

## [Chapter – 1] Introduction to company

Company Name: ITL Informatics

Company Location : Duke Lane ,Model Town, Pathankot,Punjab 145001

Founder and CEO : Mr Lovejot Bhardwaj

### **1.1 ABOUT THE COMPANY:**

It offers a suite of mobile , web and software applications as a solution to industry. It was founded in 2010. At ITLInformatics they also train students for the upcoming challenges.They offers technical competencies with practical exposures on on-going projects to its students.

They provide live projects to work on. They train in Python,Java,Android,Blockchain.

### **1.2 VISION:**

Delivering enduring value to customers, employees, investors and partners through totally fair, transparent and ethical practices.

### **1.3 MISSION:**

To be a world class software company that enables its stakeholders unlock their value and realize their full potential by leveraging technology.

## [Chapter -2] Introduction to Project

### 2.1 OVERVIEW

The name of the project is “Project-X”. It is an android application written in JAVA language. It scraps data required ,performs calculation and shows the result.This project allows users to make daily tasks easier. The main feature of this project is to :

- Calculate SGPA
- Show College Attendance with no. of lectures required to complete 75% attendance.
- Accessing college website fast to see any changes made in the website.

### 2.2 EXISTING SYSTEM

In existing system:

- For sgpa: We have to wait a month for the college to upload sgpa of the semester.
- For Attendance: We have to manually calculate lectures required to complete 75% by hit and trial method.
- For college website: We have to open college website in a webbrowser which is a long tedious process.

### 2.3 USER REQUIREMENT ANALYSIS

The user requirement suggest that an app is needed which is fast , well structured and can replace the existing system which is slow and can't perform calculations.

Users needed an app which can ease in their daily work. The app must not be complex but simple but should be functional.

### 2.4 FEASIBILITY STUDY

Technical Feasibility:

This project will be able to ease our various tasks which are performed regularly by the users ie. Checking attendance regularly , visiting college website and task which is performed after result ie calculating SGPA.This project requires various resources for its implementation. These resources include datasets,programming language,modules and packages, etc.

# Project - X

Main data resources are :

- College Website
- Java
- Android

## Economic Feasibility

All the software's and packages used in this project are open source ie free of cost. The hardware used is basic and easily available in systems now days. Any module or package other than one used in this project may not be free.

## Operational Feasibility

The proposed system is very efficient ,easy to use and simple to understand. It can show future requirements of a user. It can analyze the data and provide computed result.

## **2.5 OBJECTIVES OF PROJECT**

Main objectives of the ptoject are :

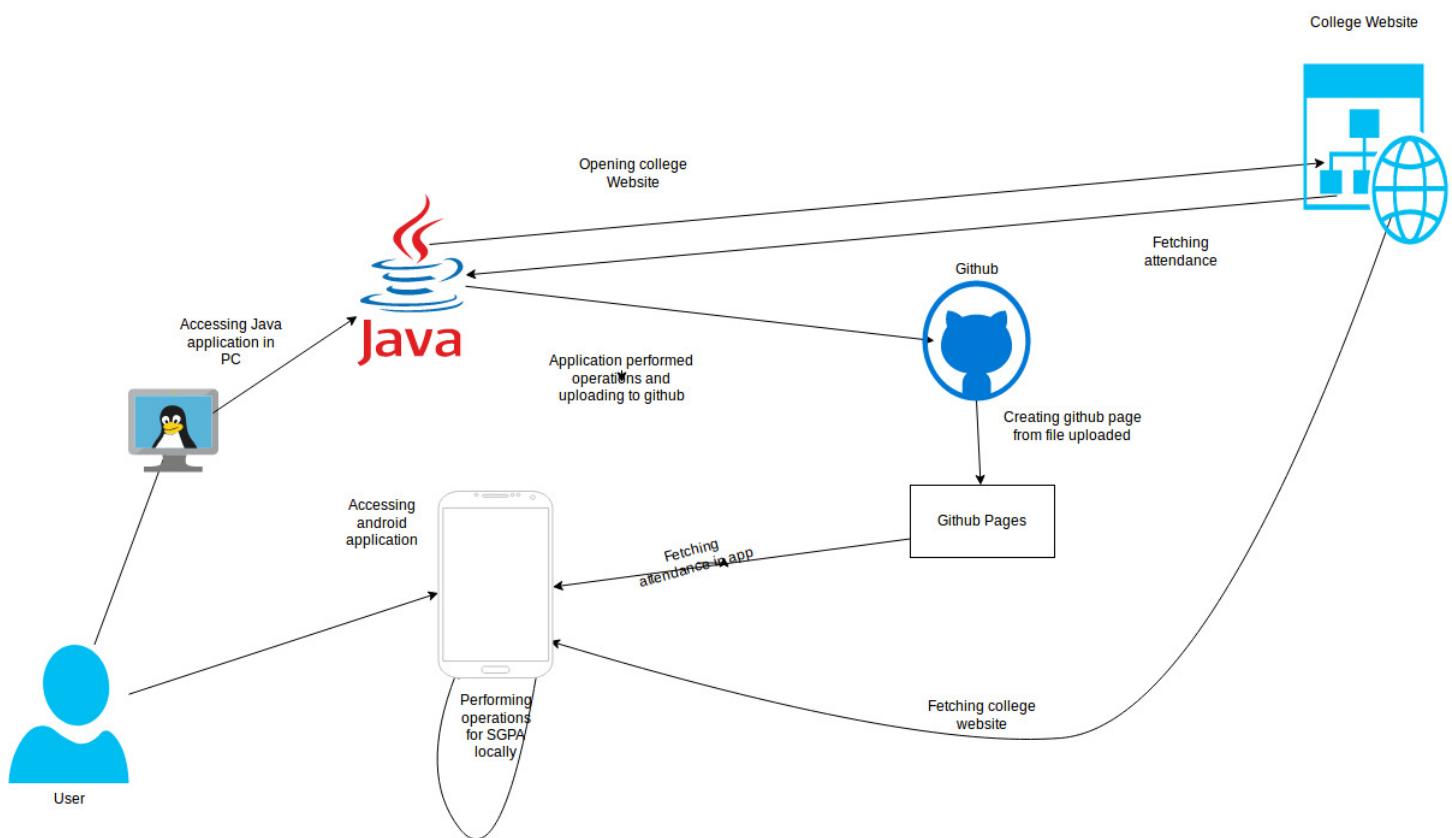
- Showing attendance with lectures required to complete 75% attendance feature.
- Calculating sgpa without waiting for official declaration.
- Showing any update to the college website faster.
- Getting previous attendance records.

## [Chapter -3]Product Design

### 3.1 User Requirement

The user can expect this app to be an easier and simplified way to do his daily tasks ie checking attendance and college website. It also has feature to calculate SGPA.

### 3.2 Use Case Model



(Figure 3.2.1 Use Case Model )

## 3.3 Database design

No database was used for this. It scraps the data in real time and generate an html page to fetch data later again and again.

## 3.4 Assumptions and Dependencies

Assumptions:

- The user owns an android phone.
- The user knows how to operate an android phone.
- The user is a student of Guru Nanak Dev Engineering College.
- The user currently studies in its 5<sup>th</sup> semester and is pursuing his degree in Computer Science.
- User owns a computer or laptop with Java installed.

