



VIVEKANAND COLLEGE FOR
ADVANCED COMPUTER AND INFORMATION SCIENCE
SURAT
VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT

PROJECT REPORT
ON
ACADEMIA
AS A PARTIAL REQUIREMENT FOR THE DEGREE
OF
BACHELOR OF COMPUTER APPLICATION

GUIDED BY :

Mr . Chetan Rathod

SUBMITTED BY :

Dhameliya Brijeshkumar Alpeshbhai

Ghoghari Akshay Atulbhai

Godhani Dhruv Nareshbhai

Kaklotar Khushal Himmabhai



**VIVEKANAND COLLEGE FOR
ADVANCED COMPUTER & INFORMATION SCIENCE**
(Affiliated to the Veer Narmad South Gujarat University)

Near Saroli Bridge, Jahangirpura, Sural-Olpad Road, SURAT-5.

CERTIFICATE

This is to certify that **Dhameliya Brijesh A, Ghoghari Akshay A, Godhani Dhruv N, Kaklotar Khushal H** have successfully completed their project work entitled **Academia** as partial fulfillment of the BCA sixth semester during academic year 2022-2023.

Name of Guide: Mr. Chetan N. Rathod

Signature:

A handwritten signature in black ink, appearing to read "Chetan N. Rathod".

Signature of Examiner

Date:

Place: Surat

A handwritten signature in black ink, appearing to read "Gobindrao".
I/C Principal
Vivekanand College for BCA
SURAT



ACKNOWLEDGMENT

The reason for completing the project work successfully is not just our efforts but the efforts of many people. The people trusted, guided, and encouraged us with every means. A guide is a person who provides you the direction towards success, so we feel great pleasure to express our gratitude to all our guides, our faculty members as well as every person who helped me directly or indirectly with our project.

We would like to thank **Mrs. Sumathi Shenoy** (Campus director of Vivekanand college), **Mr. Sandip Surati** (Incharge Principal of Vivekanand college) heart fully, who granted us the project. Her skills and experience were a guiding path in this learning process. She made constant efforts to shape up our skills as per the industry standards. She provided us with a very homely and friendly environment which made it the best place to work. Her guidance was priceless and will always be a guiding light in Industry.

We are also indebted to our Professor **Mr. Chetan Rathod** who provided constant encouragement, support & valuable guidance before and during our project. It was his effort that led us to this place for project work. His guidance and suggestions were invaluable.

Thank you very much.

Brijesh Dhameliya
Akshay Ghoghari
Dhruv Godhani
Khushal Kaklotar

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Project Profile

Project Title : Academia

Project Type : Android Application

Duration : 3 Months

Front-End Tools : Android Studio

Back-End Tools : Firebase

Other Tools : Figma ,Draw.io ,IconScout ,Vecteezy

Team Size : 4 Members

Guided By : Mr. Chetan Rathod

Project Introduction

This project is about school attendance, timetable, and knowing about future events. The main benefits of this mobile application are we can do less paperwork and save the environment. all information are available in the mobile application, so user can access information from anywhere and anytime for that reason it is also time-saving.

In the past when our application was not introduced teacher and principal have to work on the student's information personally and it is taking too much time and paper work of teacher to generate the report of the student. Principal had to give the information of the events and time table of the school in the school announcements system like mic, speaker.to solve this type of problem we are announcing this application

So, now we are giving you some interesting information about our mobile application

First of all our application are useful for school staff such as teachers, principal, and clerk and it is beneficial for students and their parents.

So, now it is beneficial for principal, teachers, and clerks that is understandable but the million-dollar question is how it's beneficial for students and their parents. Parents can check their child's presence in the class. Parents can also see the progress of their children using the mark-sheet feature.

Students can check the plans of the school using the news and events feature. They can get all the books for free which are uploaded by the teacher using the books and pdf feature.

Student can also see their attendance so if there is any kind of mistake it can be improved.

The teacher can add useful links of the particular topic using the link feature.

This app can also be helpful for teachers because all the features are in the mobile application teacher can do their work from anywhere all they need is internet connectivity.

The main purpose of the app is to help the school and the Environment.

Environment Description

- **Hardware and Software Requirements:**

- Client Side
- Server Side
- Development Side

- **Tools and Technologies:**

- Core Technology
- Extra Technology
- Documentation Tools
- Development Tools

Hardware

- **Client Side :**

- RAM : 8 GB
- Internet enabled android device

- **Server Side :**

- Disk Space : No Needed space

- **Development Side :**

- Hard Disk : 500 GB
- RAM : 8gb
- Processor : intel (i7)

Software

- **Client Side :**

- Installed Application

- **Server Side :**

- Fire Base

- **Development Side :**

- Operating System : Windows 10
 - Software : Android Studio , Browser (Chrome)

Tools and Technology

- **Core Technology :**

- Android studio , XML , JAVA , Firebase

- **Extra Technology :**

- IconScout
- Vecteezy
- Draw.io
- Figma

- **Documentation Tools :**

- Microsoft PowerPoint
- Microsoft Word

- **Development Tools :**

- Android studio
- Firebase

Tools and Technology Used

❖ **Android studio :**

- Android Studio is the official integrated development environment (IDE) for Google's Android operating system, built on JetBrains' IntelliJ IDEA software and designed specifically for Android development.
- It is available for download on Windows, macOS and Linux based operating systems. It is a replacement for the Eclipse Android Development Tools (E-ADT) as the primary IDE for native Android application development.
- Android Studio is the official Integrated Development Environment (IDE) for android application development. Android Studio provides more features that enhance our productivity while building Android apps.
- Android Studio was announced on 16th May 2013 at the Google I/O conference as an official IDE for Android app development. It started its early access preview from version 0.1 in May 2013. The first stable built version was released in December 2014, starts from version 1.0.
- Since 7th May 2019, Kotlin is Google's preferred language for Android application development. Besides this, other programming languages are supported by Android Studio.

❖ Features of Android Studio :

- It has a flexible Gradle-based build system.
- It has a fast and feature-rich emulator for app testing.
- Android Studio has a consolidated environment where we can develop for all Android devices.
- Apply changes to the resource code of our running app without restarting the app.
- Android Studio provides extensive testing tools and frameworks.
- It supports C++ and NDK.
- It provides build-in supports for Google Cloud Platform. It makes it easy to integrate Google Cloud Messaging and App Engine

❖ Xml :

❖ What is XML?

- XML stands for “extensible Markup Language”.
- XML (Extensible Markup Language) is a markup language similar to HTML, but without predefined tags to use. Instead, you define your own tags designed specifically for your needs.
- This is a powerful way to store data in a format that can be stored, searched, and shared. Most importantly, since the fundamental format of XML is standardized, if you share or transmit XML across systems or platforms, either locally or over the internet, the recipient can still parse the data due to the standardized XML syntax.
- XML is designed to store and transport data.
- XML was released in late 90's. it was created to provide an easy to use and store self describing data.
- XML became a W3C Recommendation on February 10, 1998.
- XML is not a replacement for HTML.
- XML is designed to be self-descriptive.
- XML tags are not predefined. You must define your own tags
- XML is a Platform Independent and Language Independent.

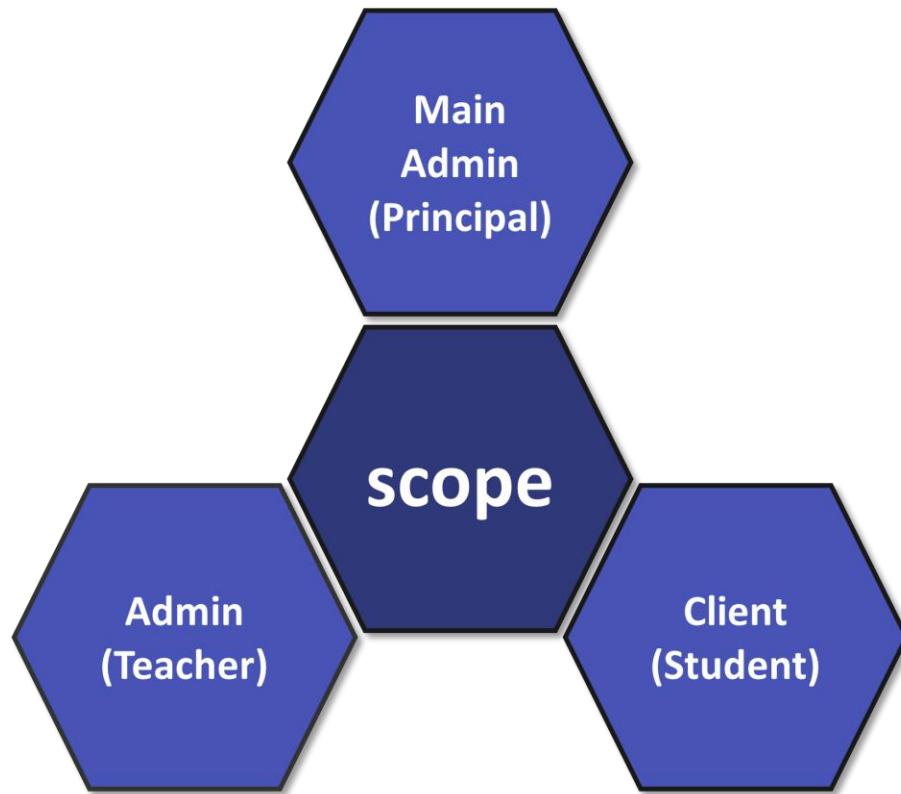
❖ **Features of XML :**

- XML separates data from HTML
- XML simplifies data sharing
- XML simplifies data transport
- XML simplifies Platform change
- XML is designed to store and transport data.
- XML was released in late 90's. it was created to provide an easy to use and store self describing data.
- XML became a W3C Recommendation on February 10, 1998.
- XML is not a replacement for HTML.
- XML is designed to be self-descriptive.
- XML is designed to carry data, not to display data.
- XML tags are not predefined. You must define your own tags.
- XML is platform independent and language independent.

❖ **Java :**

- Java is a popular programming language, created in 1995.
- It is owned by Oracle, and more than 3 billion devices run Java.
- Java is a programming language and a platform. Java is a high level, robust, object-oriented and secure programming language.
- Java was developed by Sun Microsystems (which is now the subsidiary of Oracle) in the year 1995.
- James Gosling is known as the father of Java. Before Java, its name was Oak. Since Oak was already a registered c...

Scope System



Aim & Objectives

1. Streamlining administrative tasks:

The mobile application can help automate routine administrative tasks such as attendance tracking, timetable creation, and exam scheduling, allowing teachers and administrators to focus on more important tasks.

2. Enhancing communication:

The application can facilitate communication between teachers, students, and parents by providing an easy and accessible platform for sharing information such as grades, assignments, and important announcements.

3. Improving learning outcomes:

The application can help students to stay organized, keep track of their academic progress, and access learning resources such as study materials and online classes.

4. Providing real-time updates:

The application can provide real-time updates on various school-related activities, such as sports events, cultural events, and other extracurricular activities, allowing students, parents, and teachers to stay informed.

5. Enhancing parent-teacher collaboration:

The application can allow parents to be more involved in their child's education by providing access to important information and enabling direct communication with teachers.

6. Ensuring security and privacy:

The application can help maintain the security and privacy of student and school information by providing secure access to data and protecting against unauthorized access.

7. Providing analytics and reporting:

The application can provide analytics and reporting tools that help administrators and teachers to monitor student performance and identify areas where additional support may be needed.

8. Facilitating collaboration and teamwork:

The application can facilitate collaboration and teamwork among teachers, enabling them to share lesson plans, resources, and best practices.

9. Improving accessibility:

The application can improve accessibility by providing a mobile platform that can be used anytime, anywhere, by anyone with a smartphone or tablet.

10. Reducing paper-based processes:

The application can reduce the need for paper-based processes, such as printing report cards and other documents, by allowing parents and students to access this information through the app.

11. Providing a centralized platform:

The application can provide a centralized platform for all school-related information, reducing the need for multiple systems and logins.

12. Enabling customized learning:

The application can enable customized learning by providing students with personalized learning plans, assessments, and resources.

13. Enhancing parental involvement:

The application can enhance parental involvement by providing parents with real-time updates on their child's academic progress and allowing them to communicate with teachers.

14. Improving teacher productivity:

The application can improve teacher productivity by automating routine administrative tasks and providing them with tools to manage their classroom more efficiently.

15. Supporting teacher professional development:

The application can support teacher professional development by providing access to training and resources that help teachers to improve their skills and knowledge.

16. Improving data management:

The application can improve data management by providing a centralized platform for storing and analyzing student data, enabling administrators and teachers to make data-driven decisions.

Overall, a school management mobile application can help schools to better serve their students and achieve their educational goals by leveraging technology to streamline operations and improve communication and collaboration among all stakeholders.

Expected Advantages

Advantages :

- The first advantage of this application is to save paperwork and save the environment.
- The application is environment friendly but it is also cost-saving for the organization
- The application's feature is user-friendly.
- The student can view the information anytime so they don't need to wait for the next day to ask a question to the teacher their question
- The student can see the all-over conclusion in percentages of their attendance so it can save their calculation and time.
- the parents can see their children's progress using the mark-sheet feature.
- the parents can also see their children's presence in the classroom.
- Students can also access the books from the library feature where a teacher will upload useful books for the students
- the student can access the link feature where the teacher uploads the syllabus and other important links.
- the teacher adds the news about upcoming events like the annual function, exam circular, etc.
- the application is also helpful for teachers and principal to generate reports of student progress.

Requirement Specification

Main Admin (Principal) :-

- Main Admin Can Registration
- Main Admin Can Login
- Main Admin Can Insert Teacher
- Main Admin Can View Teacher
- Main Admin Can Edit Teacher
- Main Admin Can Delete Teacher
- Main Admin Can View Student Attendance
- Main Admin Can View Student Marksheets
- Main Admin Can View Link
- Main Admin Can View News
- Main Admin Can View Book
- Main Admin Can View Time-Table
- Main Admin Can Edit profile
- Main Admin Can View profile
- In edit if name or phone number is changed then password is updated automatically else only details are changed not password
- Main Admin Can change password
- Main Admin Can Logout

Admin (Teacher) :-

- Admin Can Login
- Admin Can Insert
- Admin Can Insert Student
- Admin Can View Student
- Admin Can edit Student
- Admin Can delete Student
- Admin Can Insert Student Attendance
- Admin Can view Student Attendance
- Admin Can edit Student Attendance
- Admin Can delete Student Attendance
- Admin Can Insert Link
- Admin Can Edit Link
- Admin Can View Link
- Admin Can Delete Link
- Admin Can Insert News
- Admin Can Edit News
- Admin Can View News
- Admin Can Delete News
- Admin Can Insert Books
- Admin Can Edit Books
- Admin Can View Books
- Admin Can Delete Books
- Admin Can Insert Marksheets
- Admin Can Edit Marksheets
- Admin Can View Marksheets
- Admin Can Delete Marksheets
- Admin Can Insert Time-Table
- Admin Can Edit Time-Table
- Admin Can View Time-Table
- Admin Can Delete Time-Table
- Admin Can View Profile
- In edit if name or phone number is changed then password is updated automatically else only details are changed not password
- Admin Can change password
- Admin Can Logout

Client (Student) :-

- Client Can Login
- Client Can View Attendance
- Client Can View Links
- Client Can View News
- Client Can View Books
- Client Can View Time-Table
- Client Can View Marksheets
- Client Can View Profile
- Client Can Change Password
- Client Can Logout

Feasibility Study

Feasibility study plays a very important role in the development of any system, but when it is the case of development of any software then its importance increases much more because in this case, one should be very clear about the availability of the time and resources. The feasibility of our project has been judged based on time, technology, resources available, and project length.

➤ **Time:-**

This project takes at least 3 months to be completed if we take the help of reused components otherwise it will take 6 months to be completed. We will not make use of components and therefore will be able to complete the project in 6 months. Thus according to time, the feasibility is not that right.

➤ **Technology :**

The necessary technology, front-end development tool, back-end database technology, and various other tools namely installation tools, etc. for developing.

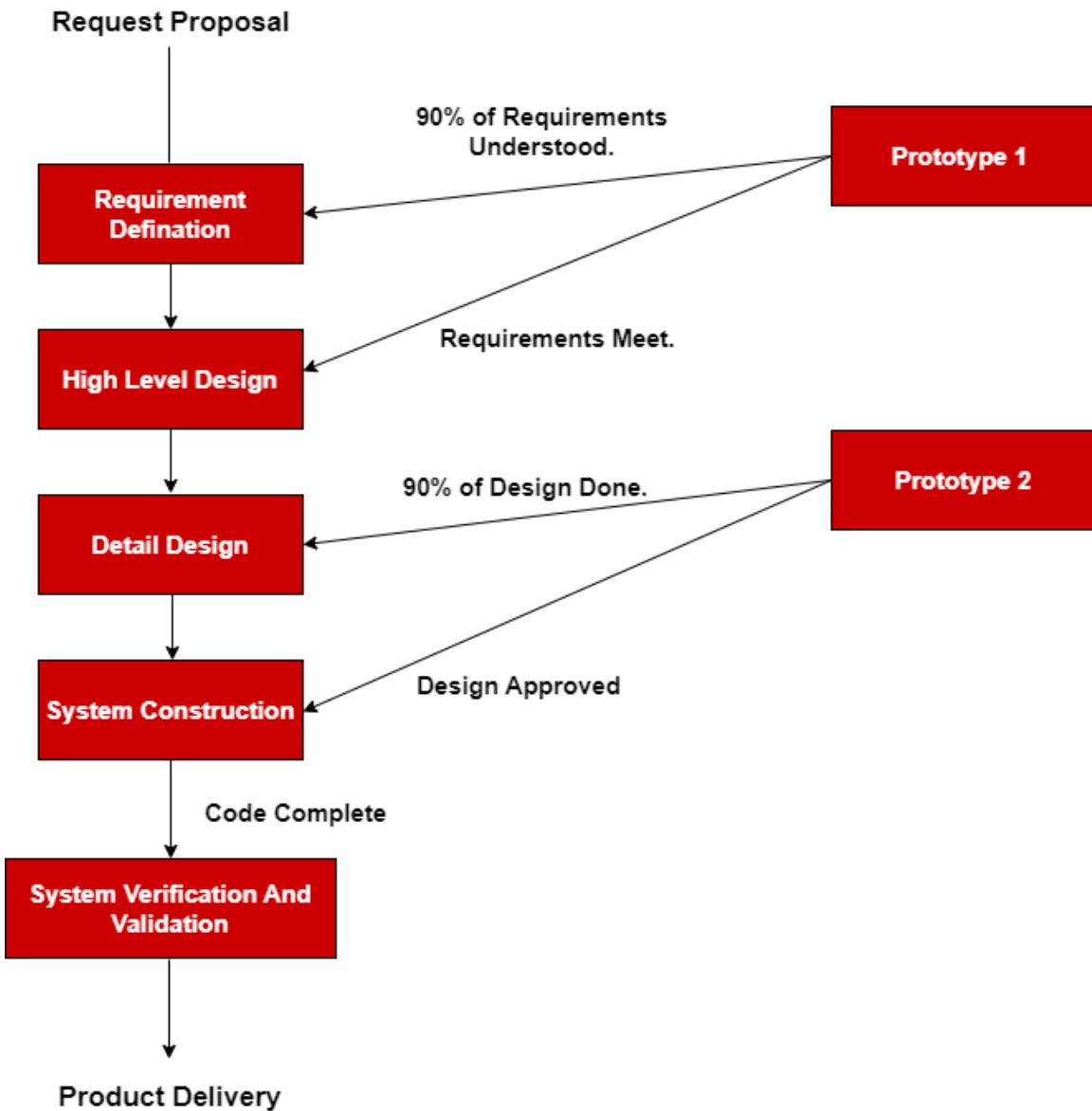
➤ **Resources :**

We need good knowledge software engineers and practitioners. We need a Net connection. We have all the resources in the desired amount.

