Institute Management Android Application

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Abstract: In today's era Smartphones are not limited for communication purpose. They play an important role in our daily lives. There are many ways in which Smartphones ease our day to day work. They save time and energy by quickly performing difficult tasks. But till date, the hectic work of managing the students and their huge information in an educational institution is carried out manually. Though now days the records are maintained in servers and are accessed and managed through ERP systems, but these systems are not easy to understand and use and are not portable and conveniently accessible. To overcome this problem, we propose a mobile based system which manages all the data of students and carry out various operations on the go. The proposed system manages student's information and provide various services like Attendance Management, Online Test Portal, Academic Calendar, Study Material, Feedback System etc. The students, their parents/guardians and the institute staff will have access to the application. All will have different set of permissions and can enter, edit, view data and perform operations on the data. The system will work on an online server and will be developed using tools like Android Studio etc. The proposed system will ease the work of data management and will be able to carry out operations with more ease than existing systems.

1. Introduction

This chapter describes the need of institute management application and introduces the concept of institute management system.

1.1 Overview

With the advancement in time and technology there is a need for faster dissemination of information. The advantages of automated system now increasing at the highest rate. Thus many manual processes are automated. Since the automated systems are demanded now-a-days, educational infrastructures like colleges needed their manual system to function on mobile computing systems. Advancements in Information Technology field allow institutes to employ databases and applications like student data system thus, making the accessing of records centralized and easy. The proposed Android system provides a simple interface for maintenance of student information. It can be used by the college to maintain the records of students easily. The system deals with all the student basic personal details, academic related details and reports, course details, curriculum and syllabus, attendance and feedback as well. It tracks all the small print of a student from the day one to the top of the course which may be used for all reporting purpose, tracking of attendance, progress within the course, coming semester year curriculum details, exam details. Our basic approach attempts to develop a sensible phone based application using Android which may be wont to make this process easier, secure and fewer error prone. More efficient

information are going to be achieved through this technique. To provide access to information related to college, departments. The proposed work has four users: 1. Admin, 2. Student, 3. Staff and 4. Parents. Admin module maintains the student and other data. For a given student/ staff/ parents. The Administrator creates new user like student, staff and register them on the app and also creates their unique login id (General Registration Number). Password is generated automatically. Using these login credentials student, staff can access the system to either upload or download some information from the database. In the student's module, student can view study material, Attend exams, check their attendance and submit feedback. Staff can submit attendance, upload study material, schedule meetings. Parents can view progress of the student, pay fees and view study material.

2. Problem Definition

To create an Android Application which will provide online interface for the students, staff and Administration, which will increase efficiency of record management by minimizing access time and to provide security to the data. The application will also decrease the time spent on non-value added tasks.

3. Design

In this Section explains the architecture of the system. The Data Flow Diagram which explains flow of the project are also described.

3.1 System Architecture

A System Architecture is nothing but a model of the entire system. It a conceptual model which defines the overall structure and behavior of the whole system as one unit. The following fig. shows the system architecture of the application.
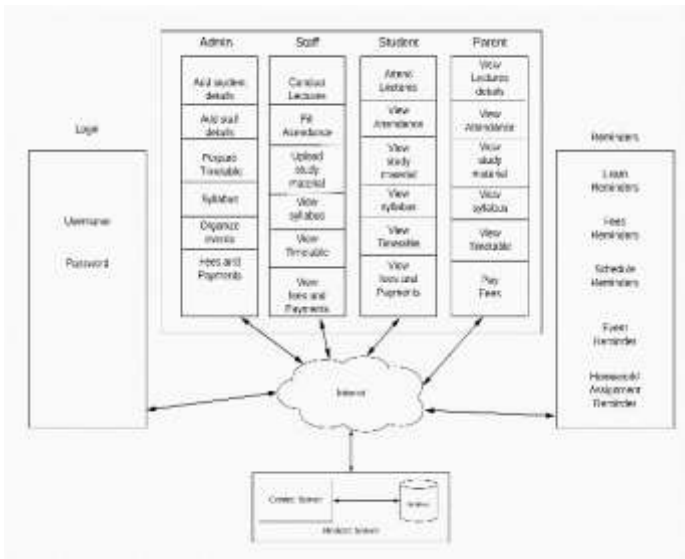

Figure 4.1: System Architecture

3.2 Data Flow Diagram

A data flow diagram or DFD is nothing but the flow of information and data for any process or system. It uses pre-defined symbols like rectangles, circles and arrows. It also uses short text labels to show data inputs, outputs, storage points and the routes between each destination.

Data flow diagrams can be of various types. A simple DFD can be hand-drawn. It can extend to in-depth, multi-level DFDs that shows how the data is handled in detail.

