developed where students can check all the college details in robot based mobile systems through application.

'Sumit Ghardale, Vaibhavi Avachat, Aarti Erande, Prof. Bhavesh Shah' et. al, 2017, '(Android Application for College Management System)' elaborates In a real world scenario, such as a college campus, the data revolves within a sort of notice. These days it has become essential to not solely use the foreseeable styles of statement, but new forms of technologies like online applications, for quicker and easier communication among scholars are being used.

'TANG Yu-fang, ZHANG Yong-sheng' et. al, 2009, '(Design and implementation of college student information management system based on the web services)' elaborates As an example of SIMS (student information management system) developed independently by School of Information Science & Engineering of Shandong Normal University, this paper acknowledges database design, specific description of each module and all the technologies used in the system.

'N.M.Z. Hashim and S.N.K.S. Mohamed' et. al, 2013, '(Development of Student Information System)' elaborates In the paper main focus is to develop a system which is helpful for faculties to manage student's information and will help faculties to search and update each student's information and also help in decrease in redundant information.

'Mr. Nilesh Rathod Dr. Seema Shah Prof. Kavita Shirsat' et. al, 2013, '(An Interactive Online Training and Placement System)' elaborates In the paper computer based placement system where the TPO's will send notification to each student for any upcoming placement drives and students can register for the same as per the required criteria fulfilled.

3. METHODOLOGY

For the betterment of all the functionalities involved in the college activities we have developed an application that makes it easier to interact with all the existing functionalities like notice publishing, class attendance, placement notices, etc. The application must have an interactive user interface and should be useful for all the audience for which it is being developed.

For the solution to this problem we have developed an application that eases all these problems stated above. An application for college which will allow the students to be updated with companies coming for placement and hence can apply for the same. On the other hand companies can register themselves and can view the list of students and their profiles. Apart from this student can keep track of his/her attendance on a daily basis and can check how much lectures he needs to attend more in the subject individually to maintain the attendance specified by the College. When a new notice is published on the portal a notification is sent to the user according to his/her preference of the sender of the notice. The functionality of this application is not limited to only the above mentioned but many more features will be added to this application to make it more interactive and more beneficial for all its users. We are developing this application by using various technologies and Django framework which makes it more interactive, faster and secure.

This application provide the following services to different modules and different actors in this application:-

- Interactive online interface is being provided to all students, faculties, and staff members through this application system.
- Increasing the efficiency of college record management.
- Certain technologies has been used to decrease access and modification time of student's record by the faculties.
- To make the system more secure.
- Decrease time spent on non-value added tasks.
- Allow students to view data related to their academics.
- Make the placement process more convenient and efficient.

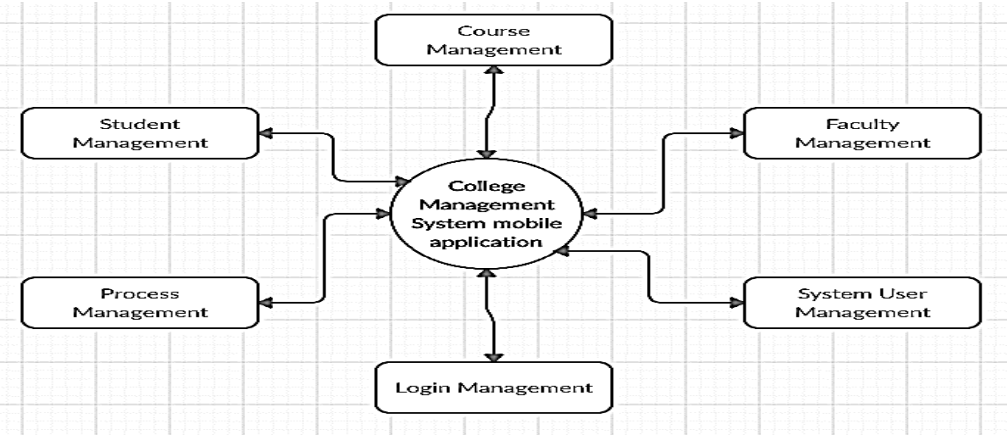
Following are the characteristics of user's :-

User Characteristics : The target audience for CMS is college students and faculties.
Admin – The admin will be the main user of the system.
Student – Student will be the user with only limited access to the system.
Faculty – Faculty will be the user with more access than the students.