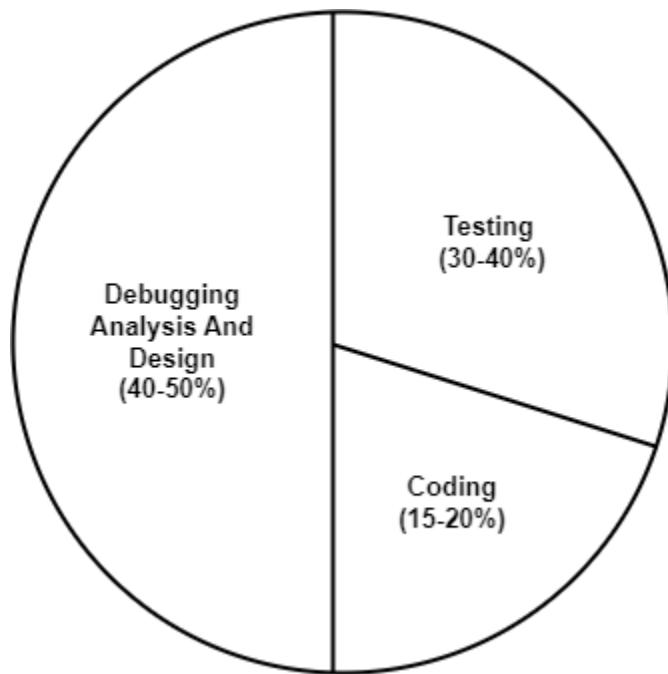
➤ **Project Size :**

The Project size might be above 25000 LOC. This is just a rough assumption because we don't have any basis for the past projects. Thus the project's overall feasibility is normal and therefore we have undertaken this project.

Life Cycle Model



Effort Distribution Diagram



Project Planning : **2 to 3 %**

Requirement Analysis : 10 to 25 %

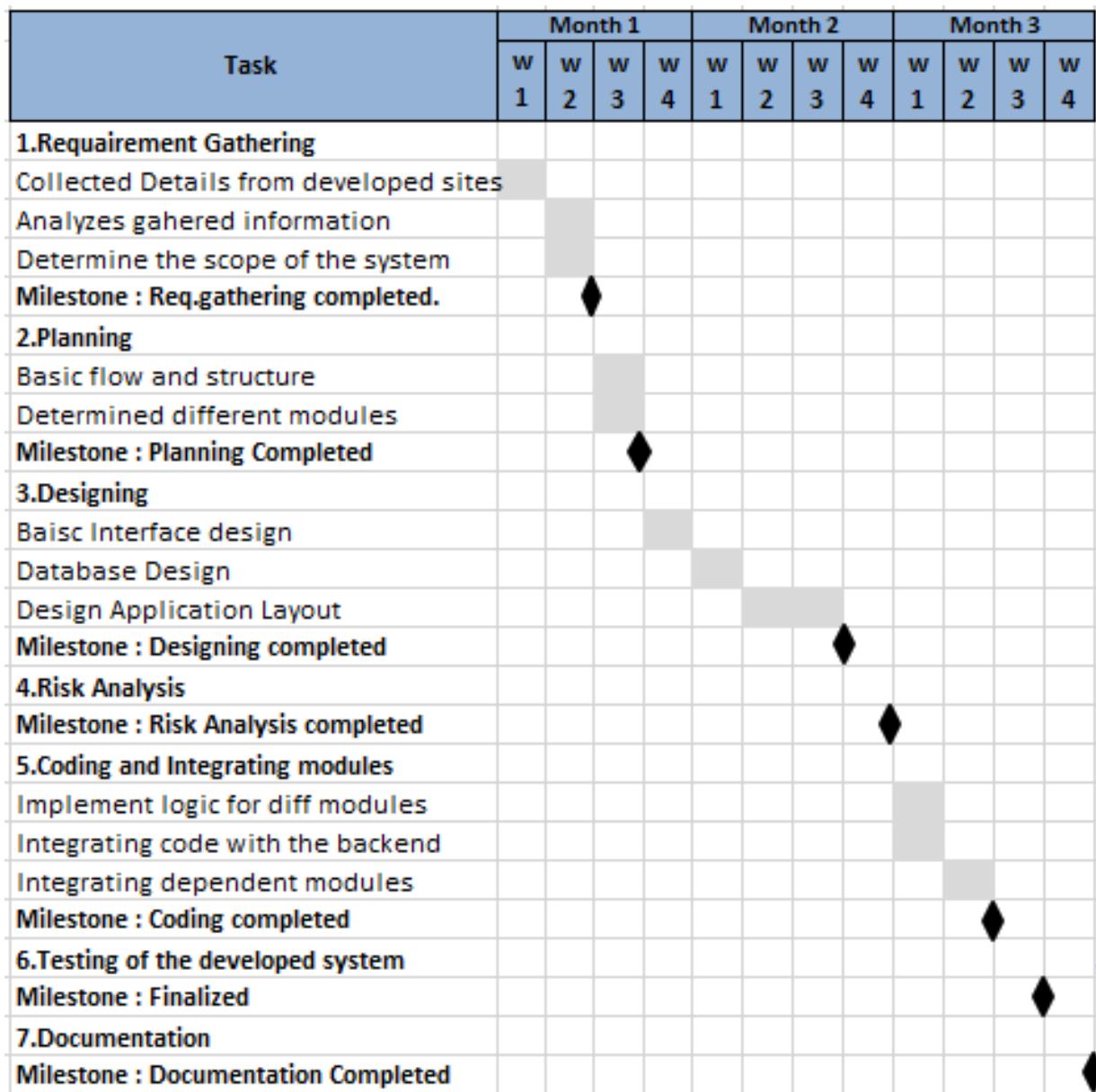
Design : 20 to 25 %

Coding : 15 to 20 %

Testing / Debugging : 30 to 40 %

Project Schedule Chart

- The timeline chart describes the time scheduling for project completion.
- This timeline chart shows project tasks in the weekly schedule.

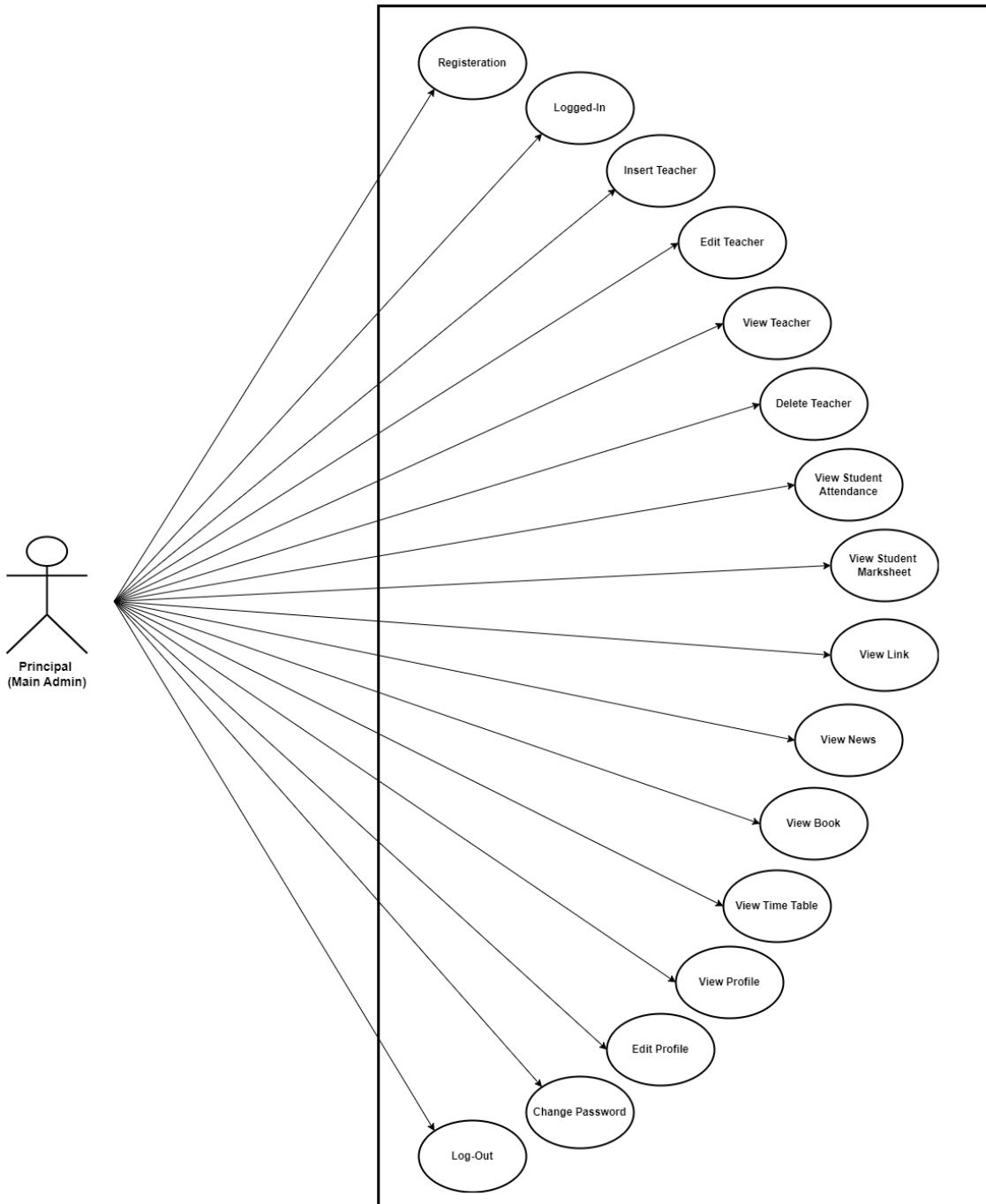


System Model Architecture

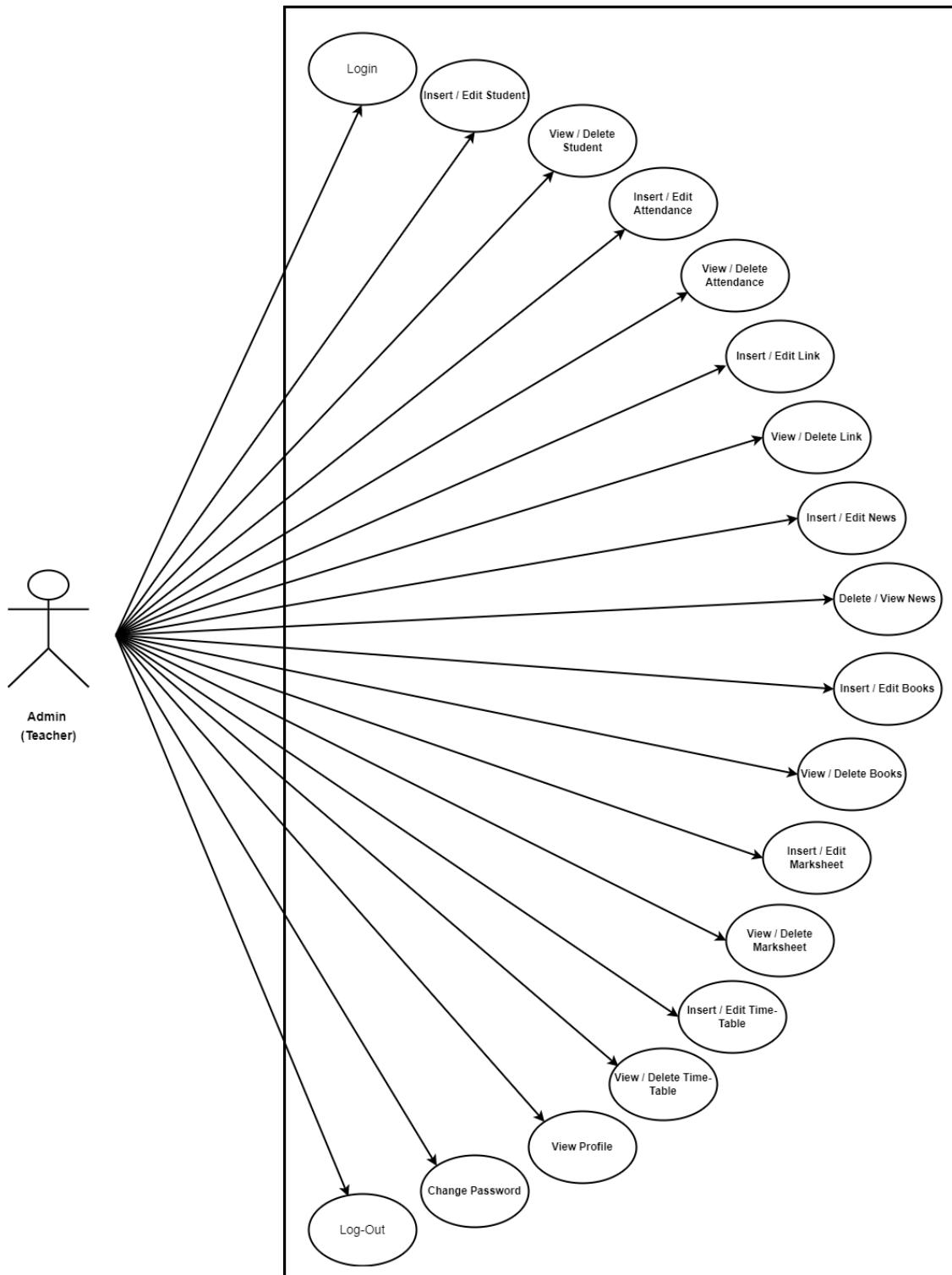
- ❖ Use Case Diagram
- ❖ Activity Diagram
- ❖ Sequence Diagram

❖ Use Case Diagram

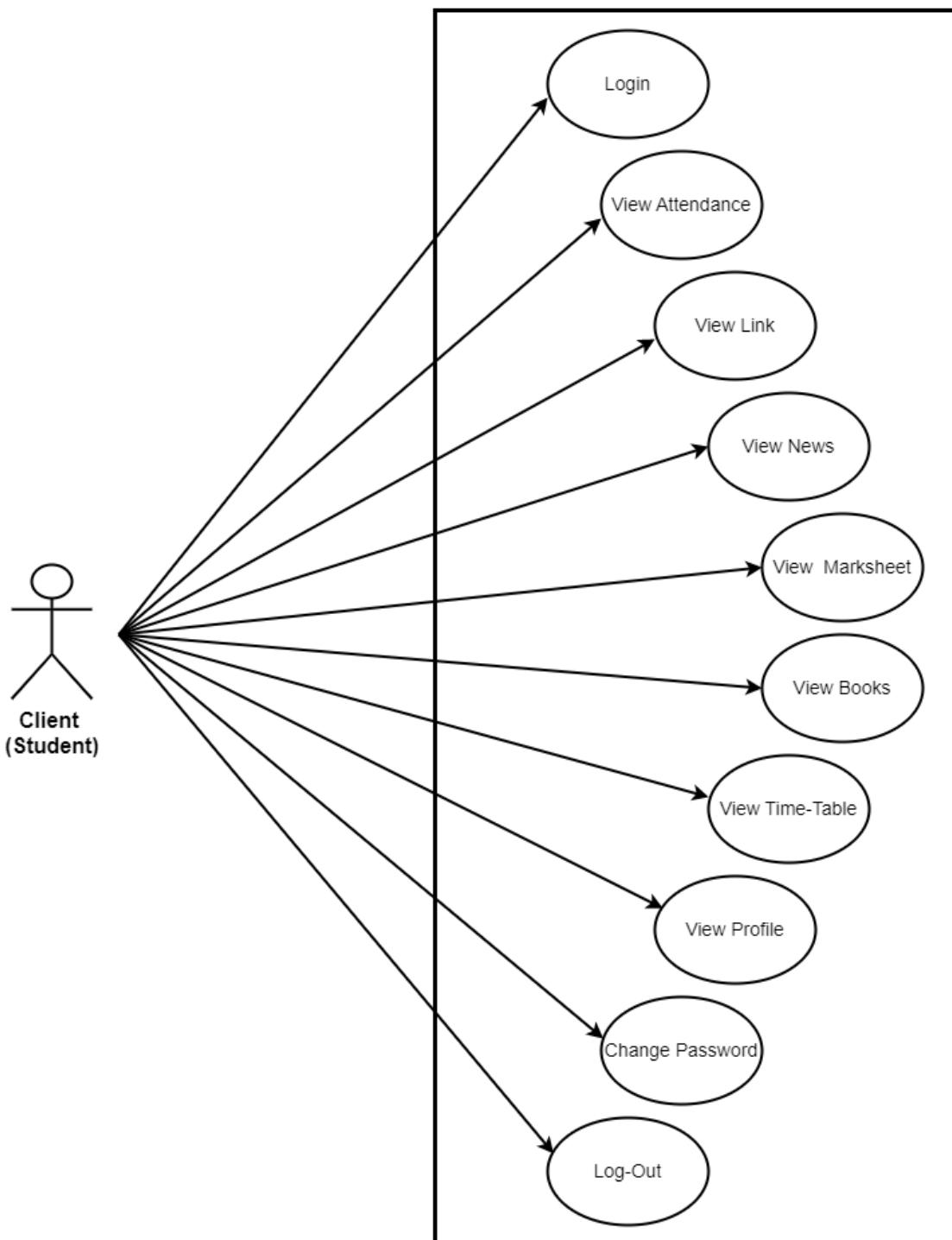
➤ Use case for Main Admin (Principle)



➤ Use case for Admin (Teacher) :