The fig. shows DFD Level 1 which is also known as a Context Diagram. It is nothing more than a basic overview of the whole system. It is designed in such way that the person who is viewing the diagram can easily understand the overview of the system in one look.
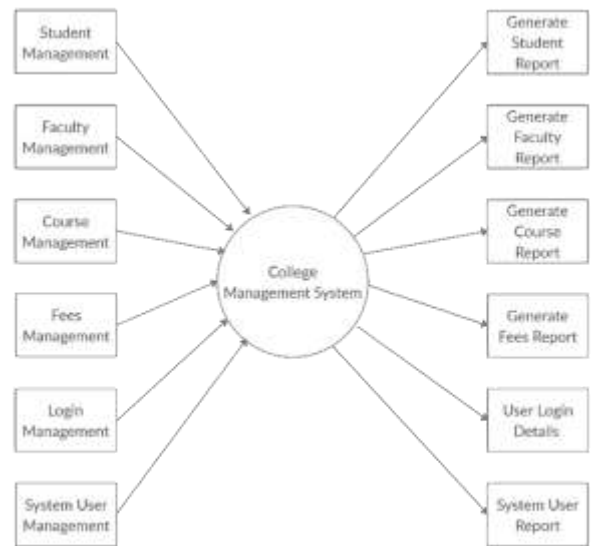

Figure 4.2: DFD Level 1

3.3 ER Diagram

Entity Relationship or ER Diagram is a way of representing the relationships between different entities of the system, graphically. It uses various predefined symbols like rectangles, circles and diamonds. Arrows are used to connect these entities. There are various types of relationships, which can be represented accordingly. These are one-to-one, one-to-many, many-to-one, many-to-many etc. The following fig. shows ER diagram of the system and displays some entities of the system.
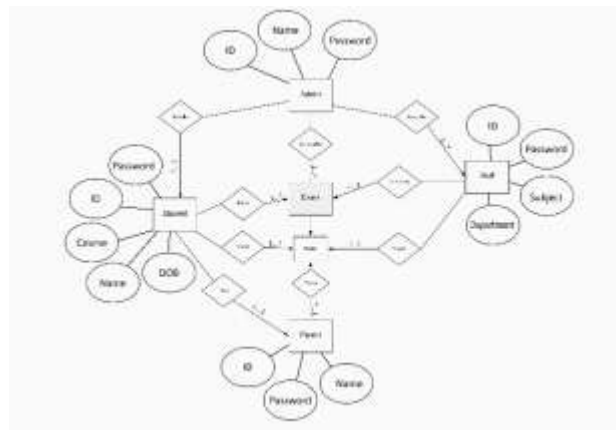

Figure 4.3: ER Diagram

4. Security

The main goal of security is to protect data or information from being leaked to any unauthorized user. Security achieves data confidentiality, integrity and availability. To

provide security to the sensitive data, various algorithms are used.

4.1 DES Algorithm

In this project a well-known technique, DES Algorithm is used to provide security. Data Encryption Standard or DES is a Block Cipher Algorithm. It takes plain text in form of 64 bits block and convert it into cipher text. It is done using a 48 bit key. Being a symmetric algorithm, it uses same key for encryption as well as for decryption process. The following fig. shows the basic working of DES Algorithm.
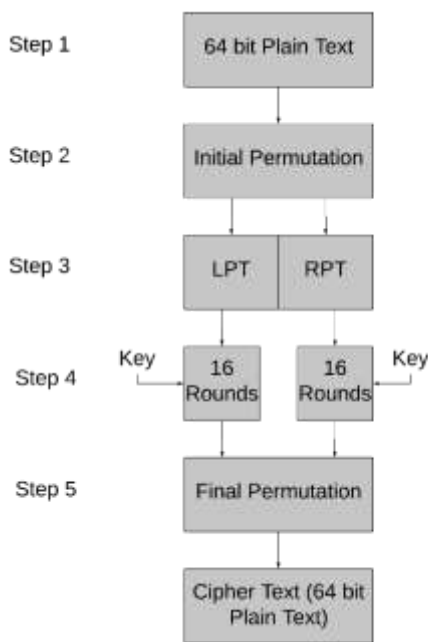

Figure 5.1: Working of DES Algorithm

5. Technical Specifications

5.1 Hardware Requirements

- **RAM:** 4 GB
- **Memory:** 500 GB
- **CPU:** Intel CORE i5 3.70 GHz

5.2 Software Requirements

- Android studio 3.2

- PHP 7.3
- MySQL 5.0.28 enterprise server
- PHP Code Ignitor (MVC) Framework
- Bootstrap 3.7.1

5.3 Advantages

1. Quicker way to carry out institute related activities.
2. User can access data and facilities from anywhere.

5.4 Limitations

1. Internet connection is required for the functioning of the app.
2. Large number of user registration can be a hectic process using a smartphone.

6. Conclusion

An Android based mobile application for Institute Management is being presented. The project, entitled as "Institute Management Android Application", is a system which deals with automating the existing manual institute management system. The application offers reliability, time saving and easy control of the system. It can be used as a platform for maintaining the data of students, parents and staff, and carrying out various operations such as daily attendance, online test, academic calendar, study materials, feedback, etc. Students, parents/guardians and staff will be able to access the application according to the permissions set. This application will simplify and speed up the management process. It provides very high security system that will reduce the work and resources. This application provides a new way of computing and displaying operations with more responsive and attractive user interface.

Thus, on the basis of the survey and by analyzing the existing system, we conclude that this application will help to digitalize the system in such a way that this system will ease the work and carry forward the operations in a very simple and efficient way.

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