

Online Leave Application

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ABSTRACT

The booming growth of mobile technology amongst which 77% smartphones have android operating system has led to innovation of different types of android apps and as a result has become a part of all the types of sectors like hospitals, MNCs, schools, universities including the day to day life by reducing the complexities in the respective field of work. The backbone for many such applications is Android Studio. As students, the role is, to make the environment technologically digital while on the other hand somehow there is an absence to make the day to day activities easier amongst which the prime activity is applying for leave. The goal is to eradicate this traditional manual procedure of applying leave by introducing the 'Online Leave Application'^[1] software designed using android studio, which can be easily accessed by the students residing in hostel followed by the respective faculty and warden who need to sanction the applied leave, where the data of the modules are stored in the cloud storage using MySQL and PHP. Hence, the primary focus is to make this a hassle-free issue by introducing this optimized android app.

General Terms

User Interface, Database, Android XML.

Keywords

Leave management System, Android studio (AS), MySQL and PHP (hypertext preprocessor database)

1. INTRODUCTION

The 'Online Leave Application' android software is a very easy solution to the most common issue faced by the students which is, 'applying for leave'. Students residing in hostel need to take permission from both the warden and faculty-in-charge respectively. The form given by the warden is to be manually filled by the students which includes certain details. The form is then carried forward to the staff where the staff availability must be seen and then must be sanctioned by them. The final approval of the letter is given by the warden, the decision here relies on whether the letter is sanctioned by the faculty. This whole process is a very tedious task especially in cases of emergency, keeping aside the need of the moment the student must follow the whole procedure. The faculty and warden also face issues as students can easily replicate the signatures leading to the misuse of the improper surveillance. This makes it a herculean task to maintain the record of these letters since it is misplaced. It somehow leads to the wastage of paper as well since the student must write separate application if asked by the faculty or warden and there are chances of missing the applications too. Keeping in mind all the issues that are faced, the structure of the

application in this paper gives a clear view of how the process will flow through the software.

The application is designed by 'Android Studio' which is a friendly tool for app development environment since it provides a better code completion that uses java. The three-module description in this paper will give a better idea of how the working process of the whole application goes on. These modules are easy to create using the AS GUI^[2] (Android Studio graphical user interface) since it has a feature of drag and drop, the outlook or the design of the app is done effortlessly. The modules included are divided into three types of users namely-

- Student login
- Staff login
- Warden login

These three types of users have their own login page and can view their part of work. Adding up to the working and combination of all the modules, the android emulator of AS makes it easier to run which is three times faster in RAM than other tools. The data stored in cloud storage in the backend part uses MySQL^[3] and PHP^[4] database because they are widely known as open source database and are easy to edit as well as to maintain.

Stepping forward towards the technical revolution needed in such small activities, this innovation will strive to be very useful to overcome this most common issue and will leap towards the contribution of a fully 'smart campus' along with a proposal of a green idea to prevent the usage of papers.

2. SYSTEM DESCRIPTION

The system aims to develop an application using AS 2.0 where the student can apply for the needed leave especially in working days and the staff module can view the leave request to sanction it further to the warden module who will view whether the request is approved by the staff and will finally sanction the leave requested by the student. The architecture diagram describes the entire working process of the application. As shown in the architecture, the whole system is fractionated according to the types of users. The obvious users are students, staff in charge and wardens, hence the whole system primarily runs on these forms.

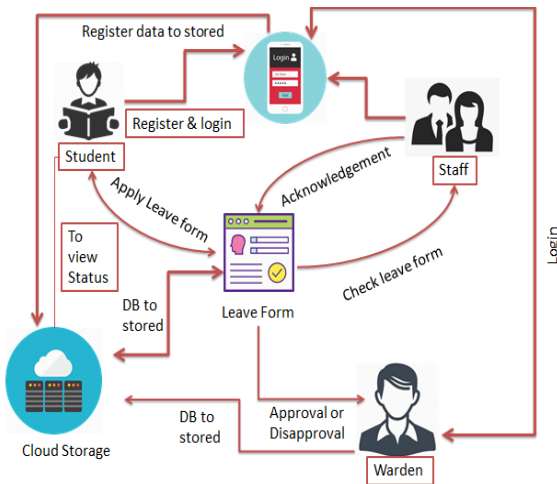


Fig.1. Descriptive system architecture

The major elements of the APK (android package kit) are installed that has major sub elements exteriorly described in the system which are common to the three users namely-

