

AN ANDROID APPLICATION FOR STUDENT CARE

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This Report Presented in Partial Fulfillment of the Requirements for the Degree of Bachelor of Science in Computer Science and Engineering.

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APPROVAL

This Project titled “**An Android Application for Student Care**”, submitted by “Muhammad Ali (ID: 171-15-8698)” and “Shakil Ahmed (ID: 172-15-9683)” and “Sagor Mollik (ID: 163-15-8504)” to the Department of Computer Science and Engineering, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on *date*.

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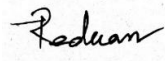
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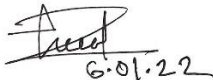
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DECLARATION

We hereby declare that, this project has been done by us under the supervision of **Md. Jueal Mia, Senior Lecturer, Department of CSE** Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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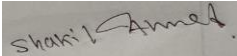


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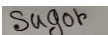
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Last, we respect our parents for continuous support and patients for all the steps. We also must acknowledge their goodwill.

ABSTRACT

This project titled is “An Android Application For Student Care”. We tried to develop an android application that will help the parent to know all the activities of his child’s school. User can show all activities through this application any time. User will be able to see their child’s school class attendance, class routine, academic result, school notice, academic progress using this application. We've tried to make the user interface very user-friendly so that users can easily access this app without any hesitation. A person who has a smartphone can use this application by sign in with the phone number. For the first time sign in, users need to register with school id, student id, guardian name, phone number. In this case, every user must give their information correctly. If an admin sees any activity of a user that violates the terms and conditions, the admin can disable that user. To control the app perfectly some relational features are also built for the admin and users. Every one of them has a different role to control this app. We also have a plan to improve the features and facilities more.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

Today in our digital world we all have a smartphone. This offers advanced technologies with functionality similar to a personal computer. Nowadays we try to do all of our daily tasks with a mobile phone. We cannot deny that it is a part and parcel of our daily life. There are many useful applications that are used on a mobile phone. We noticed that there are so many applications about student management system in play store or many websites. But there is no such application through which a guardian can easily view his child's school activities. There are applications that are used for Guardian. These applications are designed for a smartphone or a tablet pc running on the Android operating system. People can download these applications from various play stores. After installing this application, people can sign up and become a member. Only registered members can access all the features of the application. A user can deal with all their necessities through this app. This application has been made in English for a better understanding of all users.

1.2 Motivation

Nowadays, technology is so updated in our country. We can get any type of stuff for our daily necessities online. All of the services are accessed through smartphones. That's why we can use them anywhere and anytime. It is difficult for a guardian to go to his child's school every day and check his child's school activities. By using this application, user can easily know all the activities of his child's school at any time.

Our motive is to make an application which can be used in smartphones to ensure guardian show their child's school activities very easily. A user will be able to see class attendance, class routine, academic result, school notice, academic progress using this application.

1.3 Objective

- To develop an android based student care application.
- To make a friendly platform for users.
- To provide cloud-based Solution System.
- Users can Sign In and Signup.
- After successfully sign up user will be authenticated.

1.4 Expected Outcome

- Will be a reliable platform for user.
- User will be able to see their children school attendance, class routine and academic result easily.
- Students can be easily get and submit their homework.
- Guardian will be able to show their child's academic progress at any time.
- User can pay all the fees of his child's school.
- Students will be able to download their class materials.

CHAPTER 2

BACKGROUND

2.1 Introduction

This is an android application that will deal with the user for show their child's school activities. At present android application is more efficient and reliable for every class of people. Everyone wants to save their valuable time and wants their life easier. They want a more user-friendly platform. There are some similar applications on the web sites but that application has a lot of bugs and poor maintenance service. All the things that we are talking about are unique, combined and user-friendly applications from others [1].

2.2 Related Works

“Student care” application is mainly used by guardian to know their child's school activities. There are some applications like student care.

"Alora - Attendance Tracker App" is an attendance tracker app that helps you save time, be paperless and simplify the attendance process. If you are a teacher, trainer or instructor then you can easily find everything you need in the "Alora" app. This application is user friendly. The presence of various presence marks and notes helps to stay on top of the attendance tracking process. Exportable reporting will save time and make it easier to track attendance at multiple classes or events. Collaboration will allow you to work together with your team [2].

“LO School Management System (LOSMAT)” is the most complete and versatile school management system that manages complete school system. it makes possible to approach all activates of students like admission, fee structure, time-table, result, attendance etc. to their teachers as well as parents. It manages various administrative functions of the school such as HR management, transportation management, accounts management, examination management etc. [3]

2.3 Challenges

Requirement: The most challenging matter is to fulfill the design of the app so that the user willingly uses this app. Sometimes we fall in bugs when the version will update when developing this application. Sometimes there is some invisible error that is very much tough to find and correct. It needs to spend some hours.

Poor Communication: We are three members developing this project. For the pandemic situation it is very tough to get together and solve every stage of the project problem. Effective communications are very important to make this project successful.

CHAPTER 3

REQUIREMENT SPECIFICATION

3.1 Business Process Model

The model we use for our project is given below. The business process model is a systematic way of presenting the workflow of a system. The image of data flow is a graphical way to present data tracking through an information system. Logical data flow diagrams describe the flow of data through a system to perform certain tasks in a business. We can link up our DFD and business process diagram to connect our system processes and business activities. Our system DFD is displayed:

