



APPLICATION TO ELIMINATE HARD COPIES

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Abstract

Studistics is an Android or IOS based application that was developed to use technology in an education oriented manner. Studistics basically contributes in daily student academic life by giving them a platform to access, view and estimate their academic performance also providing key features such as a digital timetable, feedbacks and queries interaction, grades attendance, reminders and other specific students and education related services like silent service to silence the phone for a pre-set time duration. Studistics is an essential tool for everyone involved in an educational environment such as Students, Teachers and Parents to increase and ease their roles in performance of their daily tasks and it is a step towards using technology productively instead of rejecting it from educational institutions because of its drawbacks.

Index Terms: *Firebase, Realtime Database, Android, Education, Capture, Silent Service, JavaScript, etc.*

1.

INTRODUCTION

Studistics is an application that was designed to fundamentally reduce the use of data in the form of hard copies because of its limitations in practical life.

Studistics is an android based application that was designed using android studio that uses Java and XML languages for basic functioning.

Studistics offers students a digital timetable that is seamlessly updated as its core purpose along with that it also has a variety of different student oriented features and functions that help eliminate the use of hard copy such as Capture Photos for capturing notes and storing it systematically in the respective subject folder and that also it does it automatically, hence ideal for students who use social networks to send notes and worry about displacement of order of pages.

The application also works as an educational assistant as it performs various tasks which are assigned to it such as giving student or teacher reminders and notifications and most importantly enabling the silent service automatically, the silent service is basically a tool which sets the device to the designated audio profile which can be done using two ways either manually or automatically.

The manual method is user friendly and easy to set as the user just has to specify the time duration for which the phone will stay on silent mode preferably during educational hours, the automatic method however can be used if the user is not fond of setting timings every day and hence the device will automatically track GPS location data and can set itself on silent when in the specified location (Educational Institution) and this service will automatically deactivate as soon as the device is out of range from the specified location.

1.1 Android Studio

Studistics is an android based application that was designed using android studio that uses Java and XML languages for building a project, I particularly chose android studio due to its user friendly and helpful environment even for a naive user and android studio has a vast number of user friendly plugins which enable faster and smoother development because of auto generated codes which reduce time and space complexity because of the optimised nature of code.

Android Studio also provides an essential feature which is very important in viewing the project in real time consumer view this feature is known as Android Emulator, Android Emulator is basically a virtual Android smartphone environment which provides a platform to test, debug and run the application during development.

The main advantage of emulator is that it is very flexible and it allows the application to run in different compatibility modes such as different screen resolutions, different smartphones of different specifications in order to test the application from user experience.

1.2 Advantages of Studistics over conventional methods

There are certain limitations to the use of hard copy, these limitations basically provided the need and drive to the development of studistics.

- Hard copy can be misplaced.
- Hard copy does not have authentication or encryption
- Hard copy can be viewed and altered by anyone.
- Hard copy is subject to environmental maladies and deterioration.
- It is difficult to make multiple copies and distribute it instantly but digitally it is possible.
- Hard copies are not entirely portable in nature.
- Changes made to hard copy does not reflect in every other copy.
- On hardcopy changes and updates will not notify the user.
- Hard copies cannot be adjusted according to the user in terms of font size and magnification

The Main objective of studistics was to eradicate the use of hard copy for simple academic needs but gradually along with routine development and ideological updates there were numerous ways in which Studistics was better than conventional methods such as:

- Soft Copy is not tangible and hence has an indefinite lifespan.
- Smartphones are the most common devices nowadays and hence offers global access to application.
- Studistics reduces time and resources wastage.
- Studistics offers seamless updates over the air (OTA)
- Studistics is designed to be user friendly for naive users.
- Students and teachers can get instant notifications or updates from the institution.
- Students and teachers can avail question papers and results of academic tests.
- Students can interact with teachers to clarify queries in non-academic time but in a proper contained educational environment.
- Studistics offers a silent service which automatically changes the audio profile to silent during college duration based on time or location based tracking.
- Capture notes is another feature which allows user to organise all the notes in the form of images according to category or subject.
- Changes to data on the application can only be made by authorised users such as teachers.

2. METHODOLOGIES

As per the guidelines of the software engineering practices any methodology used in the implementation or development of any system affects the most basic and integral functionalities,

Therefore according to my project I found the Incremental model suitable because the incremental model is iterative and due to the nature of my project being time limited and because I wanted gradual updates along with feedbacks and suggestions and it allowed me to do so.

