

STUDENT LEAVE PORTAL

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ABSTRACT

The present paper is about ‘Student Leave Portal’ which is an application developed by us for our institution -National Engineering college. This is of utmost importance for any organization or college. The leave application will allow the users to apply for the leaves through the online mode by specifying a valid reason for the leave. This can also be implemented at the school and the college levels where the students can apply for the leave. The user interface must be simple and easy to understand. This system can be used to apply leave applications and their approvals online. There are features like cancellation of leave, approval of leave or rejection of leave, view tutor wards details, monthly attendance percentage, semester attendance percentage, view students leave details, forward the leave to HOD. The leave applications and the approvals are done manually. Students will be able to submit the leave form, check the status of leave requests and view completed leave history. This application can help in avoiding the leave application that needs to be given to the higher authority with great ease

Keywords : *Leave Approval, Leave Application, Flutter, Mobile App, Leave management system, Firebase*

I, INTRODUCTION

Flutter is a cross-platform UI toolkit that is designed to allow code reuse across operating systems such as iOS and Android, while also allowing applications to interface directly with underlying platform services[1]. The goal is to enable developers to deliver high performance apps that feel natural on different platforms, embracing differences where they exist while sharing as much code as possible. Google Firebase is a Google-backed application development software that enables developers to develop iOS, Android and Web apps[2,3]. Firebase provides tools for tracking analytics, reporting and fixing app crashes, creating marketing and product experiment. Firebase is a product of Google which helps developers to build, manage, and grow their apps easily. It helps developers to build their apps faster and in a more secure way. No programming is required on the firebase side which makes it easy to use its features more efficiently. It provides services to android, iOS, web, and unity. It provides cloud storage. It uses NoSQL for the database for the storage of data. Google Firebase is a Googlebacked application development software that enables developers to develop iOS, Android and Web apps. Firebase provides tools for tracking analytics, reporting and fixing app crashes, creating marketing and

product experiment. The Firebase Real-time Database lets you build rich, collaborative applications by allowing secure access to the database directly from client-side code. Data is persisted locally, and even

while offline, real-time events continue to fire, giving the end user a responsive experience.

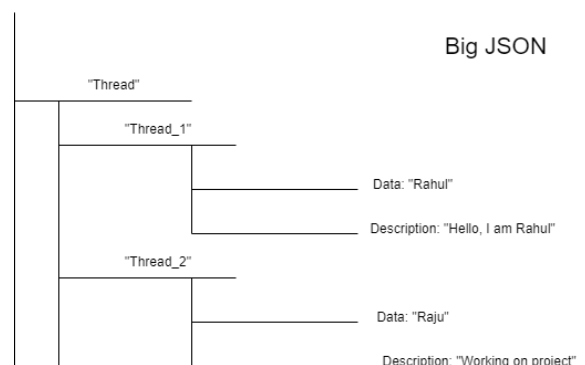


Figure 1. Firebase Realtime Database

Our application mainly focuses on the fair distribution of attendance among students. It

provides all the related details of working days, holidays, events & workshops taking place in the college. It provides overall as well as weekly attendance of student. Parent, faculties, and students can get easily updated about their attendance status. Students can easily upload their leave applications online just on one click. The application will directly go to the concerned faculty and respective coordinators of student either after approval or without approval of parents. This software is supported to eliminate and also for cutting back the hardships faced by these existing systems. What is more, this technique is intended for the actual want of the corporation to hold out operations in a very swish and effective manner. The current manual system is suffering from a series of drawbacks. Since the whole of the system is maintained with hands the process of keeping, maintaining and retrieving the information is very tedious and lengthy. The records are not in order, there are difficulties in associating any transaction or process in particular context. If any information is found it required to go through different departments, and documents do not exist like report generation. There is unnecessary consumption of time while the leave process approval is being processed and also retrieving records. One problem is that it is difficult to find errors while entering or filing the records. Once the records are filed, it is difficult to update or once the file is misplaced it is difficult to find it. The reason behind is that there is a lot of information to be maintained which leads to some errors and time consuming during the process of leave application. It is for this reason that the system is automated. To automate and update leave information of the student Specific objectives include : To handle proper and full information of every leave which have been provided by the institution. To manipulate leave information of student for the institution. For the present system we have used Google Firebase which is a Google-backed application development software.