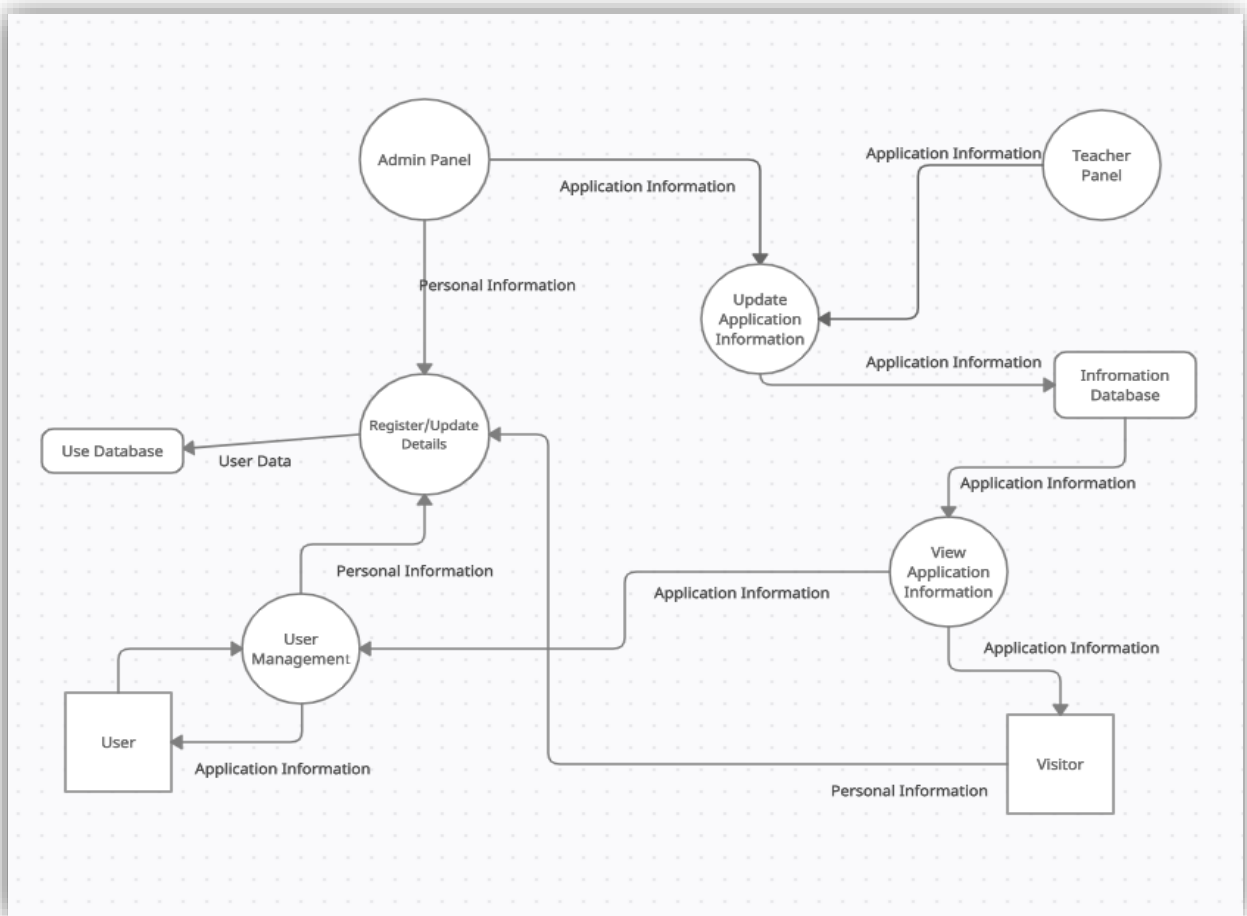


Figure 3.1: Data Flow Diagram

3.2 Requirement collection and Analysis

The primary conditions of development are requirement analysis and requirement collection. There are two types of requirements for development. One is the functional requirement and the other requirement is nonfunctional. Those activities performed by software are called functional. Nonfunctional requirements generally define the personality of an application.

Functional Requirement: In our project, there are many functional requirements. There is an authentic login, show attendance, gets their child's class routine, notice board, academic progress through app, academic result, payment school fees & others fees, download pdf file.

Nonfunctional Requirement: Nonfunctional requirements usually depend on how much user-friendly UI you are using. The UI should be user friendly and for a fantastic user experience [4].

3.3 Use case Model and Description

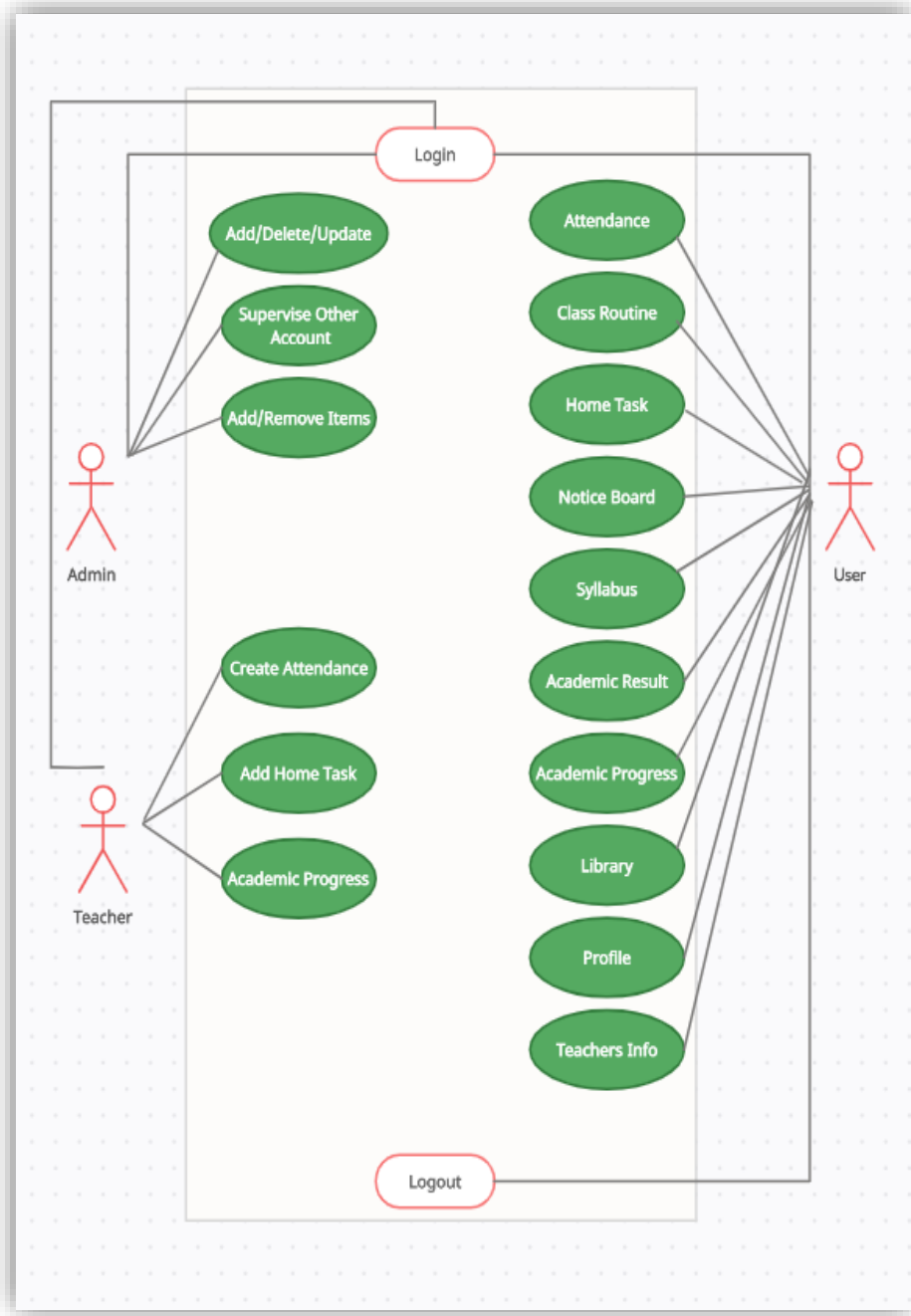


Figure 3.3: Use Case Diagram for the System

3.4 Logical Data Model

An entity-relationship diagram (ERD) shows the relationships of entity sets stored in a database. An entity in this context is an object, a component of data. An entity set is a collection of similar entities. These entities can have attributes that define its properties. The logical data model presents the Entity-relationship diagram called the ER diagram. An entity is a piece of data-an object or concept about which data is stored.

3.5 Design Requirements

Each system or software must consider some issues that have reproduced overall the system are designed to achieve that goal. The design of the project will be differed from system to other system we look for some points for the design requirements are given below:

Efficient: Running the application faster on any device is very important. We made our application very smoother and bug-free. We made this application design is very light.

User-Friendly: This application is very much user-friendly. People will easily be able to access all of the features smoothly. The design is very soft and all the layouts are very well decorated.

Compatible to various devices: our application is compatible with any android smartphone that supports the minimum SDK level 23.

Some Extra Features:

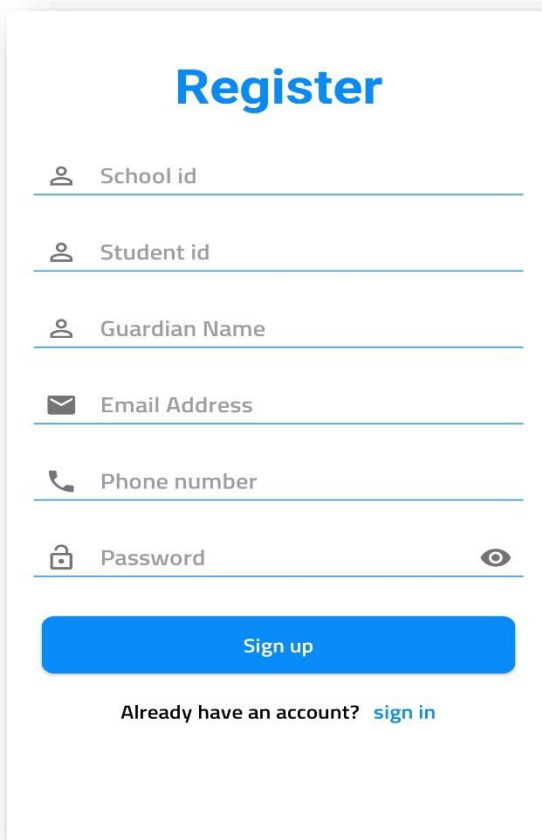
- There are three types of users: Admin, Teacher and User.
- Admin can add / update / delete lists.
- Admin can supervise all other account details.
- Users will register and update an account.