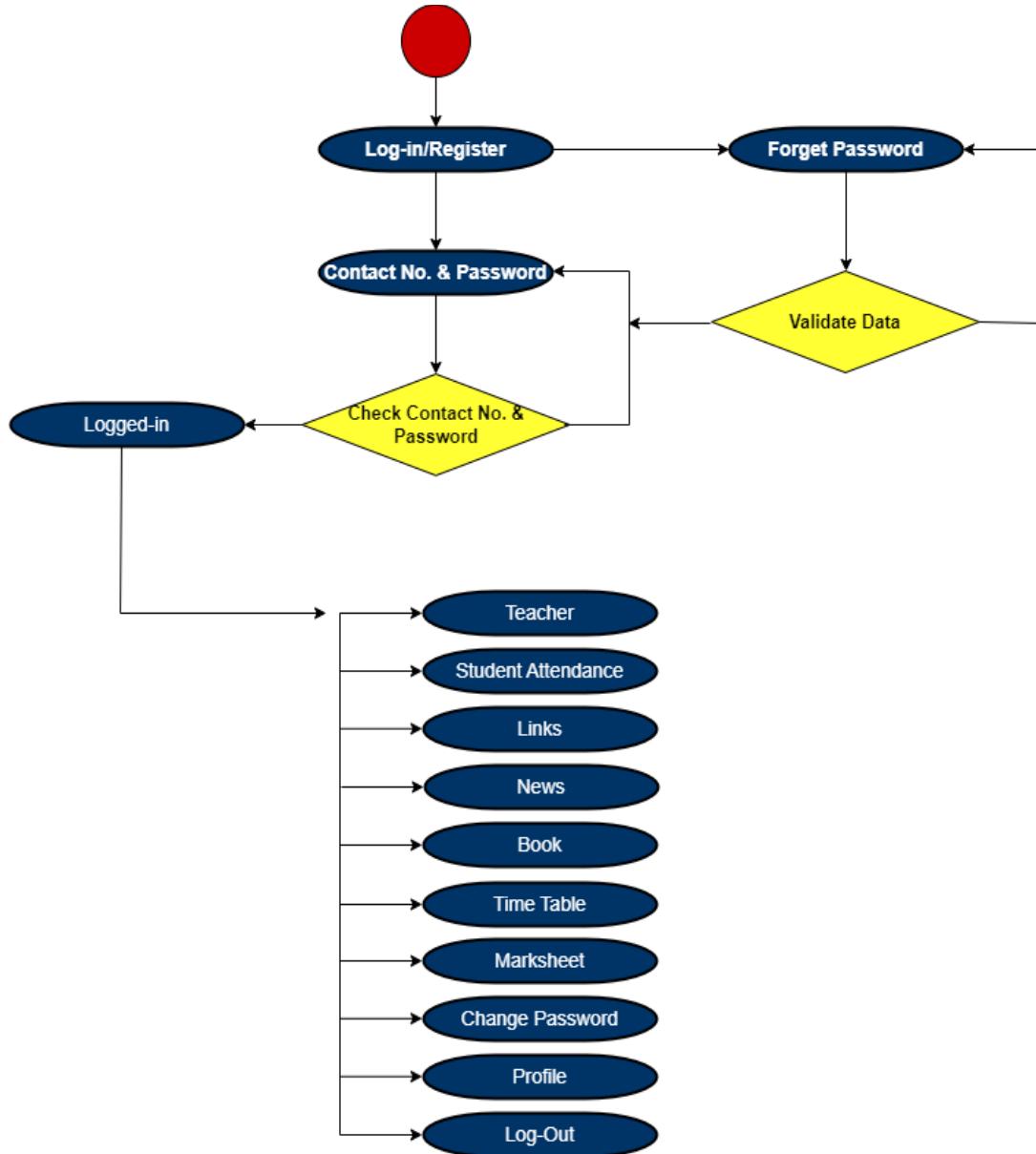


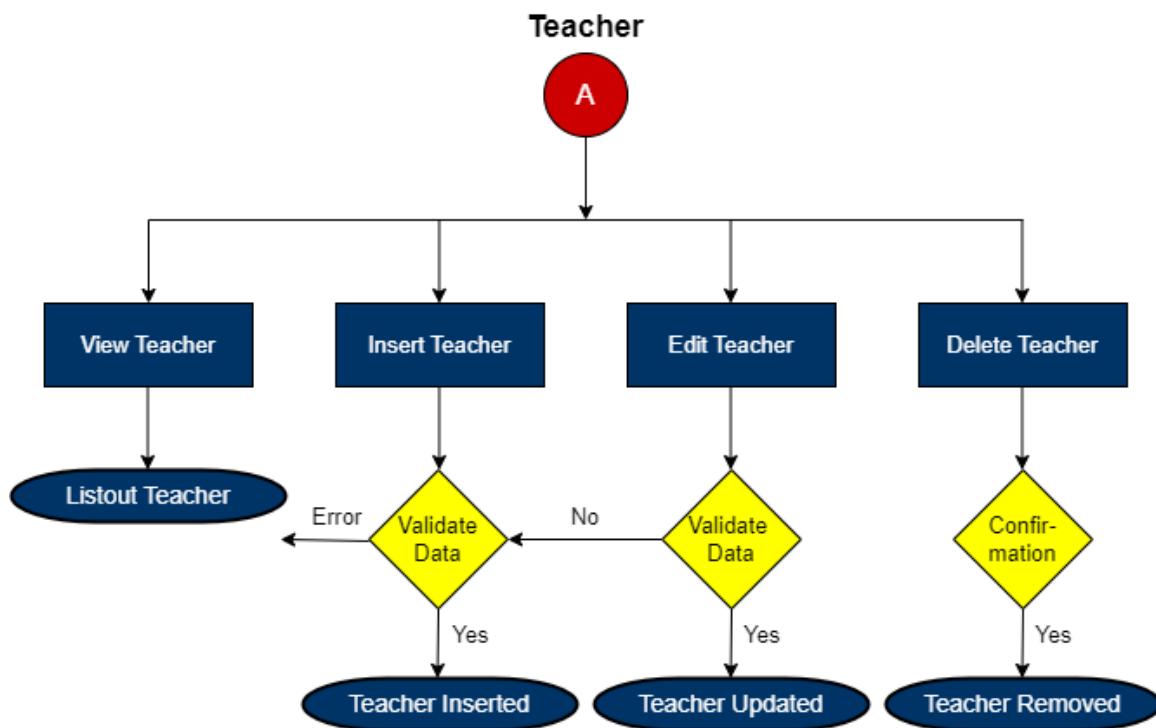
➤ Use case for Client (Student) :

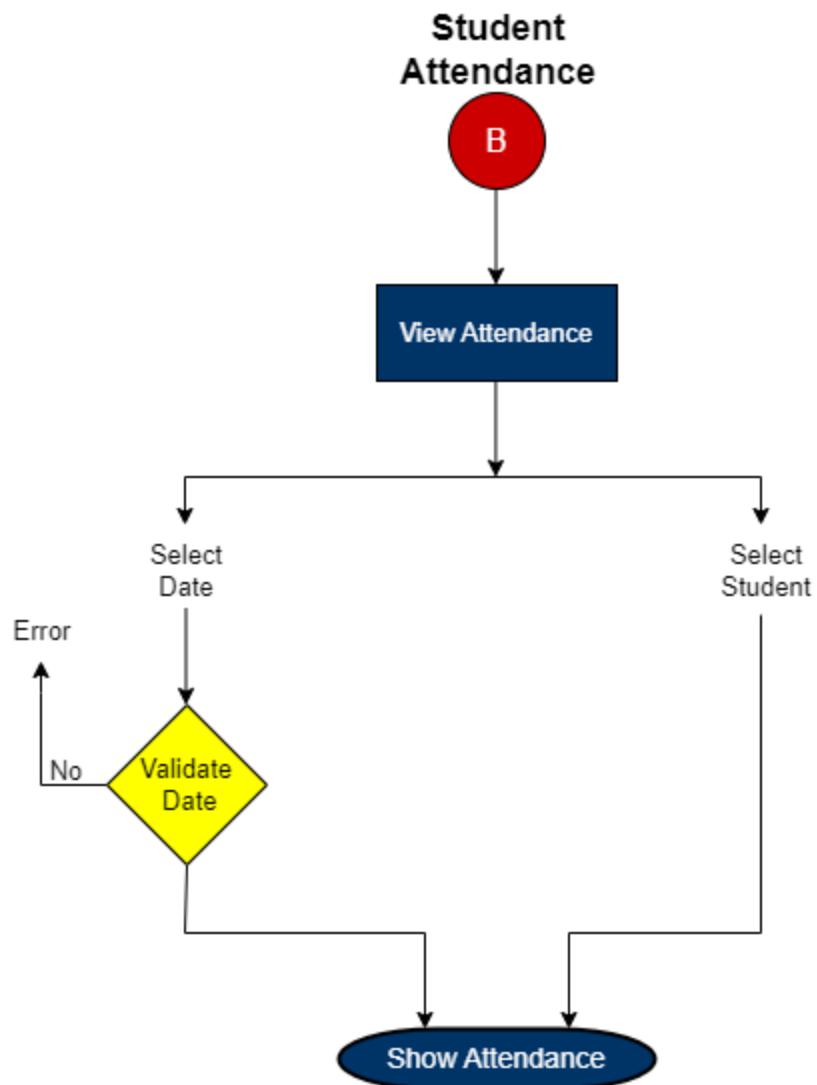


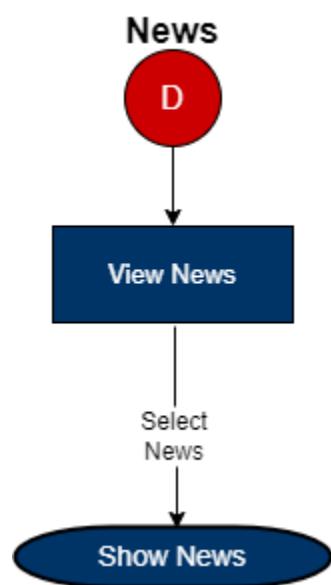
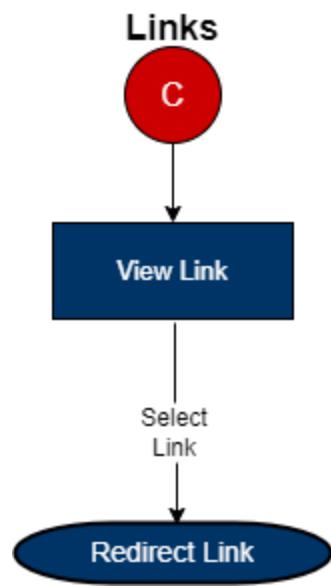
❖ Activity Diagram

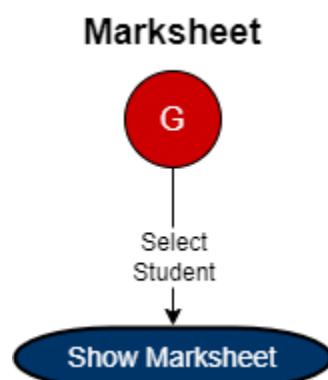
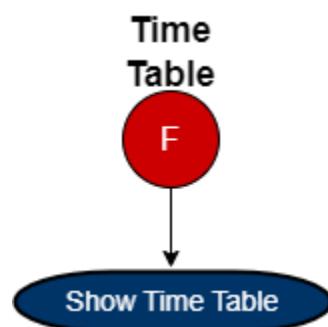
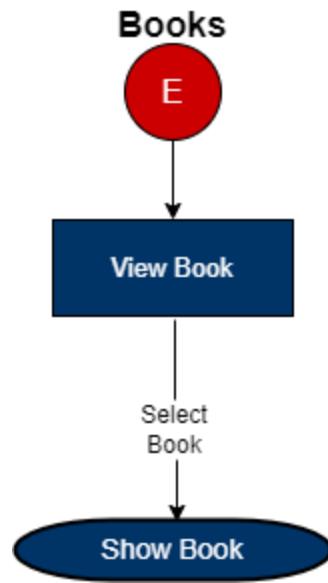
➤ Main Admin (Principal)

