

An Android Application for Student Information System

Project Guide

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Abstract— Changes in Information Technology (IT) allow schools to utilize databases and applications such as Student Information System (SIS) thus, making the accessing of records centralized. One of the changes that came about is the online-based applications. These applications are an improvisation to the traditional- transaction processing systems. The proposed system is an Android application to manage student details on mobile and keeping them updated about latest events in college. The application will be used by students, teachers and parents. The utilities provided by the application are- student details maintenance, discussion forum, notice board, attendance and report generation. The main objective of this project is to add mobility and automation to the process of managing student information in an institute.

Index Terms—utilize databases, accessing of records centralized, android application, add mobility and automation

I. INTRODUCTION

Changes in Information Technology (IT) allow schools to utilize databases and applications thus, making the accessing of records centralized. One of the changes that came about is the online-based applications. These applications are an improvisation to the traditional- transaction processing systems. Thus, most universities switch to the online system because of its efficiency to acquire, process, store and retrieve information from the Internet [4].

The Student Information System (SIS) would be a new way of record management and transaction processing that would achieve efficiency on processing student information. It would be a great help to the administrative personnel, academic personnel or stakeholders and students in updating, retrieving and generating student data.

The developed android application will be used by teachers, students, parents and the administrator who maintains the

system. The students will use the application to enter their personal and academic details, post their queries regarding a particular subject on the respective discussion forum and for viewing notices broadcasted by the teachers/admin. The teachers can verify the details entered by the students and after the placements, the teachers can enter the placement details for each student. They can broadcast the changes in schedules or any new upcoming events to the students. Also, the students as well as their parents will be informed about the attendance percentage periodically through the application. The administrator has the authority of modifying the student details, adding or deleting teachers as and when they get admitted to the college or leave the college.

Thus, this application will automate the manual student information maintenance process in colleges. It will also reduce the amount of paperwork done and time invested in manual process by the teachers.

II. DRAWBACKS OF EXISTING SYSTEM

An Android application similar to Student Information System named VIT-Live already exists in the market. VIT (Vidyalankar Institute of Technology) uses VidyalankarLive (VLive) which is an academic oriented social networking website created based on the concept of community portal. It is an internal portal utilized for interaction between students, faculty and other staff members and remain abreast on various on-going events [6].

VIT-live app provides a lot of functionalities. However, it has certain drawbacks too:

- The content is not well organized and hence difficult to understand.
- A lot of searching is required.
- Notifications do not pop up, every time student has to search through every event to know about new announcements.

- Students from one class are able to view and edit forums of some other class, which can result in ambiguity of displayed information and create confusion.

Overcoming of drawbacks in the proposed system:

- Content will be well organized. Each category of user will have a different interface.
- The searching overhead will be drastically reduced as a result of maintaining a separate discussion forum per subject for every class.
- Only the notifications relevant to a particular user will be delivered to the user.

III. PROPOSED SYSTEM

The objective of the design of a new system is to automate the current procedure of managing and controlling the information about the student details and to reduce the overhead of managing paper documents for every announcement and notices being made. The proposed system will keep the information on a central server while allowing users to access that information from their own Smartphone through the installed android application. There will be an optimized database on the server and an improved user interface on each client machine i.e. on the SIS app installed on the user Smartphone.

The developed application will be used by students, teachers, parents and the administrator. The functionalities of the proposed system can be divided into five well defined modules:

REGISTRATION AND LOGIN: Given that the user has downloaded the application, then the user should be able to register through the application by providing the details required for registration. Starting from 2nd year i.e. 3rd semester, it is required that user should register for the application at the beginning of every semester. After registration the user can login into the system by providing the user id and password.

STUDENT DETAILS: It includes three entities-

- Personal details
- Academic details
- Placement details

The students are expected to enter their personal details which will then be verified by the teachers. The personal details include residential address, email address, contact details (students as well as parents contact details) etc. The teachers are expected to enter the academic and placement details. Academic details include students CGPA. Placement details can only be entered in the final year and includes the company name where the student is placed and his pay package or if the student has opted for higher studies then the corresponding details will be entered.

DISCUSSION FORUM: There will be a discussion forum for every subject in a semester for every class. In this discussion forum, the respective subject teachers can upload notes, respond to student queries. The student can put forth

their queries and at the same time upload any notes.

NOTICE BOARD/EVENT NOTIFICATION: Notices can be posted by teachers from their respective login and can be viewed on a notice board section of the application with title for a notice associated with it. The notices for a particular class will be broadcasted to that class only.

ATTENDANCE: Subject teachers for each semester are required to enter the attendance details of students. The system should be able to generate attendance reports (for lectures and practicals) for individual student for each subject. These reports will be sent to the student as well as his parents periodically. The teacher can also view the attendance record of students during a particular interval. If the attendance of some student falls below the threshold value, then the particular student should be notified regarding the same.

