

Design and Development of Android Mobile Application for Engineering Students Department Wise

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Abstract - The main objective of this research paper is to propose a mobile solution for those students who are registered with course of bachelor engineering technology program. We have seen over the years that the process of manual records has been carried out across almost all educational institutions. The process is not only time consuming but also sometimes inefficient resulting in the false marking of attendance. To discourage the student's above mentioned attitude towards learning; a mobile application has been designed, developed and tested for android platform. The paper describes the step by step design and development techniques process of android application which can be utilized as an integral component of learning model of engineering education anywhere.

Today, we need not maintain pen and paper based records and other related stuffs. Following this thought, we have proposed various activity monitoring system based on the concept of web services which is implemented as an Android mobile application that communicates with the database residing on a remote server.

The mobile application would require either General Packet Radio Service (GPRS) or Wi-Fi technology connecting to the database. This document is all about to generate an android application to calculate the attendance of the students in colleges and updating the result directly into the database server and also to update students with syllabus, notes and other education related things.

Index Terms – Mobile application, android virtual simulator, emulator, SDK, JDK, JRE.

I. INTRODUCTION

The development of mobile applications is not an easy task. There are also drawbacks that need to be reduced or eliminated such as data volume (optimization), security (discover and eliminate security holes), data serialization for custom and complex objects (refactoring). Regarding the presented mobile application, the new development directions such as new functionalities, interface improvement, course and tests modules implementation, user management, modules integration are considered in order to provide a base for an working android application. The prototyping is a part of educator systems. The authors concluded and recommended that the open-architecture, multimedia and graphics rendering capability and rich set of User Interfaces, gesture and sensor based control make the Android a much preferred platform for Mobile Devices and highly suitable for developing and implementing Educator applications. The rapid development of hardware and easily accessible networking technologies, the demand for mobile based education is experiencing a boost. The author concludes that the world is dynamic. Technology, cultures, teaching and learning models and methods are not static. Android is an open source Linux-based operating system intended for mobile computing platforms. The syntax is the same as Java in terms of operands, selections, iterations, file handling etc. Currently JDK 7 and JRE 7 are variable for Android application development JRE7 is already included in

JDK7. The more specific Android classes and packages use other names that are similar to Java editions, such as the Activity Class and View Class. The Android SDK has significant important for Android developers. It contains all the packages, applications framework and class libraries the developer needs to develop and Android application. The PATH variable is used by the developing computer's OS to locate the Android SDK to and is essential for developing software anywhere in the developing machines' file system. For Android, android studio is recommended to develop the applications. The developer should keep in mind an Android application is in a lower version is forward compatible to a higher version. The ADV is an emulator which actually contains the specific Smart phones OS. As a result, the demo application demonstrates functional solutions to research problems that are able to operate on an actual Android device. The aim of the project is to create an Android mobile application for engineering colleges that can be used by all teachers, students and parents. This application fetches the details of the courses allotted to the respective faculty and the students enrolled in the courses from the server using the internet connection and store it in the database.

A smart phone based application using Android can be used to make this process easier, secure and less error prone.

Reduction of manual work and more efficient information management will be achieved through this system.

II. PROBLEM STATEMENT

In Engineering universities there are various measure of understudies getting conceded and seeking after their higher studies. Presently the real schools has an issue to get associated with the understudies and their folks frequently, which is real issue in today's time understudy and in addition personnel don't have legitimate method for imparting aside from the conventional method for conveying. Because of which there are parcel more mistakes and issues like ill-advised correspondence, not mindful of late exercises and other scholarly process points of interest, occupied of all study materials to understudies. The guardians are additionally ignorant about their ward scholastic advancement.

Current System

- Schools, colleges are currently working on manual maintenance.
- They maintain registers and files for storing information.
- They have maintained separate register for attendance.
- All notes and other teaching aid are presented in paper work.
- Being a college it is necessary for automation of process.
- If any broadcasting is to be done to student it is done through phone calls.

Managing the records using mobile phones, provide an alternative way. Communication between teachers and the parents is also an important issue that should also be considered, because parent can only get the information about their student after the interaction with teachers.

III. PROBLEM SOLUTION

As referred to the literature review given in Introduction at section 1 above. The results of the research suggest that there is a need to use the mobile technology in engineering education in the region. There are also several survey have been conducted which reflects the acceptance of mobile leaning in the region In wake of our observations and references given above, it is very important to bring a transparent mechanism that not only addresses the real problem but also minimizes the chances of current malpractice. As a part of mobile learning solutions, an android based application has been developed and tested for expected results.

