

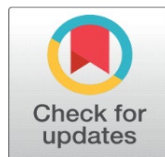
ANALYSIS OF DATA MANAGER FOR ENGINEERING COLLEGE AN ANDROID APPLICATION

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ABSTRACT

In any engineering college storing data is a huge and crucial task they need an application which is secure, contains large storage capacity and easy to handle. So this paper introduces an application named "The Data Manager for Engineering College" an Android application which is able to store a huge amount of data, secured and has a user friendly interface with good features. This application can perform multiple tasks such as, giving a platform to teachers to manage student marks for various assessments, to provide a module to take and store attendance of students. Additionally, teachers can post notices and provide syllabus copies for each subject directly in this applications students will get all the material provided by teacher right after they download this application. The app also allows instructors to share daily notes regarding the concepts to be taught in class and includes a module for maintaining student attendance records. This application contains several modules such as student achievement module, internships and training module, students fees record module, student's projects module, etc. The aim of this project is to help teachers to maintain student data in a single app and to help students to get notes, check marks, attendance, notices from teachers in a single app.

Keywords: Data Manager, Platform, Teachers, Students, Assessment, Application, Module, Storing Data, Engineering College, Multiple Tasks



1. INTRODUCTION

1.1. BACKGROUND

In engineering college there are large number of students and many activities are going on, like extra-curricular activities, fees record maintenance, attendance record maintenance, exam data maintenance, placement data maintenance, giving notes, notices, to students, monitoring placements, research paper published, internships, project record etc. So it gets difficult to store their data somewhere. If every institute has a specific application or a system which can store, update, create, delete, share, and maintain data it gets easy for academic institute. They need an application which also must be secure, has large storage capacity etc.

Many institute are still using paper method to keep records but it gets difficult to maintain that record for years. At the same time this app should be user-friendly and easy to handle. By implementing this android application or software

method academic record maintenance pressure will be reduced and their time will be saved and they can easily maintain this record for years without even losing a single amount of data. Their every task related to academic can be done within single android application.

1.2. PROBLEM STATEMENT

Every Engineering college has huge amount of data it can be student related data like student fees record, student achievements, student results, students attendance, student projects record, student roll call list, students internship record, student training and placement record. It is very essential to have a software which must be secure and provides a huge amount of storage space. Currently there are many software available in the market to store data but they have many limitations such as storage capacity, data security issue, technical issues, Data Backup issue, Complex user interface, Cost and License issue, Functionality issue etc.

So it becomes tedious to manage all the record in one app. So to overcome these issue we have develop an app named "The Data Manager for Engineering College" it is an android application which is developed especially for Engineering Colleges. it is an android application which is developed especially for Engineering Colleges which can perform multiple task such as Creating Attendance, Keeping Record of student fees, Storing academic data of student, displaying marks of student, teachers can add daily notes, take exam of students, store students placement and internship related data, etc.

1.3. IMPORTANCE

The Data Manager for Engineering College is an Android application that collects and stores student data etc. This Application is very helpful application since it can perform multiple task. In this application teachers can add student marks of every subject based on Continuous Assessment 1, Continuous Assessment 2, Mid Semester Exam, End Semester Exam, etc. In this app, teachers can add notices for student so that there will be no need to go in each class and read the notice, it also provide syllabus copy of every subject to student using mobile phones teacher can add daily Notes for students subject-wise like which concepts they are going to teach today in their class.

And this app also contains a module for maintaining student's attendance records. The aim of this project is to help teachers to maintain student data in a single app and to help students to get notes, notices from teachers in a single app. One of the specialty of this application is it has very strong password management system that is to login into this application everybody needs password. And that passwords are only with the developer without developer no one can edit or set new password. So this application has strong password system.

This application consists of multiple modules starting from Login Module, Director Module, Dean Module, Hod Module, Class Teacher Module, Mentor Mentee Module, Subject teacher Module, Student Module, etc. Each Modules is developed for different purpose for eg: Director Module in this module the director of that engineering college can check all department and class wise, division wise data of student like their fees record, their placement record, their academic data like marks, attendance, achievements, research paper published, extracurricular activities, their projects etc.

2. LITERATURE REVIEW

S.R.Bharamagoudar et al. [1] This paper aim to develop Student Information Management System (SIMS) provides a simple interface for maintenance of student information and like all student academic detail, college detail, course detail, placement related detail etc. It also contain faculty detail.