Dependecies:

- Java
- Selenium
- Jsoup
- Android
- Internet
- JSwings
- HTML
- Github Pages

## 3.5 Specific Requirements

- The android phone must have android version greater than Marshmallow.
- Minimum Java version required in PC is 8.
- The PC/Laptop must have linux as Operating System.
- Internet must be fast.
- User must have passed in all exams (including internal and practicals).

## [Chapter-4] Development and Implementation

### 4.1 INTRODUCTION TO LANGUAGES

#### Java

Java is a programming language and a platform. Java is a high level, robust, object-oriented and secure programming language.

Platform: Any hardware or software environment in which a program runs, is known as a platform. Since Java has a runtime environment (JRE) and API, it is called a platform.

#### Application:

According to Sun, 3 billion devices run Java. There are many devices where Java is currently used.

Some of them are as follows:

- Desktop Applications such as acrobat reader, media player, antivirus, etc.
- Web Applications such as irctc.co.in, javatpoint.com, etc.
- Enterprise Applications such as banking applications.
- Mobile
- Embedded System
- Smart Card
- Robotics
- Games, etc.

#### Types of Java Applications:

There are mainly 4 types of applications that can be created using Java programming:

##### 1) Standalone Application

Standalone applications are also known as desktop applications or window-based applications. These are traditional software that we need to install on every machine. Examples of standalone application are Media player, antivirus, etc. AWT and Swing are used in Java for creating standalone applications.

## 2) Web Application

An application that runs on the server side and creates a dynamic page is called a web application. Currently, Servlet, JSP, Struts, Spring, Hibernate, JSF, etc. technologies are used for creating web applications in Java.

## 3) Enterprise Application

An application that is distributed in nature, such as banking applications, etc. is called enterprise application. It has advantages of the high-level security, load balancing, and clustering. In Java, EJB is used for creating enterprise applications.

## 4) Mobile Application

An application which is created for mobile devices is called a mobile application. Currently, Android and Java ME are used for creating mobile applications.

### Features of Java:

The primary objective of Java programming language creation was to make it portable, simple and secure programming language. Apart from this, there are also some excellent features which play an important role in the popularity of this language. The features of Java are also known as java buzzwords.

A list of most important features of Java language is given below:

- Simple
- Object-Oriented
- Portable
- Platform independent
- Secured
- Robust
- Interpreted
- High Performance
- Multithreaded
- Distributed

## HTML

HTML is a computer language devised to allow website creation. These websites can then be viewed by anyone else connected to the Internet. It is relatively easy to learn, with the basics being accessible to most people in one sitting; and quite powerful in what it allows you to create. It is constantly undergoing revision and evolution to meet the demands and requirements of the growing Internet audience under the direction of the » W3C, the organisation charged with designing and maintaining the language. The definition of HTML is HyperText Markup Language.

HyperText is the method by which you move around on the web — by clicking on special text called hyperlinks which bring you to the next page. The fact that it is hyper just means it is not linear — i.e. you can go to any place on the Internet whenever you want by clicking on links — there is no set order to do things in.

Markup is what HTML tags do to the text inside them. They mark it as a certain type of text (italicised text, for example). HTML is a Language, as it has code-words and syntax like any other language.

How does it work?

HTML consists of a series of short codes typed into a text-file by the site author — these are the tags. The text is then saved as a html file, and viewed through a browser, like Internet Explorer or Netscape Navigator. This browser reads the file and translates the text into a visible form, hopefully rendering the page as the author had intended. Writing your own HTML entails using tags correctly to create your vision. You can use anything from a rudimentary text-editor to a powerful graphical editor to create HTML pages.

## 4.2 MODULES USED

### Jsoup

jsoup is an open source Java library for working with real-world HTML. It provides a very convenient API for extracting and manipulating data, using the best of DOM, CSS, and jquery-like methods. jsoup implements the WHATWG HTML5 specification, and parses HTML to the same DOM as modern browsers do:

- scrape and parse HTML from a URL, file, or string
- find and extract data, using DOM traversal or CSS selectors
- manipulate the HTML elements, attributes, and text
- clean user-submitted content against a safe white-list, to prevent XSS attacks
- output tidy HTML

jsoup is designed to deal with all varieties of HTML found in the wild; from pristine and validating, to invalid tag-soup; jsoup will create a sensible parse tree.

## Jswing

Java Swing is a lightweight Java graphical user interface (GUI) widget toolkit that includes a rich set of widgets. It is part of the Java Foundation Classes (JFC) and includes several packages for developing rich desktop applications in Java. Swing includes built-in controls such as trees, image buttons, tabbed panes, sliders, toolbars, color choosers, tables, and text areas to display HTTP or rich text format (RTF). Swing components are written entirely in Java and thus are platform-independent.

Swing offers customization of the look and feel of every component in an application without making significant changes to the application code. It also includes a pluggable look and feel feature, which allows it to emulate the appearance of native components while still having the advantage of platform independence. This particular feature makes writing applications in Swing easy and distinguishes it from other native programs.

## Selenium

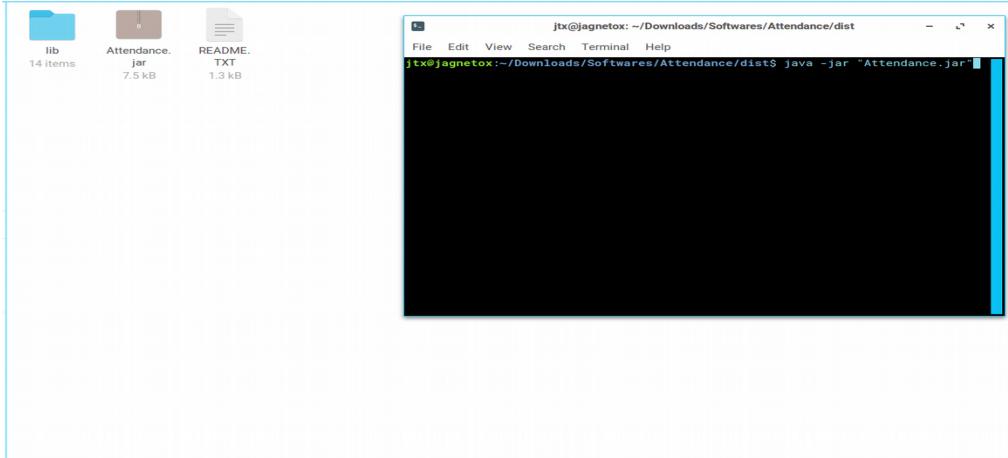
Selenium is a free (open source) automated testing suite for web applications across different browsers and platforms. It is quite similar to HP Quick Test Pro (QTP now UFT) only that Selenium focuses on automating web-based applications. Testing done using Selenium tool is usually referred as Selenium Testing. Selenium is not just a single tool but a suite of software's, each catering to different testing needs of an organization.

It has four components.