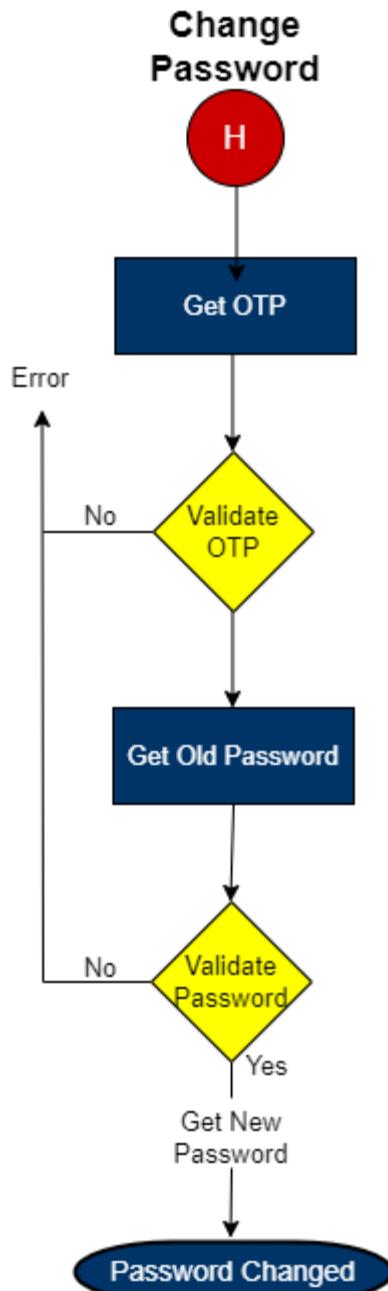


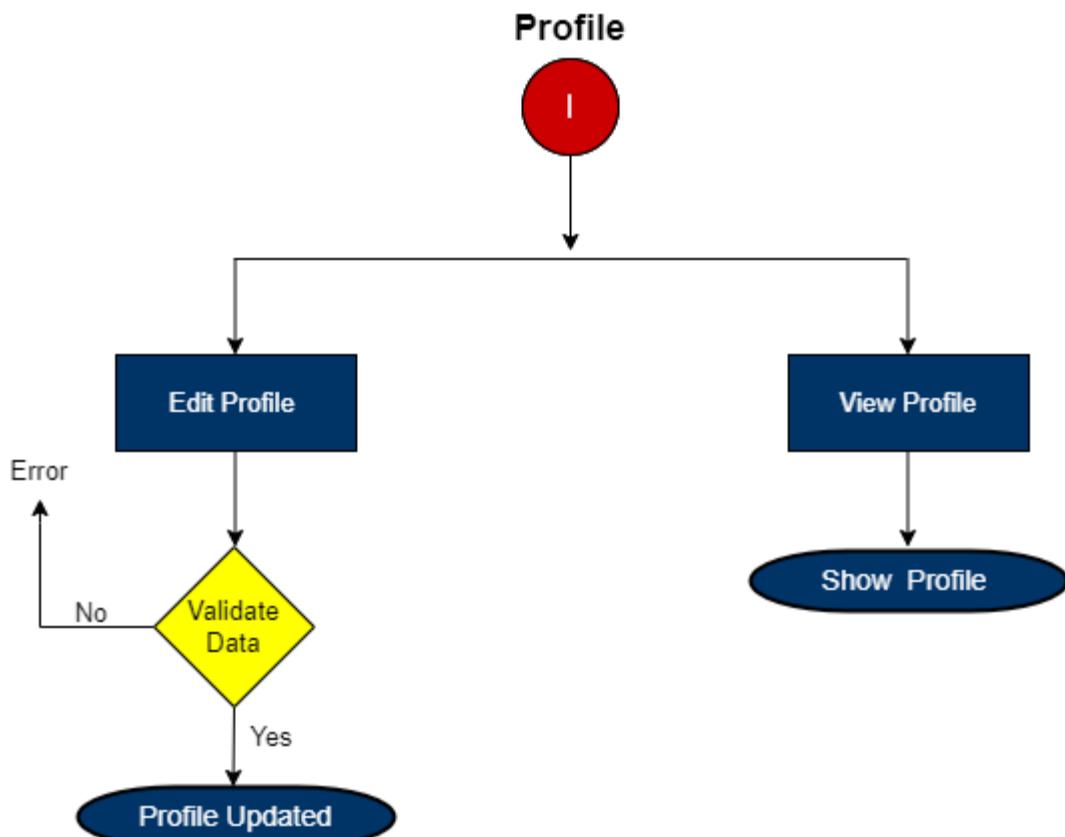




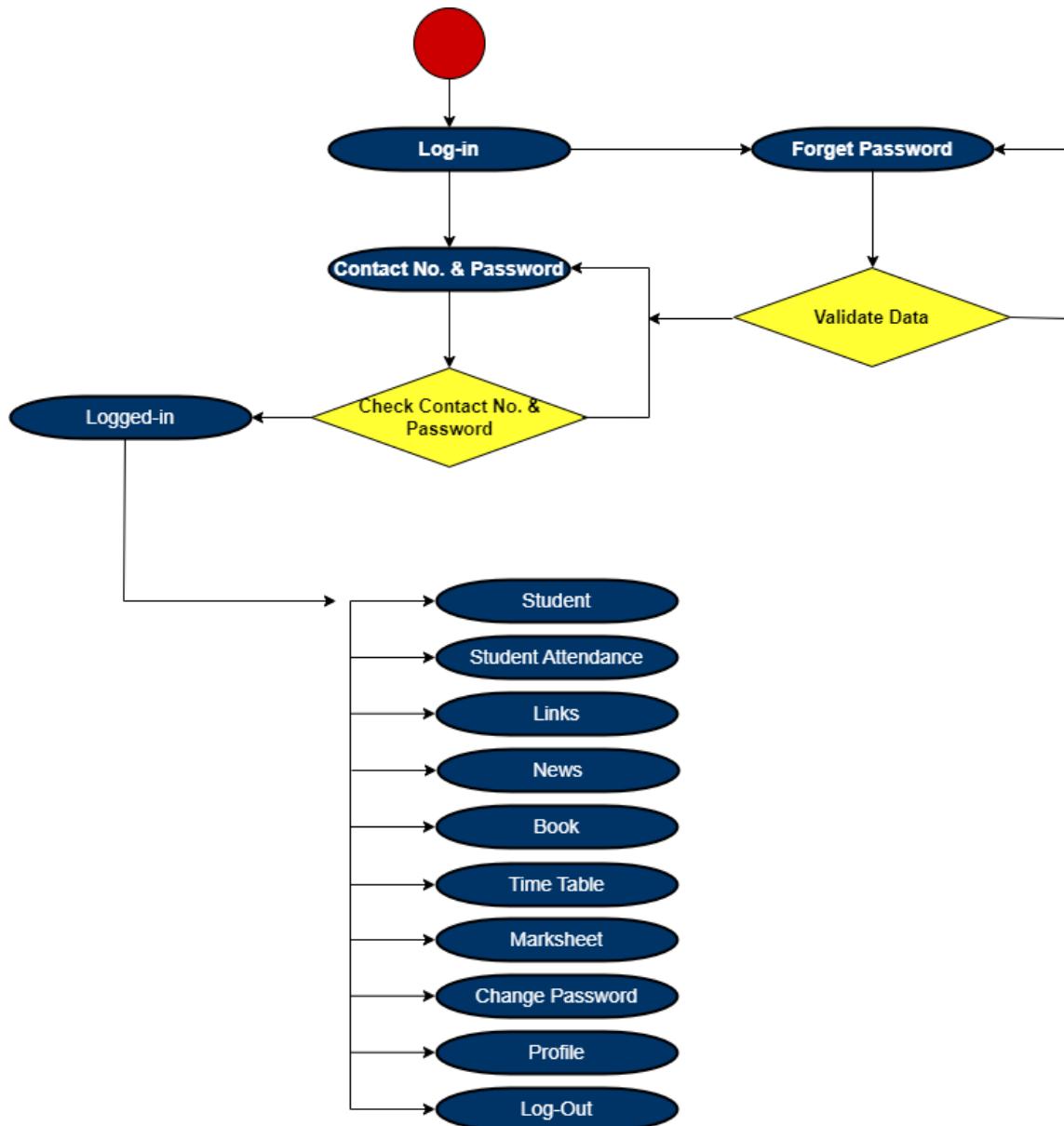


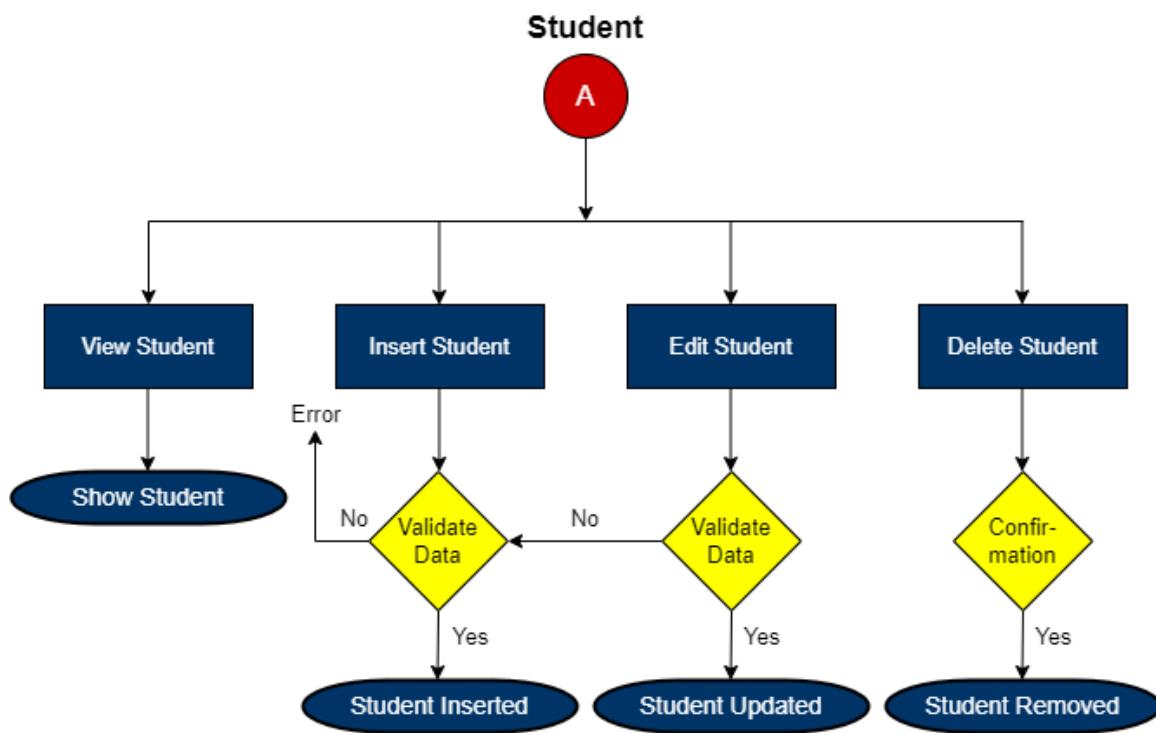


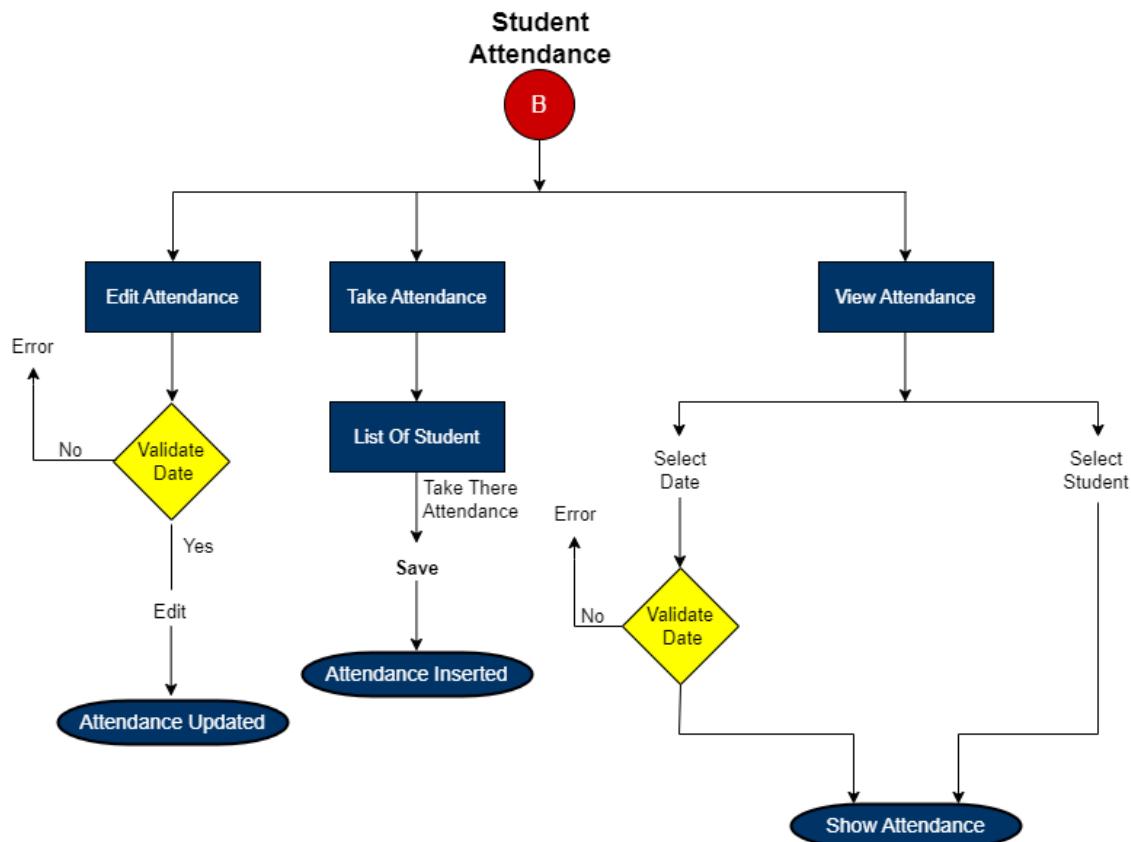


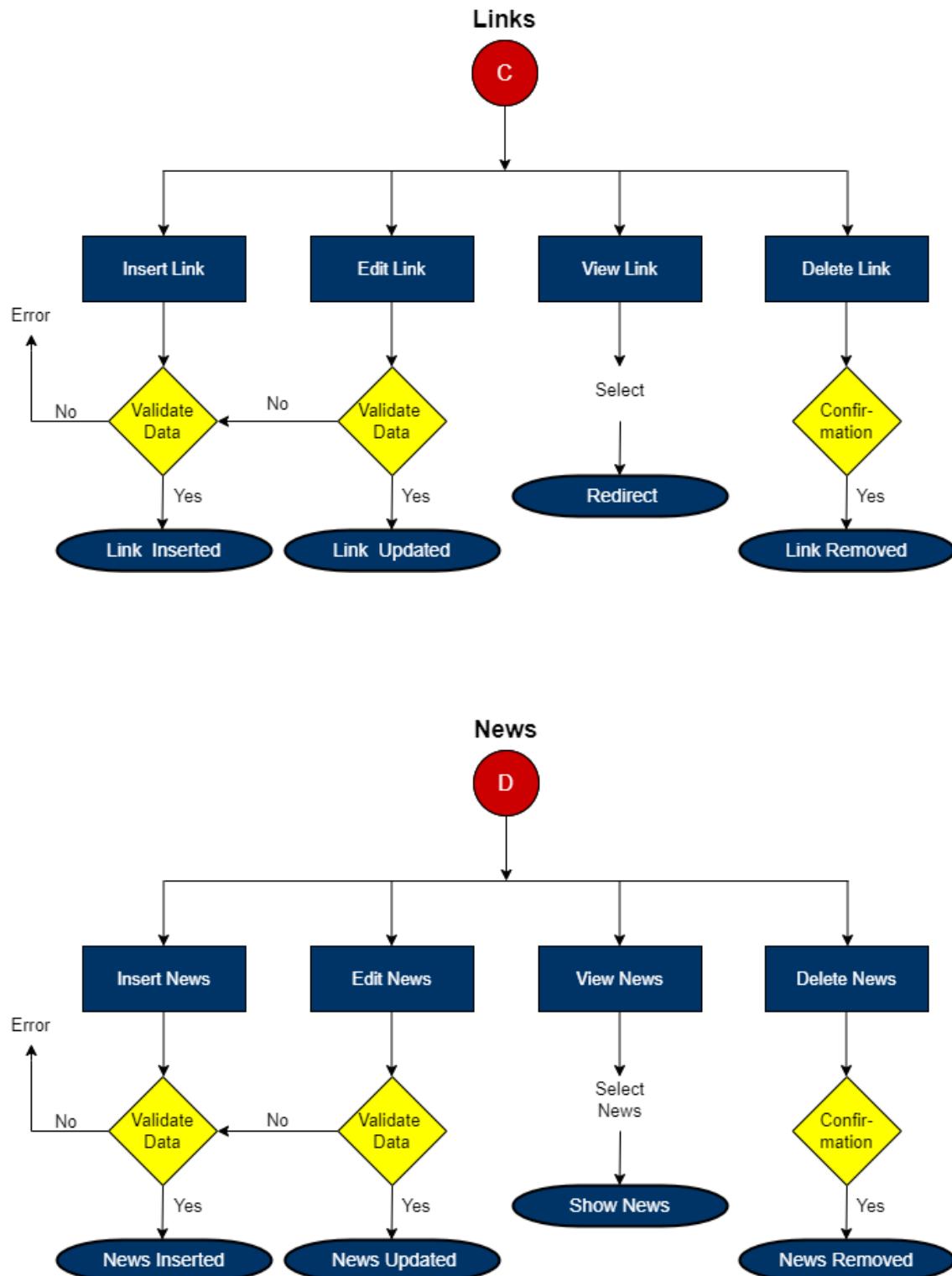


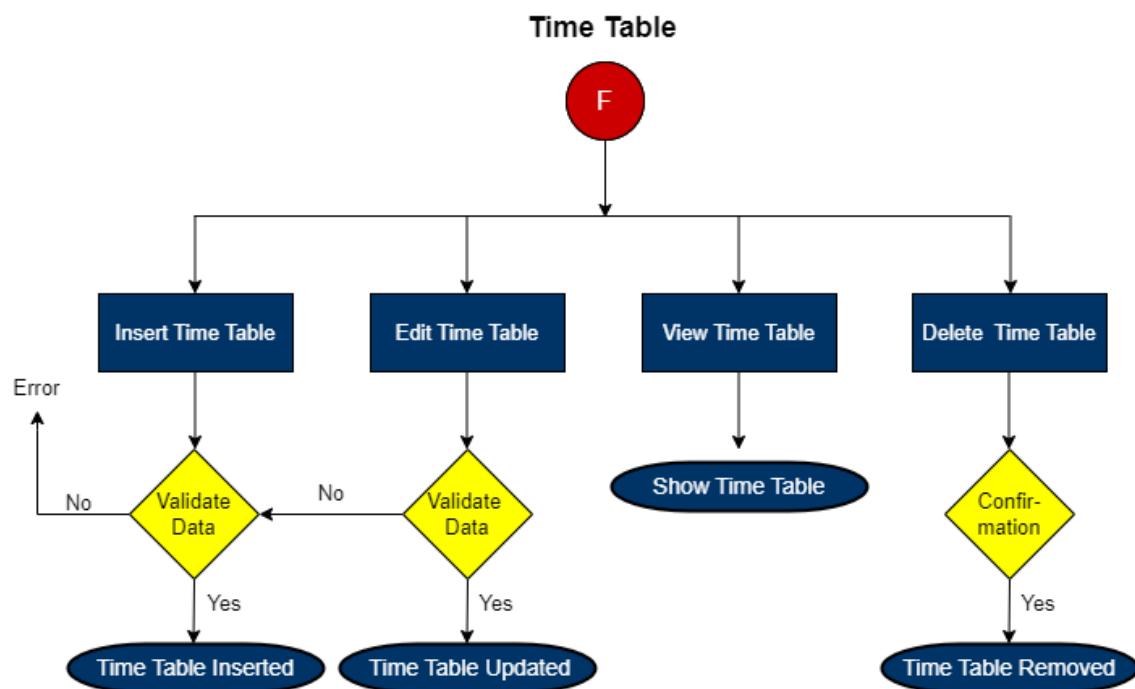
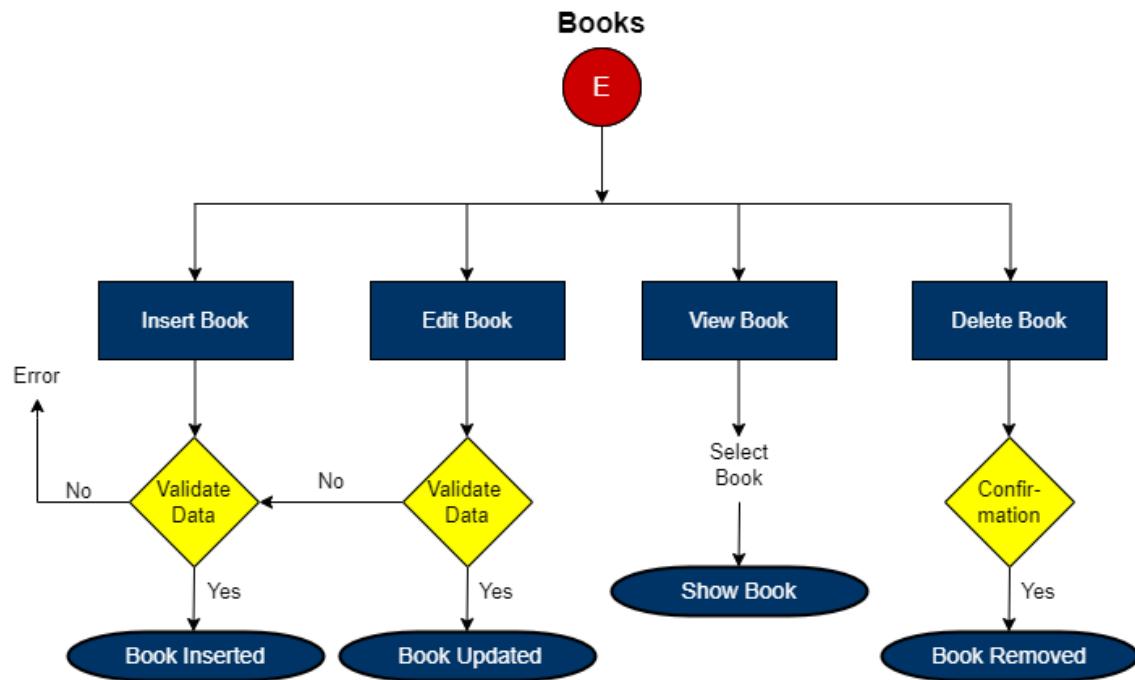
➤ Admin (Teacher)