After the deployment of the application I used the Beta testing method due to its interactive nature the beta testers I chose were both naïve users and software developers who subjected the application to hard and soft tests and the resultant bugs and glitches were acknowledged and corrected.

A brief overview of an Iterative model is shown in fig 1 below.

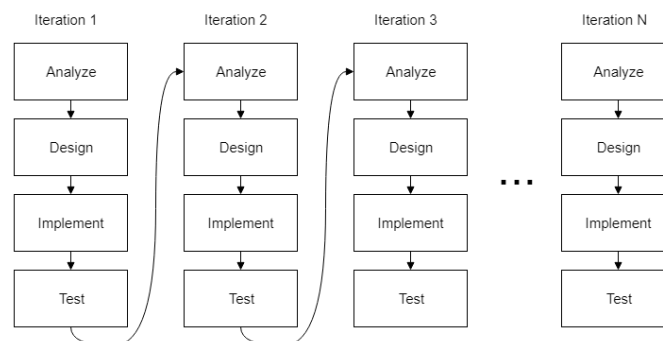


Fig-1: Iterative Model

During the development of Studistics it underwent a total of 4 iterations, some of the iterations did not consist of major changes but they contributed ideally in the end product.

2.1 Iterations:

Analysis - The first iteration started with the most basic inception of the desired project, it included activity like basic analysis of fundamental requirements, specification and functionality of desired project.

The analysis phase also consisted of considering the package or development environment to use.

Design - The design phase was based on the results of the analysis phase from where we derived basic functionalities we decided and then we implemented these functions and activities in a flowchart and from that a use case diagram which provided a basic framework for the coding phase.

Implementation - Implementation is the phase where by the conceptual design and framework models are converted into source code which is the first step towards actual product building.

Android Studio by default uses the Java and Xml programming languages and hence I obtained basic working knowledge of these languages.

According to software development life cycle the coding language and IDE chosen for the development has a specific impact on the visual aspects and complexities posed by the final product.

Testing - Testing is considered the final phase of the development life cycle, but ideally for a developer it is the most important phase as the developer learns of the bugs and errors and about its performance in a real environment as 90% of the bugs are removed due to testing.

Deployment - After the deployment of the application the Beta Testing method was applied because of its simplicity and efficiency and then after acknowledging the bugs and errors their correction and redistribution led to the end of the first iteration.

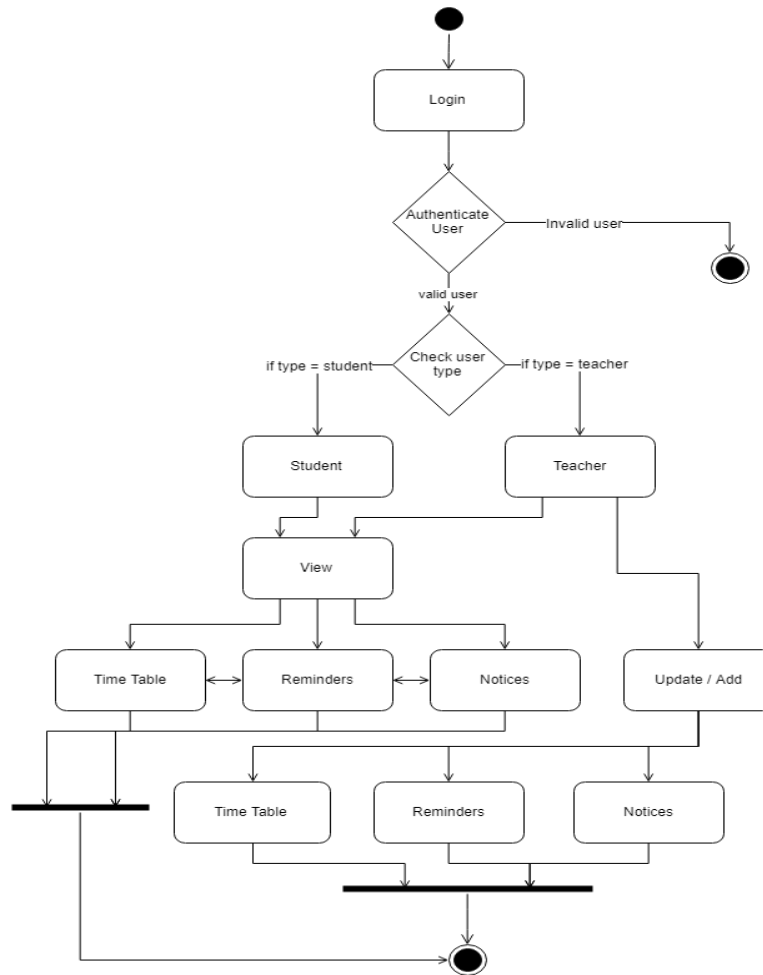


Fig-2: Activity Diagram

Activity diagram is a graphical representation of the process and activities that an object or element undergoes in a system by use of different shapes and notations to identify different states and activities of different processes.