- Selenium Integrated Development Environment (IDE)
- Selenium Remote Control (RC)
- WebDriver
- Selenium Grid

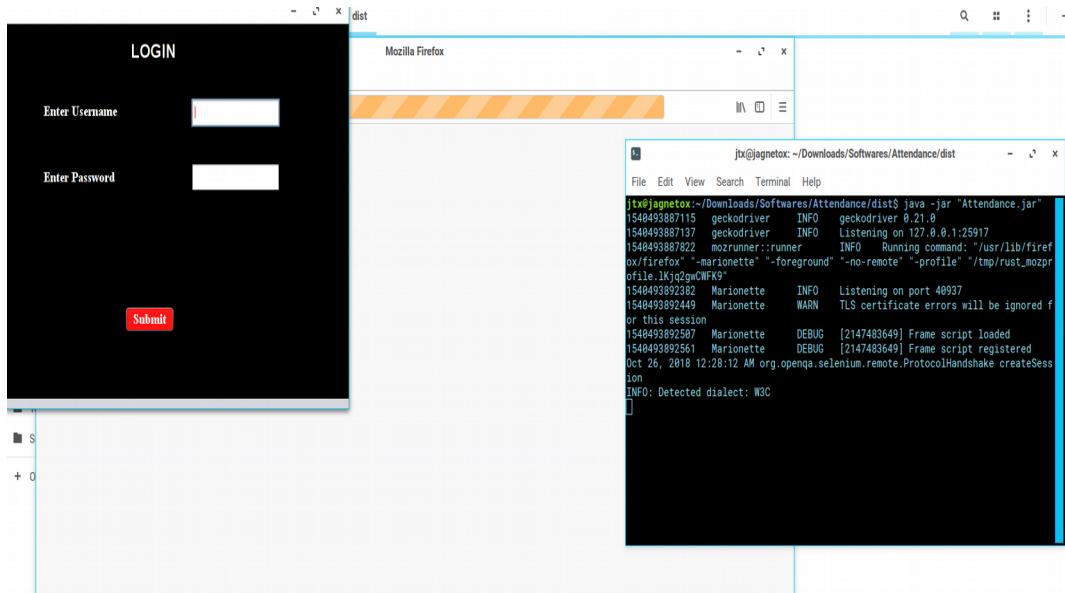
## 4.3 IMPLEMENTATION WITH SCREEN SHOTS/FIGURES

### 1) Running .jar file in terminal



(Figure 4.3.1 Running gui)

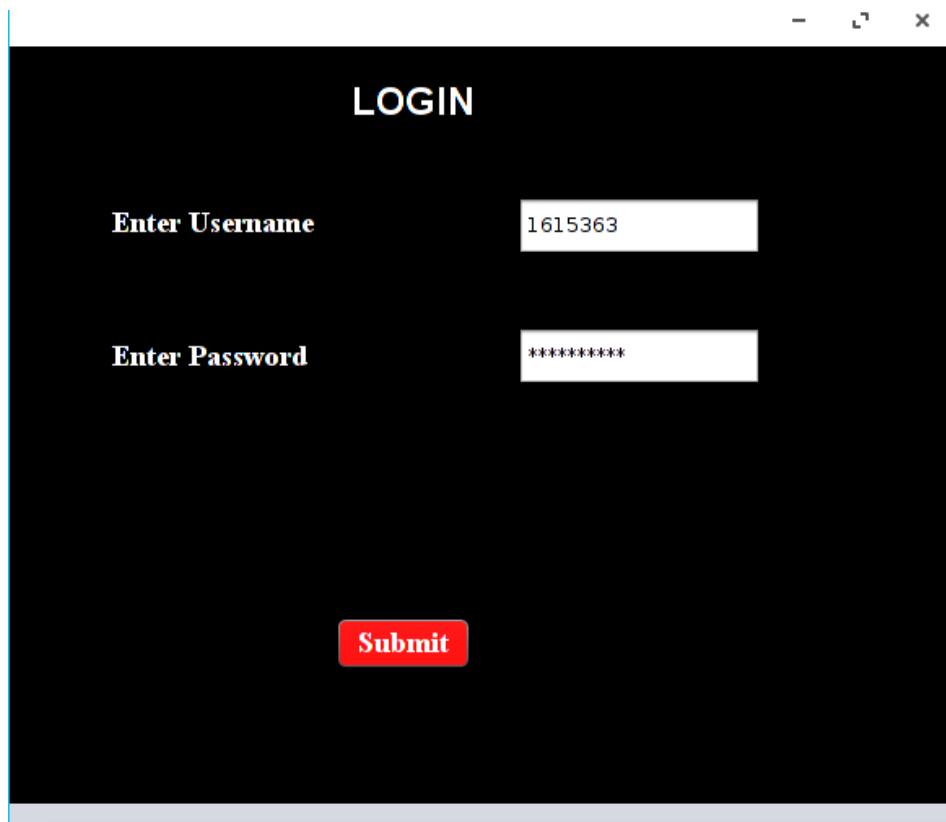
### 2) Login page opens with Firefox automated ready for action.



(Figure 4.3.2 Gui login)

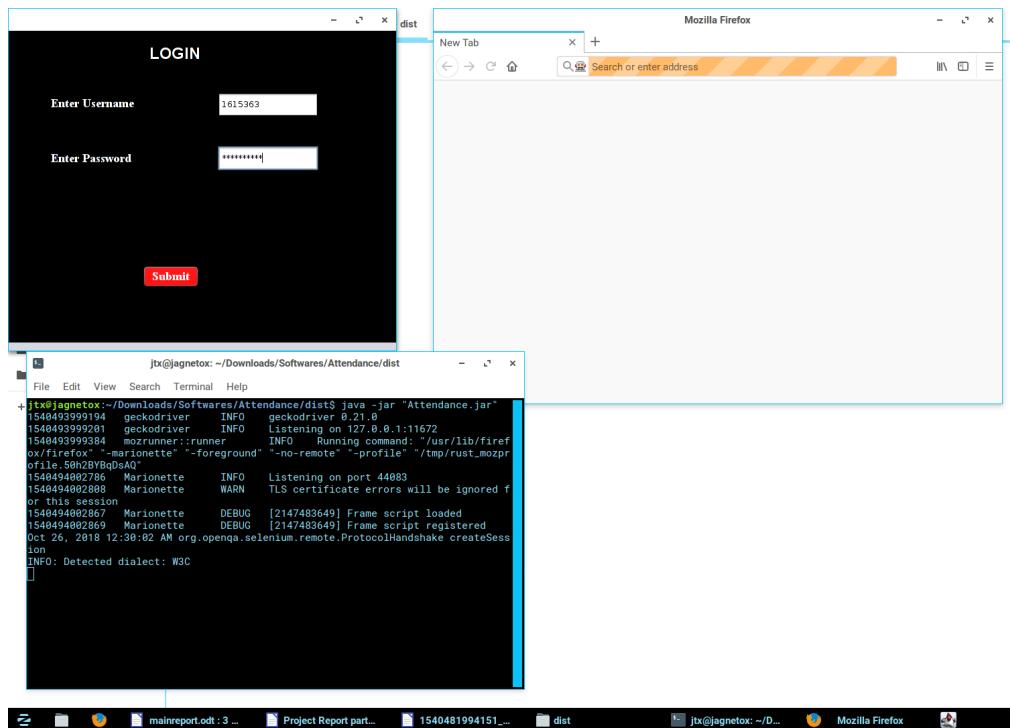
# Project - X

3) Entering username and password



(Figure 4.3.3 values entering)

4) Before clicking on submit button.

