2013

SVNIT Updates
Android Application

SVNIT Summer Research Fellowship

Project Report

Submitted By

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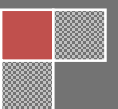
Under Guidance Of

Mrs. Rupa

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ABSTRACT

Modern handheld devices such as smartphones and tablets have become increasingly powerful in recent years. Dramatic breakthroughs in processing power along with number of extra features included in these devices have opened the doors to a wide range of possibilities. They are replacing the objects we tend to carry around such as checkbooks, credit cards, cameras, planners, mp3 players, newspapers, etc. In short, we are using them to accomplish our daily tasks and stay up to date. Falling into this category we have devised an application, SVNIT Updates developed for the Google Android Phones.

The prime objective of "SVNIT Updates" is to maintain a common notice board for the people of SVNIT, keeping them updated about the happenings in the institute and informed about various news of the college.

The Project is developed in Java Programming language by using Eclipse Indigo IDE. We use the Android Software Development Kit (SDK) which includes variety of custom tools that help us develop mobile applications on the Android platform . The most important of these are the Android Emulator and the Android Development tools(ADT). We have also used Java Applet to create an independent application via which the administrator can control the news provided to the users with the help of the android application.

INTRODUCTION

Purpose

Often it happens that the people of the institute are not aware of the various happenings in the institute due to lack of proper transfer of information. Due to which they land up missing important event, seminar, lectures, STTP, internship/training program, interviews, etc. Thus, there arises an urgent need of bridging this gap of information between students and organizers. In this fast moving life, we sometimes miss checking the notice boards, also to check the website regularly is difficult, and in a way wastes time of the users. But, if the user is directly notified on their cellphones, whenever a new notice is put up on the notice board or the website. So with this idea, trying to solve the above mentioned problem we bring to you an android application, "SVNIT UPDATES". Using this application students can check for the updates directly on their mobile phones. Thus, this application will be of great help in spreading information in the institute.

Overview

SVNIT UPDATES is an android application which provides the user with the recent happenings and news of the institute. It provides easy access to the contacts of various student chapter heads and other student council members. It allows user to send any news directly to the person concerned to update it via e-mail. User can also send feedback for any change or improvement of the application. Direct link to the college website is provided on the college logo placed on the main page.

PREPARATION

Existing Similar Applications

- Mass SMS groups : These days restrictions have been imposed on the number of messages to be sent
- Email : Mass emailing may result in spamming.
- Also mass SMS and email requires maintenance of a database of either phone numbers or email ids, which also change every year as there is a fresh new batch people joining and an old batch leaving. These all reasons makes it difficult for the success of mass SMS and email .
- Webmail of the institute : Most of the students of the institute are not active on the webmail. Also, the polling of the webmail makes it tedious and time consuming.

Due to the above mentioned limitations we intend to develop an application on a common platform, through which we can reach the maximum number of people.

DEVELOPMENT

Android Application

The android application provides a graphical interface to the users.It has been developed to be compatible with 2.2 Froyo android version to the latest 4.2 Jellybean android version.

This application is coded using java programming language. The data to be displayed are stored in a xml web page. The application parses this data using Sax parser and displays it to the user. Thus, the changes made in the xml web page are reflected in the application instantly. The contacts of various student chapters are stored statically in a folder. The application displays the contacts from this folder. The feedback section allows user to send feedback through email which gets instantly delivered to administrator's mailbox.One can also send any piece of information they would like to share via this application to the administrator, and then the administrator decides whether to update the received news or not.

Screenshots

This section contains the description of the android application and screenshots for each of the activities along describing its working. The three main menu activities of the application as well as the options provided to the users in each activity such as menu options and the activities which are created in the click of these options are also shown and described in brief.

Application Icon

The highlighted icon is the image icon representation of SVNIT Updates, on clicking, it would open the application which results in the creation of the first activity.

Welcome Screen Activity

This is the first screen or activity which is displayed on click of the application icon. It is a splash screen and stays for 3.2 seconds on the screen and directs the user to the menu page of the application automatically after the given time.