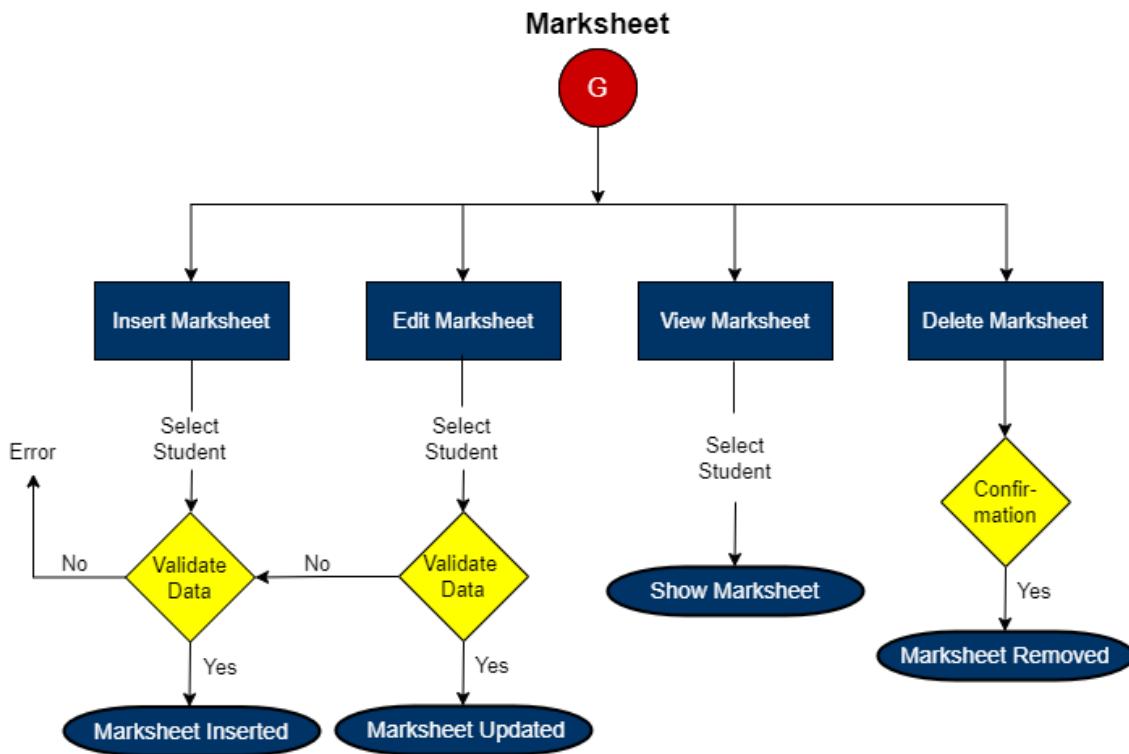


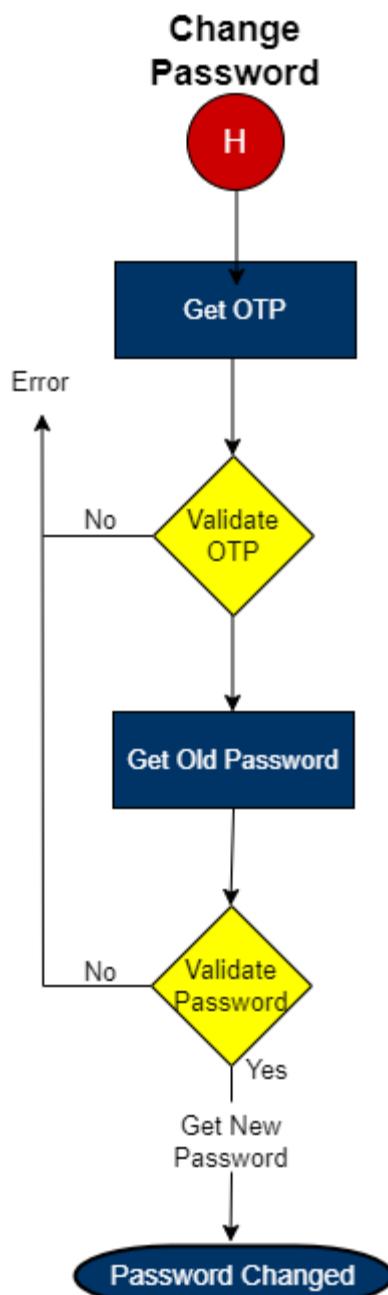


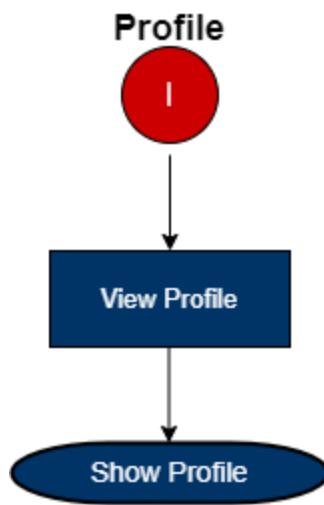




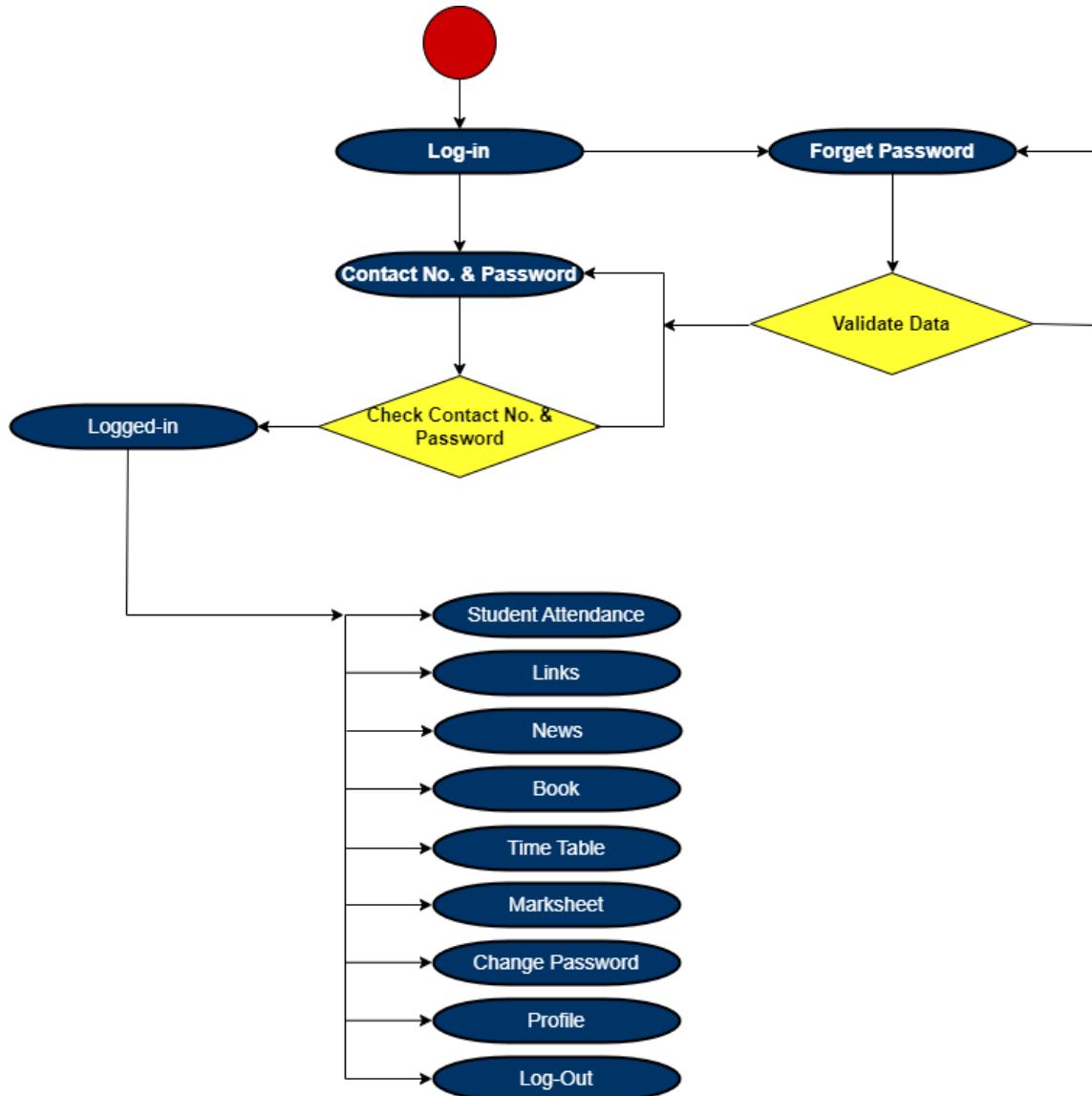


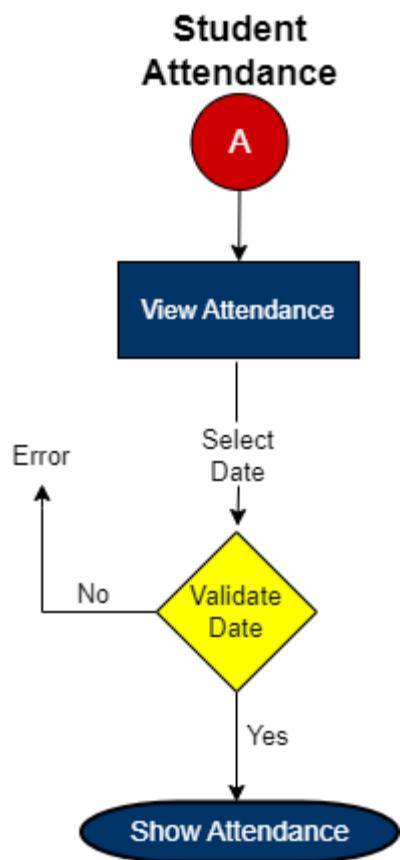


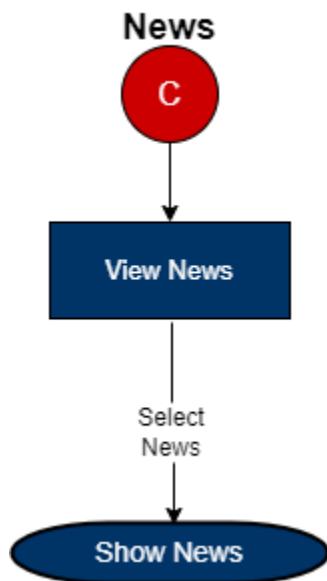
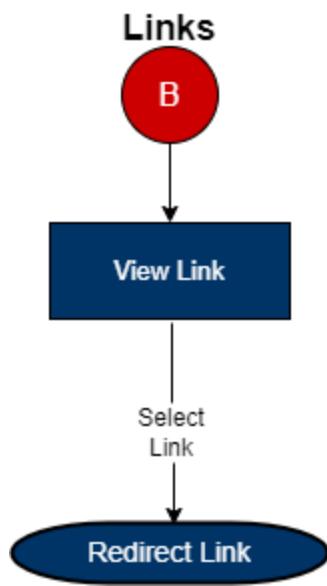


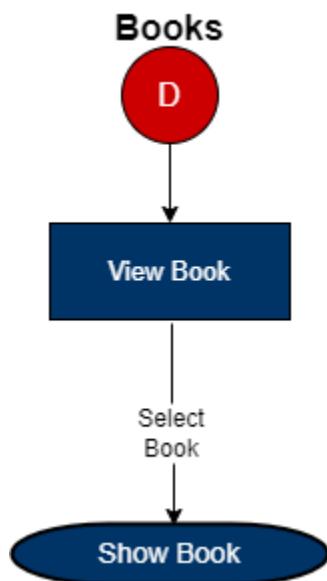
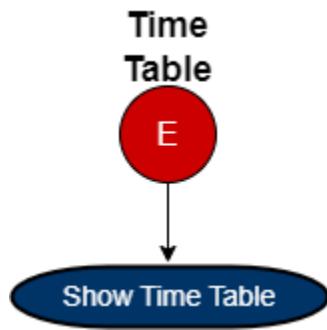


➤ Client (Student)