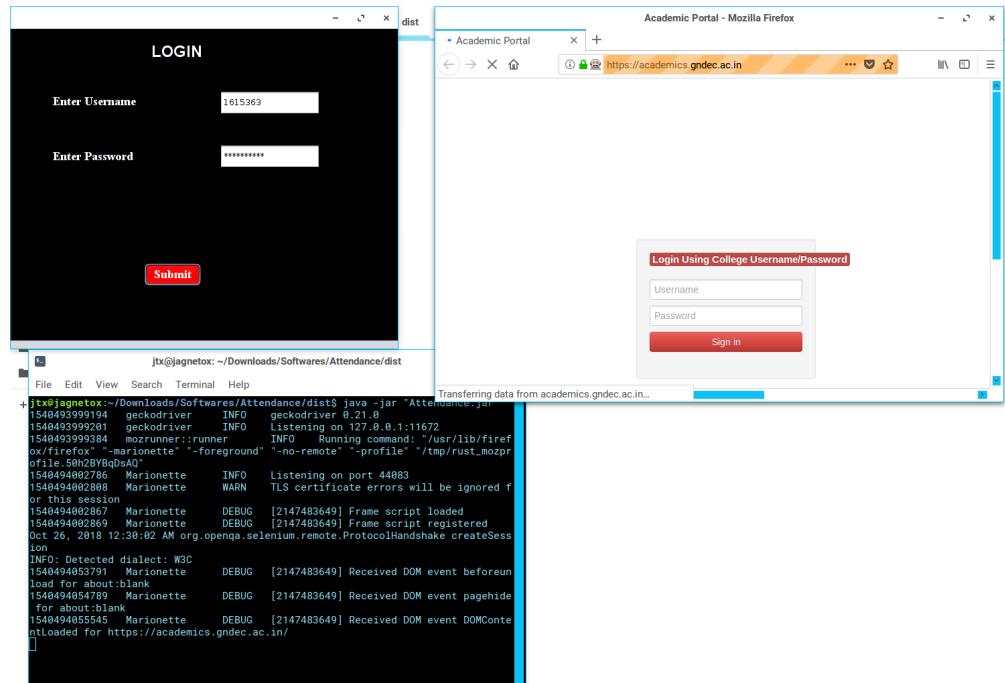


(Figure 4.3.4 submit)

# Project - X

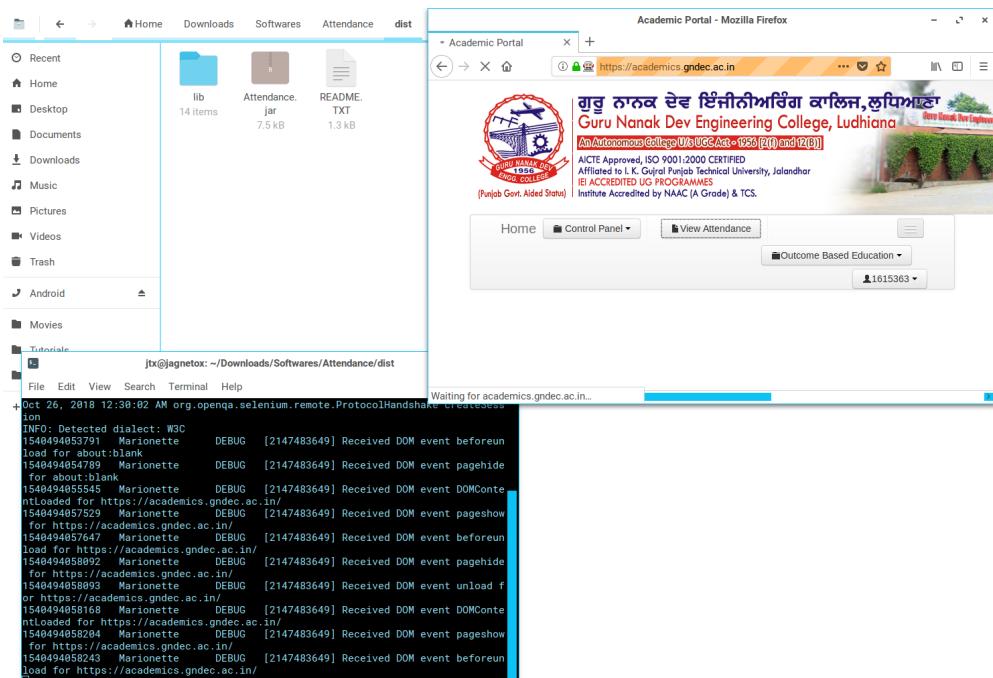
5) After clicking on submit button ,automation has started.

It has opened college login page and is ready to pass values and login.



(Figure 4.3.5 gndec-login page)

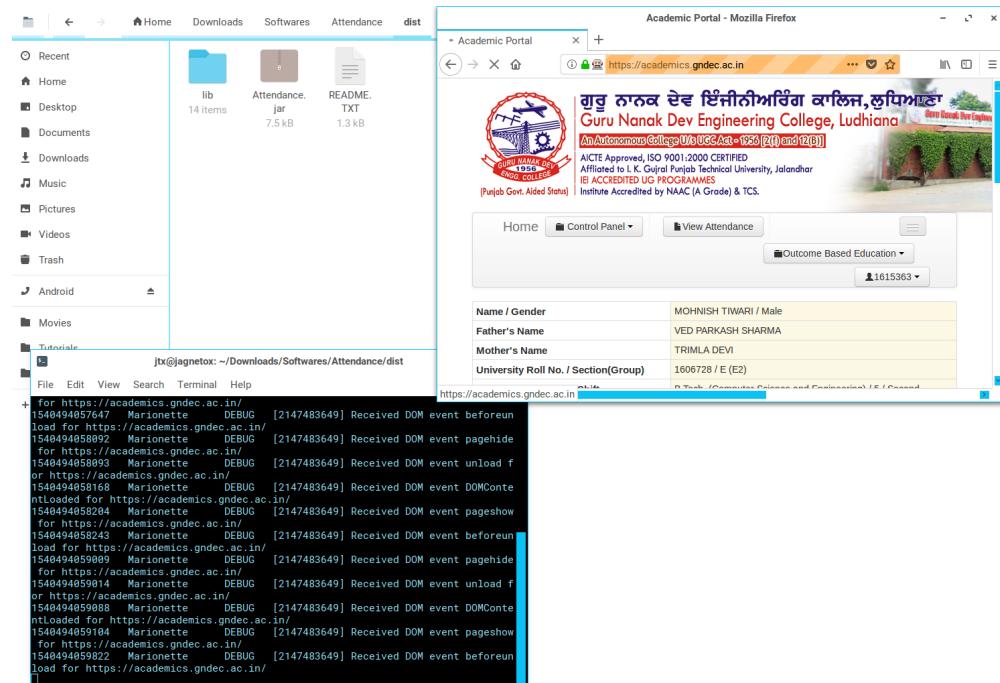
6) It has logged in now



(Figure 4.3.6 logged in)