IV. RESEARCH METHODOLOGY

For developing the Android mobile learning application, a designed process has been created. The android mobile technology has been applied to the integrated Android Software Development Kit (SDK) at minimum target mobile device of version 2, in Android Studio. The application has been programmed, debugged and run successfully in both Android Virtual Simulator (AVD) and Samsung Galaxy II mobile device. The application is built using Android 2.2 version Android framework. In Android a screen uses a combination of Layout and Activity and uses Intent to start an Activity. And all the activities must be declared in Android

Manifest.xml file before using. The complete life cycle of the application is shown in Fig 1 below. As per application methodology, each screen of the application has its own activity class.

The figure 2 shows the deployment process of the android application.



Figure 1: life cycle of application development

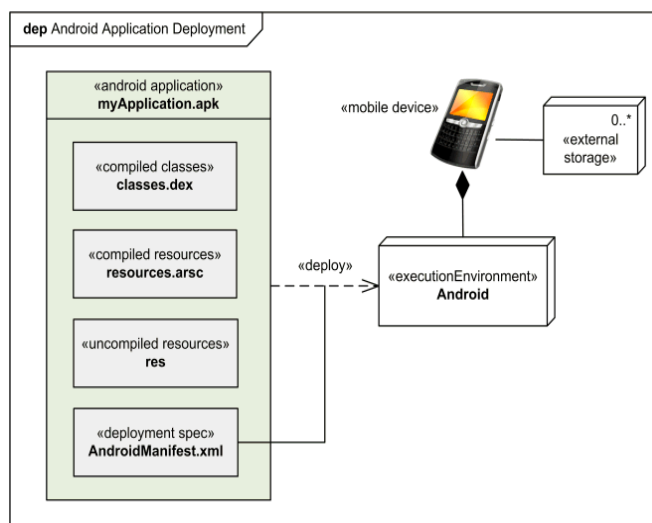


Figure 2: Android application deployment

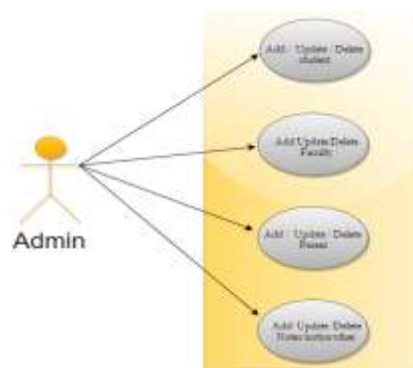


Figure 3: Use case diagram for admin i.e. HOD

The above use case diagram is for the admin i.e. the head of department, which shows the rights of the admin