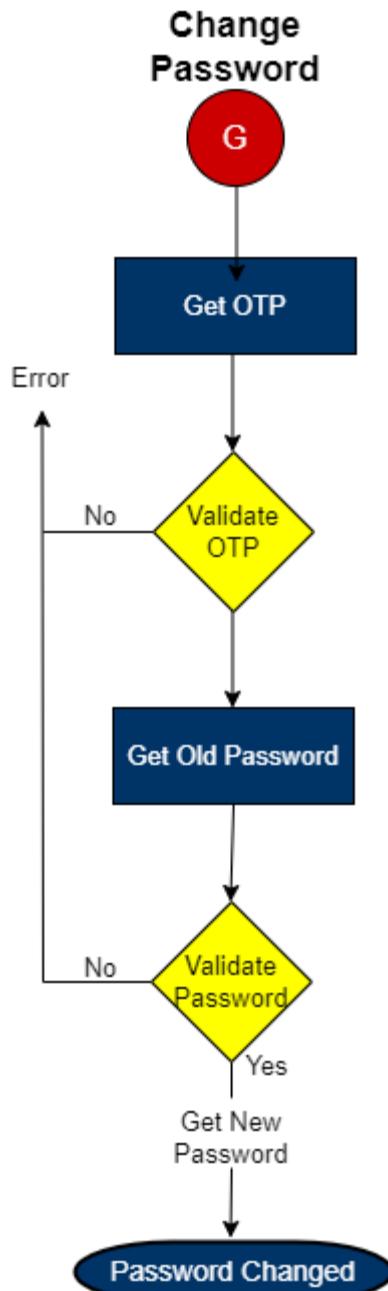


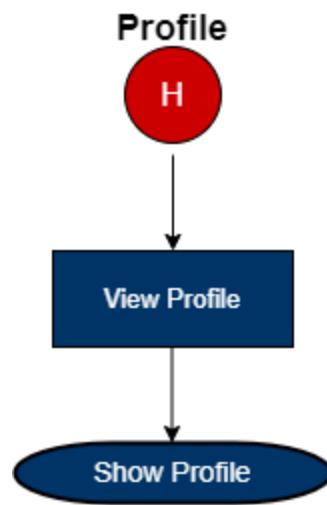


Marksheet



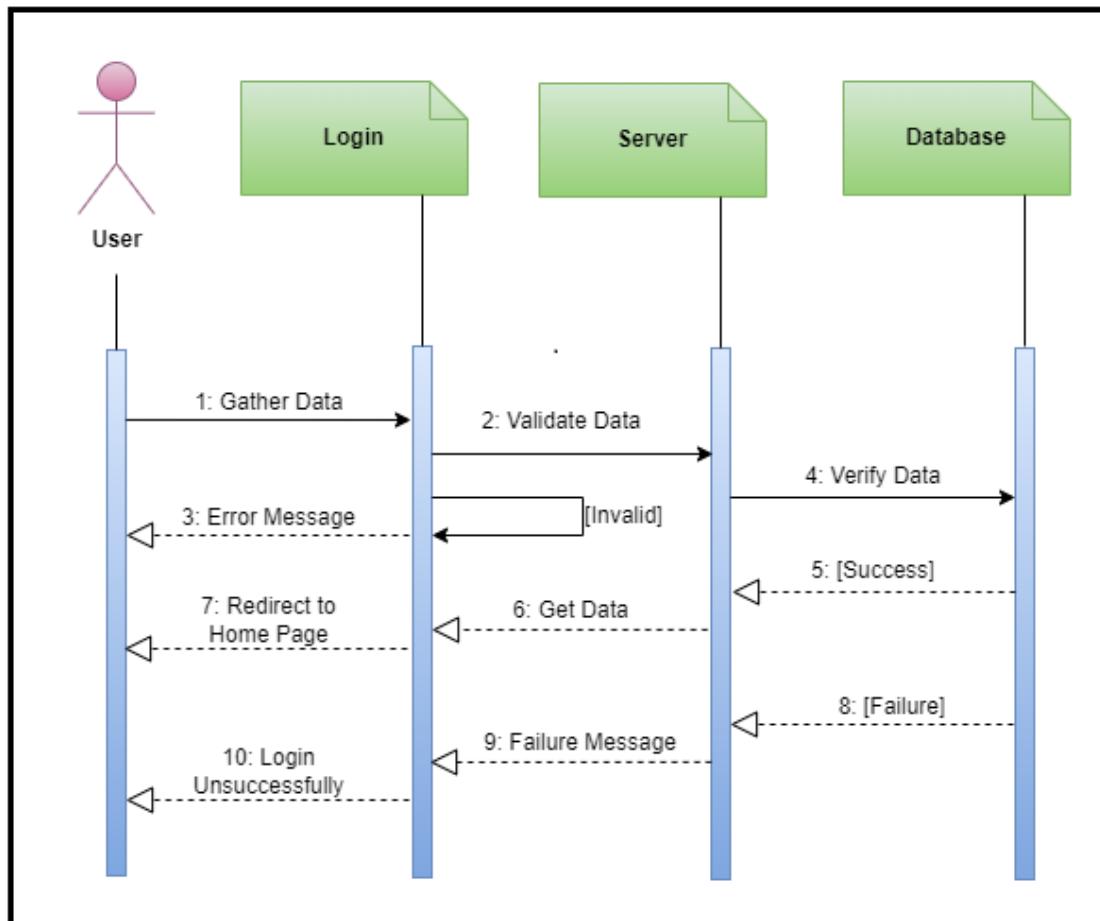
Show Marksheets



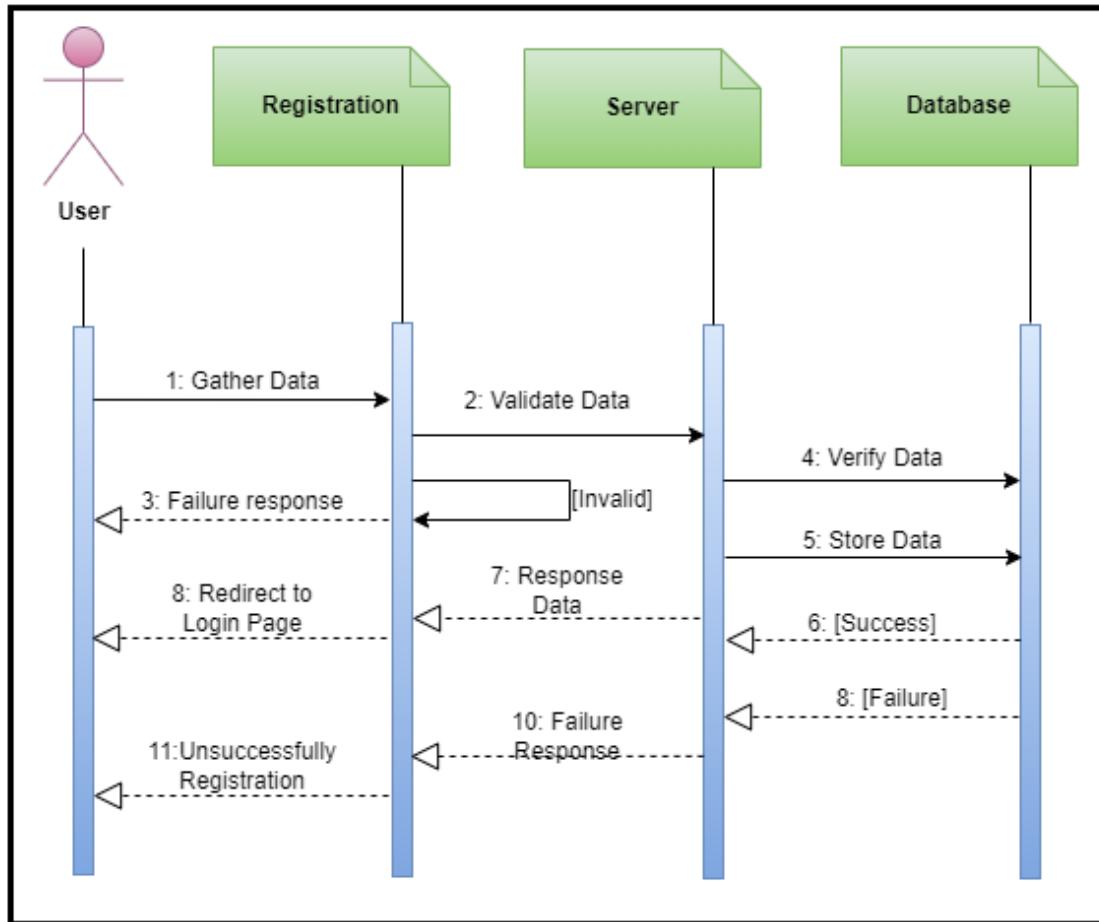


❖ Sequence Diagram

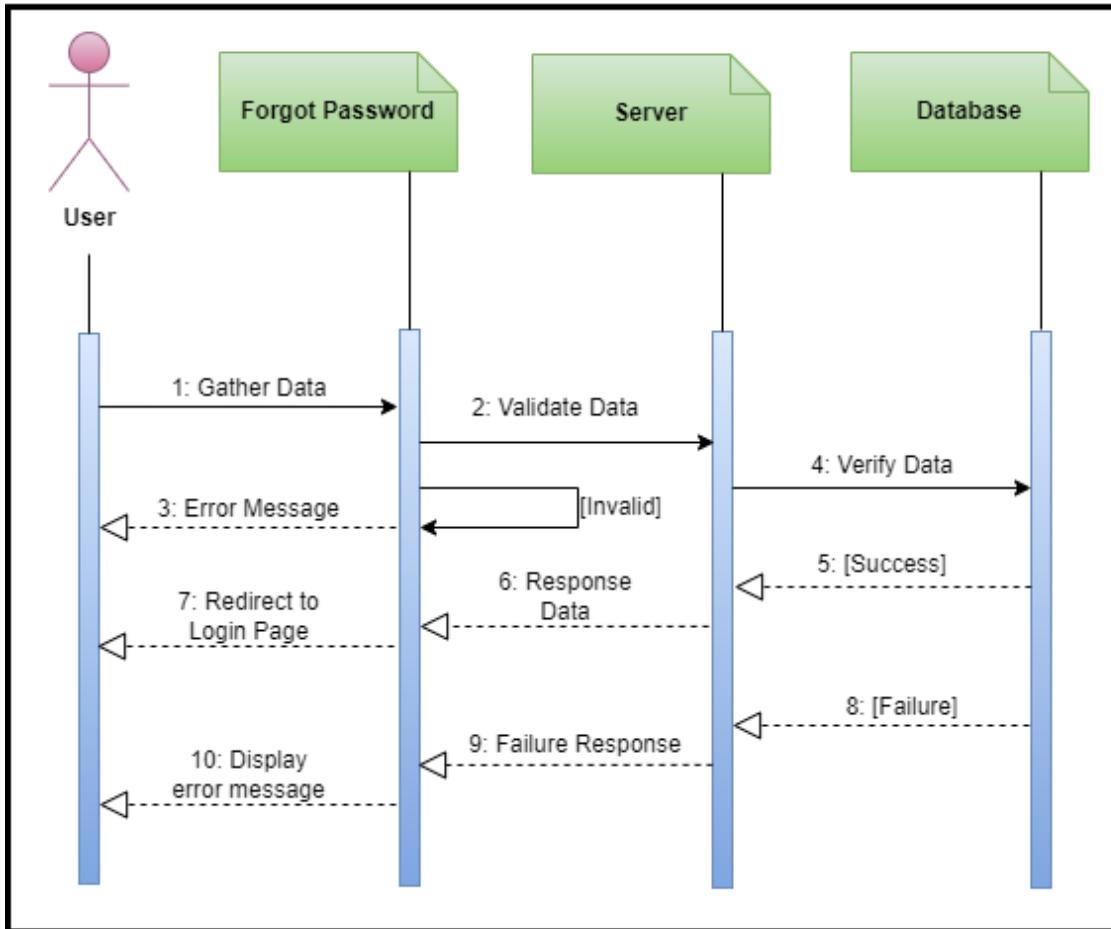
➤ Login



➤ Registration



➤ Forgot Password

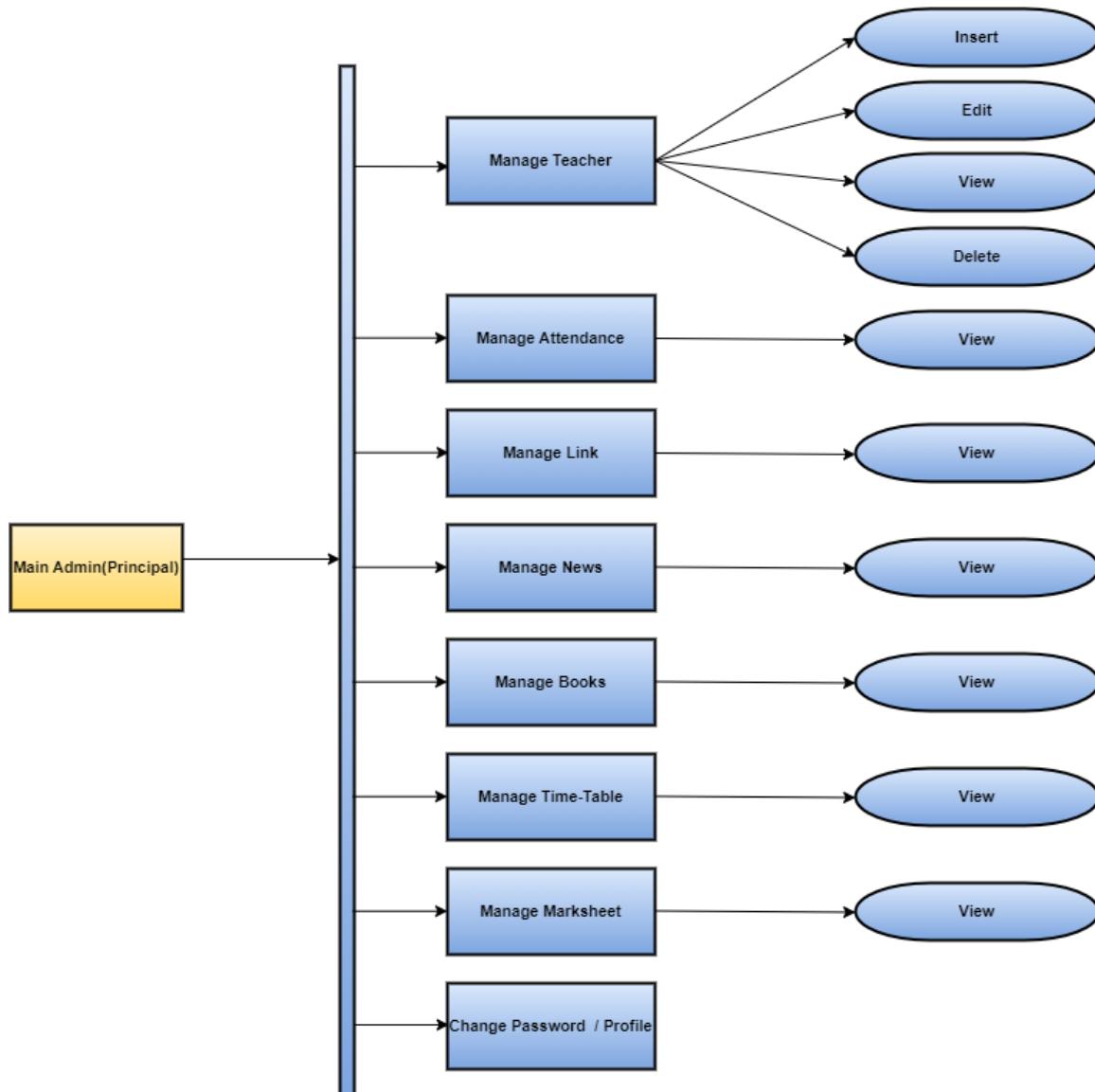


System Design

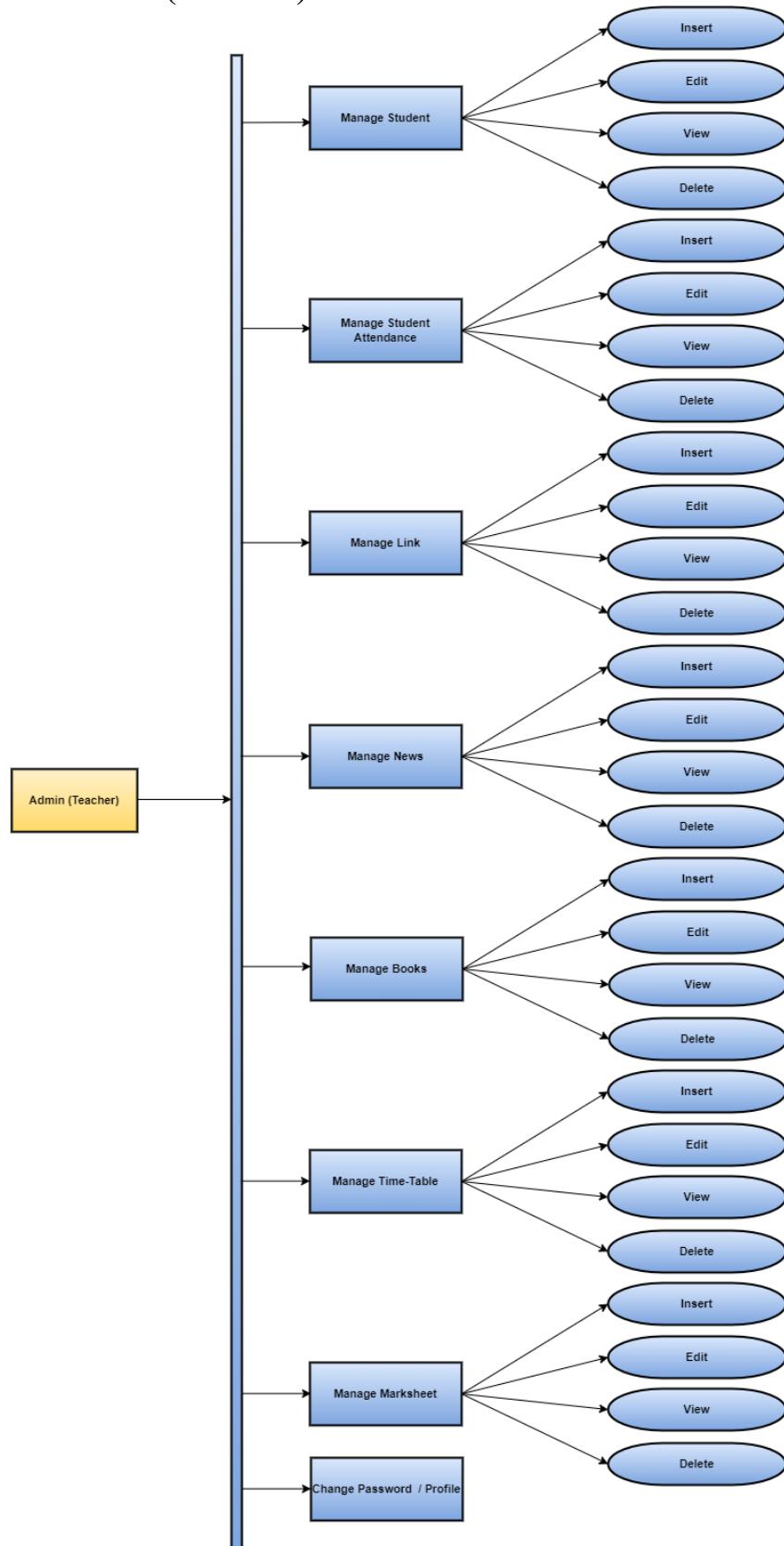
- **Navigation Map**
- **Table Structure**
- **Screen Design**

❖ Navigation Map

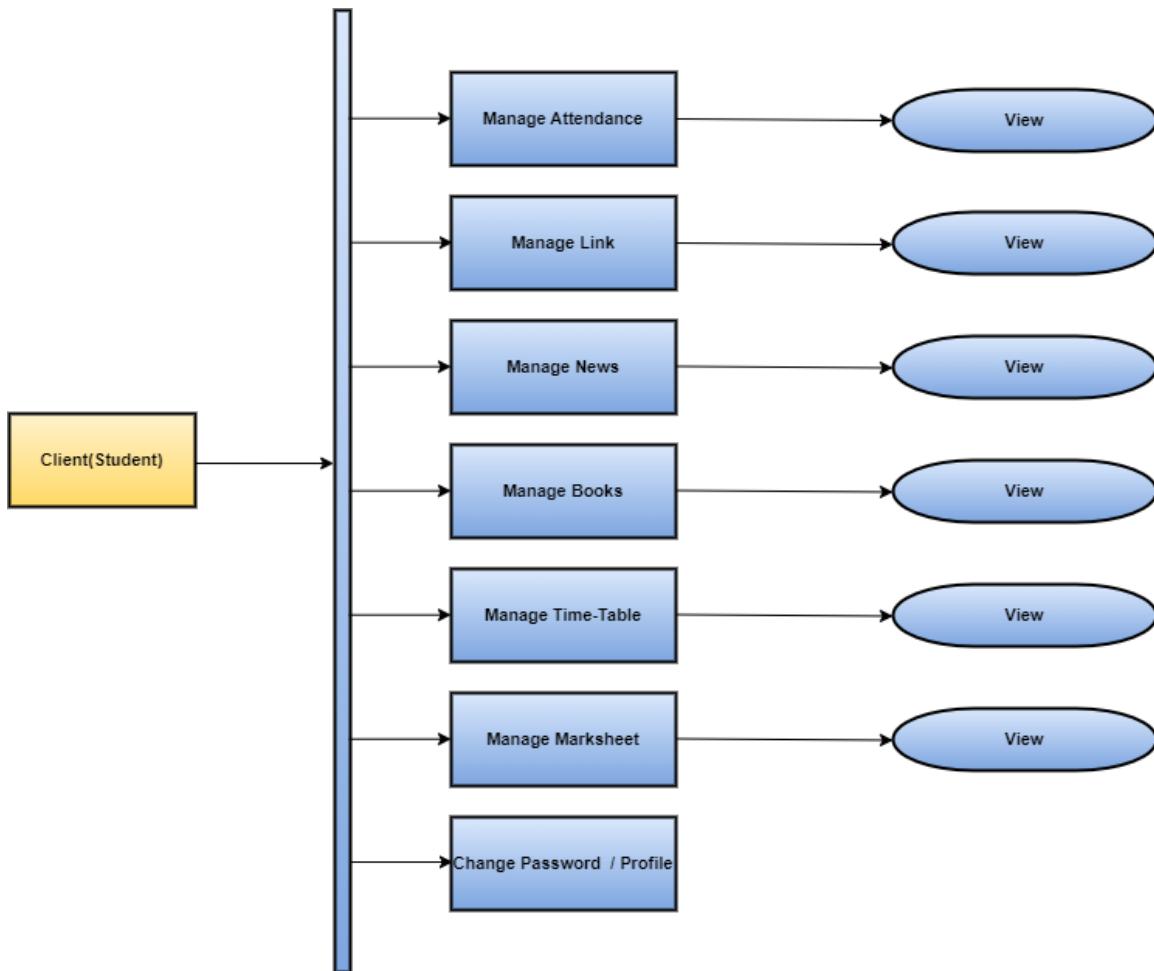
➤ Main Admin (Principal)



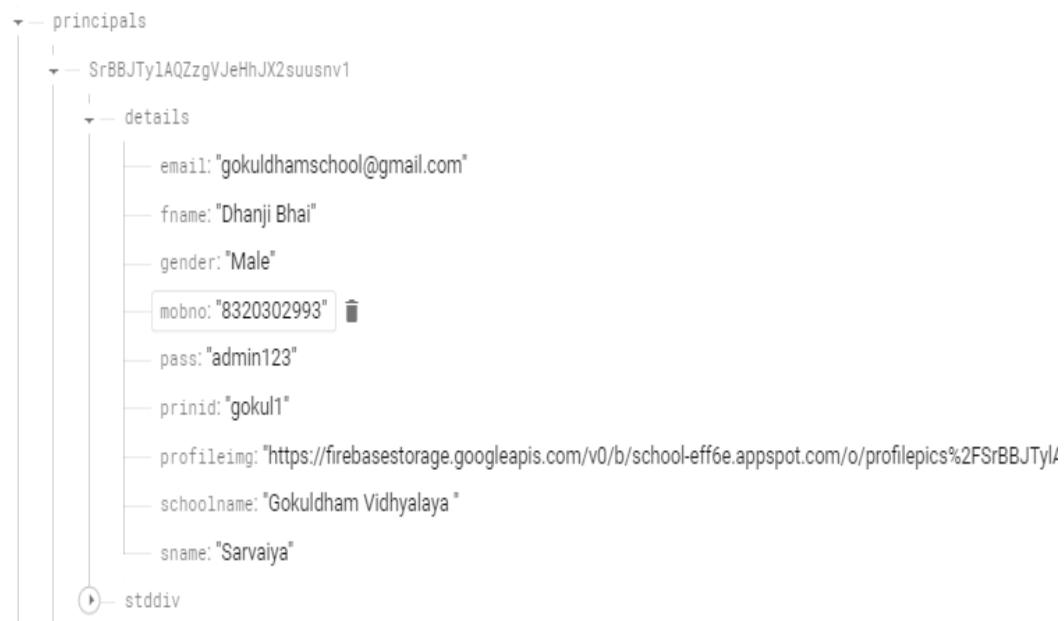
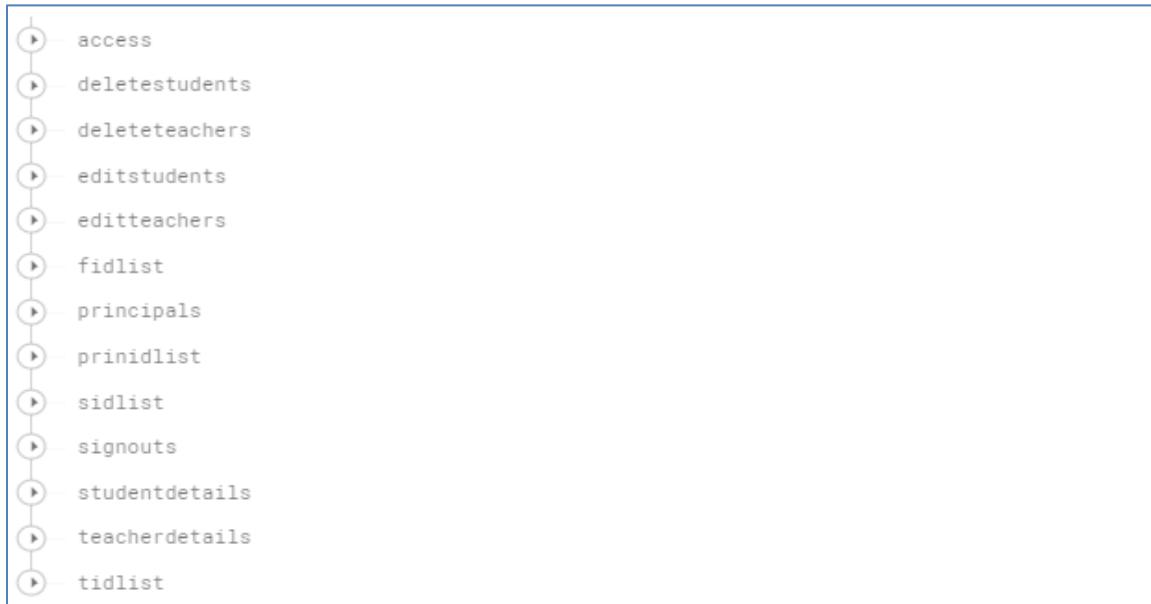
➤ Admin (Teacher)



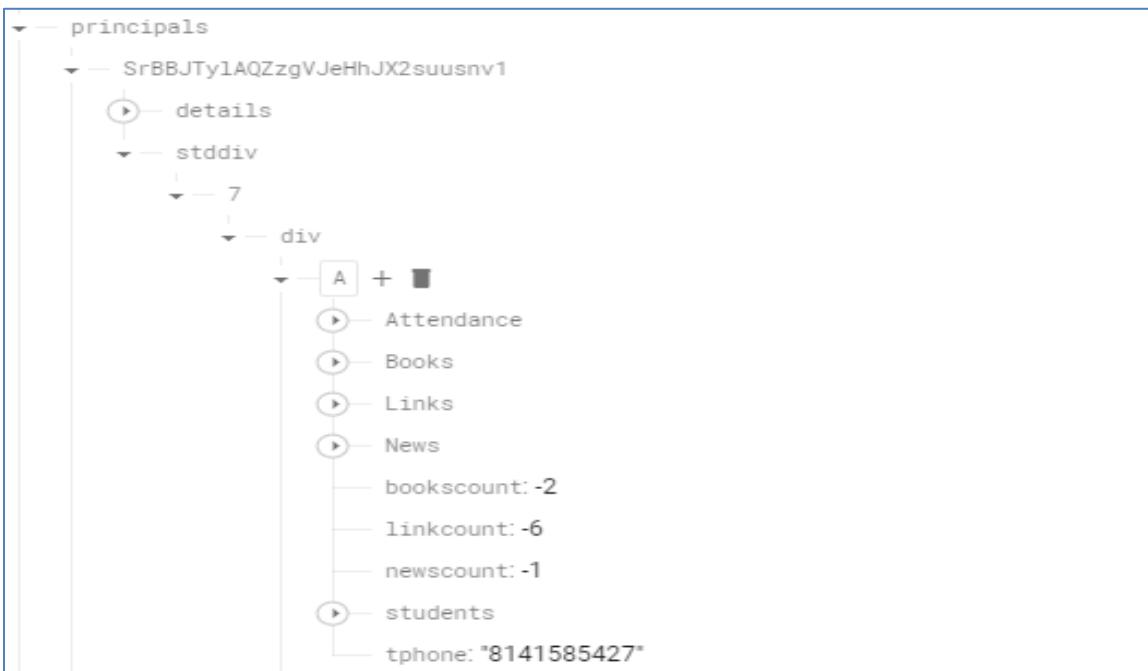
➤ Client (Student)