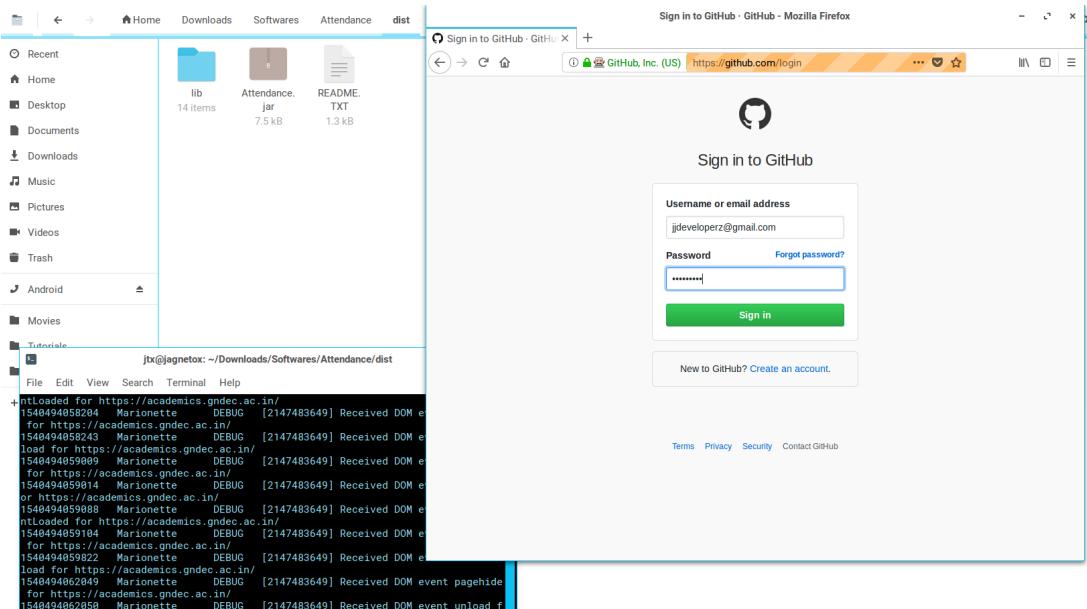
# Project - X

7) Attendance portal is opened now and in the backend all the values has been scrapped by selenium , performed calculations and has created an HTML page.



(Figure 4.3.7 attendance-portal)

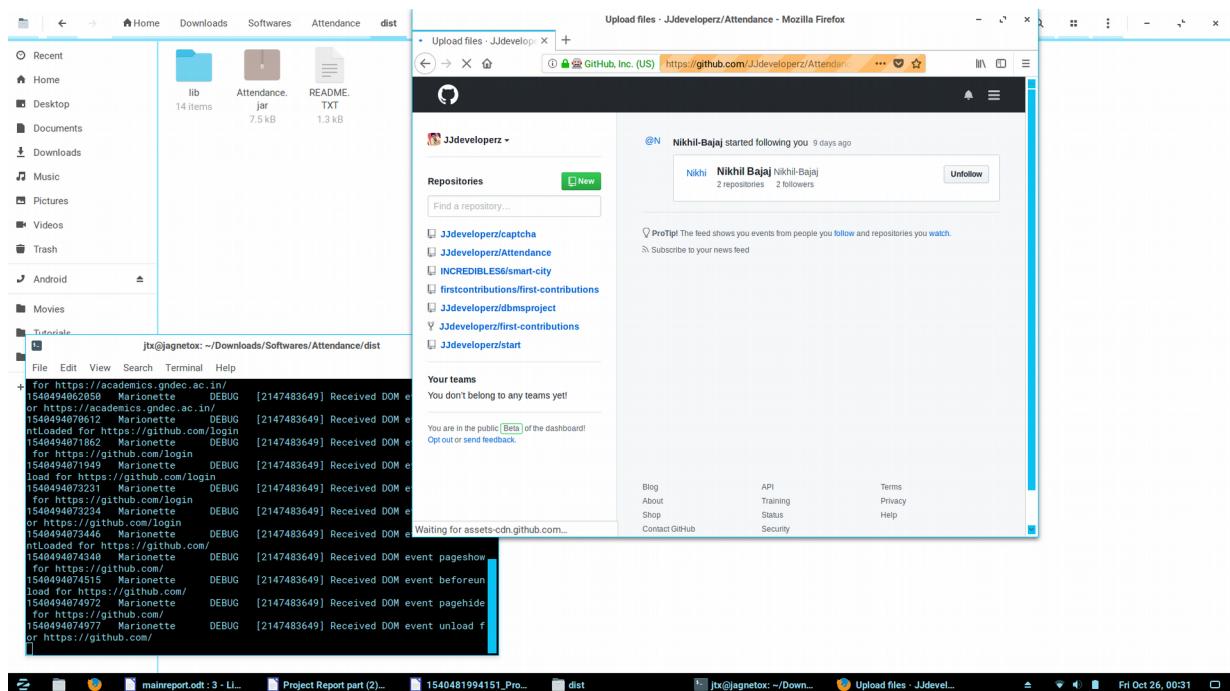
8) Now it has opened github and ready to login



(Figure 4.3.8 github-signin)

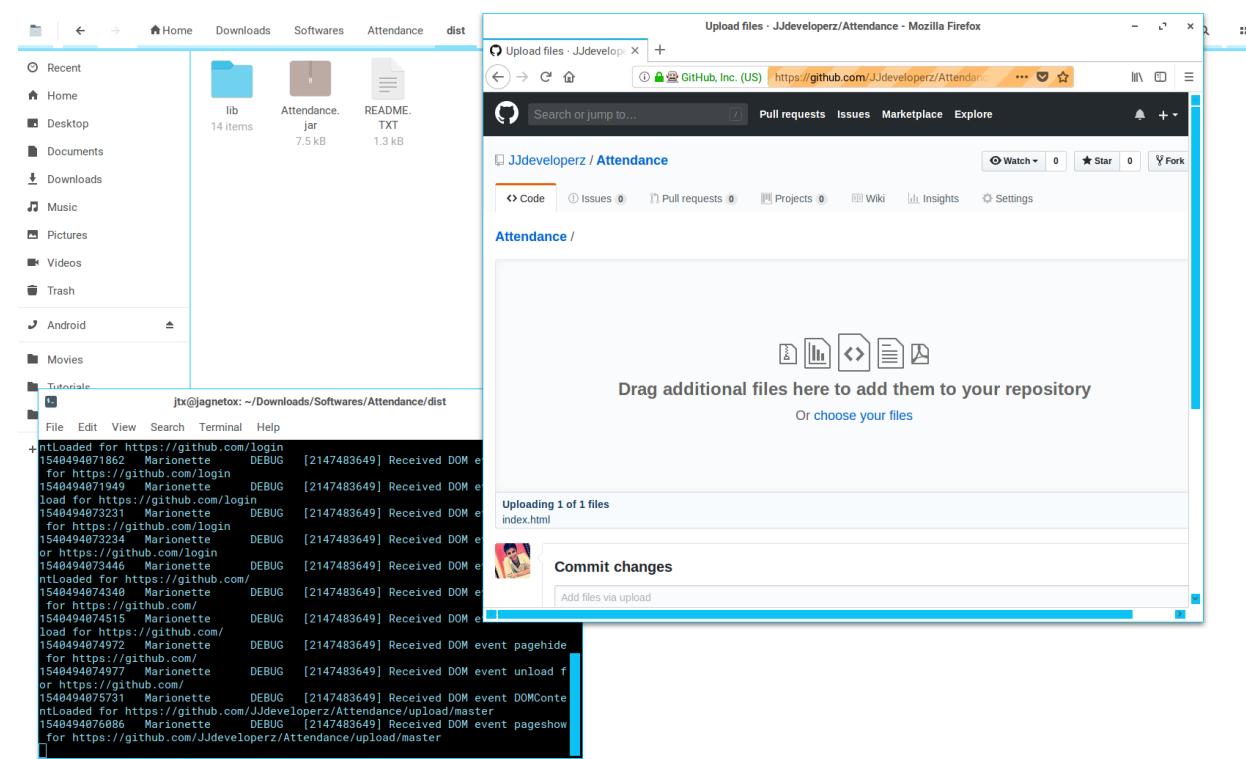
# Project - X

9) It has logged in to github and will move to repository



(Figure 4.3.9 github-repo)