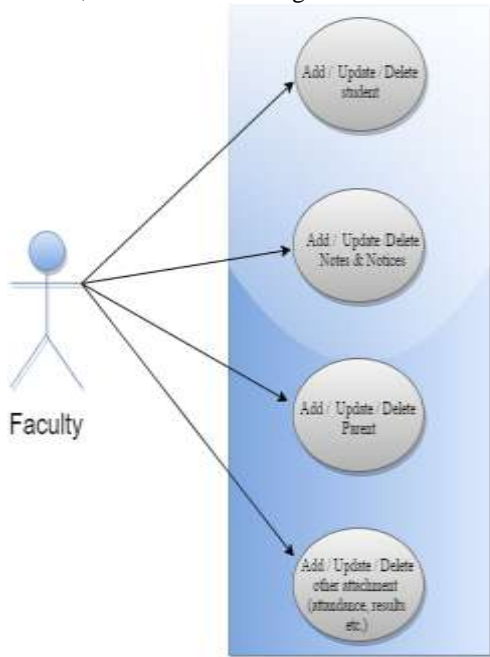


Figure 4: Use case diagram for Faculty



Figure 6: menu list showing Educator on android mobile

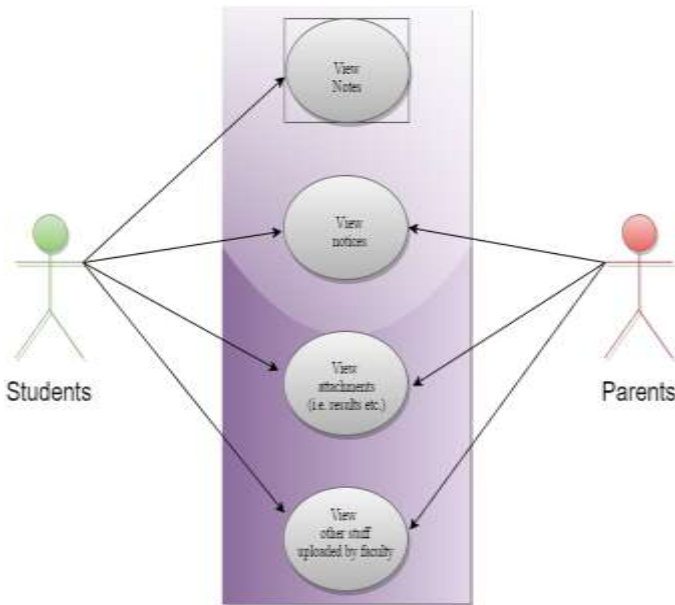
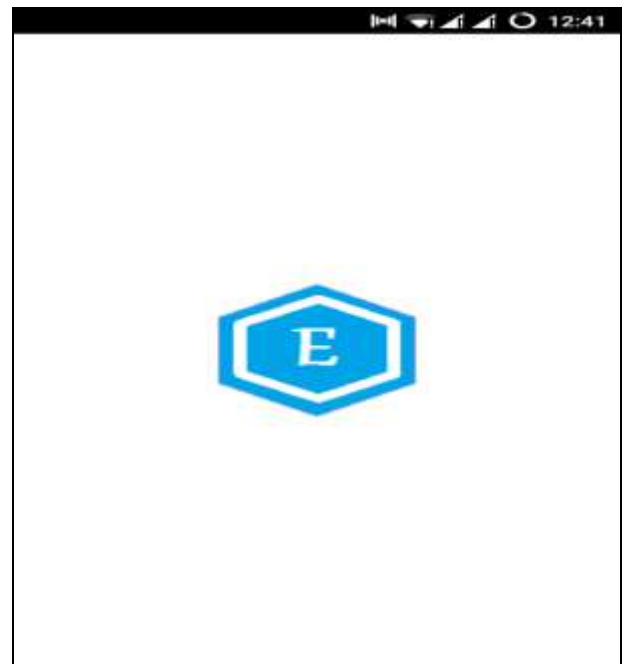


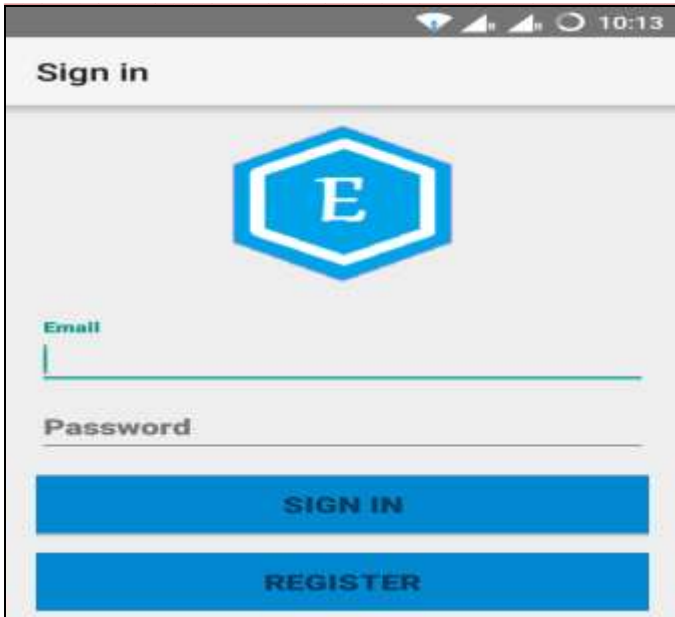
Figure 5: Use case diagram for student and parent



The above screen is the splash screen of the application showing the logo of android application Educator