Menu Page Activity

This is the second activity of the application. As seen from the image, three main options are provided to the user on this menupage activity. Also, on clicking the institute icon on this activity the user is directed to the college website instantly. Now, we would see what happens on click of the various options provided in this activity.
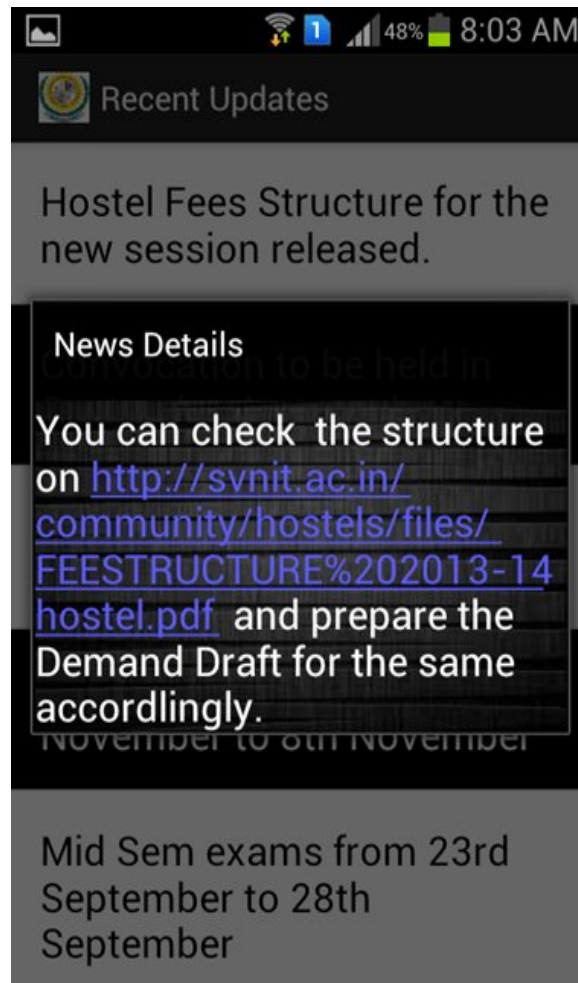
Recent Updates Activity

This activity is displayed on click of RECENT UPDATES button on the menupage activity. A list of latest news is provided on this activity as listview. On clicking of each list item, the detailed news of the list item is displayed on a pop up display item.

From this activity the user gets to know about any new news in the institute and then can get the details of the news from the respective source.