Kambagowni, et al. [2] This paper aims to develop a user friendly web application to manage and monitor student performance record management system.

Manaswini CH et al. [3]. This research paper, author has presented a comprehensive study on the development and implementation of a student management system. The purpose of this system is to streamline the process of managing student data in educational institutions and improve efficiency in data storage, retrieval and reporting.

Radhika Bhanushali et al. [4] This paper aims to develop the application which allows students to update any information easily while helping college staff retrieve selected student information easily.

Valentine. J. OWAN et al [5] This paper examines data management practices that should be adopted by scholars in maintaining the quality of their research data. Tertiary institutions in every part of the world should endeavor to

establish a data management unit that will be saddled with the primary duty of formulating research data management policies and the hosting of research data.

Meenaakshi N. Munjal [6] This paper gives an review of concurrent widespread discussions with IT leaders suggests that, despite the hype, cloud computing is an important development on par with the shift from mainframe to client-server based computing.

Eva Katharina Donner [7] This paper aims to, summarizes different approaches for the implementation of an RDMS.

Adalia L. Martin et al [8] This paper describes the most important result, that there is a significant relationship between big data and analytics and excellence of performance as big Data.

3. METHODOLOGY

1) Research Design

This paper analyze a software development approach to create the Data Manager application which is designed especially for engineering colleges. Aim of this application is to provide a good platform for managing academic data, enhancing accessibility for various stakeholders, including principals, dean and heads of departments (HODs), teachers and students.

• Application Development

The application named Data Manager for Engineering College was developed using Android Studio software, with the Java Development Kit (JDK) and the Software Development Kit (SDK). The development environment worked on Windows 10, and the virtual device used for running this application is Pixel_3a_API_34_extension_level_7_x86_64 provided by Google.

• Technologies and Tools

- 1) Programming Language: For Backend purpose we have used Java Programming Language.
- 2) Front-end Design: The user interface was designed using XML with a pick-and-drop method.
- 3) Database Management: For Data Storing purpose we have used Microsoft Excel and Microsoft Word, respectively.

• Security Measures

To ensure the security of user data, only the developer possesses all the username and password for accessing and modifying these sensitive elements, thereby restricting unauthorized access to the application. While choosing developer college may give this position to the trust worthy person. So that there application security will be strong. There will be two developers one is assistant one and one will be the owner or developer of this application.

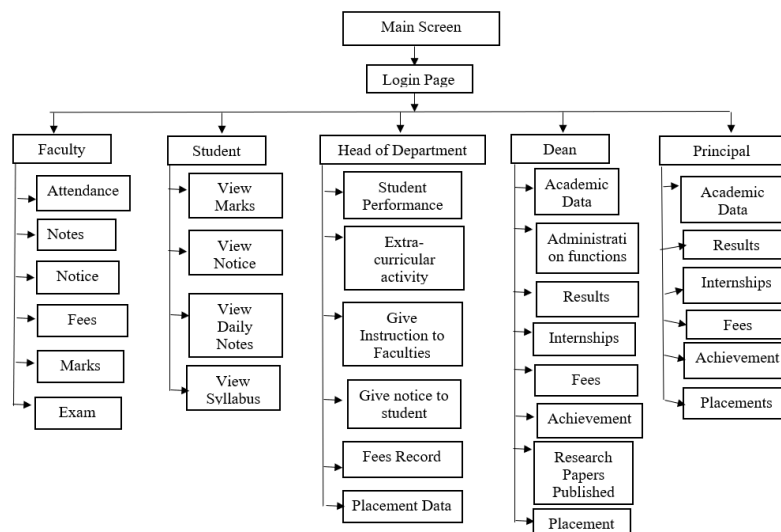


Figure 3.1 Tree Diagram showing different modules present in Data Manager for engineering college an android application.

• System Architecture

Flow of Data Manager for Engineering College Android Application:-

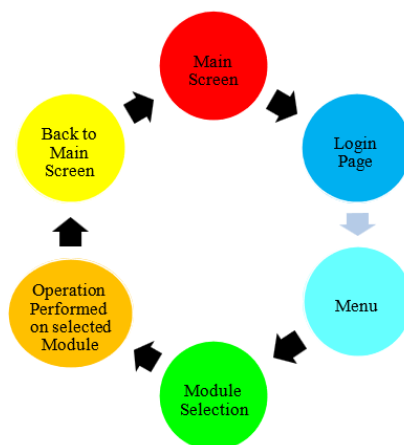


Fig: - 4.1 Flow of Application of Data Manager for Engineering College Android Application.