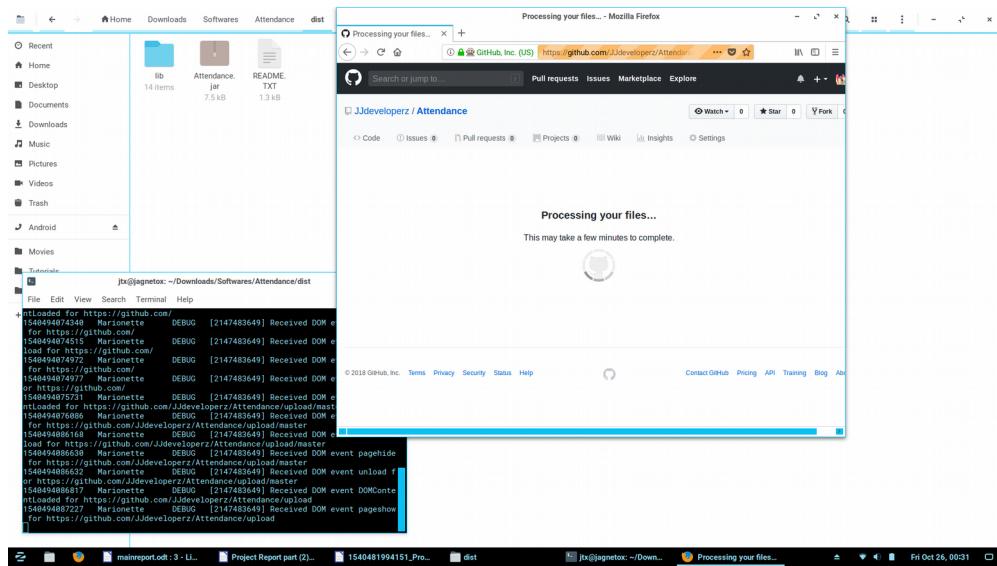
10) It has started uploading the file



(Figure 4.3.10 github-upload)

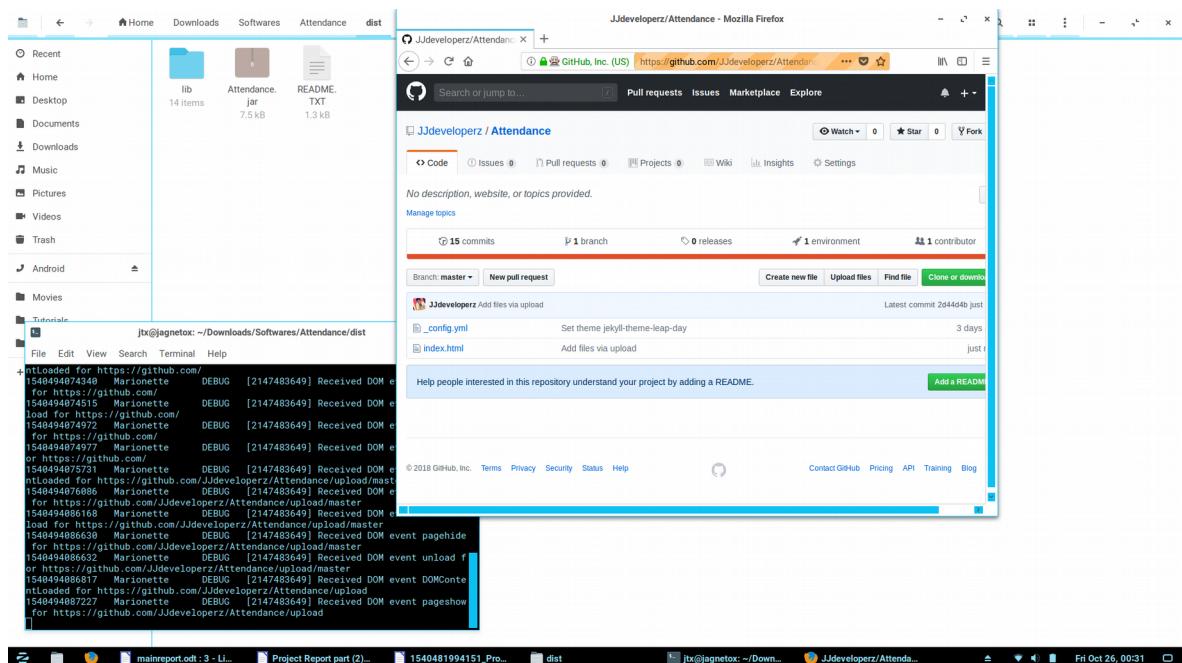
# Project - X

11) Files are processing now.



(Figure 4.3.11 github-syncing)

12) Here it is our file uploaded ie. index.HTML. This has made our HTML live. So ready to fetch data in app.



(Figure 4.3.12 uploaded)

# Project - X

13) Now open android app

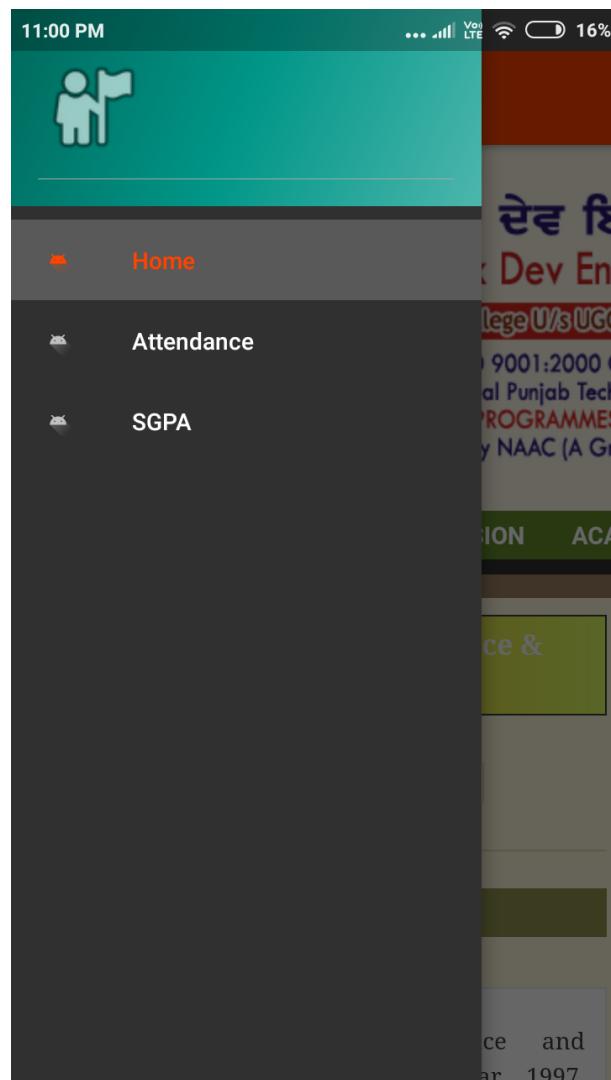
14) This is the home layout of the app eith 2 webviews where one is showing departmental website and the other one college website.