Refresh Menu Option in Recent Updates Activity

A refresh option is provided on the menu item of this activity. On clicking this Refresh option, the list of headlines is refreshed, and the latest news on the URL is displayed.
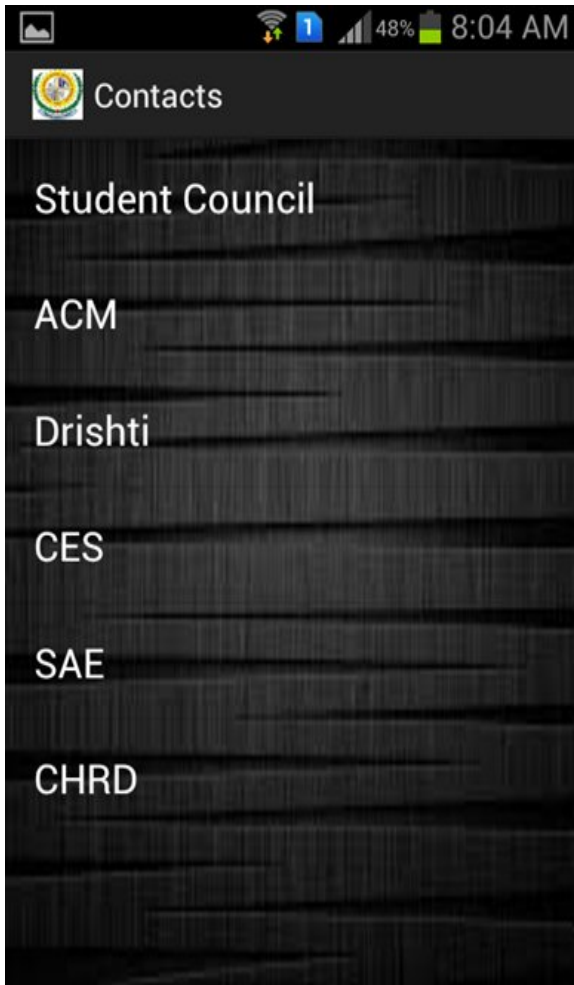
Contacts Activity
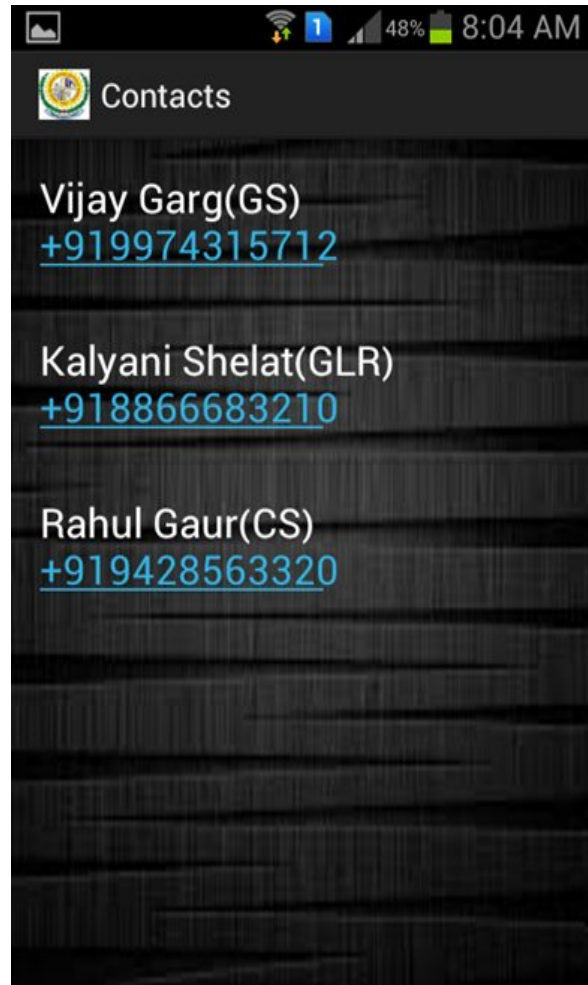
Contacts Display Activity