1. Registration and login form
2. Leave form

Student and staff login have their unique IDs' whereas warden is provided a default login since the warden being in the current hour of duty cannot be predicted hence any warden who is present at the moment can login and view the application. The student user form has several details which are coded using java and other SDK libraries. The design part is done using Android XML java for editing the pictorial representation as the tool provides a variety of range to upgrade and edit easily. The user is categorized as 'Male and Female' since the hostel differs for both hence it is necessary to specify the hostel so as to be directed to their respective warden in duty. Male students have 4 categorized hostels while female students have 2 categorized hostels.

The sample screenshots in Fig 2 show how the user details are divided.

The leave form with its details is further submitted to the staff where it is approved. The staff is able to view only the students of their particular class and the ones who have requested for leave amongst them. The acknowledgement is further viewed by the warden, when the final approval is given by the warden only then the student will get the approval status. The data is maintained in the backend by the server. The details needed to be filled in the form are shown in the Fig 3.

The details include-

1. Name
2. Year
3. Section and Department
4. Hostel
5. Reason/Purpose of leave
6. Dates required for leave

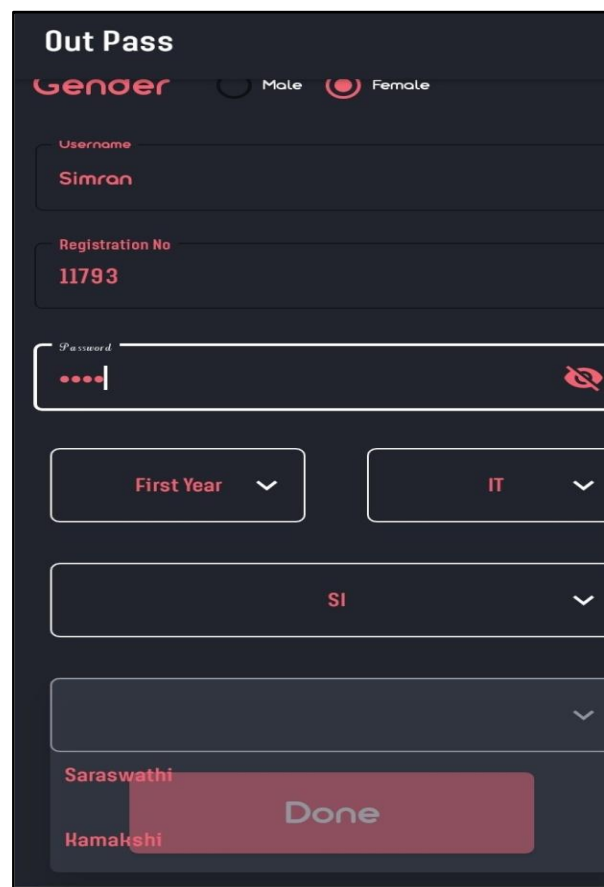
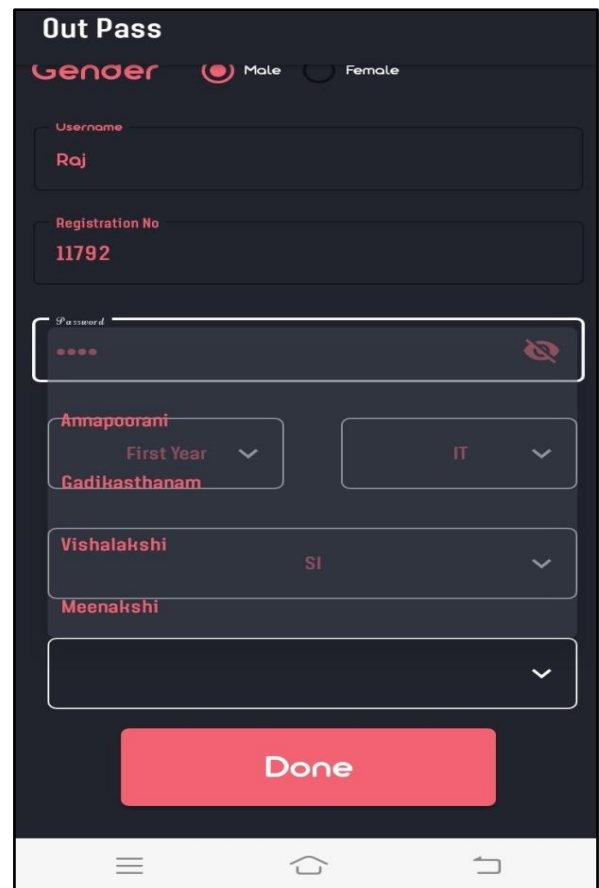