CHAPTER 4

DESIGN SPECIFICATION

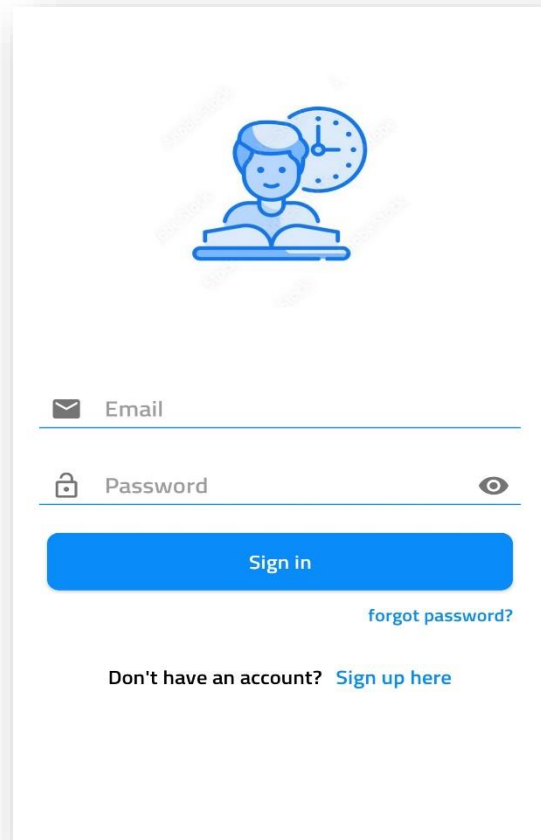
4.1 Front-End Design

Front-end is the visual part of an application. Front-End Design consists of two parts: XML file for the design and structure of the user interface and class for developing logical operations of that user interface. In the XML file of our user interfaces, we are using various activity layouts and various types of labels such as recycler view, card view, circular image view, textinputlayout, edit text, image view, nested scroll view, button, text view, slider, and various animation and custom fonts. We have also used some extra XML files and classes to make our application much more user-friendly and attractive user interface so that it becomes easy to use for the users. As a result, it has turned out simple but attractive.



The registration page features a blue header with the word "Register" in a bold, sans-serif font. Below the header are six input fields, each with a small icon to its left: a person icon for "School id", a person icon for "Student id", a person icon for "Guardian Name", an envelope icon for "Email Address", a telephone icon for "Phone number", and a padlock icon for "Password". Each field is a simple horizontal line. At the bottom of the form is a large blue button with the text "Sign up" in white. Below the button, the text "Already have an account? [sign in](#)" is displayed, with "sign in" being a blue link.

Figure 4.1: User Registration Page



The sign-in page features a blue header with an illustration of a person reading a book with a clock in the background. Below the header are two input fields: "Email" with an envelope icon and "Password" with a padlock icon and a toggle eye icon to its right. Below the fields is a large blue button with the text "Sign in" in white. Below the button, the text "forgot password?" is displayed in blue. At the bottom, the text "Don't have an account? [Sign up here](#)" is displayed, with "Sign up here" being a blue link.

Figure 4.2: User Sign in Page

Figure 4.1 shows the user's registration page. When the user will try to log in to his account, this page will be visible on the device screen. For a new user, he needs to register first to enter the application. Here only fill up a valid school id, student id, guardian name, email address, phone number and password. All details need to be correct information.

Figure 4.2 shows the user's sign in page. A user will sign in with email address and password regularly. If they try the wrong email address and password, they will be notified else they will successfully sign in.

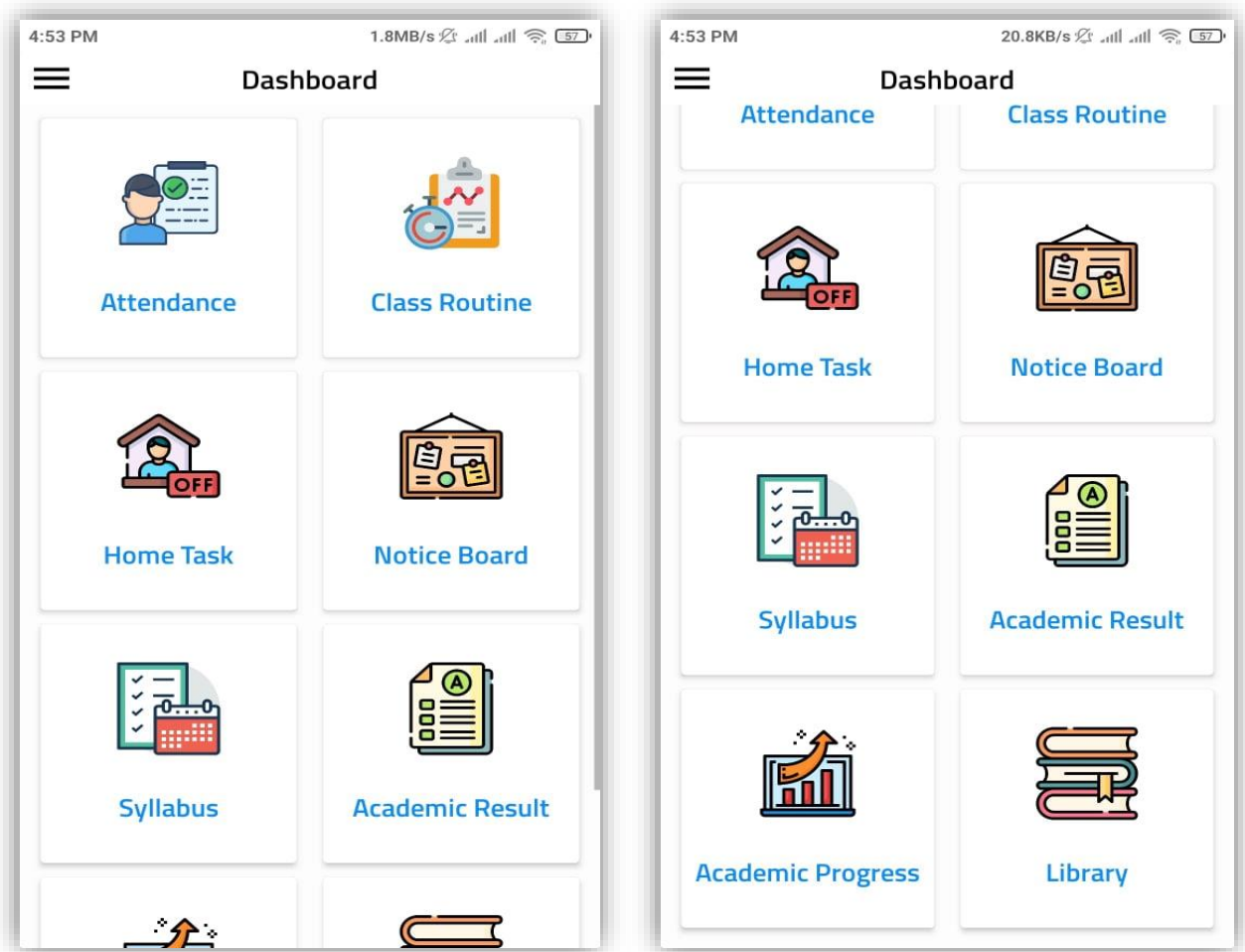


Figure 4.3: Dashboard Activity

Figure 4.3 show the user home page. After successfully sign in on the sign in page, the user shows this dashboard in his mobile screen. Here the user has to choose that he wants to look for. This selection is for the first time only.