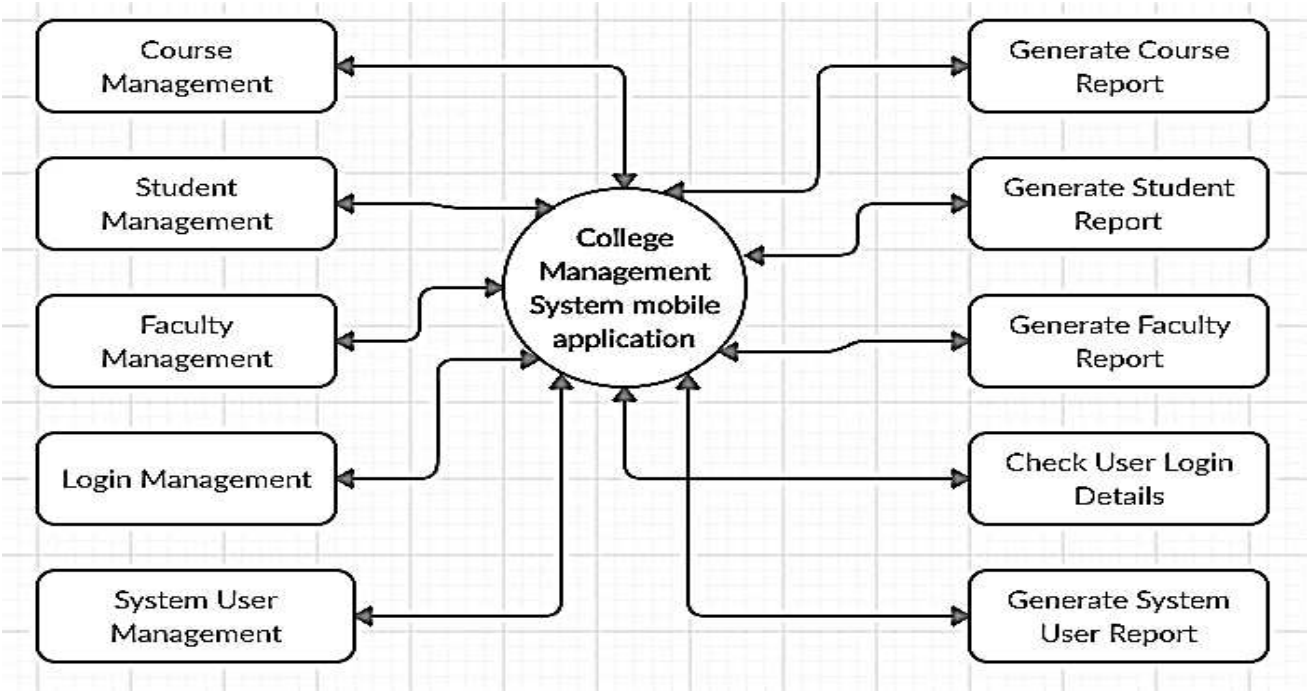
3.1 Data Flow diagram for the application system

Data Flow diagrams below show how the system works at different levels.