II. EXISTING SYSTEMS

Basheer and Raghu[4] have reported a hand held fingerprint attendance system. The present hand held device is used to mark the attendance without the intervention of teacher. The device can be passed to the students during lecture time. Students would be made to place their finger over the sensor so as to mark their presence in the class. It can communicate with a host computer using its USB interface. This device operates from a rechargeable battery. GUI application I host

computer helps the teacher to manage the device and attendance.

Bharamagoudar et al [5] reported a Web Based Student Information Management System for taking students attendance

Patel[6] in his paper attempted to design faculty management system for generating faculty performance score, as well as using which higher authority of the organization can manage faculty's operations daily. This study attempts to show how faculty management system will be used in the organization and how drawbacks and loopholes of faculty could be removed

Manish et al [7] have developed a web application- Leave and Payroll Management System. Using this different thing of payroll like TDs, PF etc. are calculated. The technologies that were used to make this web-portal are bootstrap, mongo db, blaze, meteor.js.

Adamu [8] had developed an automated employee leave management system using the three tier software architectural model. The System was implemented using web based technologies which include CSS, JS, HTML, MySQL, PHP and runs on Windows operating system. The overall functionality of the system showed that it work satisfactory and the result obtained shows that the system is error free, faster and allows staff to request for leave in a timely manner. System was found to be useful for both academic staff and administrative department of an institution for effective and efficient management of employee leave.

III. PROPOSED LEAVE APPROVAL LEAVE APPLICATION

In the proposed system, we had to plan to add the extra features and updates in the next version of the application. We had planned to do the following updates to the existing application. We are going to add the students to their respective tutor wards. The next feature is that we will display the leave availability of the students based on their attendance percentage. We have added the profile for the students in which the monthly attendance will be displayed along with their attendance percentage. We have also planned to update the UI

design along with the updating the database with all the necessary information needed for the application to be implemented. The main objective of the proposed project is

- Adding students to their respective tutor wards.
- Displaying whether the student has leave availability based on attendance percentage.
- Calculate the attendance percentage and display it in the profile based on the number of working days of that semester.
- Subject-based attendance calculation.
- Database updating.
- User Interface redesigning.