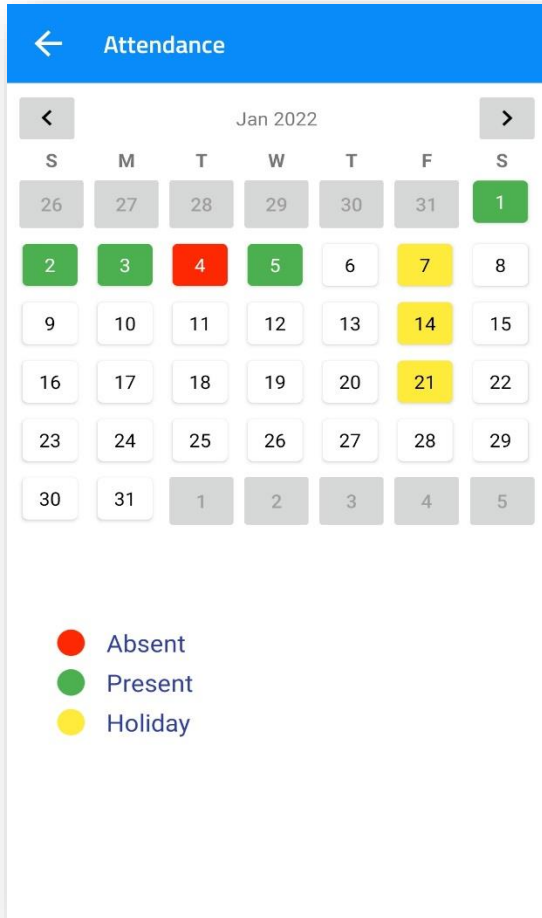


Figure 4.4: Attendance Activity

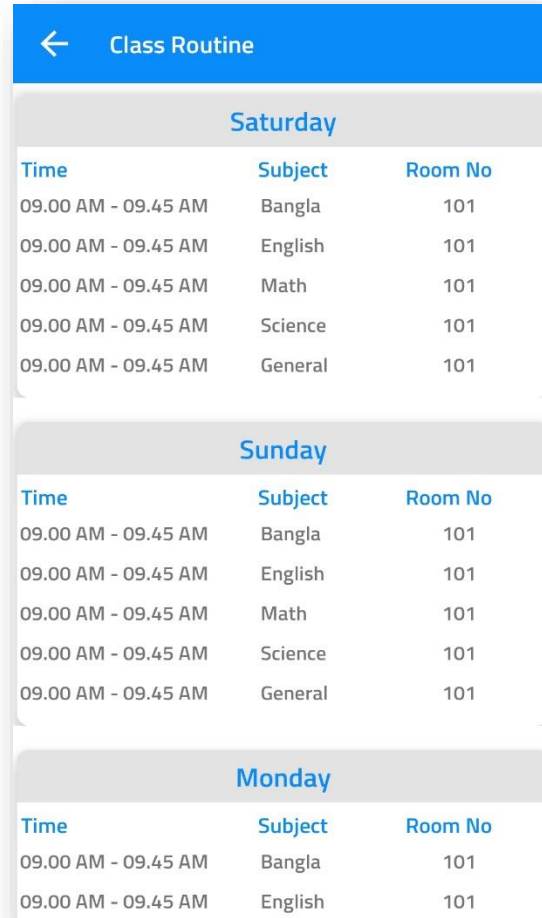


Figure 4.5: Class Routine Activity

Figure 4.4: On this activity, Guardian will be able to see which days their children were present in class and which days they were absent from class. Teachers will store the class attendance in the database and from there the data will be displayed.

Figure 4.5: In this activity, Guardian will be able to see their children class routine. There given class time, subject and room number.

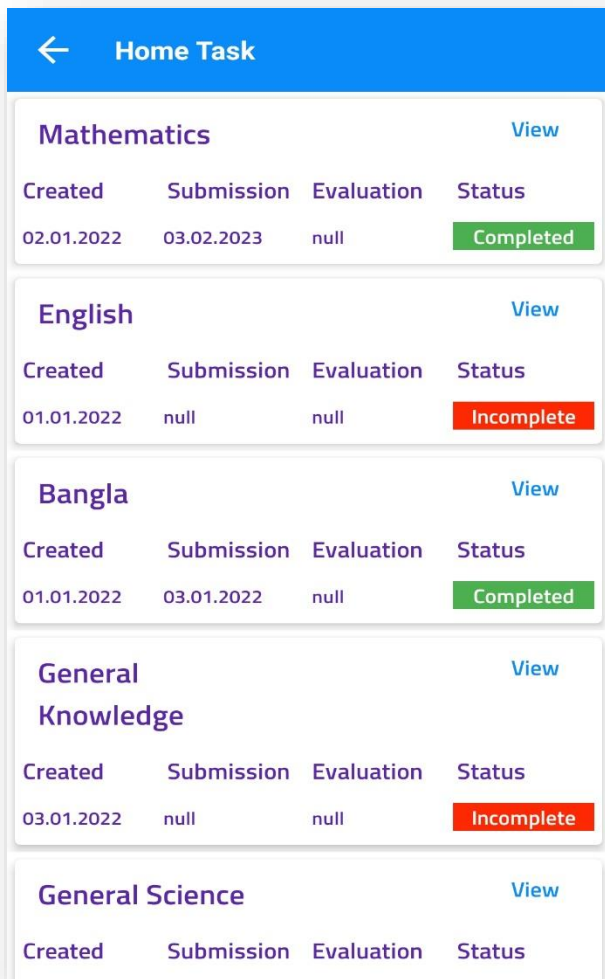


Figure 4.6: Home Task Activity

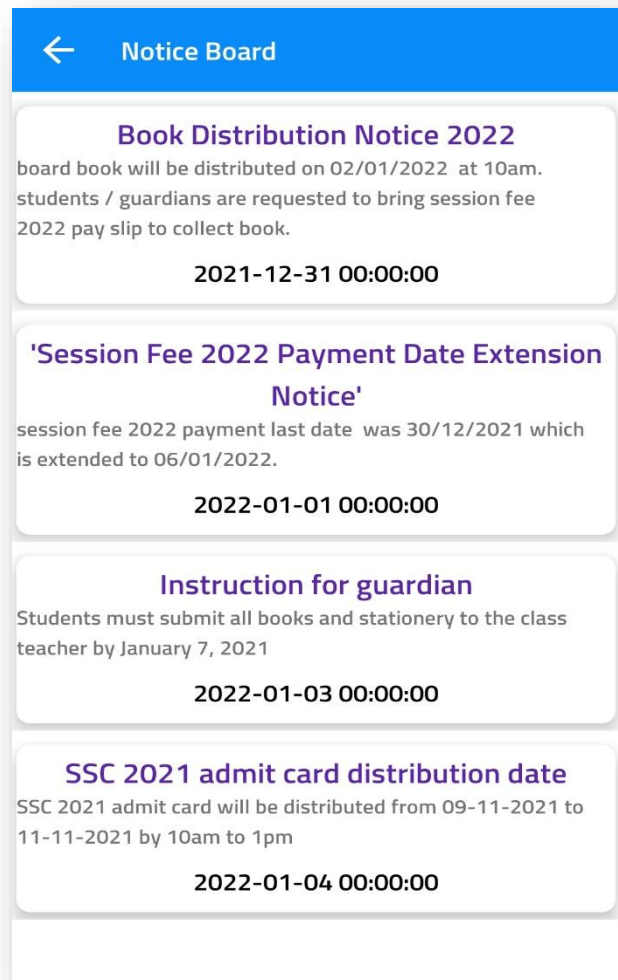


Figure 4.7: Notice Board Activity

4.6: In home task activity, guardian will see their child's school home task. After student can finished home task and submit from here. User also show home task status that completed or incomplete.

4.7: Here user can see all the notice of his child's school.