Fig.2. Sample Screenshots displaying the list of hostels under male and female users

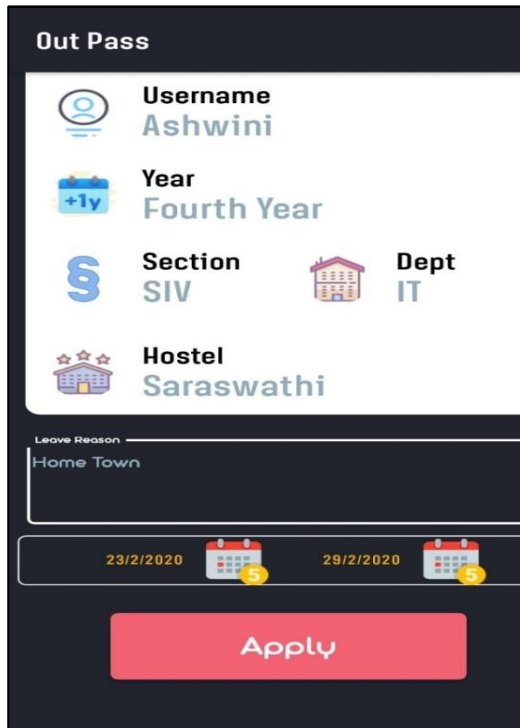


Fig.3. Sample screenshot displaying the details to be filled in the leave form

3. IMPLEMENTATION

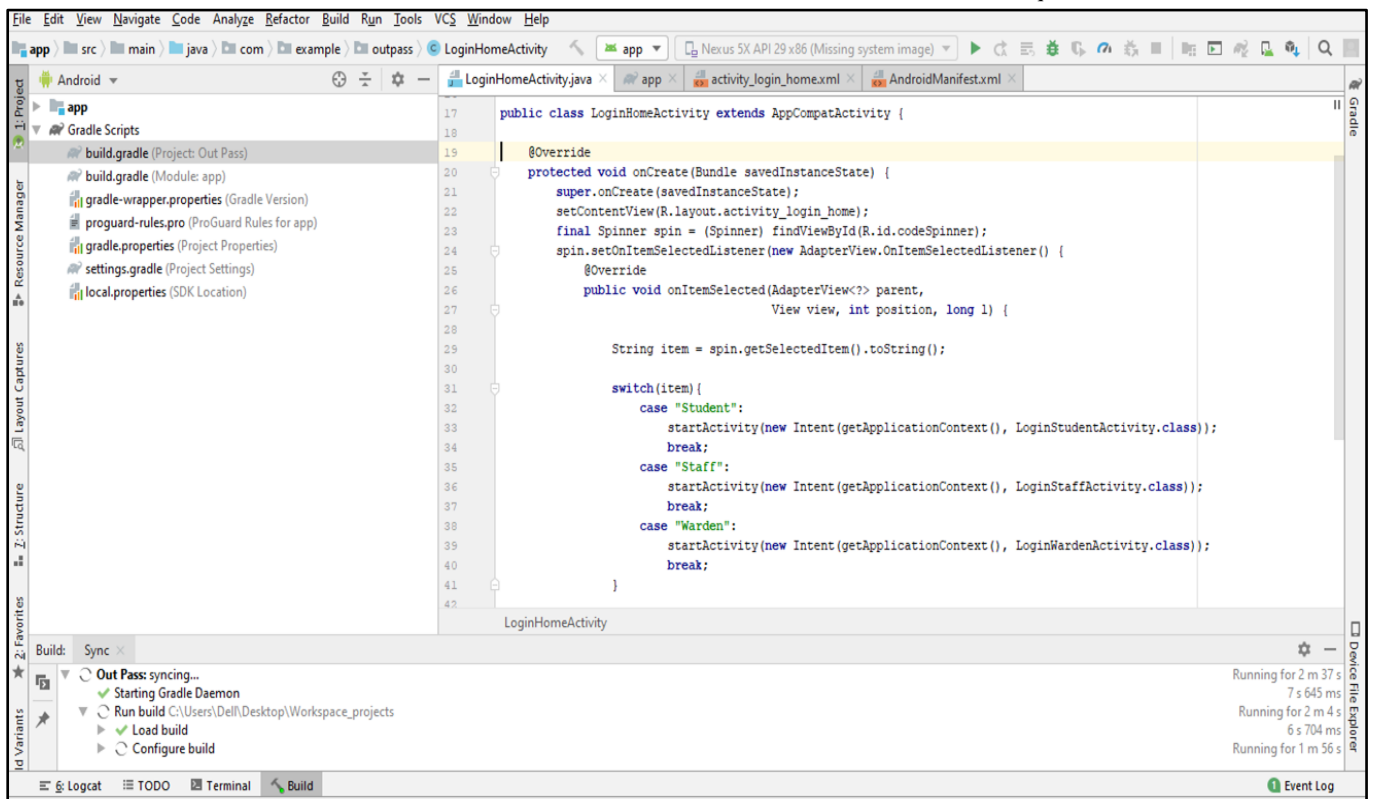
This section focuses on the overall functioning of the modules created in the application and the process flow since there are no specific algorithms used while developing any android app as such. The process flow itself gives a precise description as