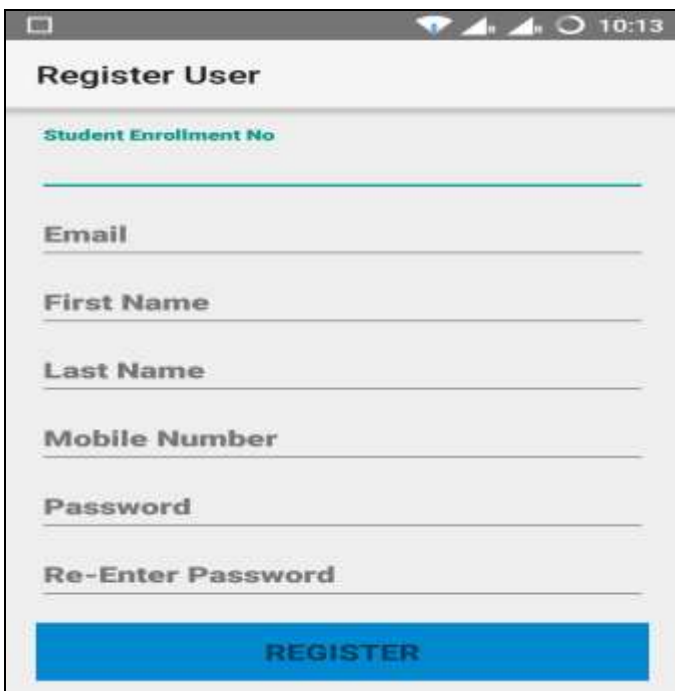
V. RESULTS AND ANALYSIS

During the testing process, we simulated the application by using Nexus S by Google, CPU/API ARM (ameabi), screen 4.0", 480x800 normal hdpi, RAM: 348 MBi and Android 2.2 (API level 8) target. The installed application named "Educator" can be seen on the main menu list of the mobile simulator as shown in Figure 6.

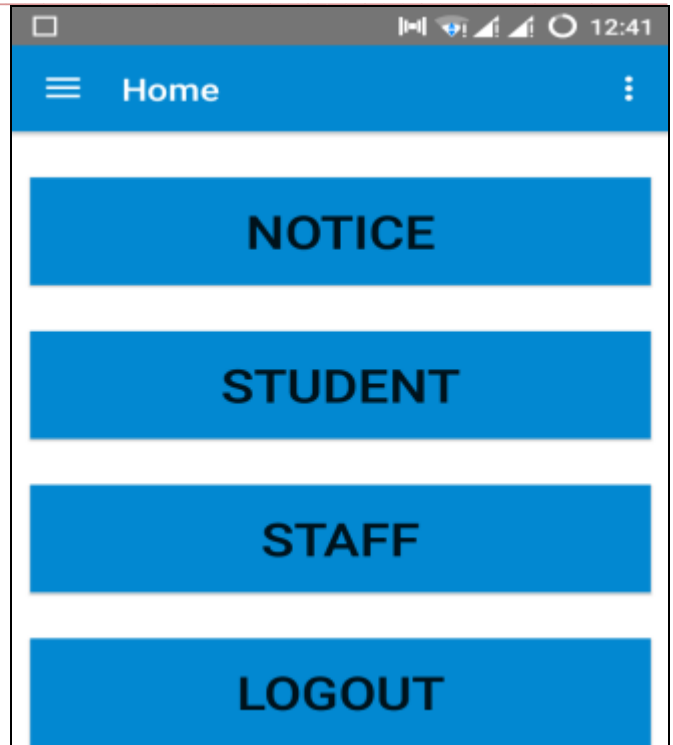


The above screen is for logging into the application. This screen is common for all the users. Admin login and access the application. The admin i.e. the head of department has rights to add / update / delete the faculty / students / notices / parents and other stuffs. Here all the rights are subject only to the admin i.e. the head of department.

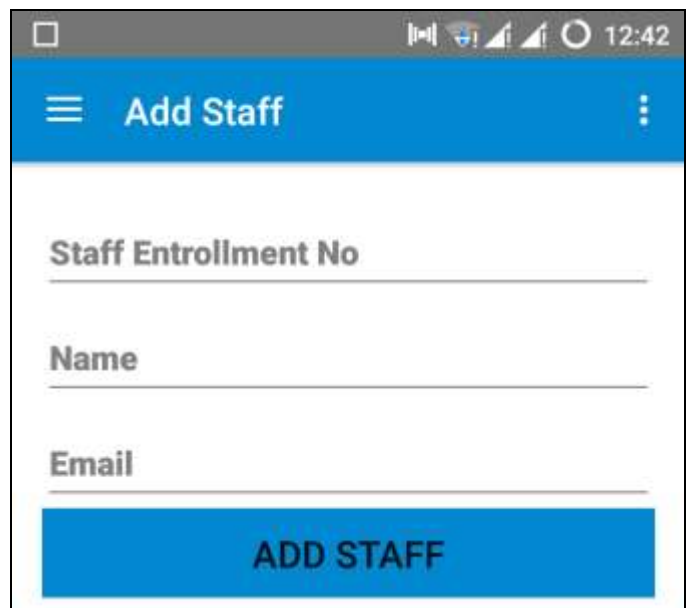
The screen shown below is to register the user.