← Syllabus

রাজেন্দ্রপুর ক্যান্টনমেন্ট পাবলিক স্কুল ও কলেজ
রাজেন্দ্রপুর সোমানিবাস, গাজীপুর।

সিলেবাস ২০২০
শ্রেণি : নার্সারি
(বাংলা ভাষান)

এক নম্বরে বিষয় সমূহ

ক্রমিক নং	বিষয়	পৃষ্ঠা
১	বাংলা	২
২	ইংরেজি	৪
৩	গণিত	৫
৪	চিত্রকর্ম	৭

পঠ্যপুস্তকের তালিকা

ক্রমিক নং	বইয়ের নাম	লেখকের নাম	প্রকাশকের নাম ও ঠিকানা
১.	অমর নই গ্রাম-প্রাথমিক শিখা (সহায়ক বই হিসেবে)	---	জাতীয় শিক্ষাক্রম ও পাঠ্যপুস্তক বোর্ড, ঢাকা
২.	Bichitra ABC Coloring and Writing Book	---	---
৩.	ছোটখিদের চিত্রকলা (০)	শিশির সন্দিকি, সুমিত্র কুমার	মেগডল হোলে (বাংলা)
৪.	গোলা চিখি সংখ্যা গিনি	পবিত্রা ইসলাম	---
৫.	এতো শিখতে শিখি, গ্রাম-প্রাথমিক শিখা সহায়ক বই হিসেবে	---	---
৬.	My Rhymes and Fun Book for Nursery	Lipika Tasnim	---

শাখা-০১

নার্সারি

অভিজ্ঞতার জন্য নির্দেশাবলি

- শিক্ষার্থীর সকল বই পরে এবং সেকশনারী ০৭ জানুয়ারি ২০২০ তারিখের মধ্যে শ্রেণি শিক্ষকের সিন্ডিকেট দিতে হবে।
- বইপত্র ও সেকশনারী সমূহে শিক্ষার্থীর নাম ও সেকশনের নাম সঠিকভাবে উল্লেখ করে দিতে হবে।

Figure 4.8: Syllabus Activity

← Academic Result

Student Name: Anam Habib
Student Id: 641284265
Section: A
Shift: Day
Total Student: 41
Occupied position: 5th
Previous position: 3rd

Subject	Full marks	Obtain marks	Highest marks	Comment
Bangla	100	72	78	Excellent
English	100	82	82	Outstanding
Mathematics	100	87	90	Outstanding
Social Science	100	65	72	Good
BGS	100	80	80	Excellent
Religion	100	89	93	Outstanding

4.9: Academic Result Activity

4.8: In this activity, guardian will show their child's school syllabus very easily.

4.9: In this activity, guardian will see their child's academic result. User will want to see any semester's results.

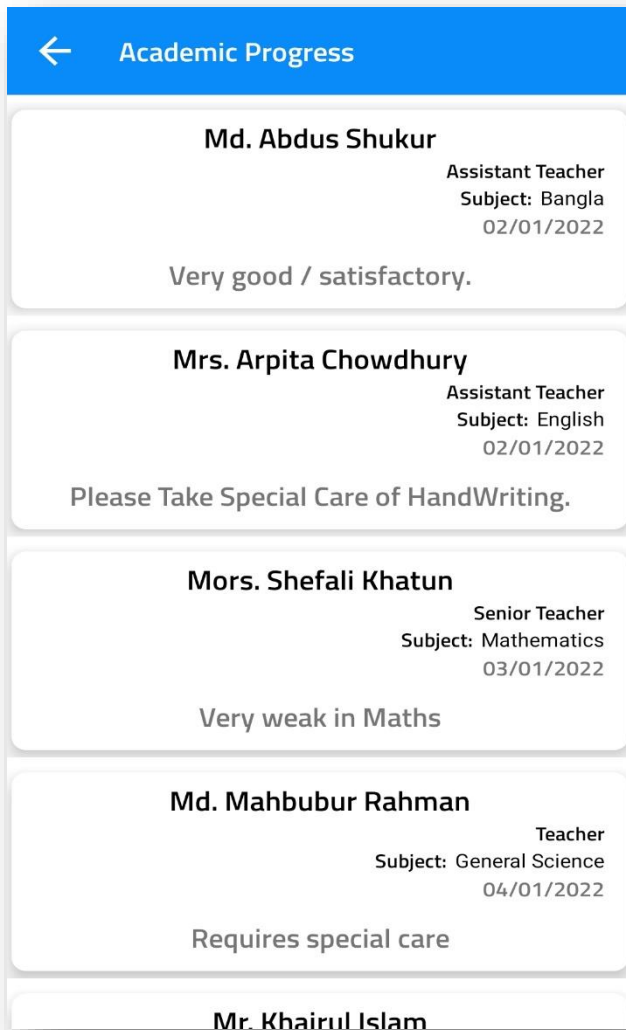


Figure 4.10: Academic Progress Activity

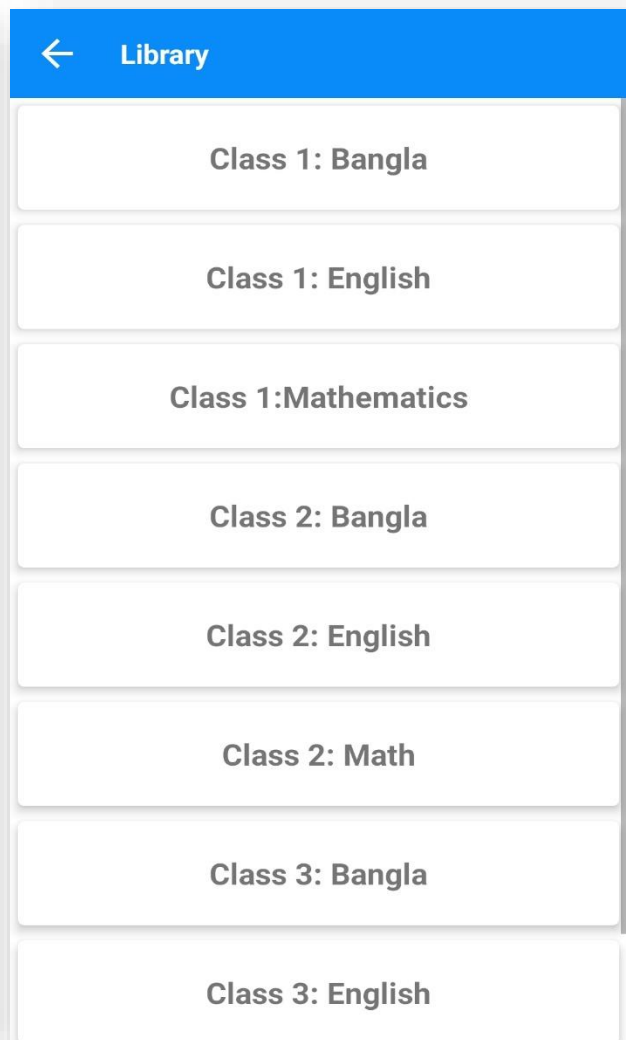


Figure 4.11: Library Activity

4.10: In this activity, guardian will be able to see their child's academic progress.

4.11: In this section, guardian will be able to see their child's class materials.