an algorithm can do. The implementation showcases the

software being used since there is no particular use of hardware, only a basic requirement is given.

The modules included in the application according to the process flow are as follows –

1. Login and Registration: The module is designed to develop login and signup screen. Android uses XML to develop classical screens in this application. The modules describe signup page that contains email id or username, password and confirm password. Login screen contains email id or username and password, so when the user has to login, the app should retrieve the data to the database and combine based on user input. If it matches username and password, it will allow the app otherwise alert and show a message to the user.
2. Database creation: User email id or username and password is stored after registration. Android makes use of SQLite Database for the purpose of storing and fetching user application details.
3. Create out-pass form: The module creates out pass form that can be uploaded in private cloud server in segmentation manner through this app, this Out Pass application keeps all records that are uploaded by the student.
4. Staff approval status: In this module, an out-pass approval status can be viewed and approved by staffs and can be stored in private cloud server which can subtle the process in real time. An out-pass application record keeps all forms that can be viewed when an emergency case is processed for students.
5. Warden approval status: This module approves the out-pass status by warden through staff's approval. This module decides the final sanction of the request.



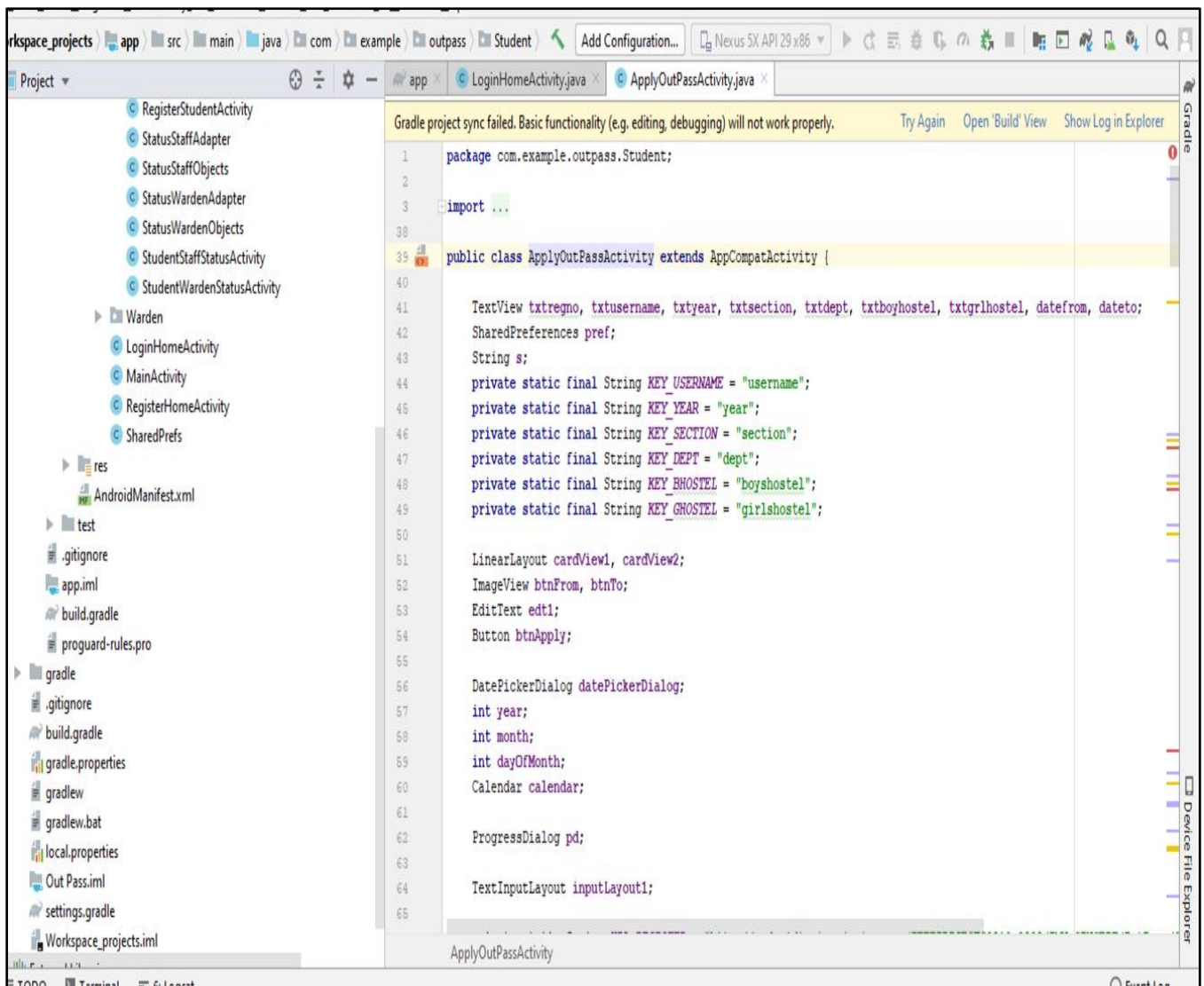


Fig.4 Sample screenshot of source code

3.1 Hardware and Software Implementation

Intel core i3 processor is used with a hard disk comprising of 100GB space to ensure the smooth functioning of the software adding up with 4GB DDR2 RAM (Double Data Rate 2 Synchronous Dynamic Random-Access Memory), this version is used since it is fast and efficient.