From figure 4.1 displays pictorial representation of flow of application, when user click on the application user will be redirected to main screen when user click on next button which is available on main screen user will be redirected to login screen the login credentials will be already given to each student, faculty, Hod's of various departments, Dean and Director. They only can access this application. So once they are redirected to login screen there they need to add username and password if the username and password matches then user will get access of this application, then user will be redirected to menu screen on menu screen there will be multiple modules user has to select one at a time suppose user is a faculty and user want to add attendance of student they will choose attendance module from menu section. In attendance module they will have five options first to add attendance, second to create attendance, third to delete attendance, fourth to find out defaulter, fifth to upload defaulter. Once user selected any one module based on that module that operation will be performed. Same can be done for other modules. After that operation is performed user either can go on other modules and complete their task or user can close the app.

Data Manager for Engineering College An Android Application Modules:-

- 1) Principal Login Module: The principal can access academic data of all branches, including student results, internship details, fee payments, achievements, research publications and placement data.
- 2) Dean Login Module: Same as principal, the dean can check academic data, including student results, internship details, fee payments, achievements, research publications and placement data administrative functions.
- 3) HOD Login Module: Heads of departments can view update students academic record, extracurricular activity, give faculties instruction, etc.
- 4) Teacher Login Module: Teachers can log in to enter and manage student marks across various assessments (e.g., unit tests, term examinations) and facilitate communication through the notice module.
- 5) Student Login Module: Students can log in to view their marks, notices, daily notes from teachers, and access the syllabus for each subject.
- 6) Student Marks Module: This allows teachers to enter and manage student marks, providing transparency and access for students to view their performance.
- 7) Notice Module: Teachers can add and share important notices to students, ensuring timely communication of critical information.
- 8) Daily Notes Module: This feature enables teachers to upload daily teaching plans, assisting students in preparing for upcoming lessons.

- 9) Syllabus Copy Module: Teachers can upload the syllabus for each subject, which students can access for reference.
- 10) Student Attendance Record Maintenance Module: This module allows teachers to efficiently add, track and manage student attendance records and display defaulter list as well.
- 11) Student Exam Module:- This module allows teachers to conduct exams of student by providing Platform for Exam they can take MCQ, Short Answer, Assignment Type, Case Studies, Project etc. Type of Exam using this module.
- 12) Placement Data: - This module contains all the information related to placement of students like company name, package details, designation detail, etc.