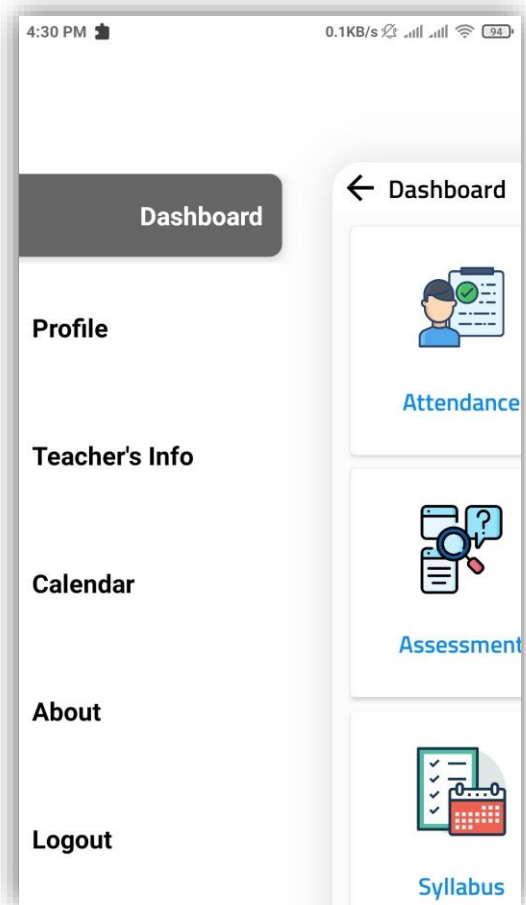


Figure 4.12: Navigation Drawer

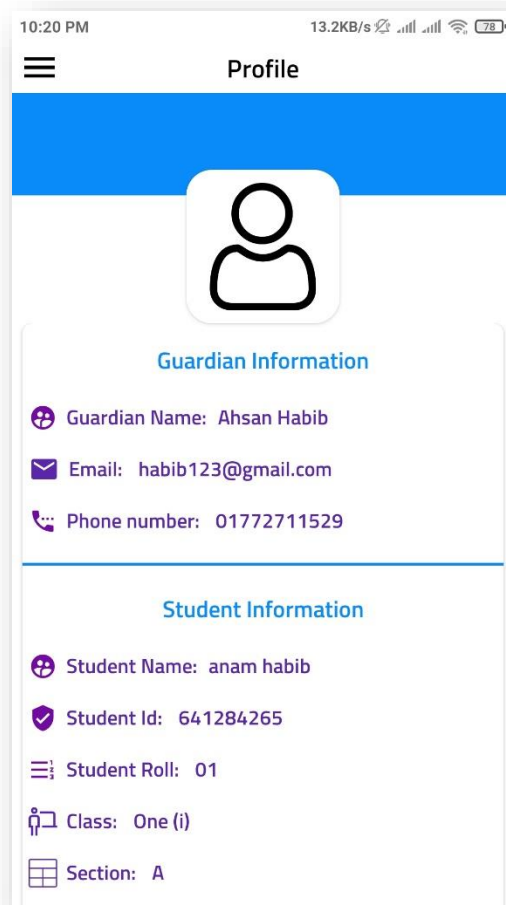


Figure 4.13: User Profile

Figure 4.13: Every user has a profile. In profile section users will be able to see their profile and update their information.



Figure 4.14: Teacher's Information

Figure 4.14: In this section, guardian will be able to show information from their child's school teachers. In this section, the information of all the teachers of a school can be seen very easily. As a result, Guardian will be able to contact teachers for any information regarding their child's education.

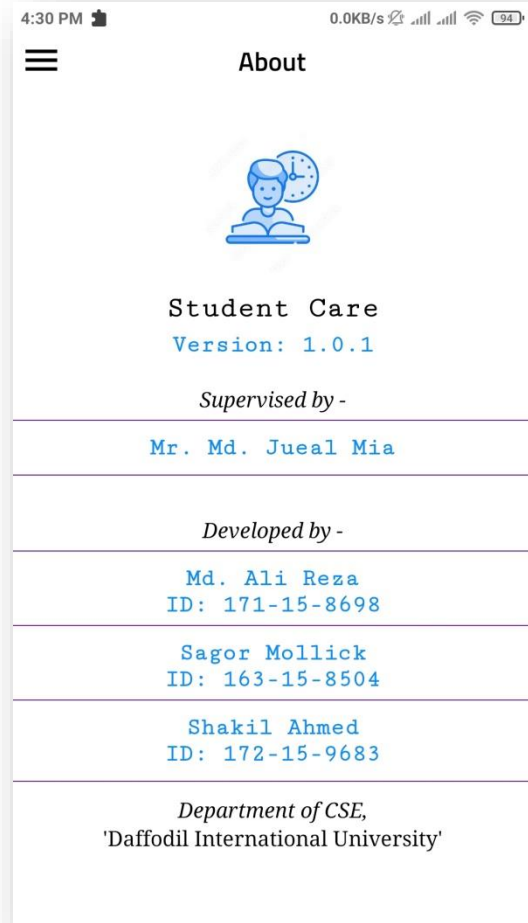


Figure 4.15: About App

Figure 4.15: Here users are able to see about the admin and app authorization.

4.2 Back-End Operations

As we are developing an android application, we must consider some important backend operations. The database is the major of them because of all the tasks performed based on the database. The database we used was MySQL database. The MySQL database is very fast and real-time. Some basic back-end operations of our application are given below:

- Automatic capacity scaling
- Automatic real-time data synchronization
- Automatic server maintenance
- Easy user authentication
- Synchronize data across multiple devices

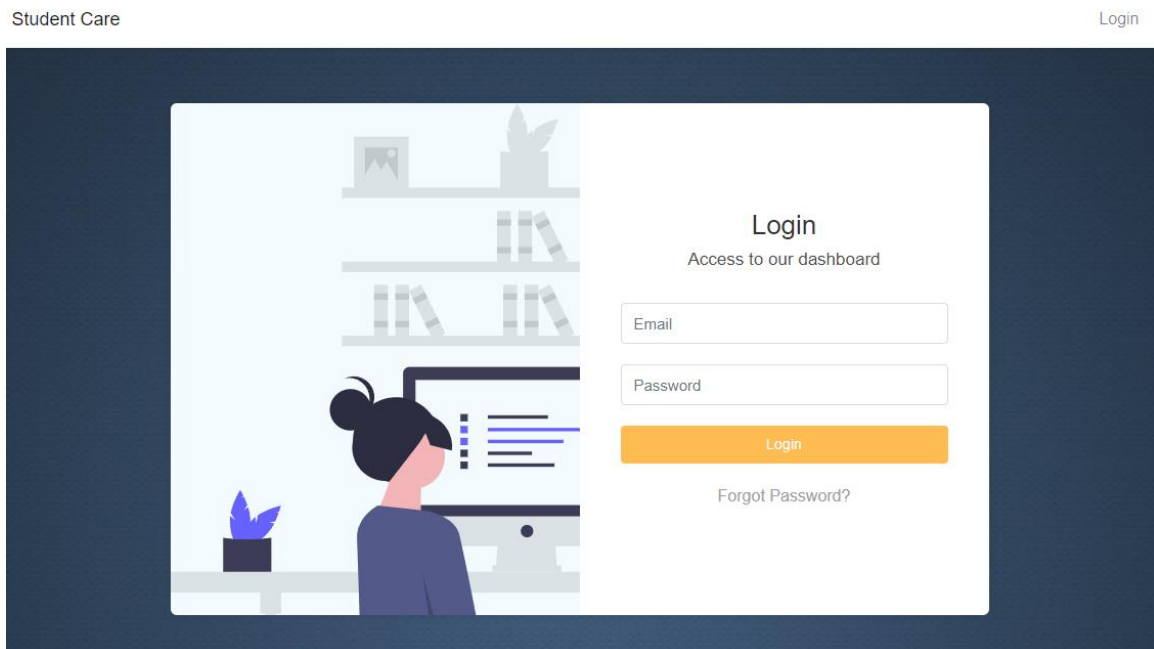


Figure 4.16: Admin login

Figure 4.16: Admin can log in to the database with a valid email and password.

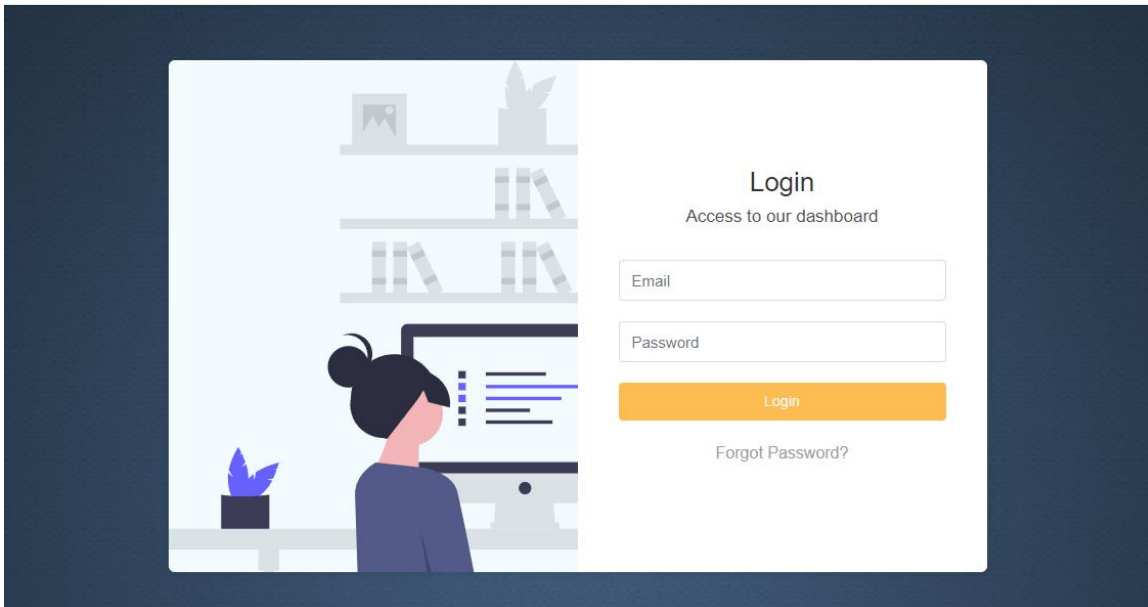


Figure 4.17: Teacher Login

Figure 4.17 Teacher can also log in to the database with a valid email and password.