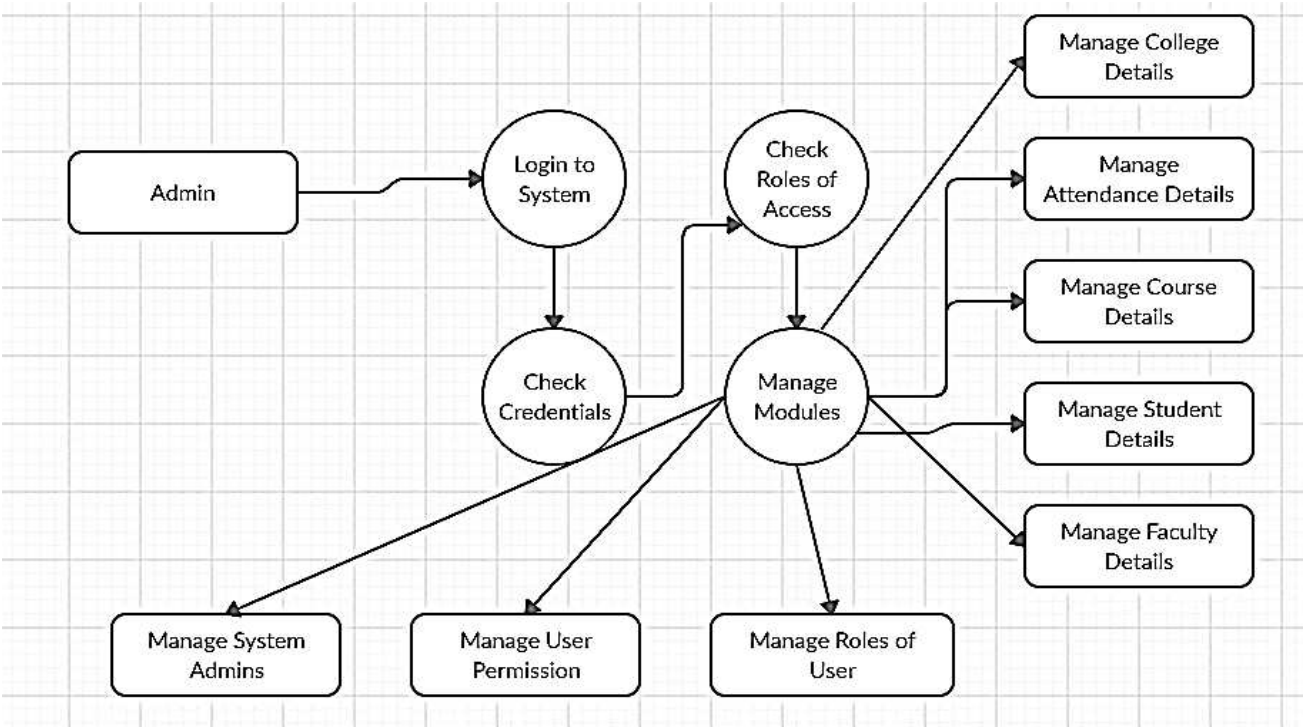
Data Flow Diagram **Level-0**



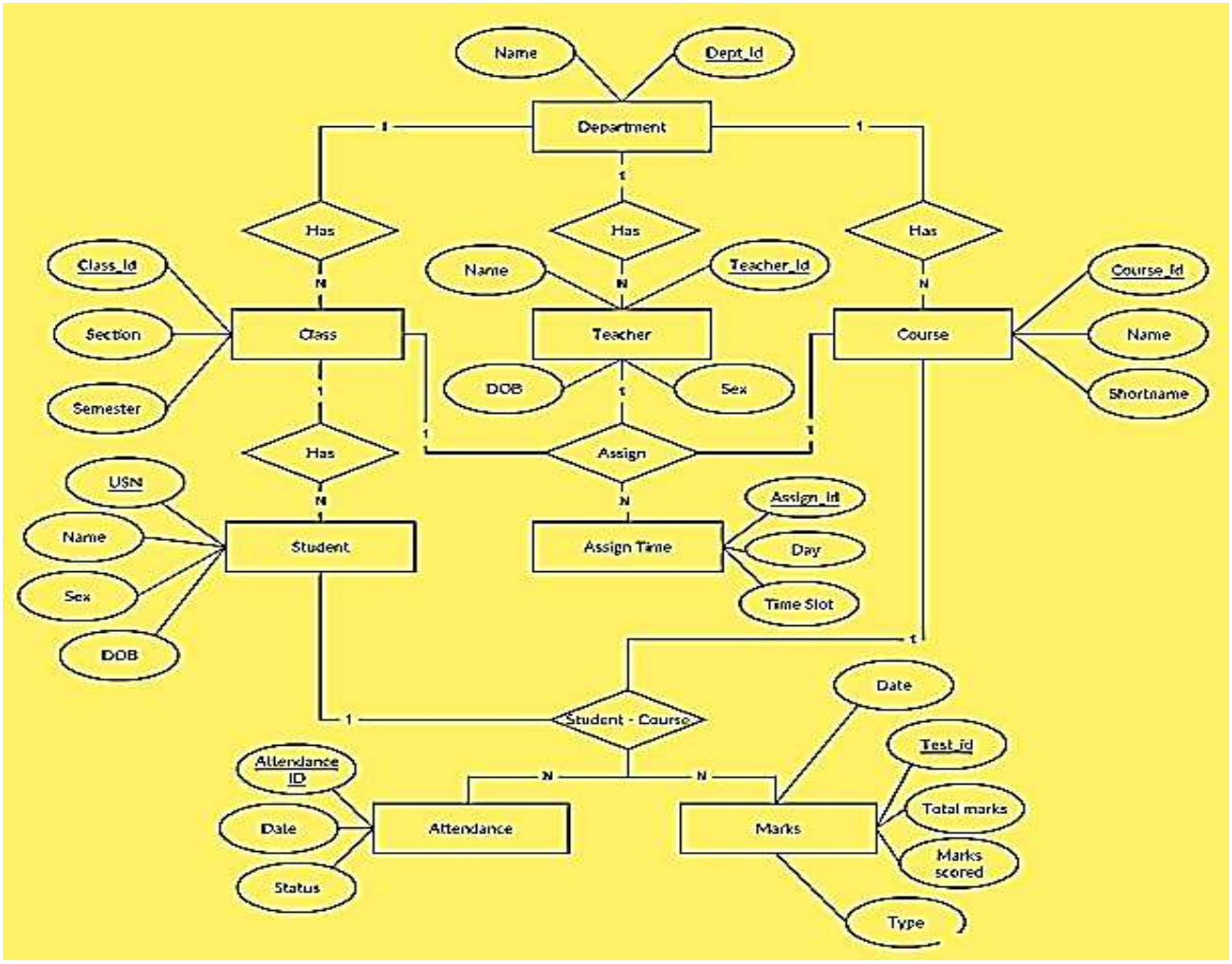
Data Flow Diagram **Level-1**