The software used for the front-end development to design the modules and application is Android XML, this tool makes it easy to drag and drop the elements needed to design the UI (user interface). Another important property of android studio is 'activity'. With the help of activity, it is easy to place UI components in a single screen as there are many such components needed in each module and the risk of complexity is reduced. Java is the obvious official language used by the android studio, java has an open source of many libraries and tools to make the developer easier to work.

4. CONCLUSION

The objective is to avoid the unnecessary hassle of manual work to apply for leave when it can be done easily through the same usage of smartphone all day long. When everything around the globe is going digital the focus must stay on what is necessary to be digitalized. Any innovation^[5] which cannot

resolve the basic problem, goes in vain. The goal is to make use of knowledge adequately in order to implement it in the day to day lives of the students and others as well to sort out the issues. This application will serve the students, staff and warden at its best with an optimized and bug free functioning and provide a very strict surveillance. The paper hence presents all the necessary parts of implementation by considering almost all the essential corners of the application. After the successful functioning it would be ready to run in other university campus according to the necessity.

5. FURTHER SCOPE

Every development has some drawback or lack of necessary feature that emerges with the usage and need. Since the application is quite specifically designed for university level activities, other features can be further added up involving the governance of other officials and parents. The app can be carry forwarded for administrative purpose as a result ending up in being an all-round application including all the activities done manually. To reduce the manual work being done and stepping into being a digital campus^[6] is what describes this app, therefore there are many such aspects where there is scope of development.

6. REFERENCES

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