(Figure 4.3.13 android-home)

# Project - X

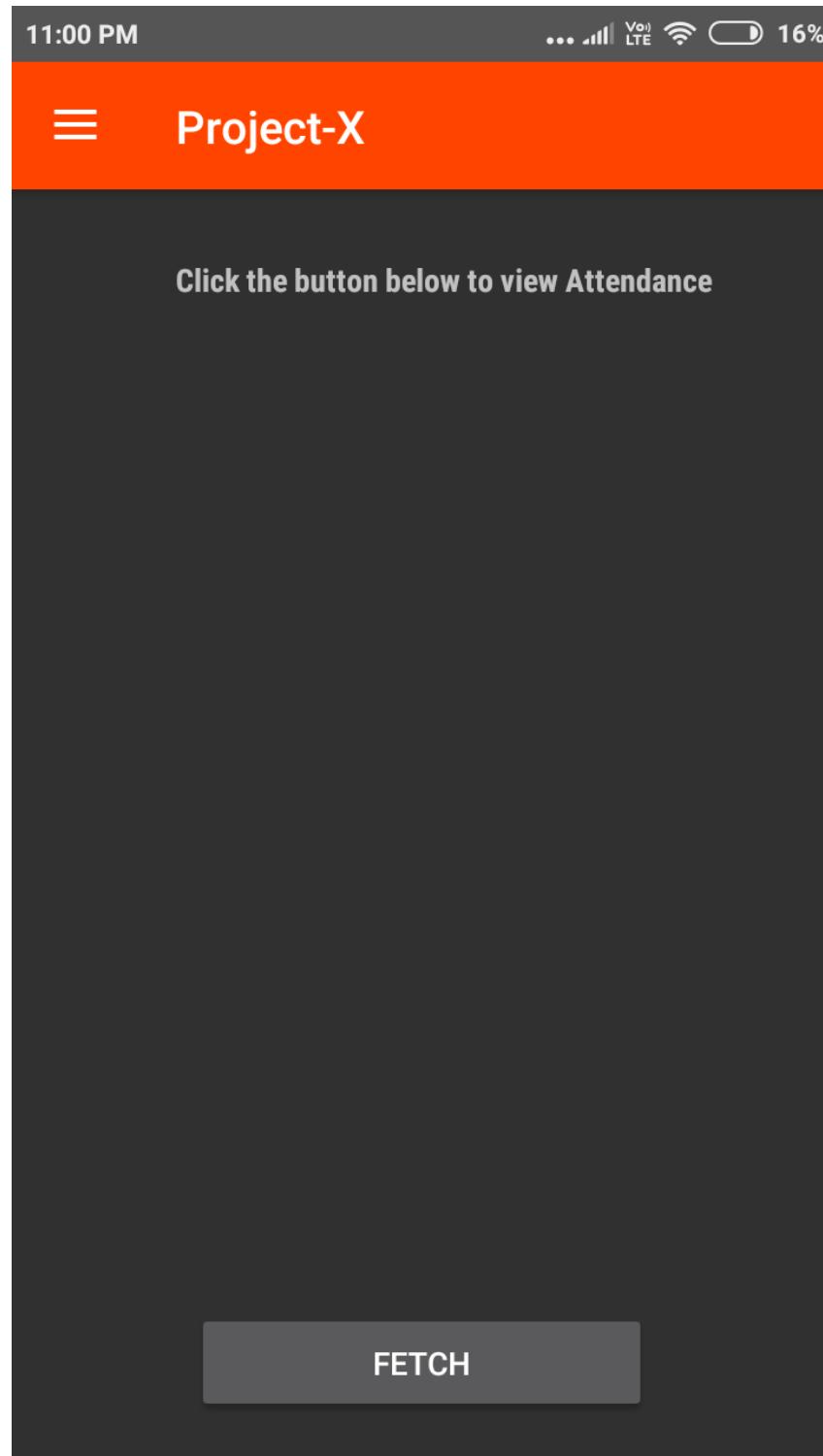
15) This is the navigation bar



(Figure 4.3.14 navigation bar)

# Project - X

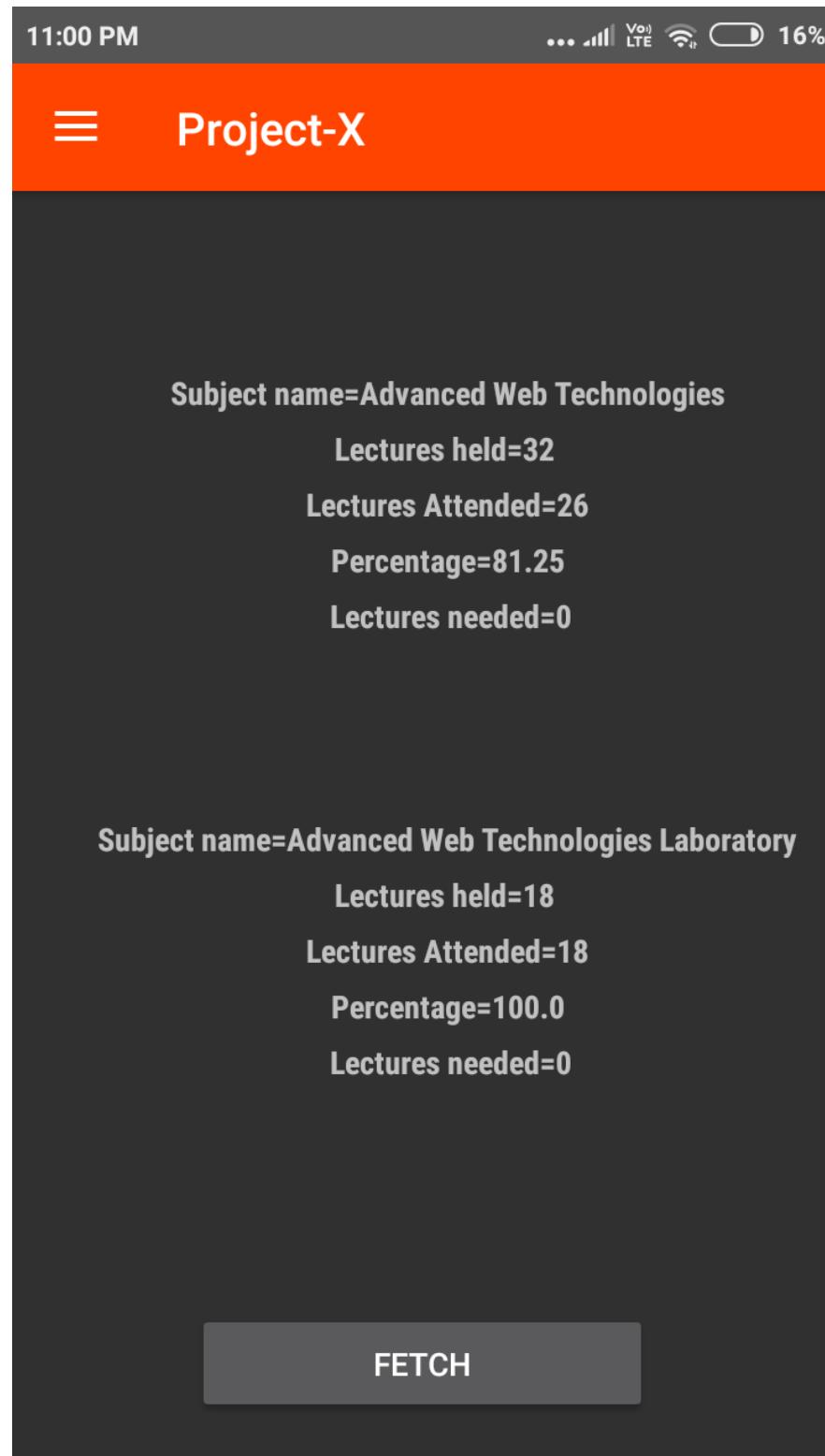
16) Now clicking on Attendance button opens this