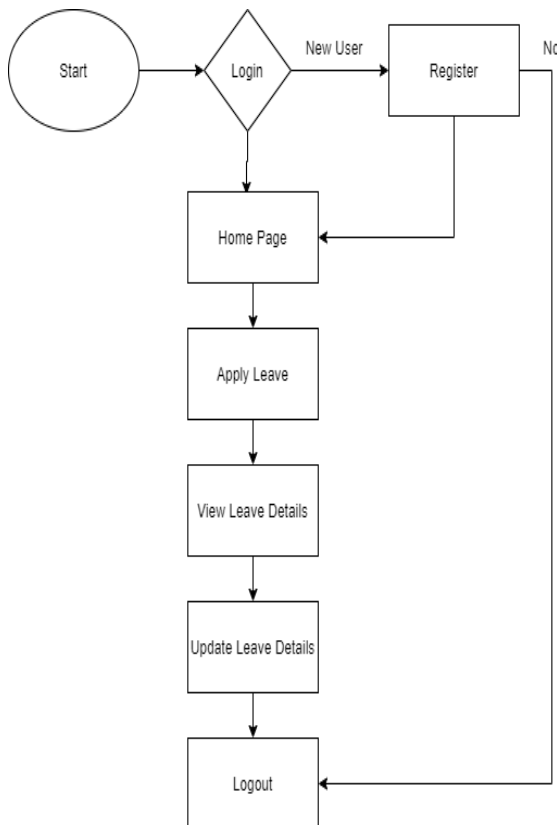


Figure 2. DataFlow Diagram

IV.DATABASE STRUCTURE

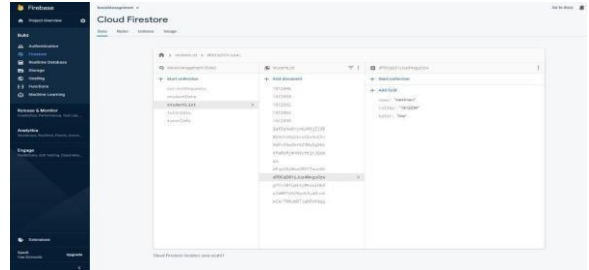


Figure 3. Database of the application

Figure 3 shows the Database which is used for our application. Google Firebase is a Google-backend application development software that enables developers to develop iOS, Android, Desktop, and Webapps.

. First, we need to add the department to the database, and then we can add the staff present in the department into the database. Realtime database, the Firebase Real-time Database is a cloud-hosted NoSQL database that enables data to be stored and synced between users in real-time. The data is synced across all clients and is still available even when the app goes offline.

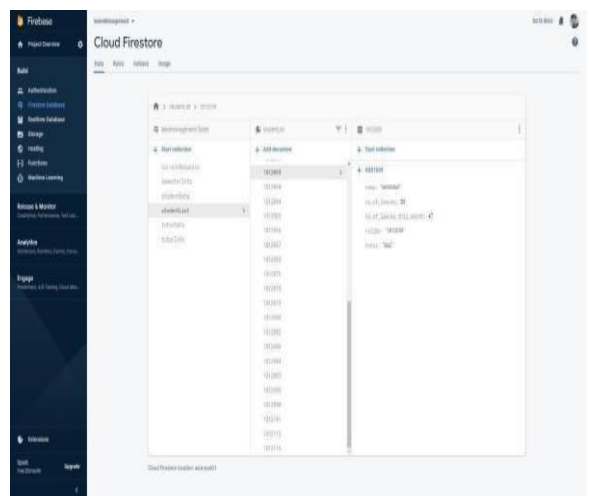


Figure 4. Firebase Authentication

Figure 4 shows the structure of the Firebase Authentication. easy-to-use, and ready-made

libraries to authenticate users to your application. Usually it would take you months to set up your authentication system. And even after that, you would need to keep a dedicated team to maintain that system. But if you use Firebase, you can set up the entire system in under ten lines of code that will handle everything, including the complex operations.