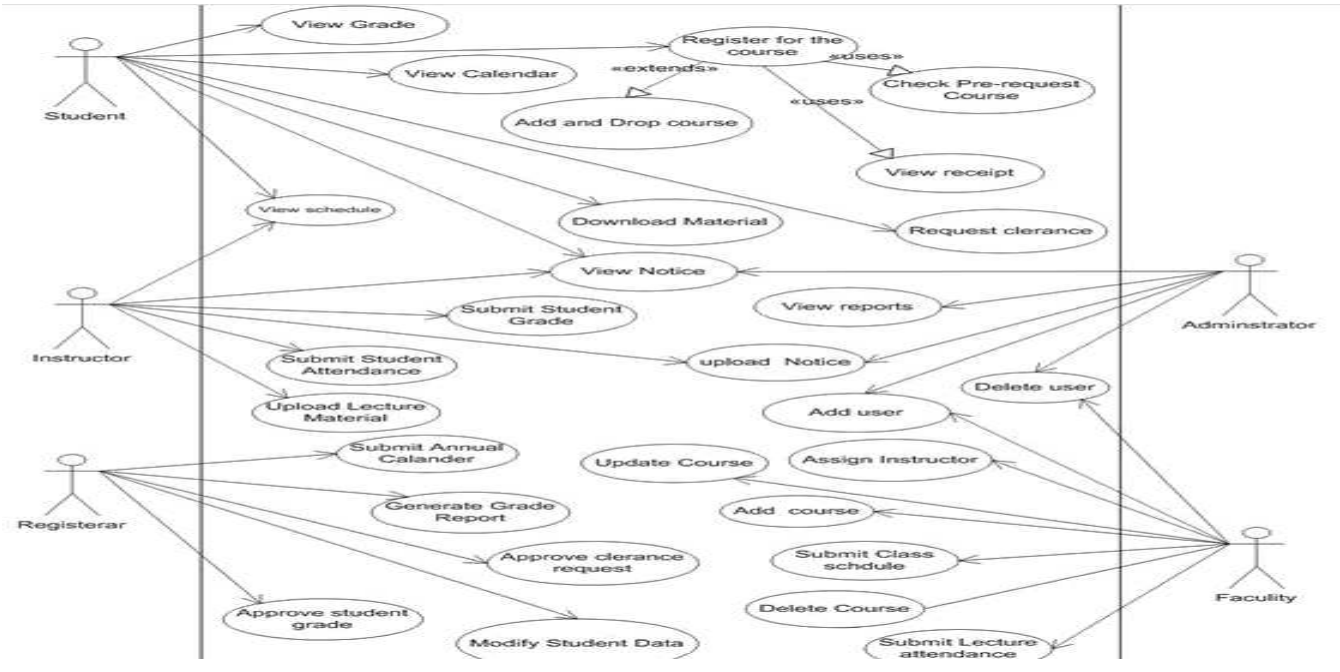
Data Flow Diagram **Level-2**



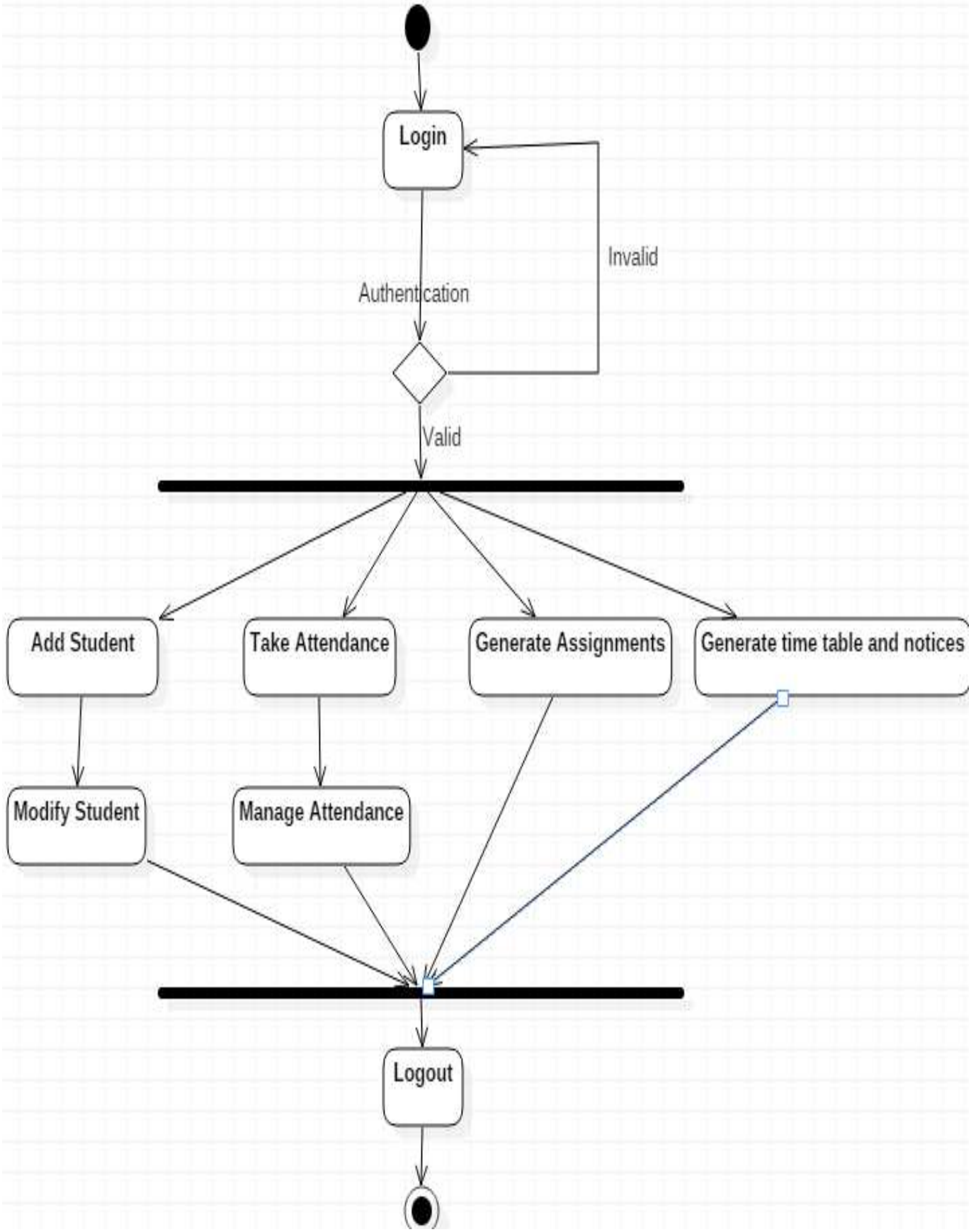
3.2 Entity-Relationship diagram for the application system