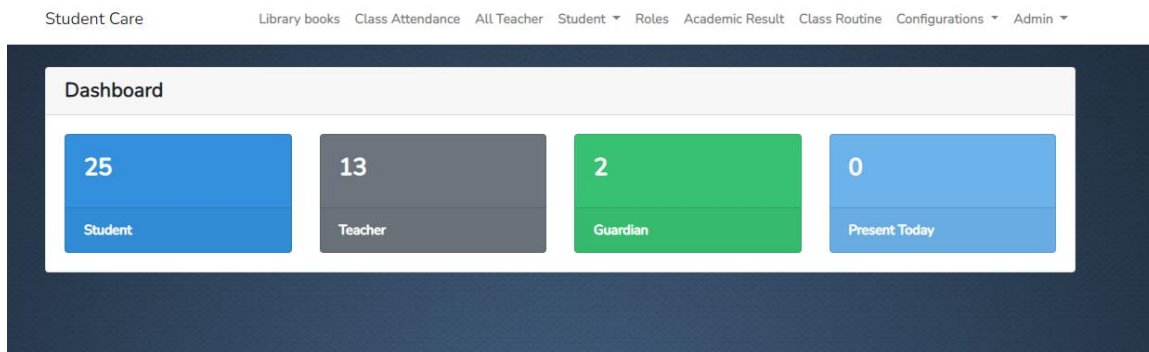


Figure 4.18: Admin Dashboard

Figure 4.18 In this segment Admin is able to see the current status and summary of the application database. Here mentioned total number of students, total number of teacher total number of guardian and show how many students are present today.

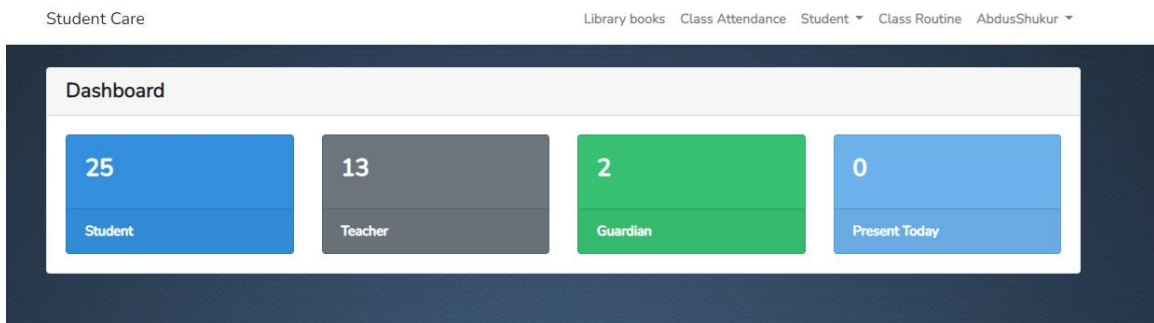


Figure 4.19: Teacher Dashboard

Figure 4.19: In this segment is able to see the current status and summary of the application database. Here mentioned total number of students, total number of teacher total number of guardian and show how many students are present today.

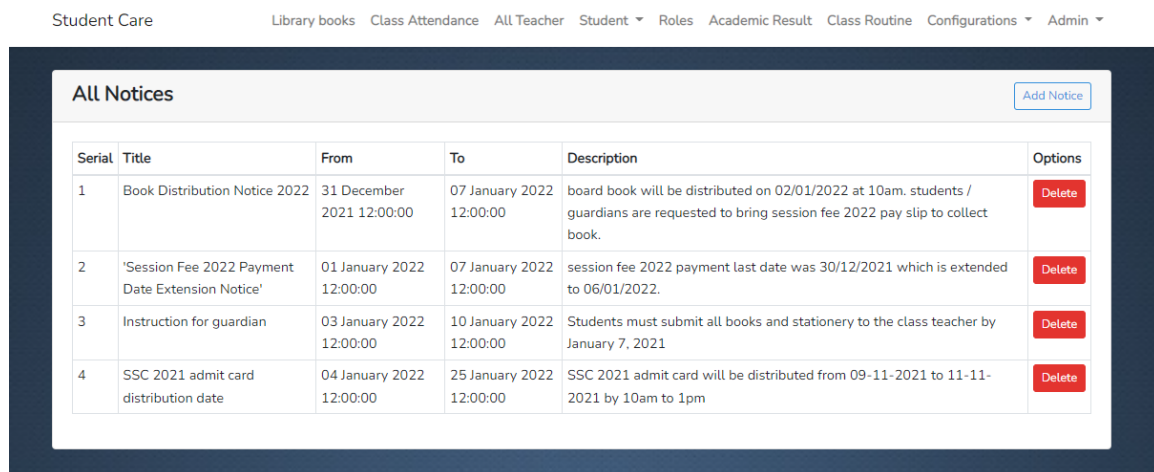


Figure 4.20: Notice board

Figure 4.20: Admin can add all notice. In this section here notice title, available date and description insert from admin. Admin also delete any notice.

Student Care Library books Class Attendance All Teacher Student ▾ Roles Academic Result Class Routine Configurations ▾ Admin ▾

List of Students [Add Student](#)




Name	ID	Roll Number		Class	Address	Created At	Options
Anam Habib 	641284265	01	Gender: Male Blood Type: O+ Shift: Day Shift Section: School ID:	Class One	Dhaka	04 January 2022 02:17:44 PM	Edit Delete
Borhan Uddin 	641284595	02	Gender: Male Blood Type: A+ Shift: Day Shift Section: School ID:	Class One	Dhaka	04 January 2022 02:23:14 PM	Edit Delete
Abdur Rahman 	641284639	03	Gender: Male Blood Type: AB+ Shift: Day Shift Section: School ID:	Class One	Dhaka	04 January 2022 02:23:58 PM	Edit Delete

Figure 4.21: List of students

Figure 4.21: In this section admin add students. Admin also edit and delete student details.

List of Teacher Add Teacher




Name		Classes	Credentials	Address	Created At	Options
Md. Abdul Aziz Sarkar 	Gender: Male Blood Type: O+ Phone Number: 01875478969 Shift: Day Shift Section: School ID:	1. Class Five	Designation: Head Teacher Email: abdul_sarkar_@student-care.com	Dhaka	04 January 2022 05:15:52 PM	Edit Delete
Mr. Abdul Hakim 	Gender: Male Blood Type: AB+ Phone Number: 01975487569 Shift: Day Shift Section: School ID:	1. Class Three 2. Class Four 3. Class Five	Designation: Assistant Head Teacher Email: abdulhakim@student-care.com	Dhaka	04 January 2022 05:17:22 PM	Edit Delete
Mr. Abdus Shukur 	Gender: Male Blood Type: O+ Phone Number: 01975487569 Shift: Day Shift	1. Class Nursery 2. Class Two	Designation: Assistant Teacher Email: abdusshukur@student-care.com	Naogaon	04 January 2022 05:18:30 PM	Edit Delete

