VESIT Library - An Android Based Application

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Abstract- In this paper, we present an android mobile application of the VESIT Library system which can help the college students to view all the books available in the college library which is not practically possible by physically looking at each and every book. This system has two major features- first, the user can view the details of his or her issued books and second, the user gets to know about the number of copies of a particular book available in the library. Library database is made on SQL Server 2000. This application accesses the database using the Laravel framework to provide additional security against database hacking. Students use their college Library ID as their login ID. The interface is smooth with minimal lag and and the operations are quick. Basically, this application simplifies the process of visiting the library just to have a look at the books. The technical details are further outlined in this paper.

Keywords- Android, Library, Books, Laravel.

Introduction

Android is an operating system with its first beta version of the Android Software Development Kit(SDK) released in 2007[2]. It incorporates many new technologies as it is open source. This Linux based operating system has an efficacious IDE like Eclipse as well as API libraries which provides users of different android versions to work in an adaptable environment. VESIT Library is an android application which can be used by the faculty and students of Vivekanand Education Society's Institute of Technology (VESIT). The android application is developed to enhance the library functionalities by strengthening the bond between students and library staff. It is developed with an aim to reduce the time of students while issuing the

books and to allow students to explore different books and journals available in the library.

Overview

VESIT Library consists of 9,334 titles and 47,221 volumes of books. It is a vast library with books and journals of the national and the international level. It consists of two sections-

1. Reference section- Student can borrow one book at a time against their Library Identity Card. The books/journals in this section are meant for reading in the library only. The question papers of previous examinations conducted by the University of Mumbai are also available in this section.

2. Lending Section- Students can borrow up to two textbooks from this section. Generally the students can get books for one week. A fine will be charged if a book is not returned within a given time.

The VESIT Library Android Application aims to integrate the library workforce along with new age technology like mobile phones. This application caters to the most common need of the students associated with the library.

The features and functionalities are :

1. Display the issued books by students and staff and the book's status.

2. Gives the availability of particular book along with author and the book count.

3. Provides username and password for various journals in reference section.

4. Provides timing of library.

Requirements and Scope

The VESIT Library android application system was build to help students and staff members by providing them with easy and fast access of library books which minimizes time for transactions of books in lending section. As during exams or tests, we noticed that the students would end up standing in a big queue and would return with no book as all the books were issued by that time. So we came up with the idea of this application as some students do not know which books are available in library and some had idea only about the name of the book and not about their author which made it difficult for even library staff to help these type of students since they were already too busy. In this way, it helps student and library staff

for the process of issuing books from lending section as student can easily know whether the book is available in the library or not. Students can also search for the alternative books if book is not available and they can explore the different books in the library with their author. We also found that many first year students have no idea about library timings, so we also provided them the library timings in this application. Hence, the application provided a convenient environment for both students and staff members. They can use various reference sites like to view different journals online. As the new books arrive in the library after a certain period, the number of books increases in the library. So VESIT-Library android application is on the continuous update.
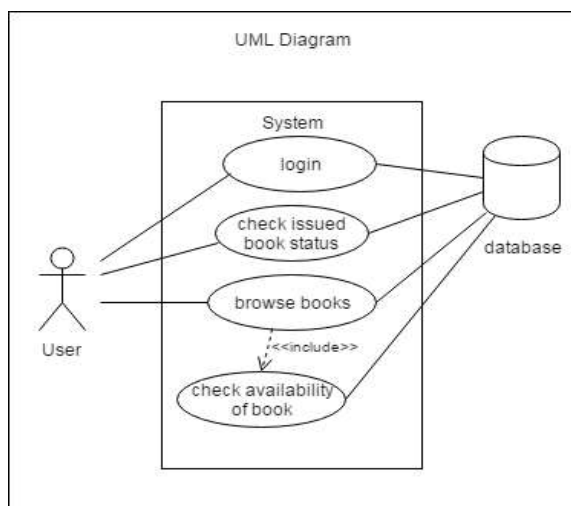
System Description

Figure 4.1 : Use Case Diagram

This android application is currently available on the google play store. It requires internet connection to connect to the college library database. This application communicates with the database server in our college library to retrieve the real time results such as the number of copies available of a particular book and the information of the issued books of the particular student. The Laravel framework 5.3, a PHP framework using MVC(Model-View-Controller) pattern, is used to provide additional security against database attacks[1]. The database used in our college library is MS SQL 2000 for storing and managing data about books.

Figure 4.2 : Navigation Tab

As shown in the above figure 4.3 the login screen shows when you launch the app. Students login with their respective library ID's. When you click on the login button you are taken to the next screen called the home screen of the application. A navigation tab is included to switch between different tabs or fragments inside the application. As seen from the figure 2, the navigation tab includes the following fragments.