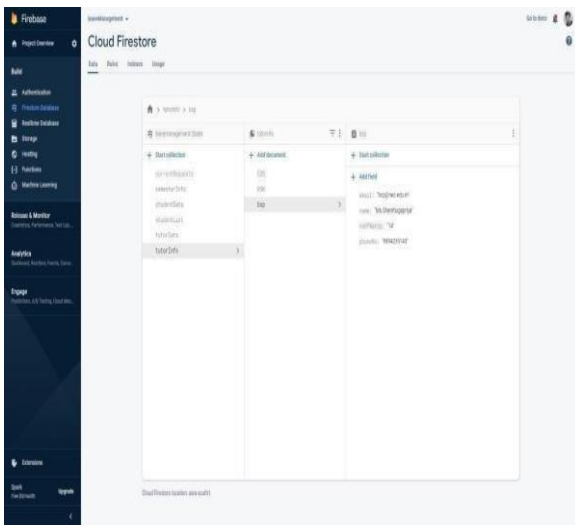


Figure 4. Cloud Firestore

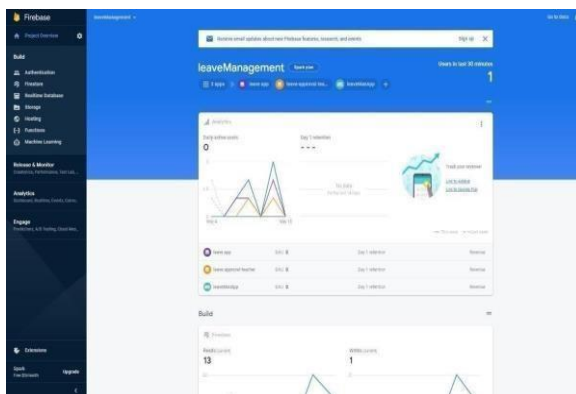


Figure 5. Database Updating

Figure 4 and 5 shows the Cloud Fire store. It is a database for mobile, web, and server development that is flexible, scalable.

V. MODULES

In this application, there are seven modules. Tutors can approve leave through this application and can view the leave information of every individual. This application can be used in a college to reduce the processing workload. Leave management applications will reduce paperwork and maintain records in a more efficient & systematic way. This module will also help calculate the number of leaves taken monthly/annually and help to gather data concerning the number of hours worked.

After careful analysis, the system has been identified to have the following modules

- Registration
- Login
- Apply for Leave
- Approve/Reject Leave
- Staff
- Student
- Leave Status

Registration: This module is used for new users/students can add their details in the form. Students can register their details in the system. This module is used to view their attendance details and leave status by their username and password. This involves adding new students, updating the existing student information and deleting the existing student details, adding a new faculty according to the department, updating the existing faculty information and deleting the faculty details, adding a new department, updating the existing department information, and deleting the existing department details.

Login: The login test has 3 cases. The login test is the same for all modules such as admin, student and faculty. If the name and password are valid, then the respective module's home will be displayed, or else it displays invalid details. If only the name or password is entered, then invalid details are displayed. The module is used by both the students and the staff members to login into the application after successfully registering their credentials, and each time they open the application. The main page of the application will be shown when the right username and password are given.

Apply For Leave: In this module, students can apply their leave application online. Users should check with their username and password. A comparison is made for a user name and a password. If the correct user id and password are supplied then, the main menu of the online leave form will be displayed to the user. The initial step, handled by the tutor, is to create a unique user account for each student and faculty member in the organization. This module handles the administrative functions of the system.

Approve/Reject Leave : This module is present in the staff login. It lets the staff members approve the leave requested by the students or reject the leave. The request will be made from the apply leave module from the student login by the students. The leave applied by the students will be processed by faculty, and they have the authority to accept or reject a leave.

When the student applies for leave, they should go through the left format and apply for the leave. The different forms of leaves are casual leave, medical leave. Future work shall be done by successfully detecting the face image and recognizing the presence of face, so that attendance can be marked in an automated approach.

Student Module: The student can log in /log out of their account for the leave applied by a unique id provided by the admin department. In the starting month of the semester, the student can apply for leave basis on the criteria of leaves short leave and long leave. After the first month of the new semester, an attendance criterion is maintained, which means students with more than 75% can apply for long leave. In case of emergency, students have to show some petition for leave. Leave is then transferred to Tutor for the verification. If the Tutor verifies the leave, then it is approved. Leave is then transferred to Tutor for the verification. If the Tutor verifies the leave, then it is approved. Tutor module has the power of leave verification of the students or staff. The tutor can see the leave record of students, Tutors can verify the leave based on the leave availability of the student, and in the case of the student, attendance is the basic criteria. Student information and take action based on the reports. The tutor can view information like students' leaves, attendance, and notifications, including reports from the Year Coordinator.

Staff Module: This module has the primary authority for the approval of the leaves applied by the students. The class in charge will be the first to see the leaves and they have to, either accept it and forward it to the next module for approval or reject it directly there itself if the students' attendance goes below 75%. This module has the secondary authority for the approval of the leaves applied by the students. Once approved by the class in charge, the leaves will be transferred to the year coordinator for further approval and remarks by verifying the same. If the year coordinator finds any fault, they can reject it at the same itself there itself.