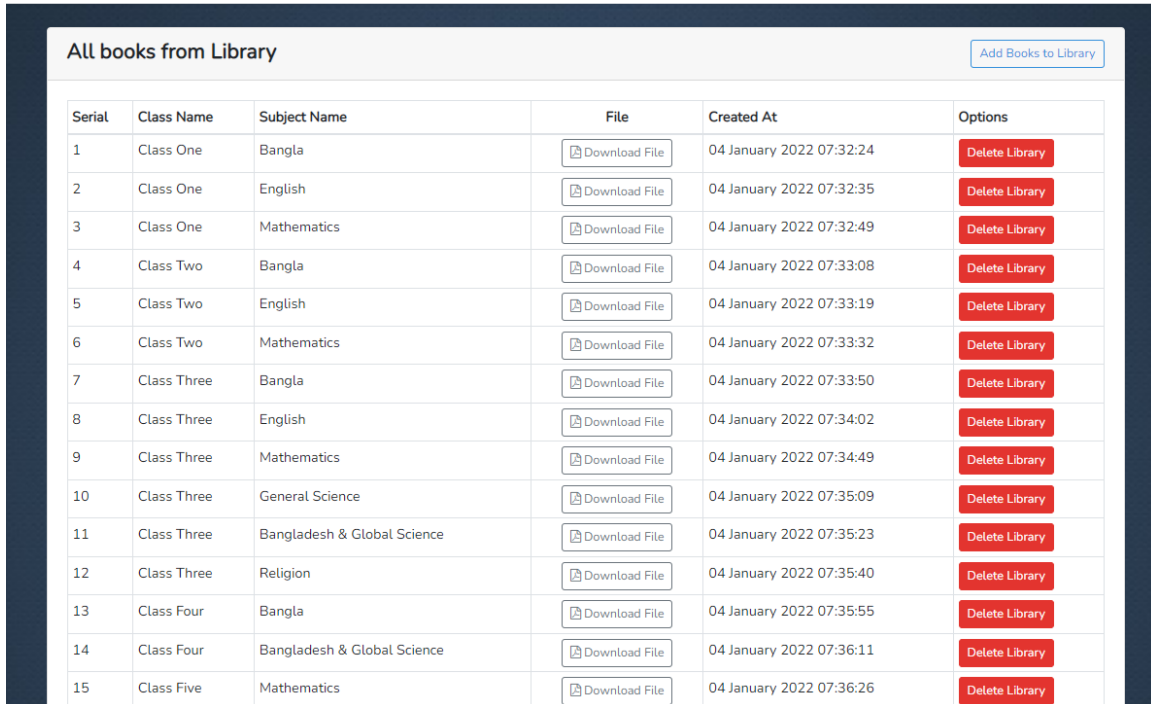
Figure 4.22: List of teachers

Syllabus has been deleted.

All Syllabus Add Syllabus

Serial	Class Name	Subject Name	File	Created At	Options
1	Class One	Bangla	Download File	04 January 2022 07:43:50	Delete

Figure 4.23: Add Syllabus



All books from Library Add Books to Library

Serial	Class Name	Subject Name	File	Created At	Options
1	Class One	Bangla	Download File	04 January 2022 07:32:24	Delete Library
2	Class One	English	Download File	04 January 2022 07:32:35	Delete Library
3	Class One	Mathematics	Download File	04 January 2022 07:32:49	Delete Library
4	Class Two	Bangla	Download File	04 January 2022 07:33:08	Delete Library
5	Class Two	English	Download File	04 January 2022 07:33:19	Delete Library
6	Class Two	Mathematics	Download File	04 January 2022 07:33:32	Delete Library
7	Class Three	Bangla	Download File	04 January 2022 07:33:50	Delete Library
8	Class Three	English	Download File	04 January 2022 07:34:02	Delete Library
9	Class Three	Mathematics	Download File	04 January 2022 07:34:49	Delete Library
10	Class Three	General Science	Download File	04 January 2022 07:35:09	Delete Library
11	Class Three	Bangladesh & Global Science	Download File	04 January 2022 07:35:23	Delete Library
12	Class Three	Religion	Download File	04 January 2022 07:35:40	Delete Library
13	Class Four	Bangla	Download File	04 January 2022 07:35:55	Delete Library
14	Class Four	Bangladesh & Global Science	Download File	04 January 2022 07:36:11	Delete Library
15	Class Five	Mathematics	Download File	04 January 2022 07:36:26	Delete Library

Figure 4.24: Library

4.3 Interaction Design

Today every person wants interaction design for their android mobile phones and tabs. The interaction design makes the app more user-friendly and attractive to the users. The goal of interaction design is to create products that enable the user to achieve their objectives in the best way possible. Interaction design is the proper way that observes the interaction between a system and its user. Other hand user experience focuses on the overall experience interaction design between a user and an application [5].

4.4 Implementation Requirements

To implement the project, we needed Android Studio to design and develop the whole project. Other hands for the backend we needed a browser and a Google account. For testing purposes, we need JDK and SDK also NDK. We also needed a virtual device to run and test the app on the PC. Adobe Photoshop, Illustrator is also used for making different types of icons and backgrounds. We also needed a strong internet connection to update the gradle file of the Android studio [6].

CHAPTER 5

IMPLEMENT AND TESTING

5.1 Implementation of Database

The main task is to create a database and tables to load the data in MySQL. We connected our app to the database and through our application. We made all the data collations. Sometimes we update some data using queries initially. We also made some queries to load the data from the database. This is the implementation process of our database. We used Query to store and retrieve data from the database. In this case, we stored all pdf files to the hosting storage section and generated a link to the database using some queries. That's why we can access it easily and smoothly. Besides we stored all the data into the real-time database. We used MySQL authentication to make using a unique id for the separation of all user role-based.

We related all of the facilities of the database to our application by java classes, various libraries, and dependencies. To execute our application with the connection of the database we used many methods to upload data, retrieve data and register users via MySQL Authentication.

5.2 Implementation of Front-End Design

In the android studio, front-end design is related to XML files and Java classes. XML files are used to design the user interface (UI). In the XML file, we added the Buttons; Edit Text, Relative Layout, Recycler view, Card view, Bottom navigations, Circular image view, various shapes for the backgrounds, Icons, and backgrounds. Then we related all the things with class by calling them. Classes play logical operations.

5.3 Implementation of Interactions

For the comparison of our opinion, we've got feedback from our friends and supervisors and some of our faculty member about the app. We shared our goals and visions. We took their suggestions and opinions. Then we discussed with our project members for a friendly user interface, we used pictures and buttons with enough information so that the design is more interactive. After all the things we made more user-friendly and interactive applications.

5.4 Testing Implementation

In android there are some types of testing. There are local unit tests, Instrumented tests, unit tests, Integration tests, system tests. The local units are Connect with local computer where the android studio installed and connected with database. They use Java on computers so it works very fast because they didn't be an emulator is needed to do this. We know that system tests test the whole system. These are the tests used to check the code test. Unit testing is very important because software developers sometimes try to save time minimum unit test and cost is high as a result of this mythical reason inappropriate unit test error fixing during system testing, integration testing and even beta testing the application is built. If initial unit testing is done at an early stage, it saves time and money in the end [7]. For more testing by integrating test frameworks test android is called Unit test.

5.5 Test Result and Reports

The system is basically tested for the accuracy of an application. The test is an integral part of an application. Finally, the software is interface with other software / hardware. The system is a series of system testing outputs.

- Login System
- Registration System
- Show Attendance
- View Class Routine
- Home Task View & Check Status

- Notice Board
- Syllabus
- View Academic Result
- View Academic Progress
- Library
- Teacher's Information
- View Profile

CHAPTER 6

CONCLUSION AND FUTURE SCOPE

6.1 Discussion and Conclusion

Nowadays people are using most of the applications that are android-based mobile applications. Now everyone passes most of the time with the mobile phone. For this generation, our application will be very serviceable for Guardian. Many parents could not know of their child's school activities. At the end of the day, many of them remain unknown. Many times parents are worried about not knowing their child's school activities. By using this application, guardian can easily know all the activities of his child's school at any time.

6.2 Opportunities for further development

In this sector, there is a huge opportunity for further development. In the current situation, parents are not capable to know the school activities of their children due to their busy schedule. The android application-based student care is upgrading day by day. Some next plans for our app are given below:

- Use both languages (Bengali and English) for the users.
- Proper virtual assistant for the users.
- Parents can make all the payments to the school using the application very easily.

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