3.3 Use Case diagram for the application system



3. 4 Activity diagram for the application system



4. IMPLEMENTATION

Following is the final implementation of the proposed application system that has been implemented in accordance with all the aspects in this paper.

We have provided this application system with three modules :-
A. Faculty Module
B. Student Module
C. Admin Module

We have used various technologies for the implementation of this application system like python for backend, HTML, CSS and JavaScript for frontend of the application and MySql 6 for database of the whole system. Django framework for the working environment of the system.

- **Python** is a server-side programming language which is easy to learn and lightweight to handle the system easily without any interruption. Python is used at the backend side of the system.
- **HTML**, **CSS** and **JavaScript** is a client-side scripting language which results in the part that would be visible to the user. These are used at the front side of the system.
- **MySql 6** is an open-source relational database management system and it is used in the system to manage the database.
- **Django** is a Python-based framework which is open-source and contains various in-built tools to establish a proper work environment for the development of the system.

We have showed the implementation with help of following snapshots of the working system :

4.1 Faculty Module

We have developed a faculty module in our system where the faculty added by the admin will be able to use the application. Faculty will have to login to the application as shown in *fig. (i)* and after that the login page will appear with many parts that would be selected to perform desired action as shown in *fig. (iii)* and faculty can see their own details as shown in *fig. (iv)* and faculty can mark the student's attendance and can edit the already uploaded attendance and can even give extra attendance for extra classes if needed as shown in *fig. (v)* to *fig. (viii).* Faculty can see notices by using keywords, dates and categories as shown in *fig. (ix)* and faculty can upload, edit, and delete student's academic marks as shown in *fig. (x)* to *fig. (xiv).* Faculty can also see time-table and student's overall performance related to academic marks and attendance as shown in *fig. (xv)* to *fig. (xvi).*

At last faculty will get a prompt message before logging out of the application and after clicking "Logout" faculty will be logged out of the system as shown in *fig. (xvii).*

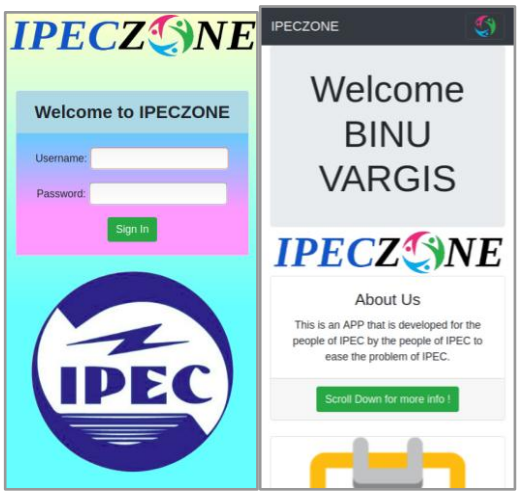


Fig. (i) Fig. (ii)

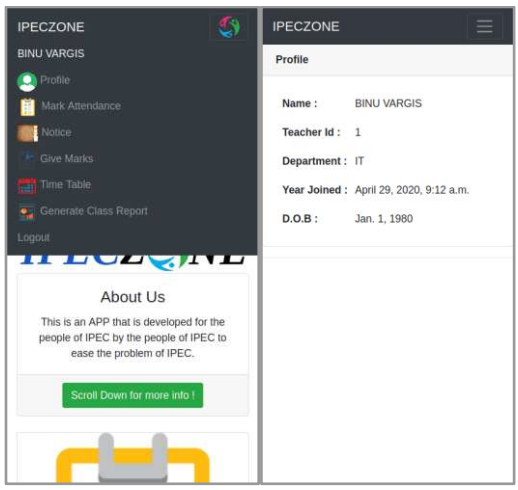


Fig. (iii) Fig. (iv)