VI.RESULT ANALYSIS

Student-Registration Page

Figure 6. Student registration page

The figure 6.shows the Registration page for the student module. When the students open the application for the first time, they must register their identity in the application by entering their credentials. They should be careful while selecting their tutor.

Student Login Screen

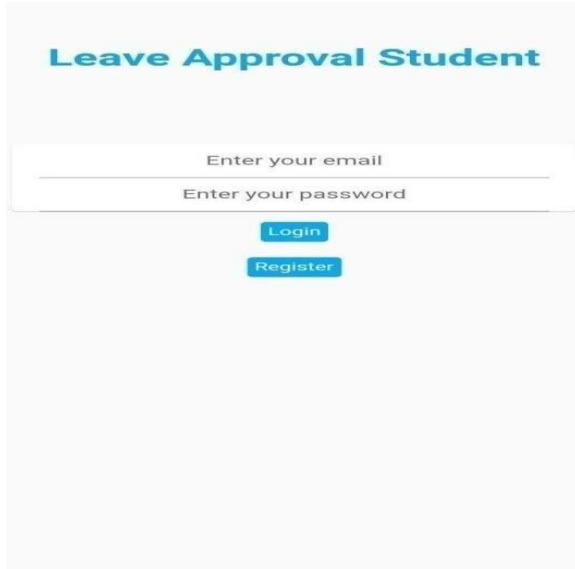


Figure 7. Student Login Page

The figure 7 shows the Student Login Page. The authentication module is done using the Firebase Authentication.

Leave Application Screen

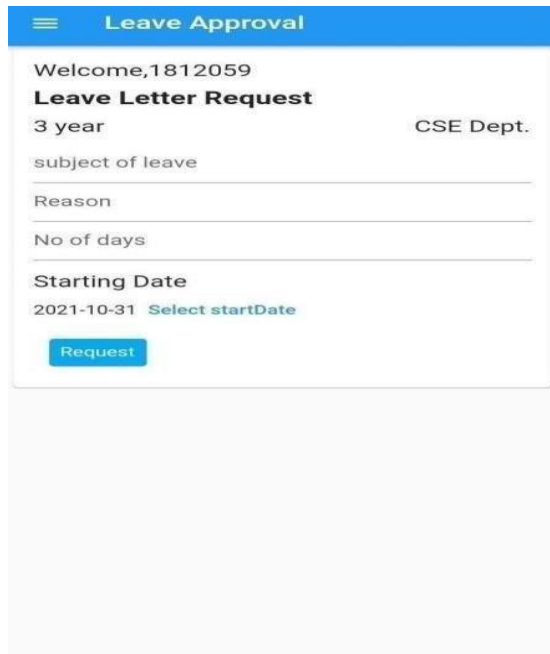


Figure 8. Leave application screen

The figure 8 shows the Leave Request Page. They should mention the reason for the leave and the subject of the leave. They should also mention the number of leave days with starting date.