1. Issued Book Status
2. Available Book Status
3. Reference
4. Time
5. About App
6. About Developers
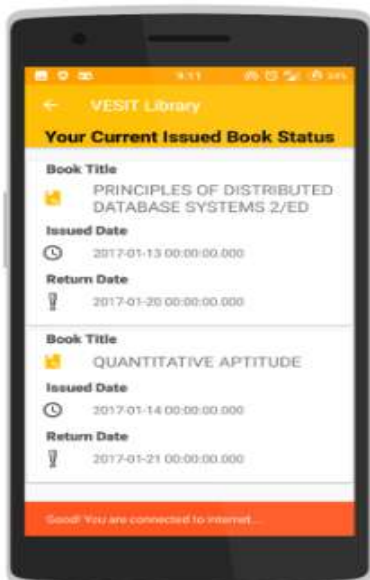7. Disclaimer

Figure 4.3 : Login Screen

those tabs as a list view. If you click on a particular book then a screen as shown in figure 4.6 will be displayed. The screen shown in the figure 4.6 is an example for a particular book. It displays the book title and the number of copies of that available in the library. This helps the students to know which books are urgently required and others that can be issued later.

Figure 4.4 : Issued Book Status

If you click on the Issued Book Status option in the navigation tab, you will be taken to a screen shown in figure 4.4. This fragment displays information regarding all the books issued by that particular student or staff member. It has the following information:
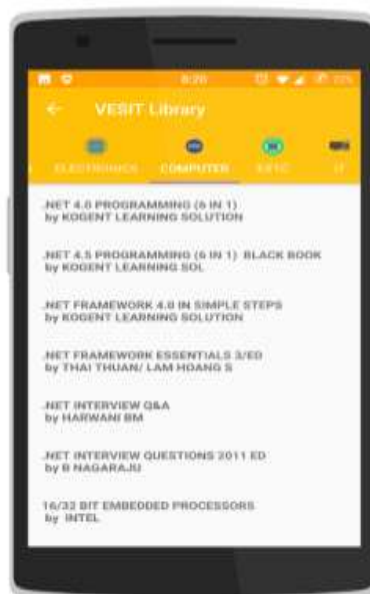
1. Book Title
2. Issued Date
3. Return Date

Figure 4.5: Available Books

Now, if you click on the next fragment in the navigation tab called Available Book Status, a screen shown in fig. will be displayed. This screen is divided into five horizontally scrollable tabs. Each tab is dedicated to one particular department. All the books available for the concerned department are present in

Figure 4.6 : Available Book Status

Figure 4.7 : Reference Section

Next screen is the Reference fragment. A screen shown in the figure 4.7 is displayed. In this screen there are links to all the online journals accessible from the college along with the required usernames and   passwords. This is to make the students aware of all the online resources the college offers. Also it makes it easier for the students to view them through their

smartphone on the go.

The next screen is the library timing screen shown in figure 4.8. First year students have a problem in knowing the exact timings of the library and are often at a loss when they do not know the correct timings of the library. This screen shows the correct timings and is updated according to the changes in the timings to make it convenient for the students.

The next three screens that follow the above major ones in terms of functionality are:

1. About App

Figure 4.8 : Timing Screen

Conclusion and Future Scope

The VESIT Library Android Application endeavours to provide students and staff members with real time library book status. Although the application provides security and other facilities but it has a disadvantage which is that the application can be used only between 8 am to 6 pm since the MS SQL database present in college library does not work beyond college timings.

We are trying to improve the application and have also recently updated the application with even more features like the users of the application can now search for books by different tags, can reissue any book using this application, can view all the previously issued books along with their due date, can view international journals list, get notifications regarding the return date of book, can view syllabus of the Mumbai University and can also view previous years question papers. One major update that was recently introduced was that students have to use their respective college email accounts to login instead of the library ID. The further plans to implement

2. About Developers
3. Disclaimer

The About App screen provides the information of the application like the build number, the changelog that states the new features and a rate button to rate the application on the Playstore. The About Developers screen displays the identities of the students who developed this application. And lastly, the Disclaimer screen shows the points to be noted by the students who use this application.

in this application that are in the pipeline are to include the Mumbai University Syllabus for Engineering, to integrate the information of the college festivals and important events and seminars that are held in the college for easy access to the students.

VI. REFERENCES

[1] Laravel Documentation :
URL:[https://laravel.com/docs/5.3]
[2] Android Developer :
URL:[https://developer.android.com/guide/index.html]