This activity is displayed on click of the CONTACTS button on the menupage activity. The list of Student Chapters and council is displayed. On click of the respective item selected, detailed contact information for it is displayed on a new activity in a listview. These are statically stored in the code. Moreover, on selecting any contact number, the user is directed to the dialer which allows the user to call the respective person directly without exiting from the application.
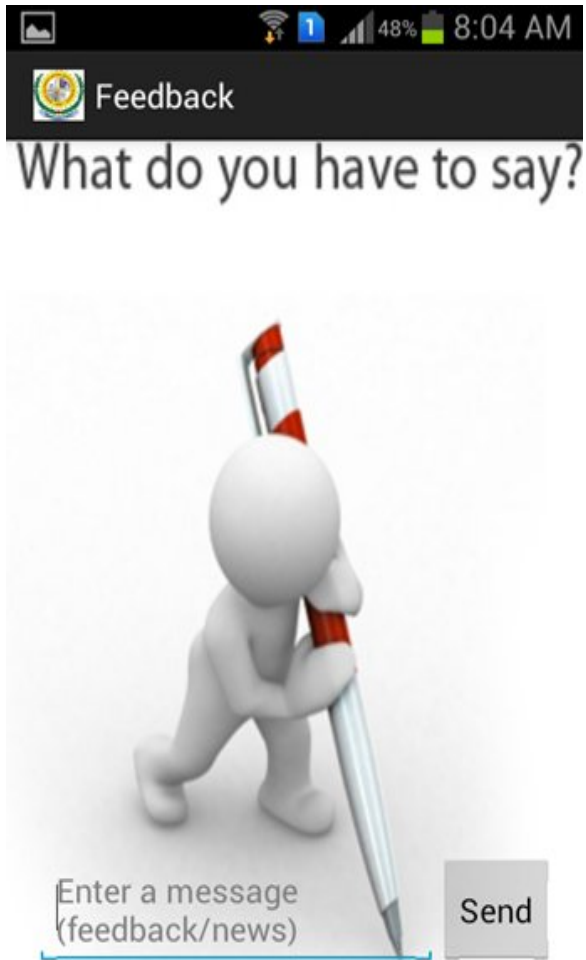
Feedback Activity
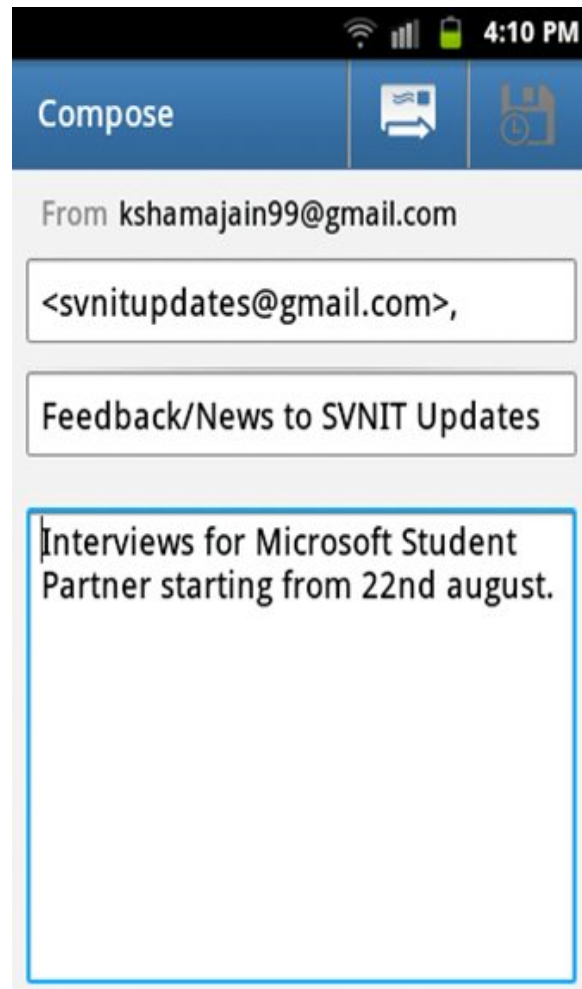
Send Feedback Activity

This activity is displayed on click of the FEEDBACK button on the menupage activity. From this activity the user can send feedback to the developer directly for the improvement of the application. Also, one can send any news they would like to share via this application. After entering the data, when the user presses the send button, an email application is opened having the email address of the administrator as well as the subject and the data written in it, just waiting for the user to send the data.

Java Applet

The Java applet acts as a backend to the android application. This applet is made to do any change in the data displayed on the web page from which the android application parses the information and displays on the list of recent updates. The administrator can insert, delete or modify any update using this applet. It is used to communicate with the database and the XML data file. This communication is done using Hibernate. Also to connect the Hibernate database to the XML url, Wamp server connection is used.
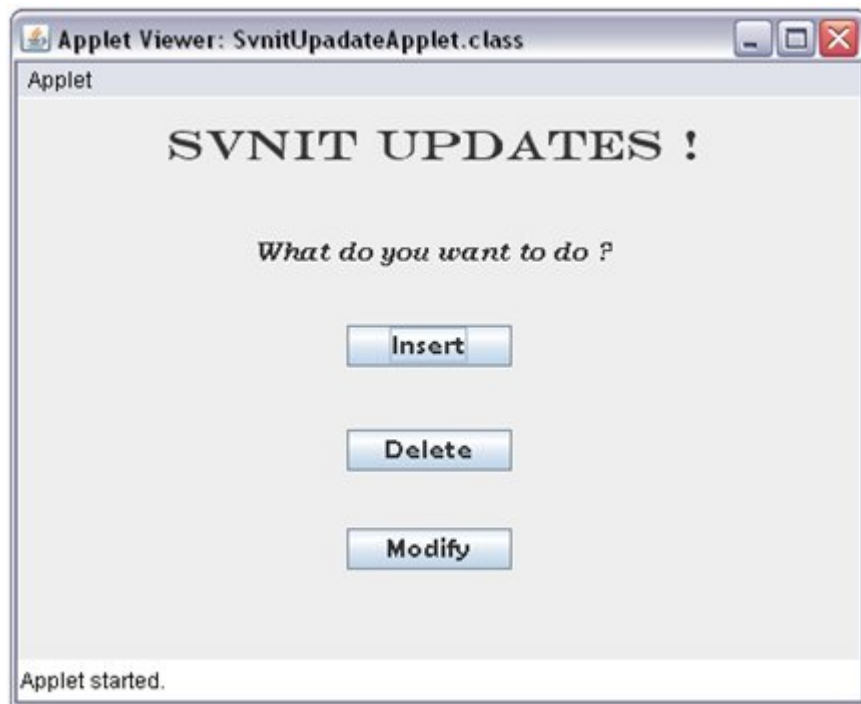
Java Applet Main Frame