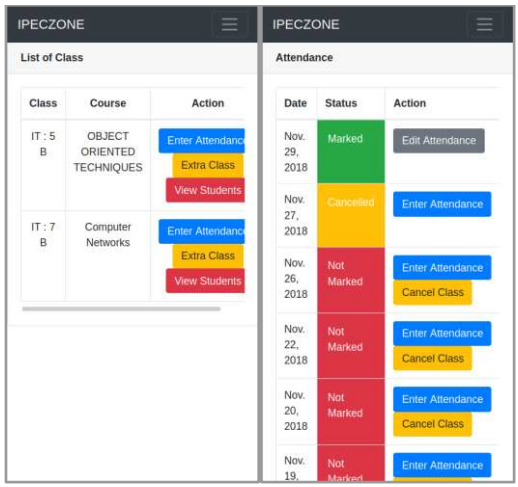


Fig. (v) Fig. (vi)

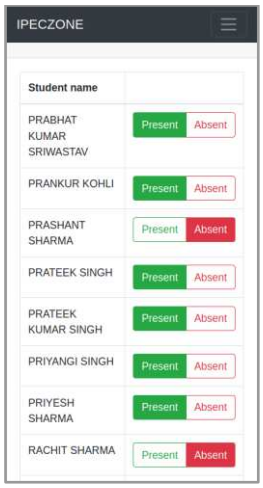


Fig. (vii)

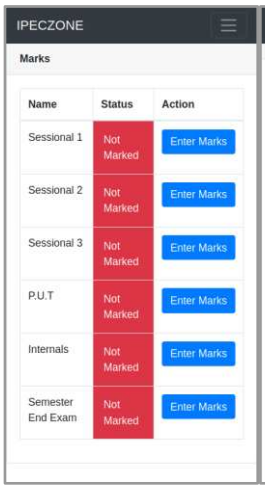
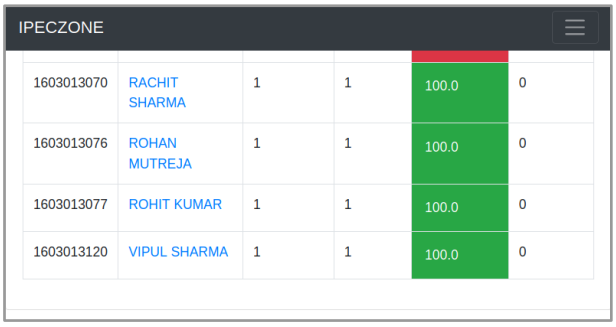


Fig. (xi)

Fig. (xii)



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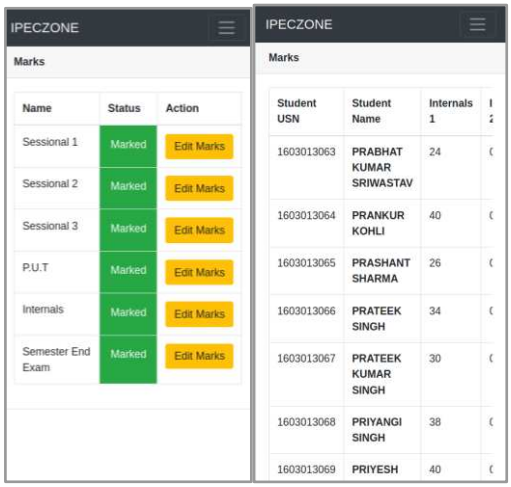

Fig. (xiii) *Fig. (xiv)*

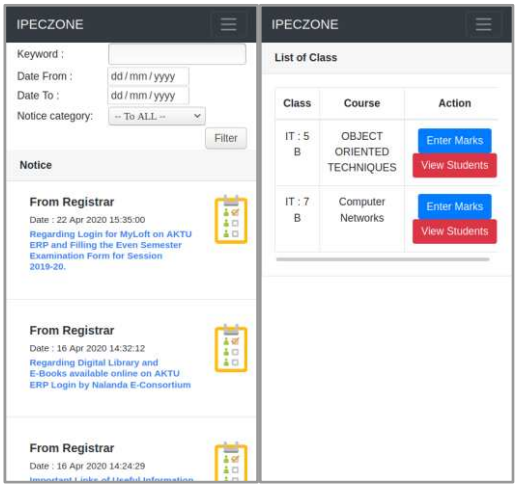

Fig.(ix)

Fig.(x)

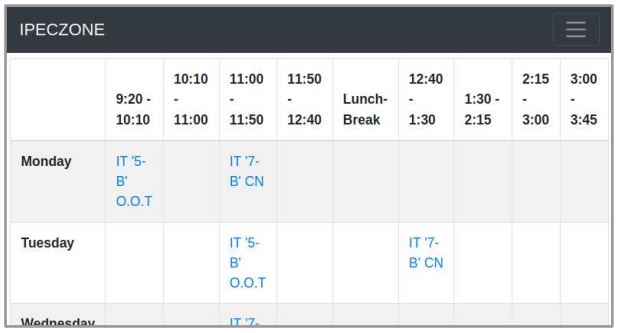

Fig. (xv)