Figure 2 above is an activity diagram of Studistics to enable us to better understand the dynamic aspects of the system.

3. CONCLUSION

Studistics was basically developed because it offered an interactive platform for all members involved in an Education based society to increase involvement of roles in Institutions with respect to technology as hours of valuable time is wasted because of miscommunication between teachers and students and it is usually difficult and more time consuming to physically inform students of changes to timetables and usually students do not feel comfortable asking queries in front of everyone so they can have a one on one interaction with the teacher regarding their problem, students usually misplace or forget to update their timetables and hence they face problems with managing textbooks assignments and notebooks for that particular subject daily, so studistics basically offers them an application where they can always stay updated .

During the final stages of development I deployed the application which was functional and it was in an android package the aim of this being mainly testing and feedback for improvement and to see whether the app was performing according to its basic functionalities.

I chose the Beta testing method as it was easiest and gave me a chance to improve and update iteratively, the testers were naïve users and some of them were advanced users, all of them students.

So conclusively after correcting glitches and debugging the application it was fully functional and it performed basic predefined functions and it was used and referred to by students more than soft copy of timetable and notices as it provided seamless updates.

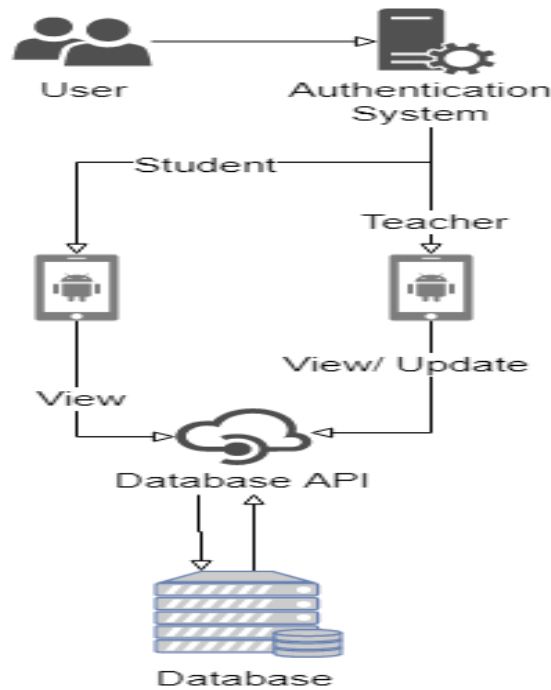


Fig-3: Architecture Diagram

4. OUTPUTS

Below are some outputs in the form of screenshots of various activities in the application after implementation.