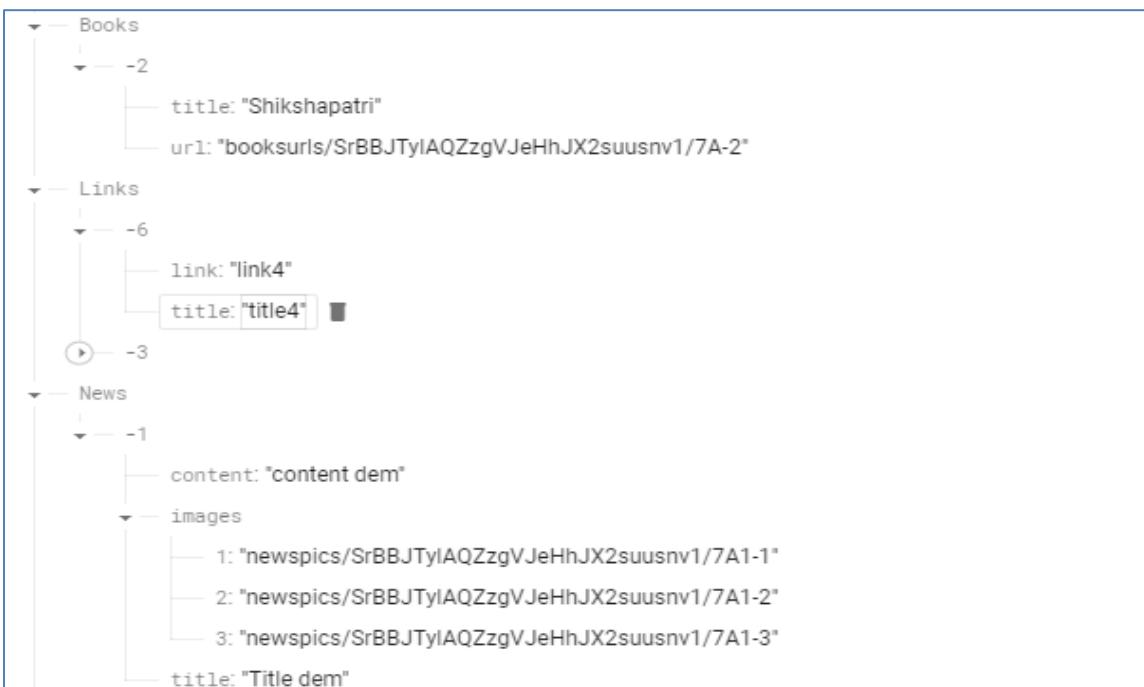
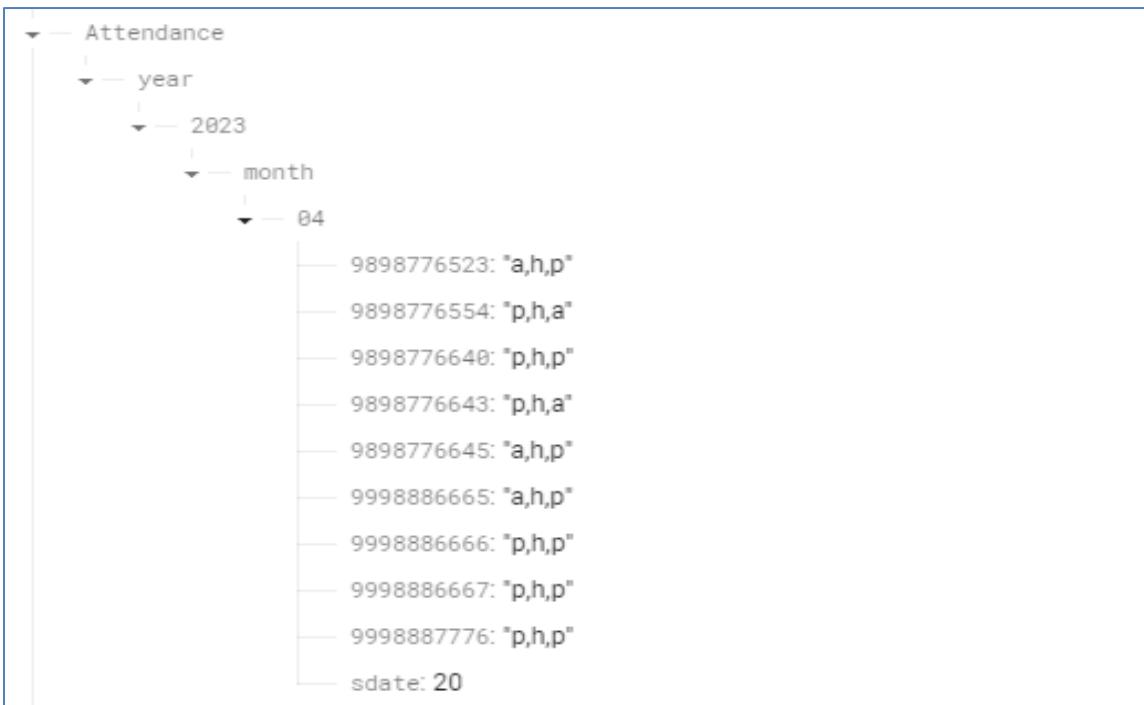


❖ Table Structure



Sr	Field Name	Data type	Description
1.	fname	String	It stores principal's first name
2.	sname	String	It stores principal's second name
3.	email	String	It stores email id of school
4.	gender	String	It stores gender (Male, Female)
5.	mobno	String	It stores mobile number of principal
6.	pass	String	It stores principal's password.
7.	prinid	String	It stores principal id
8.	profileimg	String	it holds image url of principal's profile
9.	schoolname	String	it holds schoolname





```
  └── students
      ├── 1: "9898776645"
      ├── 2: "9898776643"
      ├── 7: "9898776554"
      ├── 8: "9998887776"
      ├── 10: "9998886667"
      ├── 11: "9998886666"
      ├── 12: "9998886665"
      └── 17: "8320302983"
      tphone: "8141585427"
```

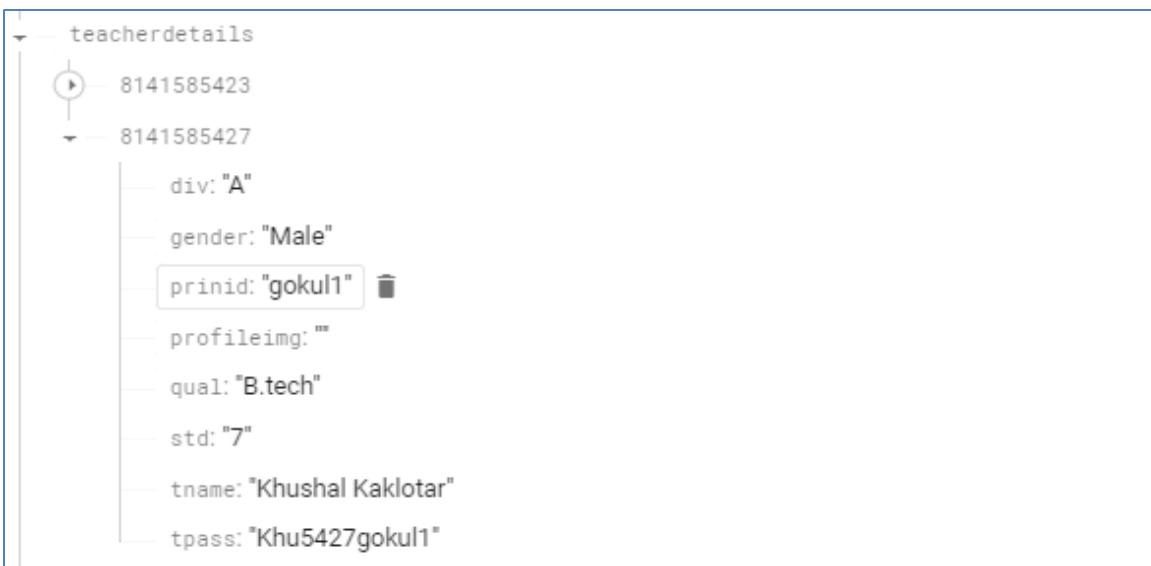
```
  └── studentdetails
      └── 8320302983
          ├── age: "18"
          ├── birthdate: "21/4/2004"
          ├── div: "A" 🗑
          ├── gender: "Male"
          ├── prinid: "gokul1"
          ├── profileimg: ""
          ├── rollno: "17"
          ├── sname: "Akshay Ghoghari"
          ├── spass: "Akshaygg"
          ├── std: "7"
          └── tid: "hqY3WxazOWOg6ZLgl0jguE8EyKG3"
```

```

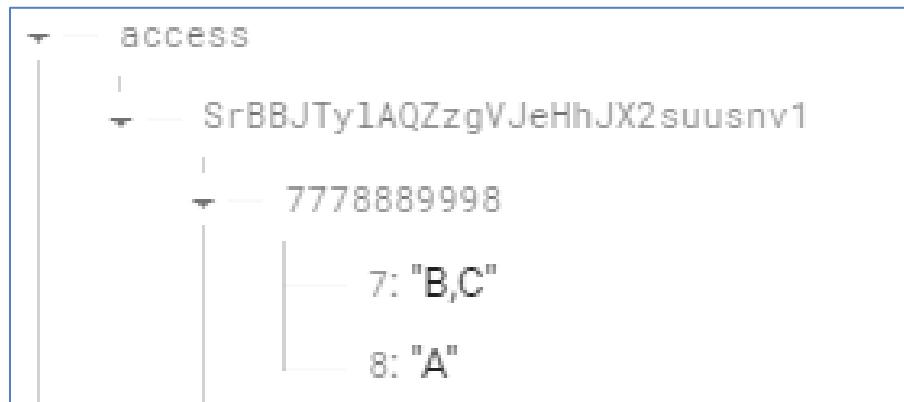
└── sidlist
    ├── UhD9nY8YwNPcSxqGnrpfRImt0Jh1: "9898776643"
    └── ghWb1YW8dqqROIRewScTqJCeV4X2: "8320302983"

```

Sr	Field Name	Data type	Description
1.	sname	String	It stores name of student
2.	age	String	It stores age of the student
3.	div	String	It stores division of student
4.	gender	String	It stores gender (Male, Female)
5.	std	String	It stores standard of student
6.	spass	String	It stores password for student
7.	prinid	String	It stores principal id
8.	profileimg	String	it holds image url of student's profile
9.	rollno	String	It stores roll number of student
10.	Birthdate	String	It stores birthday of student(dd/MM/yyyy)
11.	Tid	String	It stores class teacher's user id



Sr	Field Name	Data type	Description
1.	tname	String	It stores name of teacher
2.	qual	String	It stores qualifications of teacher
3.	std	String	It stores standard of teacher
4.	gender	String	It stores gender (Male, Female)
5.	div	String	It stores division of teacher
6.	tpass	String	It stores teacher's password.
7.	prinid	String	It stores principal id
8.	profileimg	String	it holds image url of teacher's profile



```
deletestudents
  |
  +-- 9898776640
      |
      +-- email: "prefix9898776640@gmail.com"
      |
      +-- pass: "Kau6640gokul1"

  +-- deleteteachers + [ ]
      |
      +-- 7778889998
          |
          +-- email: "prefix7778889998@gmail.com"
          |
          +-- pass: "Sha9999gokul1"
```

```
editstudents
  |
  +-- 8320302983
      |
      +-- oldemail: "prefix8320302993@gmail.com"
      |
      +-- oldpass: "Akshaygg"

  +-- editteachers
      |
      +-- 8141585423
          |
          +-- oldemail: "prefix8141585424@gmail.com"
          |
          +-- oldpass: "Abh5424gokul1"
```

```
fidlist
  |
  +-- 26sc7uSofCTMnr2R0SBMmurVxlt1
      |
      +-- d9Hpgh-qSj09Yu0Qo_JIhQ: "val"
```

```
signouts
  |
  +-- dN6RVzE1QvG0orsMJD0NeU: "val"
  |
  +-- deW08t70Qpm_9vut13yM3V: "val"
```

```
prinidlist
  goku11: "SrBBJTylAQZzgVJeHhJX2suusnv1"
  hans15: "w32Nk32uMeUkH7gqaQ6WmxmwEeN2"

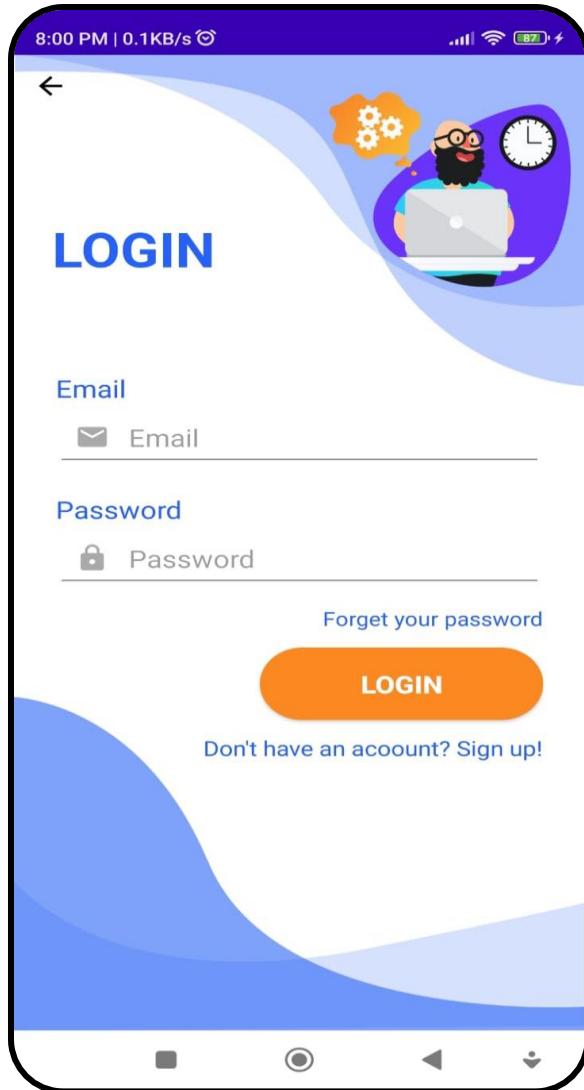
  sidlist
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    ghWb1YW8dqgROIRewScTqJCeV4X2: "8320302983"

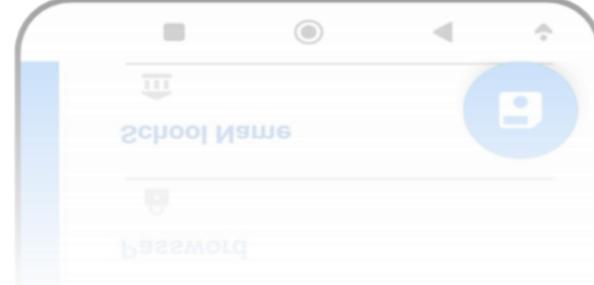
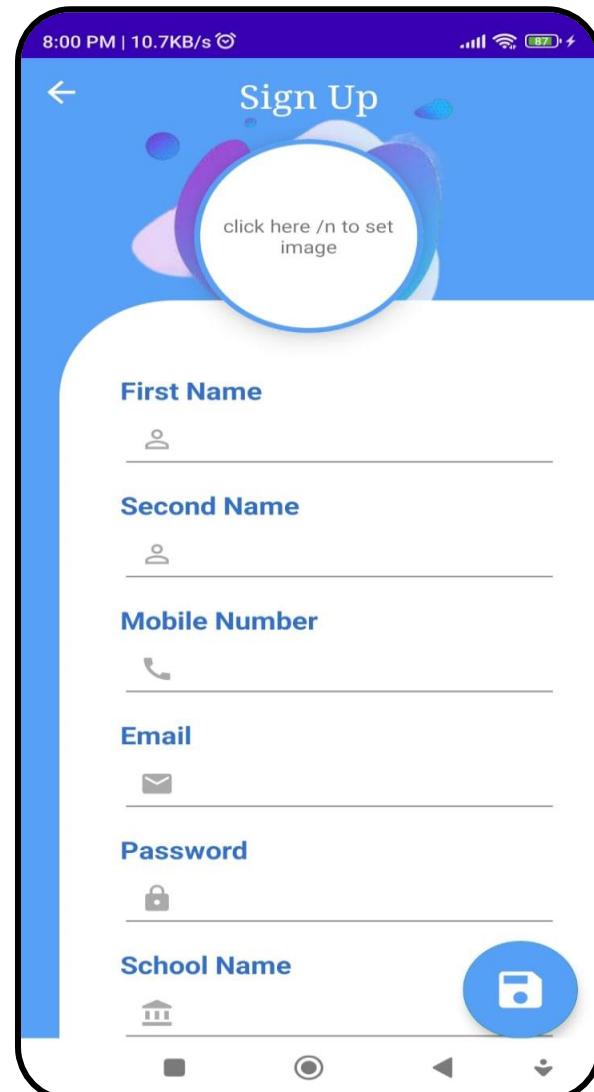
  tidlist
    26sc7uSofCTMnr2R0SBMmurVxlt1: "8141585423"
    hqY3WxazOW0g6ZLgI0jguE8EyKG3: "8141585427"
```