Student Profile Screen

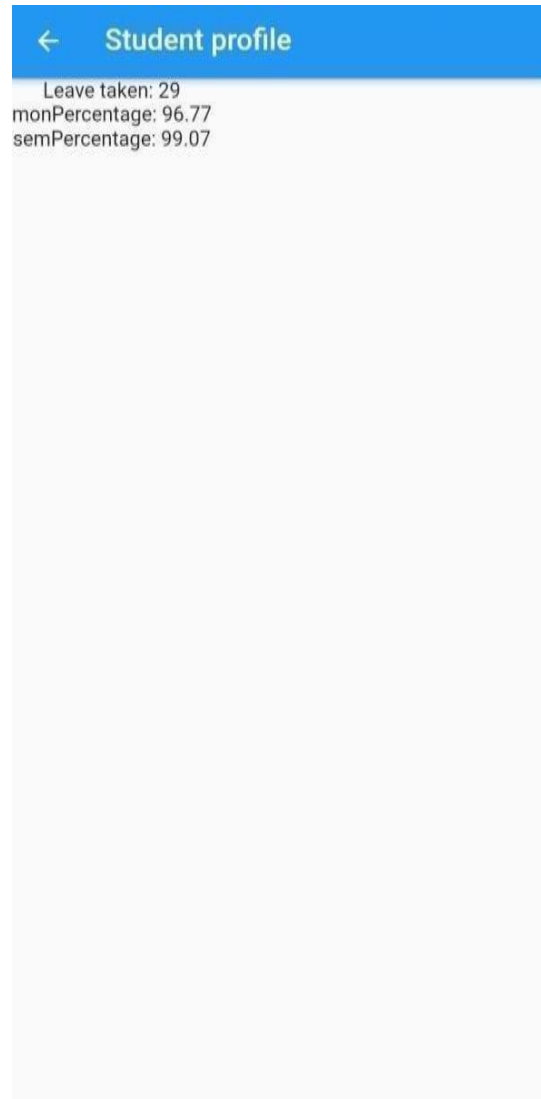


Figure 9. Student's Profile

The figure 9 show the Student Profile Page. Along with this, the number of leaves taken, total working days and the attendance percentage is also shown.

Staff-Login Screen

View Request Screen



Figure 10. View Current request

The figure 10 shows the View Current Request page. The leave may be approved or rejected or may be in pending state which is yet to be approved.

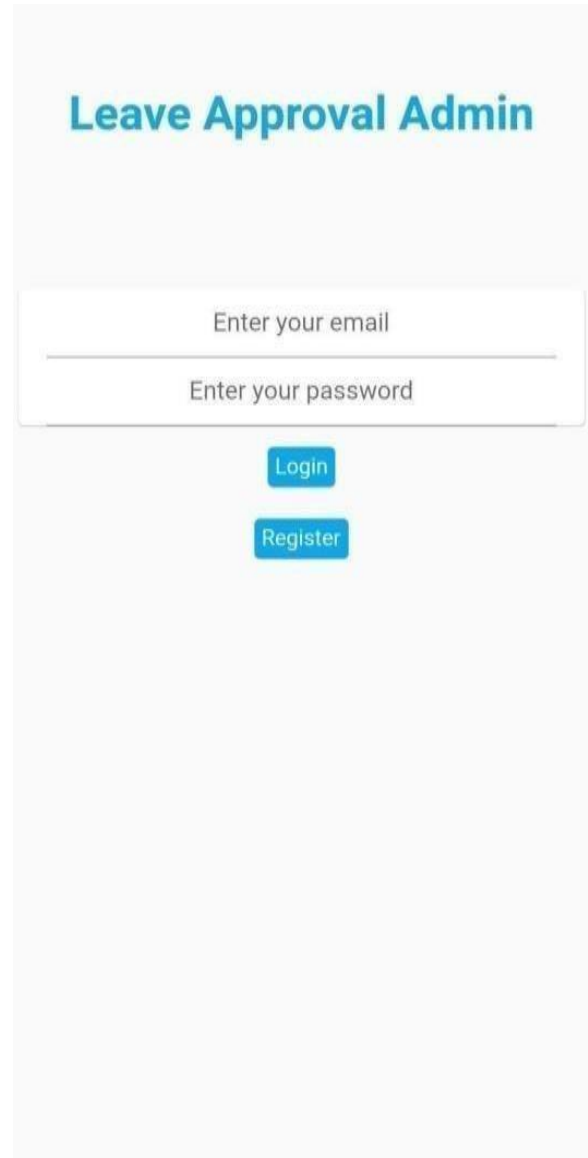


Figure 11. Staff Login page

The figure 11 shows the Login page for the staffs. They can enter their email-id and their password and can enter into the application.