REPORT GENERATION: It includes generation of attendance reports for lectures as well as practicals for individual student for each subject. Other reports such as academic details record etc. can also be generated. These reports can also be sent to the student as well as his parents if required.

IV. SYSTEM DESIGN

This deals with the system block diagram and the data flow diagram of the Student Information System.

A. BLOCK DIAGRAM

A block diagram is a diagram of a system in which the principal parts or functions are represented by blocks connected by lines that show the relationships of the blocks. It may also show how the system operates, what are its inputs and outputs at various stages, and how the information, and/or materials flow through it. The block diagram for Student Information System is as shown in Figure. 1

The proposed system has a client server architecture. All the information will be kept in an optimized database on the central server. This information can be accessed by the users through the android application (SIS) installed on their smartphones (client machines). Each client machine will have an improved user interface. Each category of user will have a different view of the system on basis of the authorizations bestowed upon him.

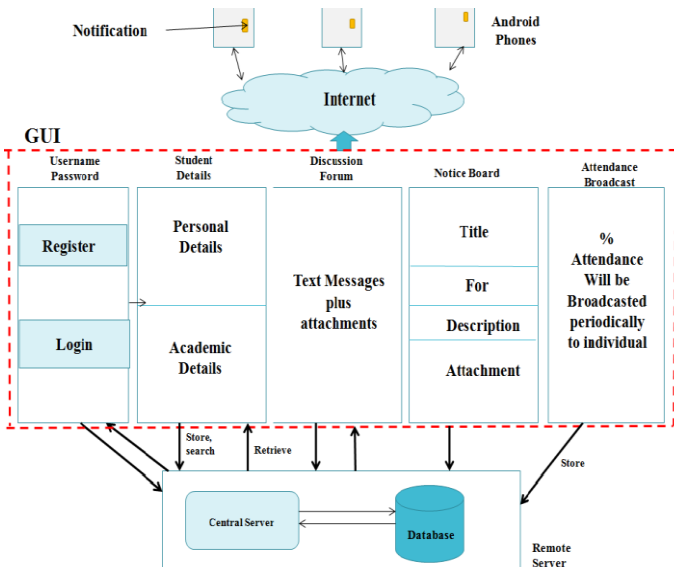


Figure. 1 Block Diagram

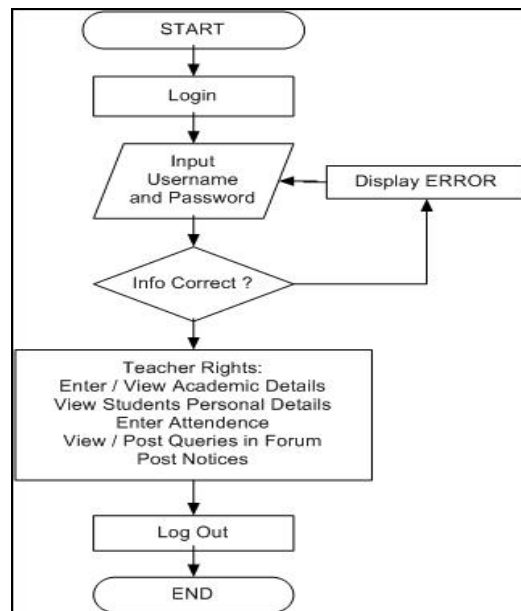


Figure 3. Staff Flowchart

B. FLOW CHART

A flowchart is a type of diagram that represents an algorithm, workflow or process, showing the steps as boxes of various kinds, and their order by connecting them with arrows. This diagrammatic representation illustrates a solution model to a given problem [5].

The flowcharts depicting the actions of each category of users of the SIS are as shown below:

ADMINISTRATOR:

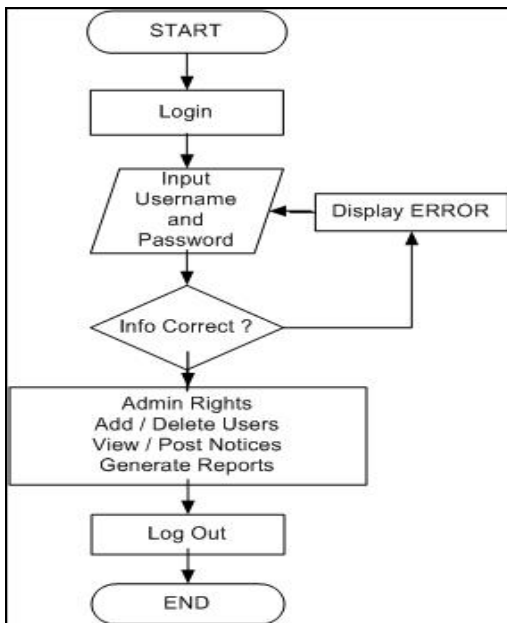


Figure.2 Administrator Flowchart

STUDENT:

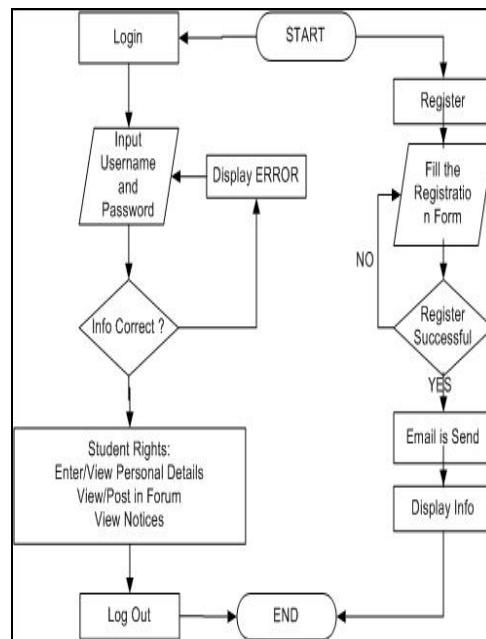


Figure 4. Student Flowchart

PARENT:

STAFF:

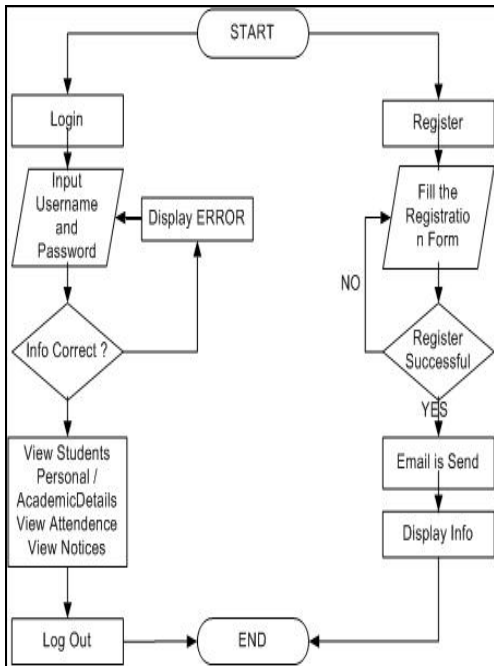


Figure 5. Parent Flowchart

C. DATA FLOW DIAGRAM (DFD)

Data flow diagrams (DFDs) reveal relationships among and between the various components in a program or system. DFDs are an important technique for modeling a system's high-level detail by showing how input data is transformed to output results through a sequence of functional transformations. [7]

The context level data flow diagram for Student Information System (SIS) is as shown in Figure 6.

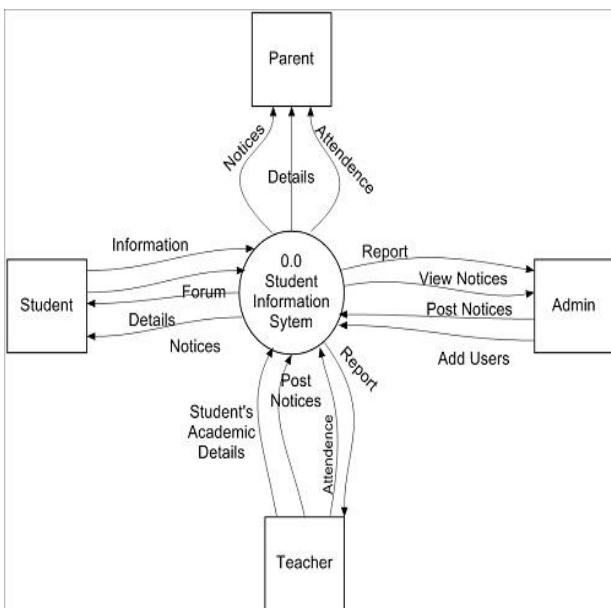


Figure 6. Context Level DFD

V. TECHNOLOGIES USED

Android XML

For user interface, Eclipse (version MARS) android application development software will be used. XML will be used for designing the Graphical User Interface (GUI).

JAVA

Java will be used for connecting various components of user interface to database system.

MYSQL and PHP

MYSQL is used as a database at the web server and PHP is used to fetch data from the database. Application will communicate with the PHP page with necessary parameters and PHP will contact MYSQL database and will fetch the result and return the results to application requesting it.

VI. CONCLUSION

This paper assists in automating the existing manual system. This is a paperless work. It can be monitored and controlled remotely. It reduces the man power required. It provides accurate information always. Malpractice can be reduced. All years together gathered information can be saved and can be accessed at any time. The data which is stored in the repository helps in taking intelligent decisions by the management. So it is better to have an android application for student information management. All the stakeholders, faculty and management can get the required information without delay. This system is essential in the colleges/hostels and universities [2].

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