- **Results**

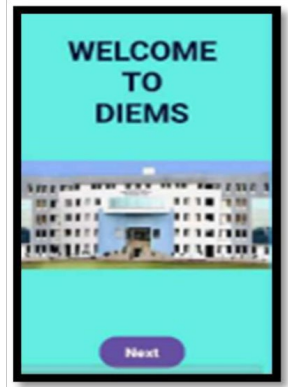


Figure 5.1 Main Screen

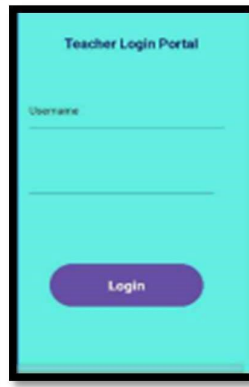


Figure 5.2 TeacherLogin

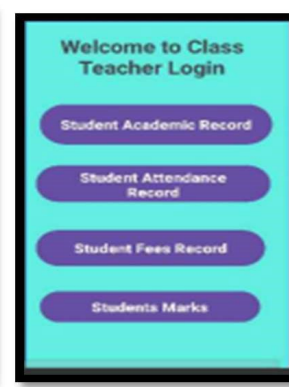


Figure 5.3 Class Teacher Module



Figure 5.4 Class Teacher

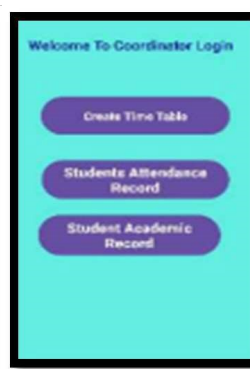


Figure 5.5 Coordinator Login

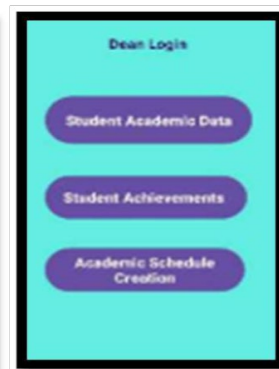


Figure 5.6 Dean Module



Figure 5.7 Director Module

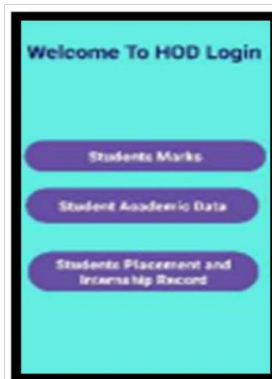


Figure 5.8 Hod Module

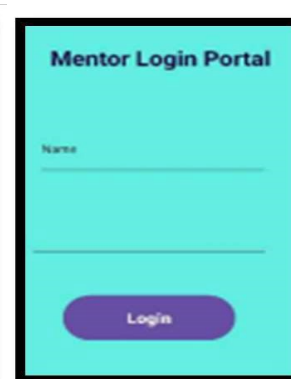


Figure 5.9 Mentor Login

From figure 5.1 we can identify that once user opens the application user will be redirected to this main screen. After user click on the next button which is available on the main screen user will be redirected to menu on menu screen suppose user choose Teacher Login user will get to see screen same as shown in figure 5.2 After this screen is displayed user need to add Username and Password. If the user name and password matched then only user get to see the next screen which is teacher module where they can performed the task such as attendance management, exam management, marks management, etc.

Now suppose user is Class Teacher then once they open the application and clicked on next button they will be redirected to menu screen suppose they click on Class Teacher login they will get to see screen same as of Figure 5.4 there user will add user name and password, if it matched then they will get to see screen same as Figure 5.3 there they can perform all the task like Student attendance Record, Student Marks Record, Students fees Record, Students Academic Record etc.

And suppose user is Coordinator and user opened app and gone on main screen and clicked next button and user arrived at menu screen their user choose Coordinator Login their user will enter the user name and password if it matched with original username and password then user can see same screen as Figure 5.5 and can go on Coordinator Module their user can managed all the task like creating time table for students, Students academic data, Students Attendance Record.

Now Suppose user is Dean of the College and wants to access college data they can access it by opening app, and after arriving at main screen if user clicked on next button and they will be redirected to menu screen on menu screen they will choose Dean Login after arriving on Dean Login they added original user name and password and it got matched then they can see same screen as Figure 5.6 and can manage Creation of Academic Schedule, Students Academic Record, Students Achievement etc.

Now Suppose user is Director of the College and wants to access college data they can access it by opening app, and after arriving at main screen if user clicked on next button and they will be redirected to menu screen on menu screen they will choose Director Login after arriving on Director Login they added original user name and password and it got matched then they can see same screen as Figure 5.7 and can manage Creation of Academic Schedule, Students Academic Record, Students Achievement etc.

Now Suppose user is Head of the Department and user opened app, and gone on main screen and clicked next button and user arrived at menu screen their user choosed Hod Login their user will enter the user name and password if it matched with original username and password then user can go on Hod Module their user can see same screen as Figure 5.8 and can managed all the task like students' academic data, Students Training and Placement Data, and Student Marks data.

Now suppose user is Mentor of Students and suppose user has opened the application then once he clicked on next button user will be redirected to menu screen on menu screen they need to choose mentor login they will get same screen as Figure 5.9 once they choosed mentor login Once they add correct user name and password they will get screen as mentor module in that they can perform various tasks which are allotted to them as mentor like uploading notice, taking mentees record of academic, etc.

4. CONCLUSION

Here we conclude that our application will definitely help in schools colleges and various institutes. It is very easy to handle and anyone can easily use it. This will help various institutions and colleges or schools in order to do all their work in one app. They can manage their all tedious work in one app. This application is user friendly and it can store large amount of data, this application will help to not only store data but it will also help to manage task of teachers and students like attendance taking and storing, checking. Maintaining fees record, marks or result of students, roll call list, student personal details, projects details, achievements, placement details, internship details, etc.

CONFLICT OF INTERESTS

None.

ACKNOWLEDGMENTS

None.

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