Dashboard Screen

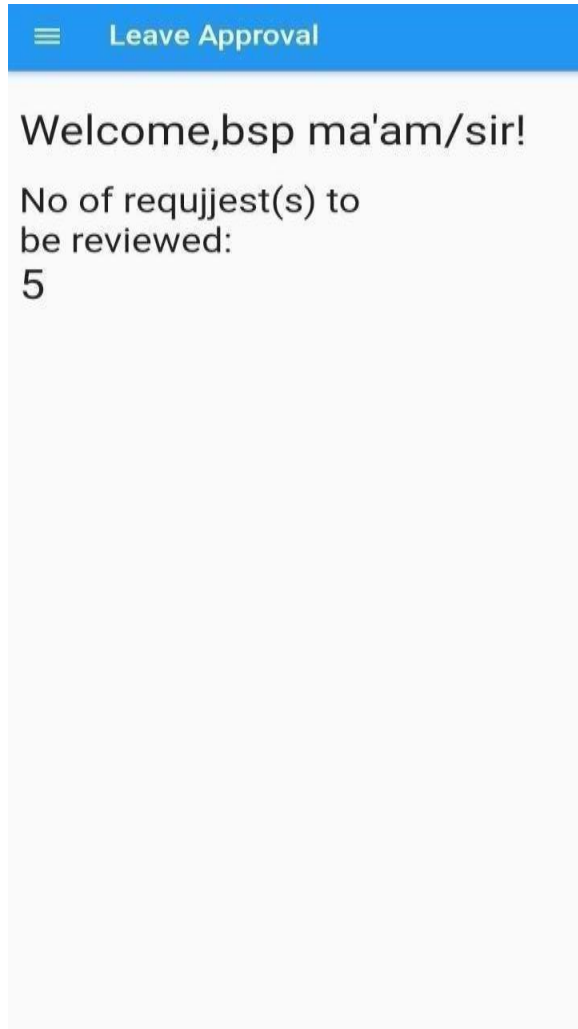


Figure 12. Dashboard Page

The figure 12 shows the dashboard screen of the staff members. The staff members can approve the requests with the view students request page.

Students List Screen

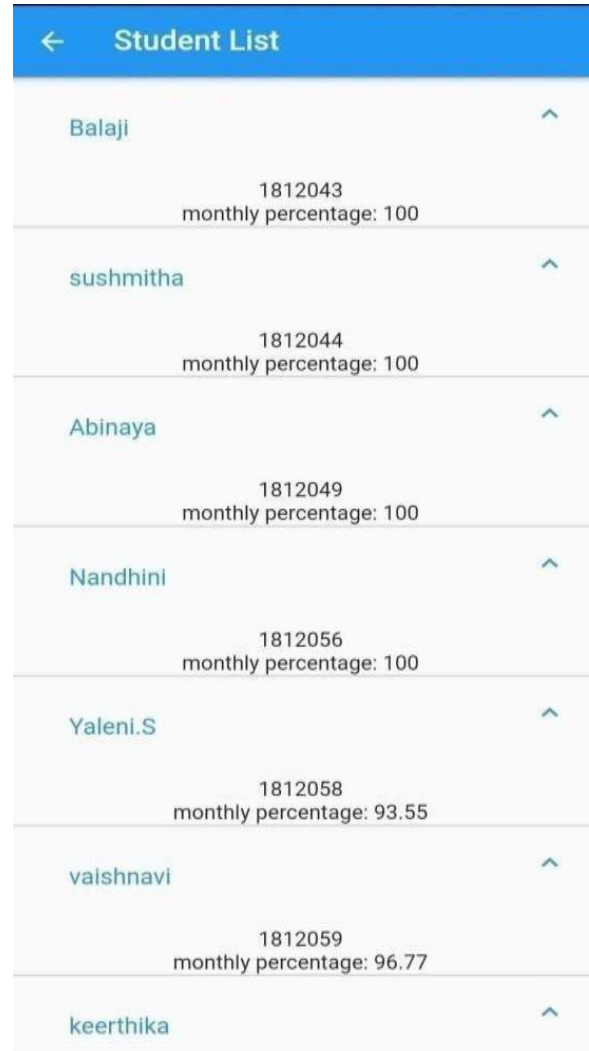


Figure 13. Students List

The figure 13 shows the Students List Page. Their ward student names are displayed in this page. The staffs can click and view their attendance percentage and other details.