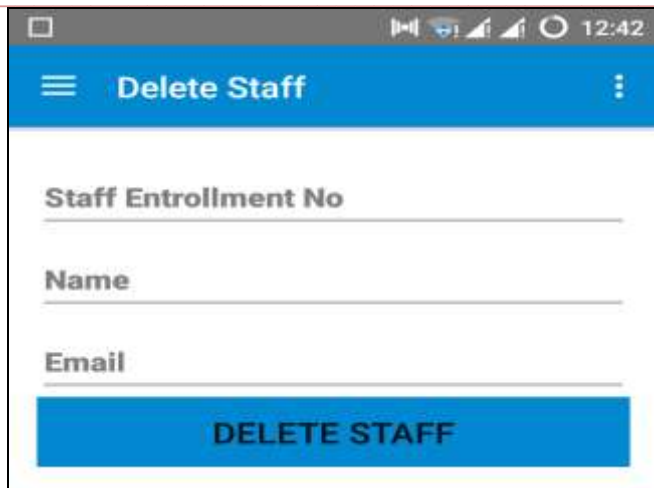
The below screen is admin home page from where admin can access the application and add faculty, student, notes, notice, parents and other stuff



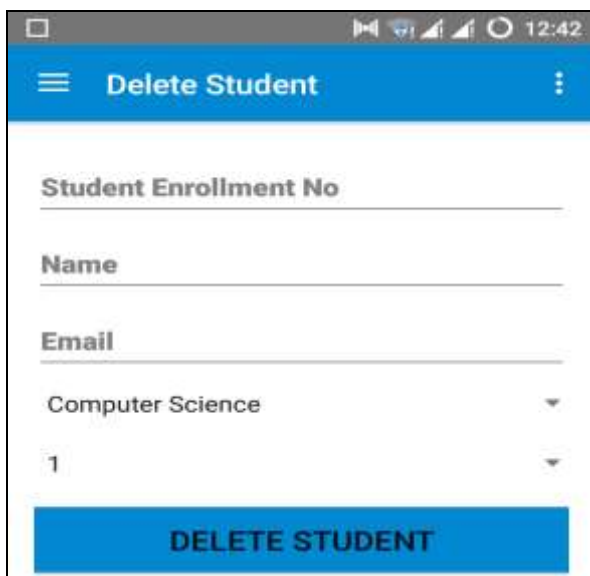
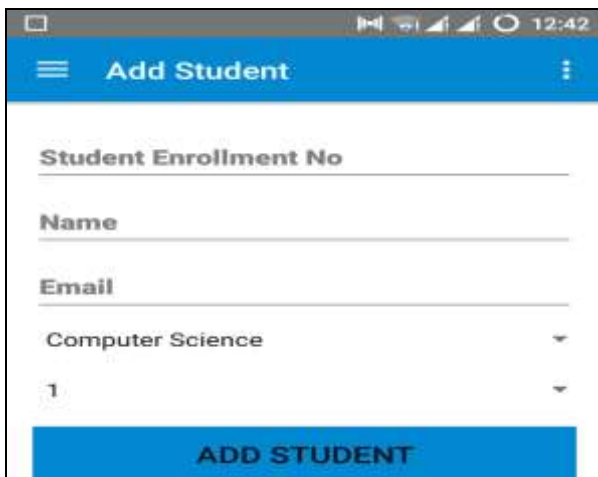
The screen shown below is to add staff / faculty.



This screen is to delete the record of added staff:



This screen for adding and deleting student of the department by the admin i.e. by the head of department.



VI. CONCLUSION

The application has been developed and tested successfully. The educator application has been tested successfully on both

by using ayo simulator and smartphone with the version of 2.2 or above. The results of the application have met the expectations. The students are happily using this application. This application may also be duplicated for the other mobile platforms.

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