This is the main window of the applet. It provides the administrator with three options namely insert , delete and modify . The implementation and the snapshots of this applet are discussed in the following section.

IMPLEMENTATION & TESTING

This section discusses the communication between the android application(frontend) and the Java Applet(backend) along with snapshots of each of them.
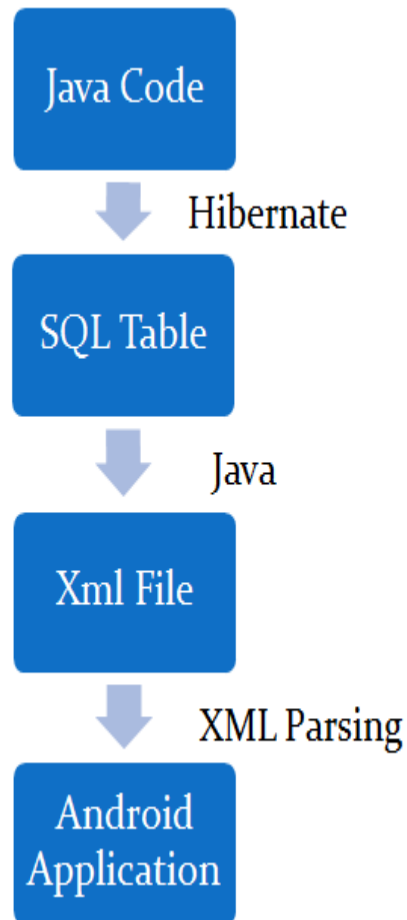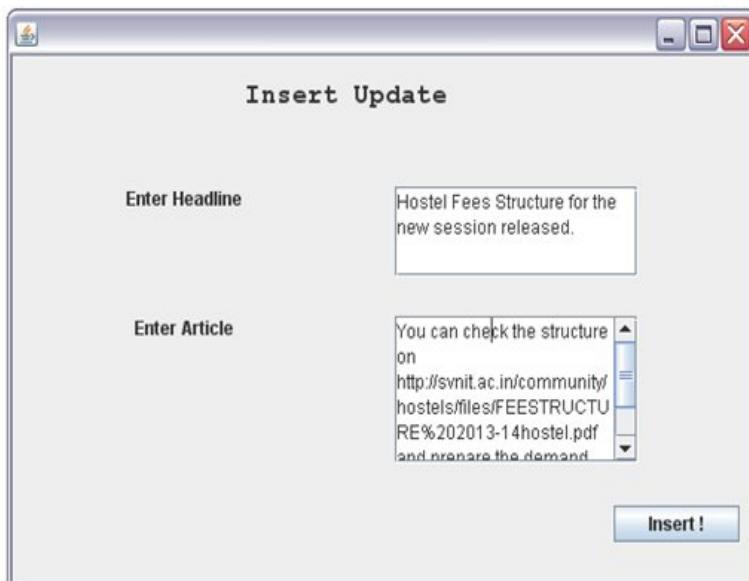
Flowchart of SVNIT Updates

Working

In the section, further the working and testing of the android application in synchronization with the Java Applet is explained with screenshots of each of them.