Fig-4: Timetable Activity

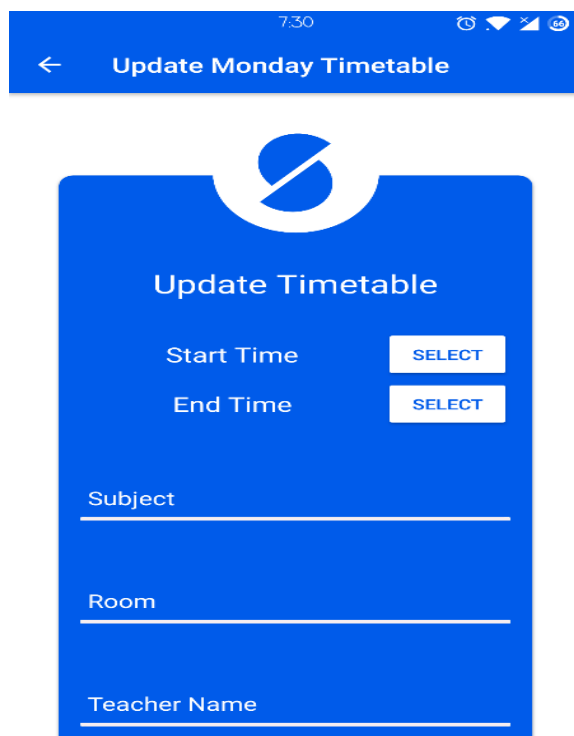


Fig-5: Update Timetable Activity

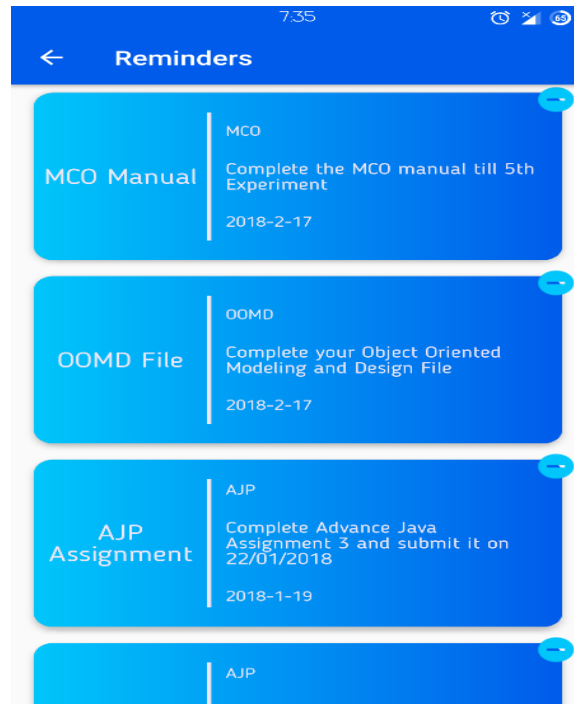


Fig-6: Reminders Activity

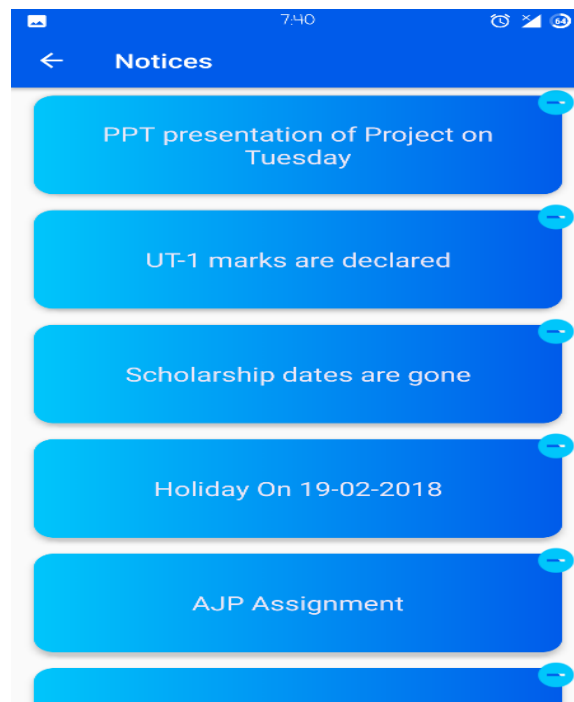
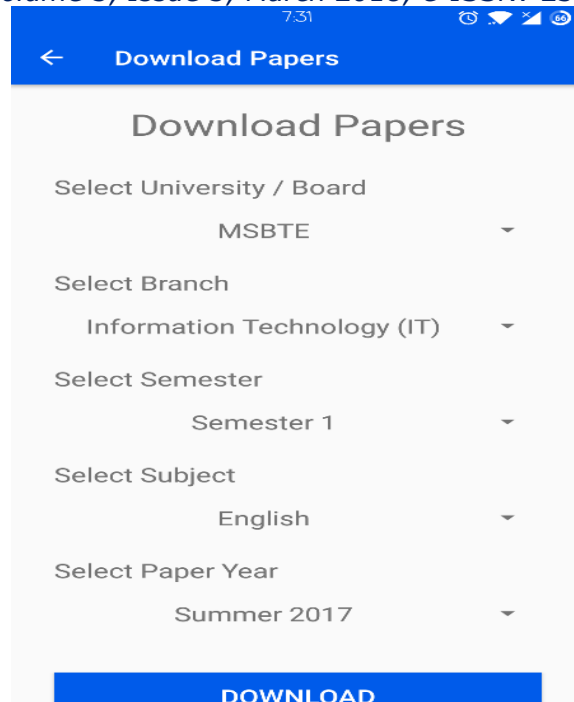


Fig-7: Notices Activity



7:31

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Select University / Board
MSBTE

Select Branch
Information Technology (IT)