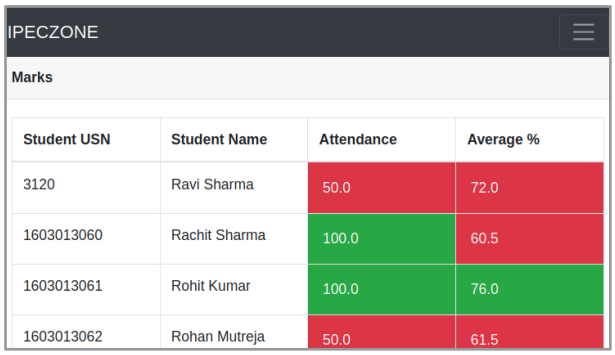

Fig. (xvi)

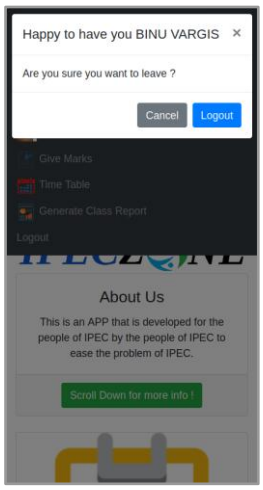

Fig. (xvii)

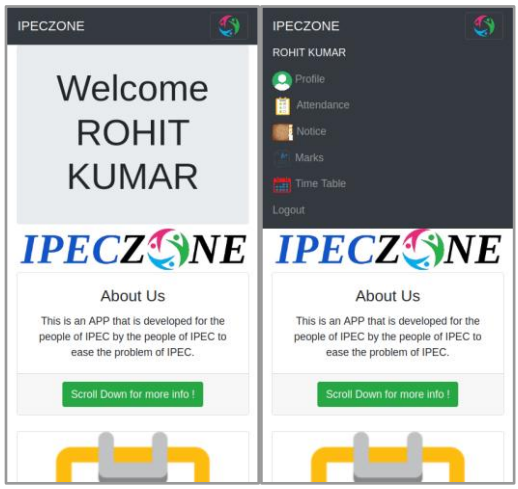

Fig. (xviii) Fig. (xix)

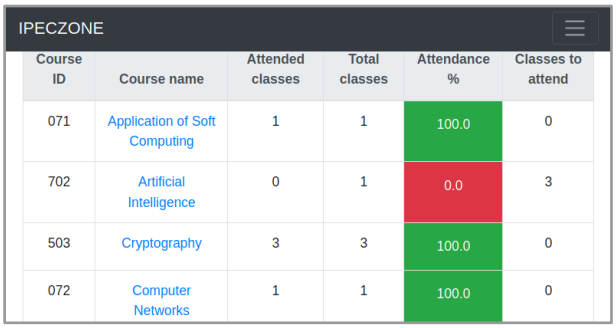

Fig.(xx)

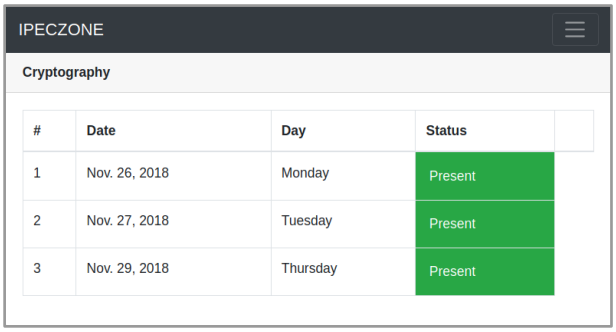

Fig. (xxi)

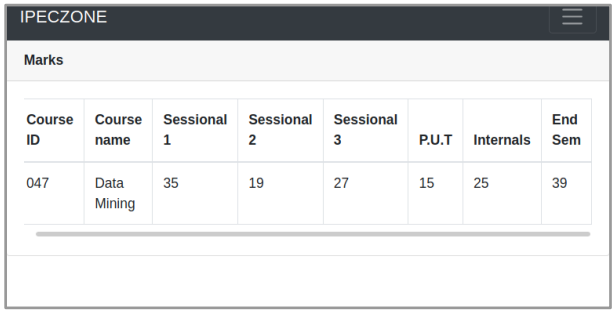

Fig. (xxii)

4.2 Student Module

We have developed a student module in our system where the students added by the admin will be able to use the application. Students will have to login to the application as shown in *fig. (xviii)* and after that the login page will appear with many parts that would be selected to perform desired action as shown in *fig. (xix).* After logging in, students can view their records and information like their present attendance and how much attendance is needed in future to fulfill certain eligibility criteria to appear in the examinations as shown in *fig. (xx)* to *fig. (xxi)*. Students can view their sessional marks as shown in *fig. (xxii)* and can also view their daily time-table as shown in *fig. (xxiii).*

At last student will get a prompt message before logging out of the application and after clicking "Logout" student will be logged out of the system as shown in *fig. (xxiv).*

Fig. (xxiii)

Fig. (xxiv)