INSERT UPDATE

Java Applet	Android Application

From the above figures it is depicted that, to insert an update in the java applet from the main applet, when the insert button is clicked, above insert frame is opened. In this frame the user is asked to insert the required headline and article for the application. Once the user enters the required data and clicks on Insert! button on the given frame, the data is entered on the xml web page, with the help of hibernate, MySQL and XML Parsing. This new inserted update is reflected on the android application in the headlines activity.

DELETE UPDATE

Java Applet	**Android Application**

From the above figures it is depicted that to delete an update, in the java applet from the main applet frame, when the DELETE button is clicked above delete frame is opened. In this frame the user is asked to insert the required headline number to be deleted from the application. Once the user enters the required row number and clicks on DELETE! button on the given frame, that headline is deleted from the xml web page, with the help of hibernate, MySQL and XML Parsing. This deleted update is removed from the android application.
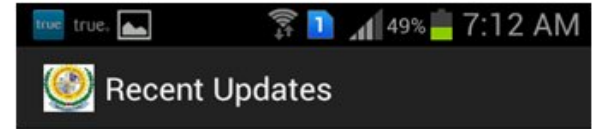
MODIFY UPDATE

Java Applet   **Android Application**

From the above figures it is depicted that to modify an update, in the java applet from the main applet frame, when the MODIFY button is clicked above modify frame is opened. In this frame the user is asked to insert the required headline number to be modified. Once the user enters the required row number and clicks on GET HEADLINE & ARTICLE button on the given frame, the existing headline and article appears in the respective text area. User is allowed to modify the data. That headline is modified on the xml web page, with the help of hibernate, MySQL and XML Parsing which is reflected on the android application

INSTALLATIONS:

In this section the various installations used during the development of the project are listed.

Eclipse	Version: 4.2 Juno Build: v22.0.0.-675183	It is a common platform to communicate between Android, SQL, Java, XML and Hibernate.
Android	Version: JellyBean Build: 4.2.2	It is a linux-based OS on which open source applications for various devices are developed.
Java	Version: 1.7.25	It is a concurrent, class-based, object-oriented computer programming language.
Hibernate	Version: ORM 4.2.3	It is used for mapping an object oriented domain model to relational database.
XML	Version: 1.0	It is a markup language that defines a set of rules for encoding documents in a format that is both human-readable and machine-readable.
MySQL	Oracle 5.2.47CE Revision 10398	It is an open source relational database management system(RDBMS) that runs as a server providing multi-user access to a number of databases.
Windows Builder	WindowBuilder Core 1.6.0.r42x201305211944	It is a powerful and easy to use bi-directional java GUI designer.
Wamp Server	Version: 2.2	It is a common platform for web application development and deployment.

CHALLENGES

There were many challenges faced during the development of the application. Few of them are listed below :
- Compatibility issues among different android versions. (solved)
- Converting of XML data into database and vice versa. (solved)
- Static url to host the XML file from which the data is parsed in the application. (solved)
- The main challenge left unsolved is to generate a notification on modification or insertion of a new update on the xml web page.

CONCLUSION

The main aim behind developing this application was to bridge the gap of rapid spread of information among the students of the institute. The users can easily install this application in their android devices by just installing the .apk file and take the benefit .Thereby concluding the report, and the hard work we did for the last 2.5 months of vacation, we have learned as many as 8-10 installations varying from beginner to advanced levels during the term and have come out with this finishing product in the end which can definitely help.

FUTURE VISION

In future, the plan is to extend this application on various platforms other than android. Moreover, the user will also be notified via notifications about any new update or news. In future, this application will also include tabs for various topics. It will also include year-wise or department-wise filters so that the user can receive notifications for the desired updates only. Apart from all these there is a scope of continuous improvement in the application. With the basic improvements, this application can be launched on the Google Play Store, so that it can be downloaded directly from the store which can be updated with improvements on regular basis.