Review Request Screen

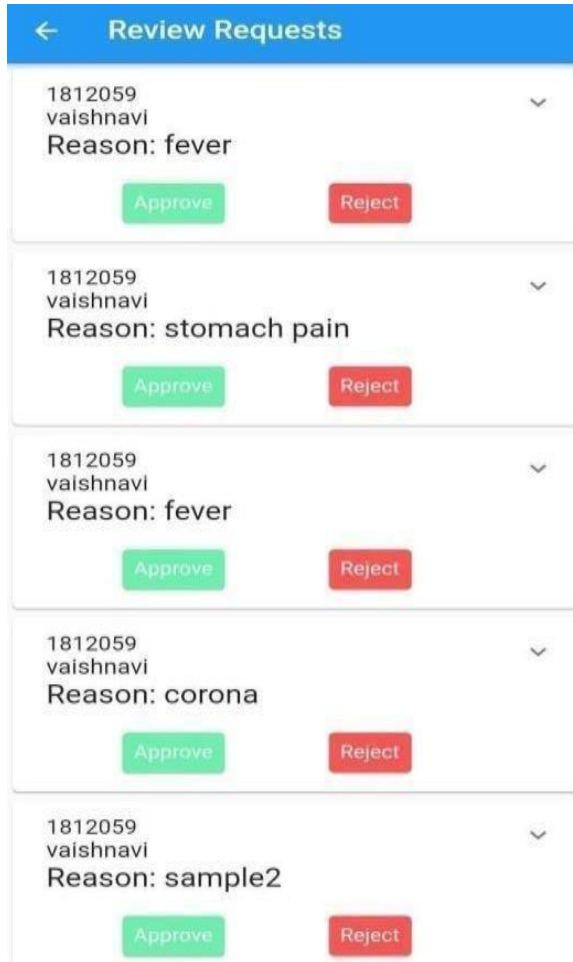


Figure 14. Review Request Page

VII.CONCLUSION

As seen above, the common problem faced by students these days is related to attendance. With the help of the proposed system, concerned faculties will have proper information about the student. On the other hand, most of the students who are not attending classes usually get attendance because of the drawbacks of the existing system. Thus, Students will not be able to cheat, and this application helps to take action against those students who usually miss lectures. Faculties will also relax from the proposal as all the hustling and bustling of maintaining records get almost eliminated. Overall, the efficiency of the proposal is incomparable, and its effectiveness will bring ease to the life of studying

students, parents, and teachers. It aims to automate the existing manual system for applying for the leave by the student and processing the leave request through faculty.

REFERENCES

[1]<https://flutter.dev/>
 [2]<https://blog.back4app.com/firebase/>
 [3]<https://developers.google.com/learn/topics/firebase>
 [4] M.K.P Basheer and C.V. Raghu, "Fingerprint Attendance System for classroom needs", in Proc.2012 Annual IEEE India Conference (INDICON)pp. 433-438, DOI: 10.1109/INDCON.2012.6420657
 [5] S. R. Bharamagoudar, Geeta.B., S.G.Totad.'Web Based Student Information Management Systems'. International Journal of Advanced Research in Computer and Communication Engineering Vol. 2(6)2013 pp 2342-48
 [6] Framework for Faculty Management System. Unnati A. Patell(International Journal of Application or Innovation in Engineering & Management (JAIEM)Volume 2(12) (2013)pp 415-416
 [7] Manish, S., Prachi, S., Rohil, Shubham, S. and Shiwani, S. Leave and Payroll Management System. International Conference on Computing and Virtualization, Thakur, India. (2015).
 [8] Adamu A, Employee Leave Management System. FUDMA Journal of Sciences Vol. 4(2) (2020) pp 86 - 91