4.3 Admin Module

We have developed an admin module in our system which can be used to manage the users and their functionalities according to their respective usage in different modules. Admin creates and manages the database of the students and faculties. In *fig. (xxv)* the admin will login using Username and Password and then can manage the users and other factors like assigning of class, creating time table, adding a new course, adding a new class and can also add the notice and other valuable information as can be seen in from *fig. (xxvi)* to *fig. (xxxii).*

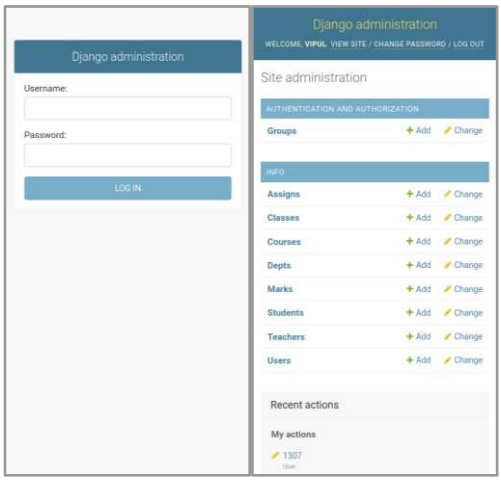

Fig. (xxv) Fig. (xxvi)

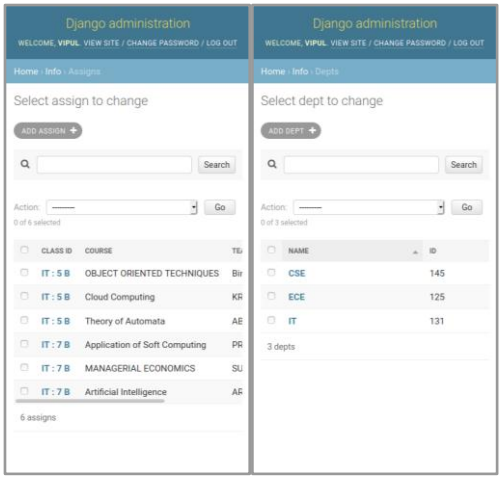

Fig. (xxvii) Fig. (xxviii)

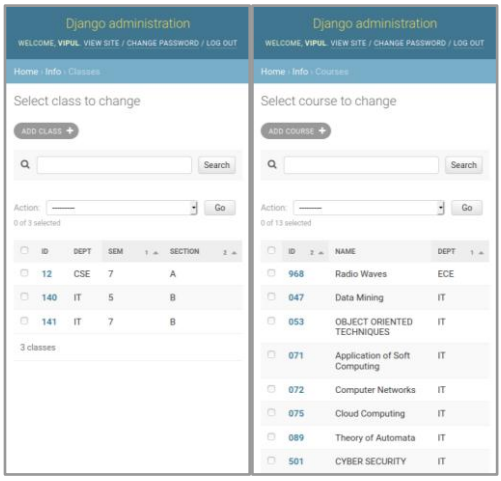

Fig. (xxix) Fig. (xxx)

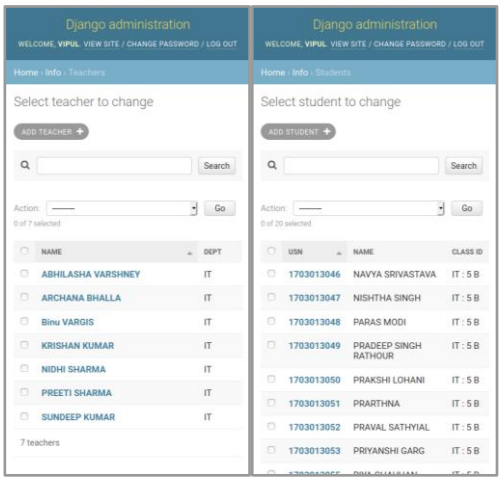

Fig. (xxxi) Fig (xxxii)

5. RESULT

This application provides the following functionalities to its user as the result :

- Search and access the information.
- Login through the very first page that will appear on the application.
- Change the password for the security purpose after signing up.
- Change his/her details as per the requirement.
- Access and modify different information in different sections of the application.
- View notices and all data related to their academic details.
- Students can give feedback to their faculties with keeping their identity as secret.
- An admin module should also be there which can modify as well as remove any kind of uploads. Admin module will also add or remove an unauthorized student's or faculty's ID.

6. CONCLUSION AND FUTURE WORK

Throughout the project, we have been able to develop a college management system application that aimed at managing student, administrator, lecturer, registrar exam controller activities and placement activities in an educational institution and providing appropriate information to users according to the chosen service. Also the system eliminates the need for paper works in the aspect of attendance and all other activities that take place in college premises.

If given an upcoming chance, better and detailed addressing of certain areas would be implemented. The more modules would be added to the system and implemented. More better and advanced authentication techniques will be implemented and incorporated into the system.

Thus, for future work security is one of the main aspects. Further upgrading the system with new technologies and adding new services to the existing system would also be done.

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