(Figure 4.3.15 attendance layout)

# Project - X

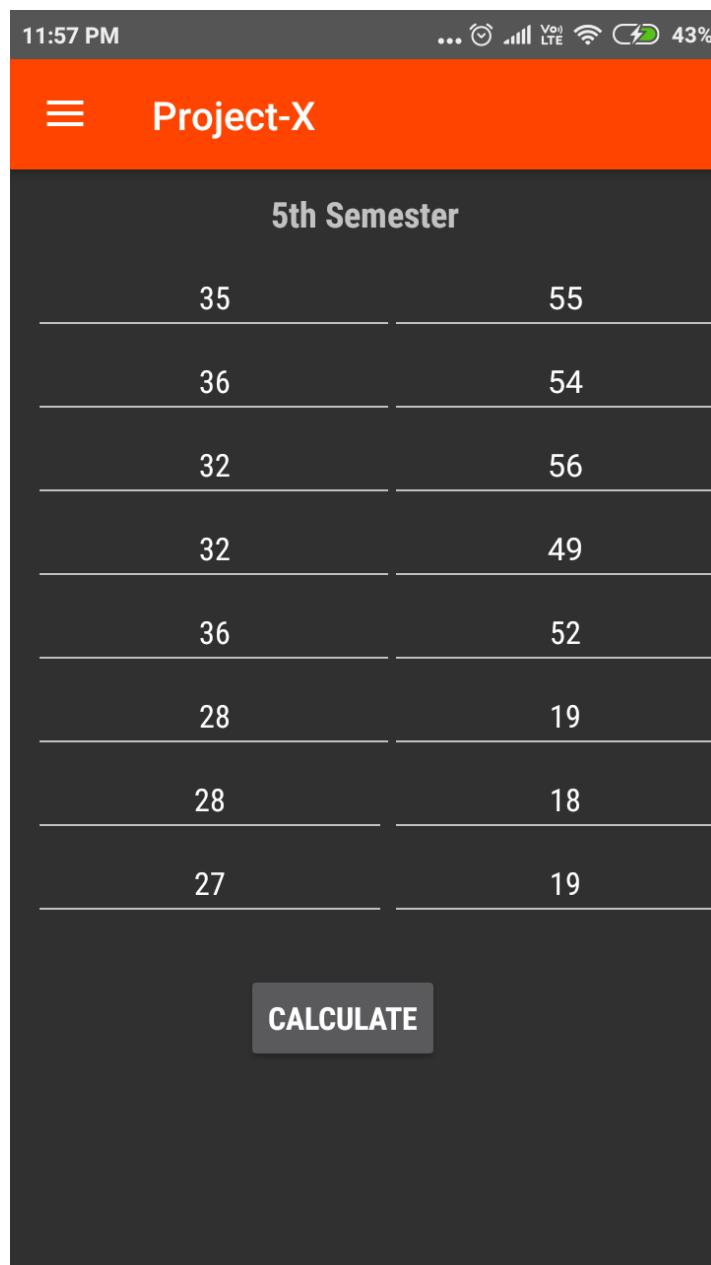
17) By clicking fetch it will load data from our HTML website



(Figure 4.3.16 attendance fetched)

# Project - X

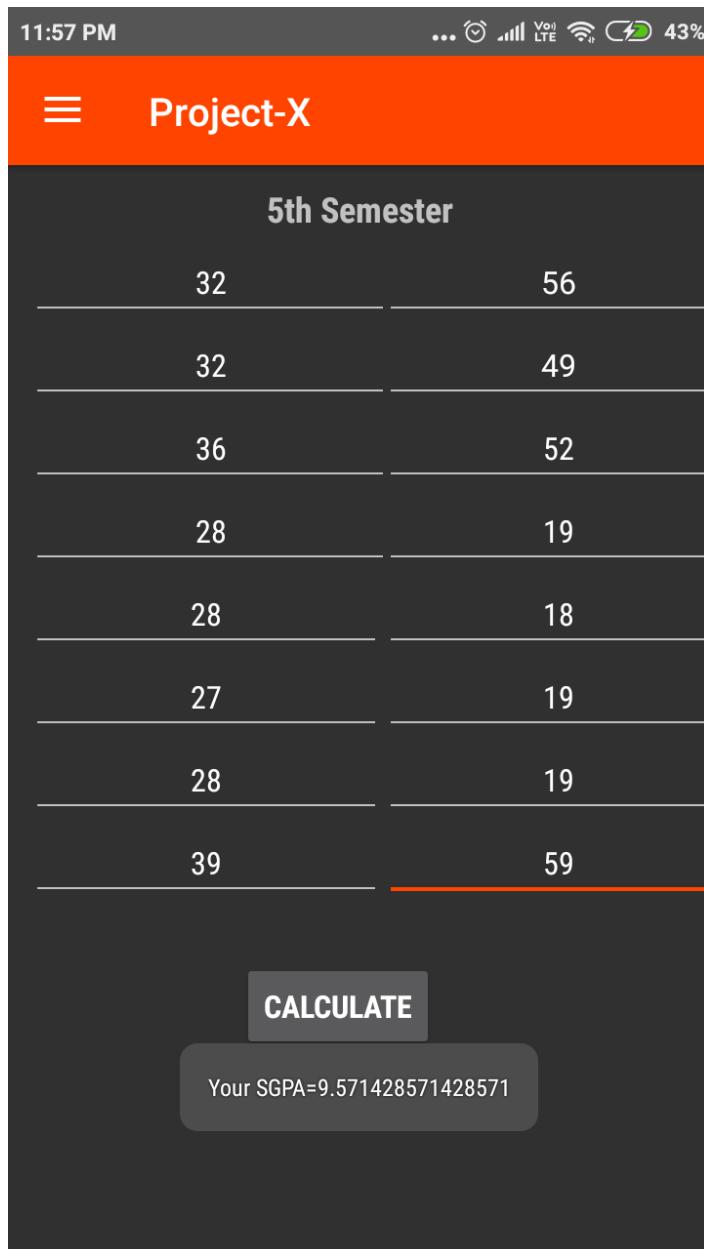
18) Now opening SGPA layout and filling marks



(Figure 4.3.17 marks filled)

# Project - X

16) Clicking on calculate button shows the SGPA in the form of toasts



(Figure 4.3.18 sgpa calculated)

## 4.4 TESTING

This app has been tested with various users providing different inputs and it worked well with all the cases. The only problem it faces is when the internet connection is slow or when calculating SGPA any field is left empty.

## [Chapter -5] Conclusion and Future Scope

### 5.1 CONCLUSION

This is to conclude that all the work has been done with great efforts. I have tried to solve all the user requirements. The client is satisfied with this project. Everything in this project is fully functional. The app is lightweight and will consume less than 5MB of space in android and Java software is also lightweight.

### 5.2 FUTURE SCOPE

The project can be expanded to much more as:

- It can show Time-Table of the user.
- The dependency on computer can be removed.
- It can be expanded for other branches also.
- It can calculate SGPA for other branches also.
- It can calculate CGPA.

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