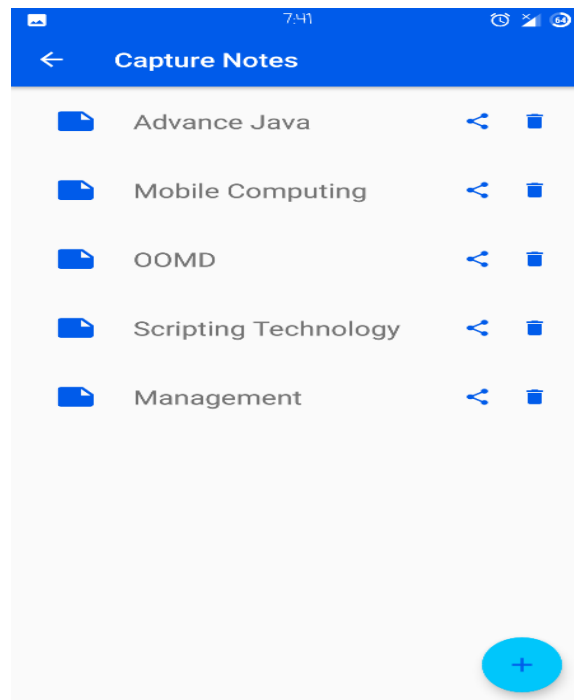
Select Semester
Semester 1

Select Subject
English

Select Paper Year
Summer 2017

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Fig-8: Notes Activity



7:41

← Capture Notes

Advance Java

Mobile Computing

OOMD

Scripting Technology

Management

+

Fig-9: Capture Notes Activity

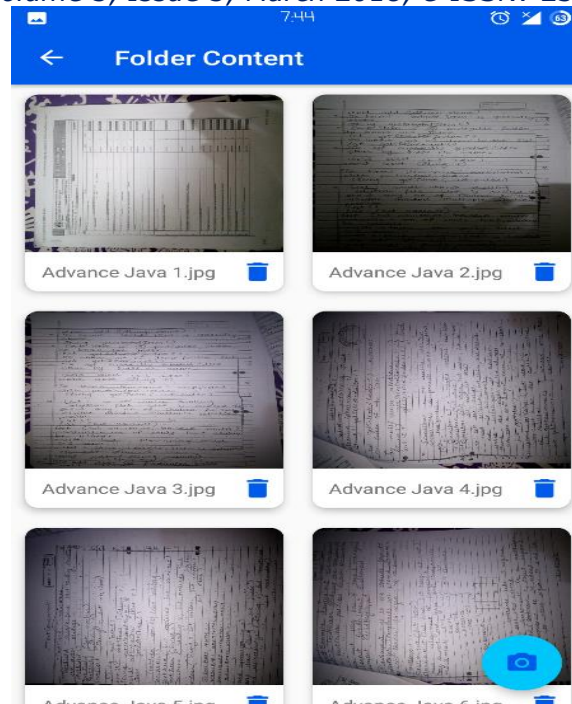


Fig-10: Capture Notes Content Activity

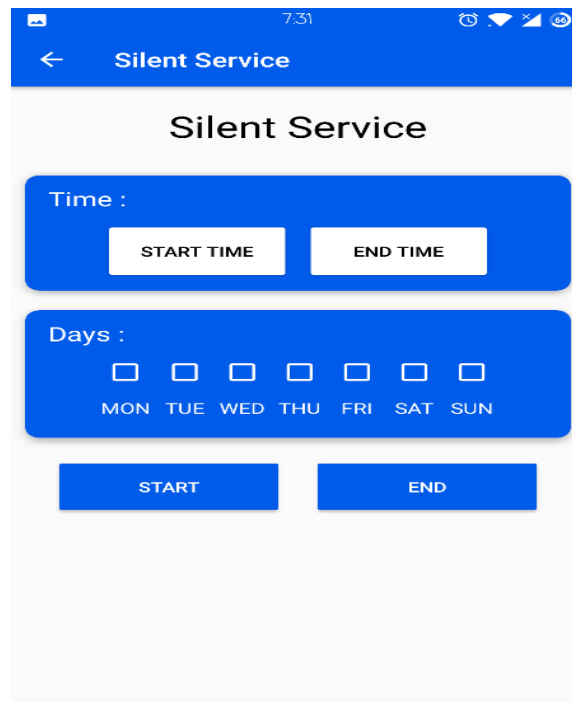


Fig-11: Silent Service Activity

5. ACKNOWLEDGEMENT

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6. REFERENCES

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