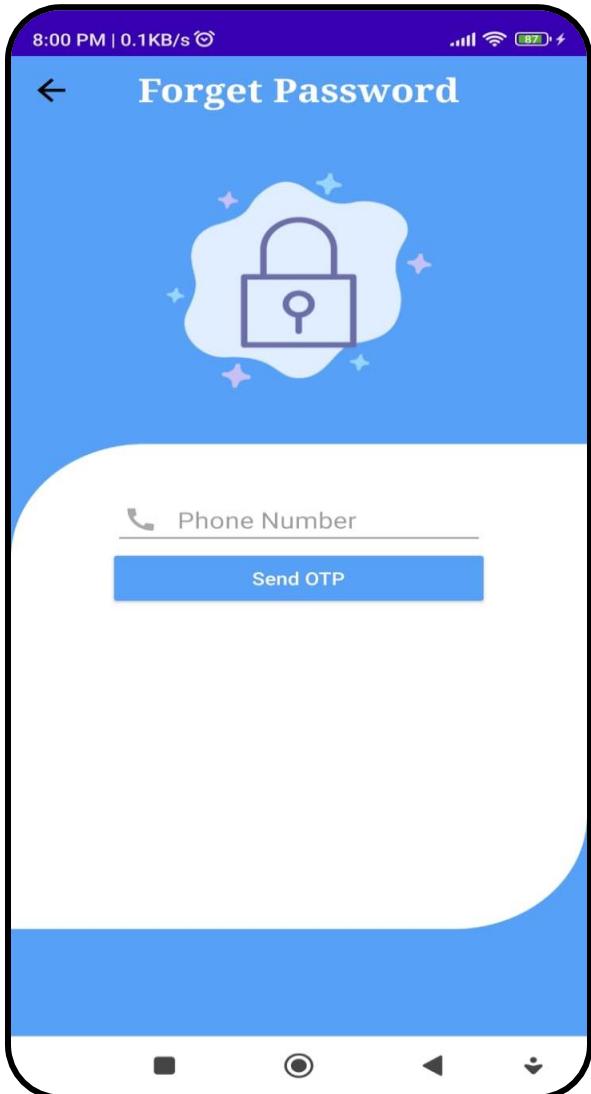
❖ **Screen Design**

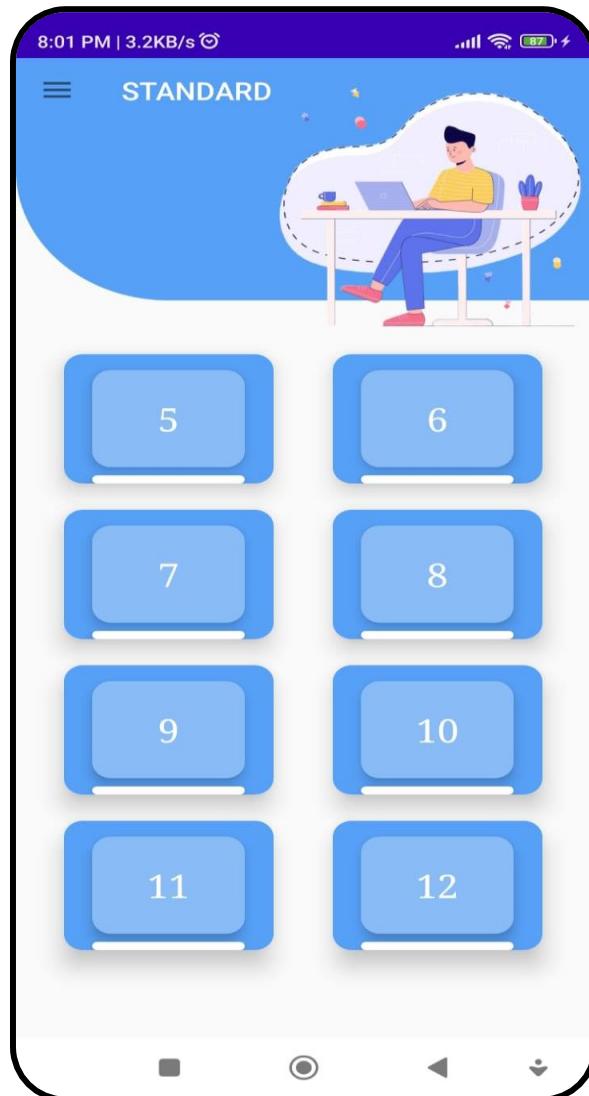
- Main Admin (Principal)
- Admin (Teacher)
- Client (Student)

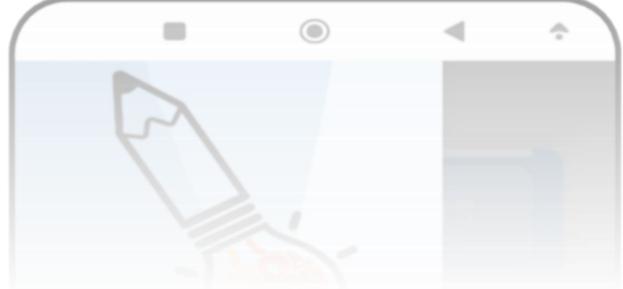
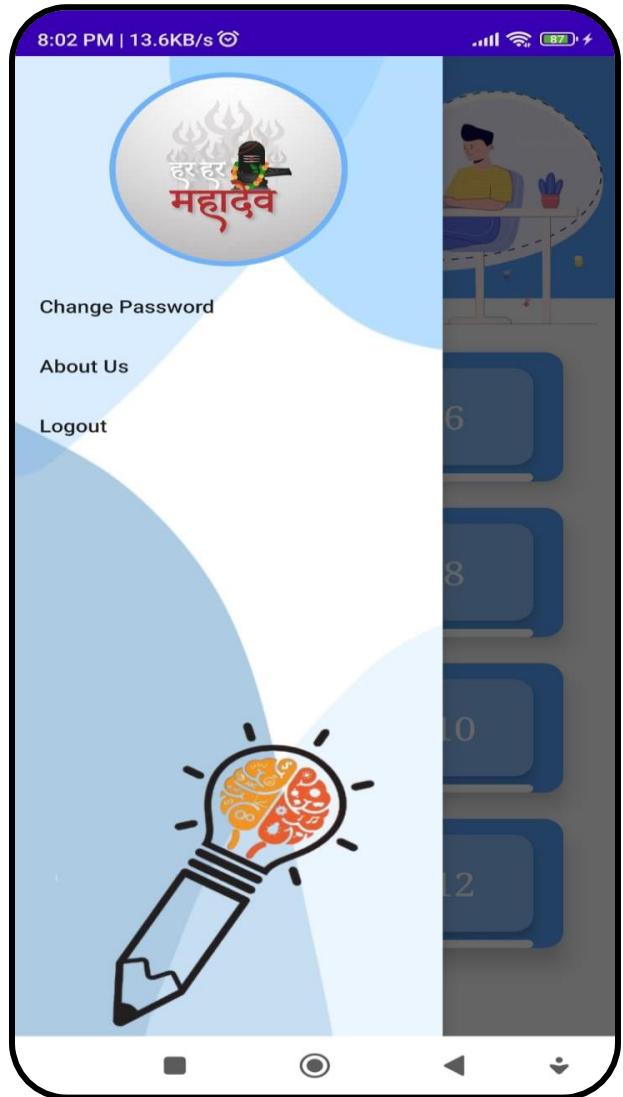
❖ Main Admin (Principal)

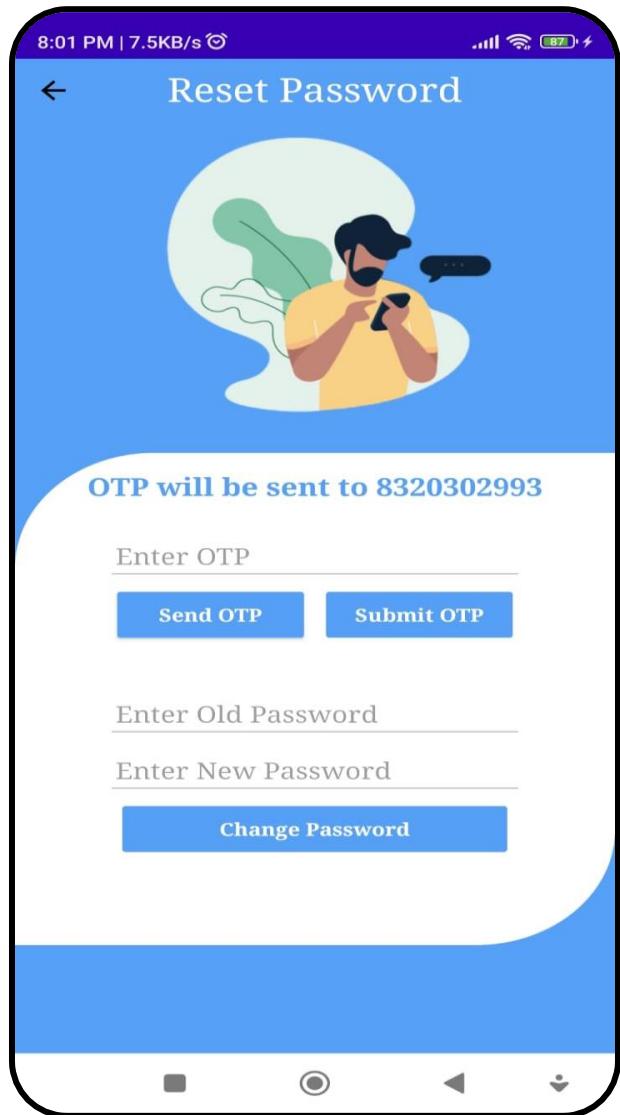


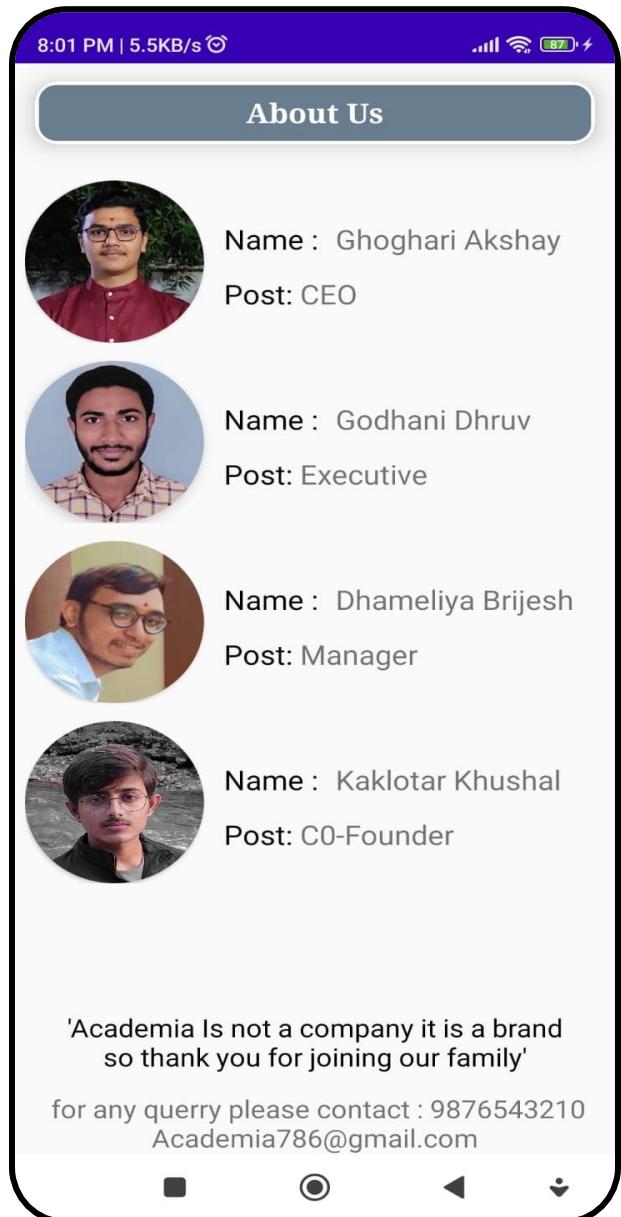




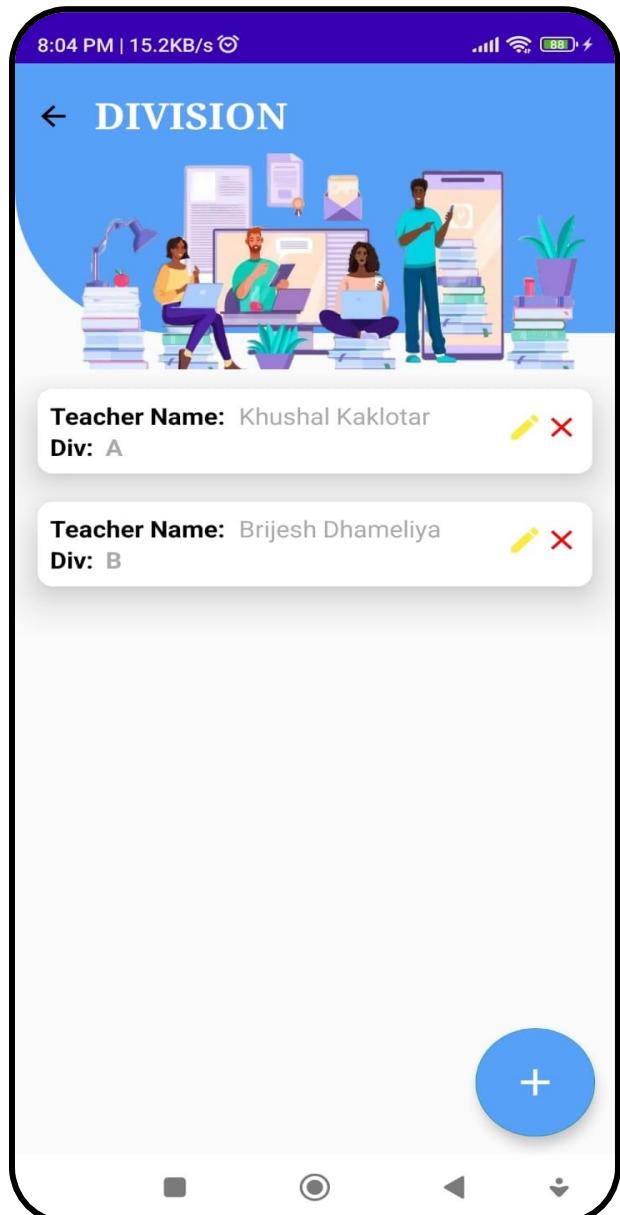


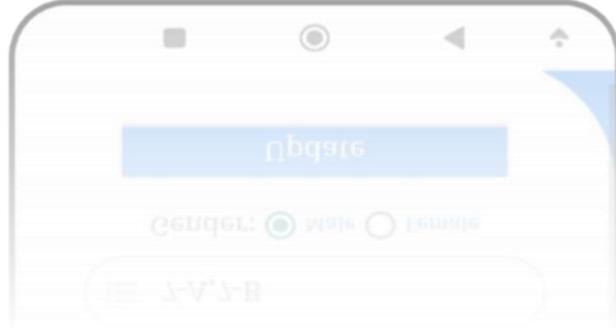
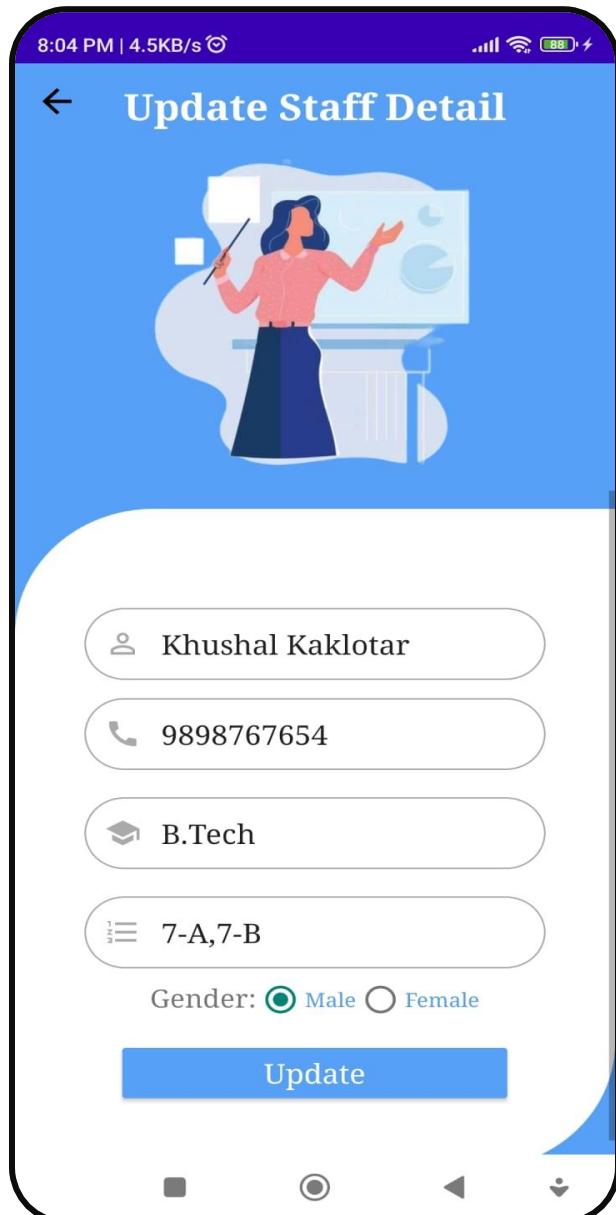


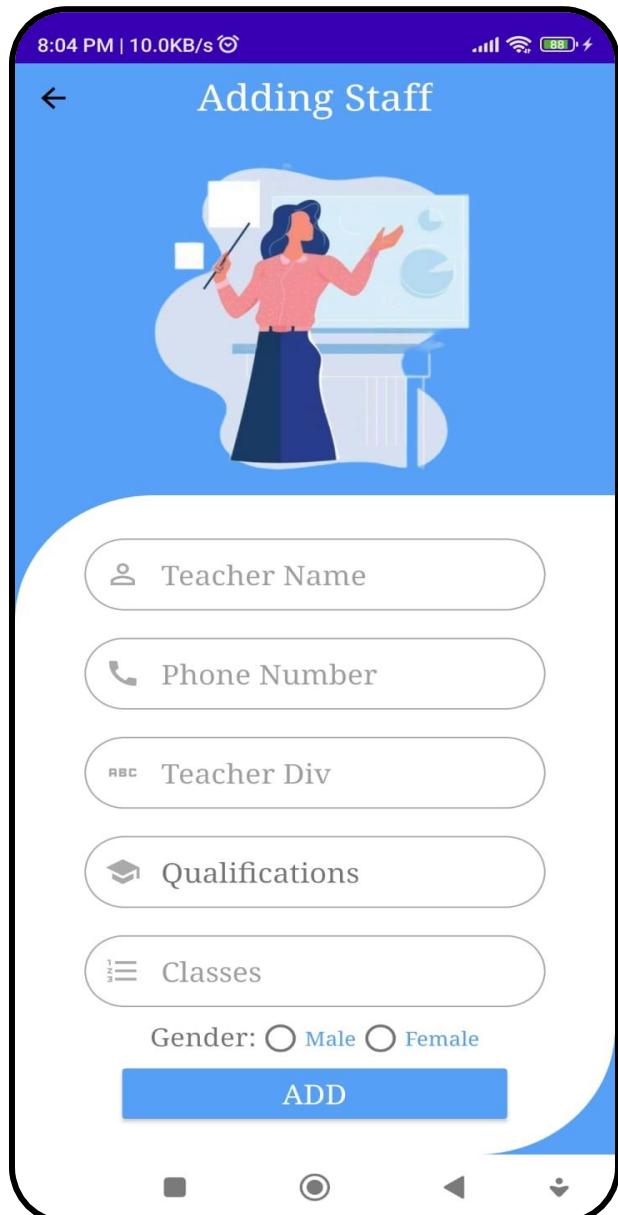


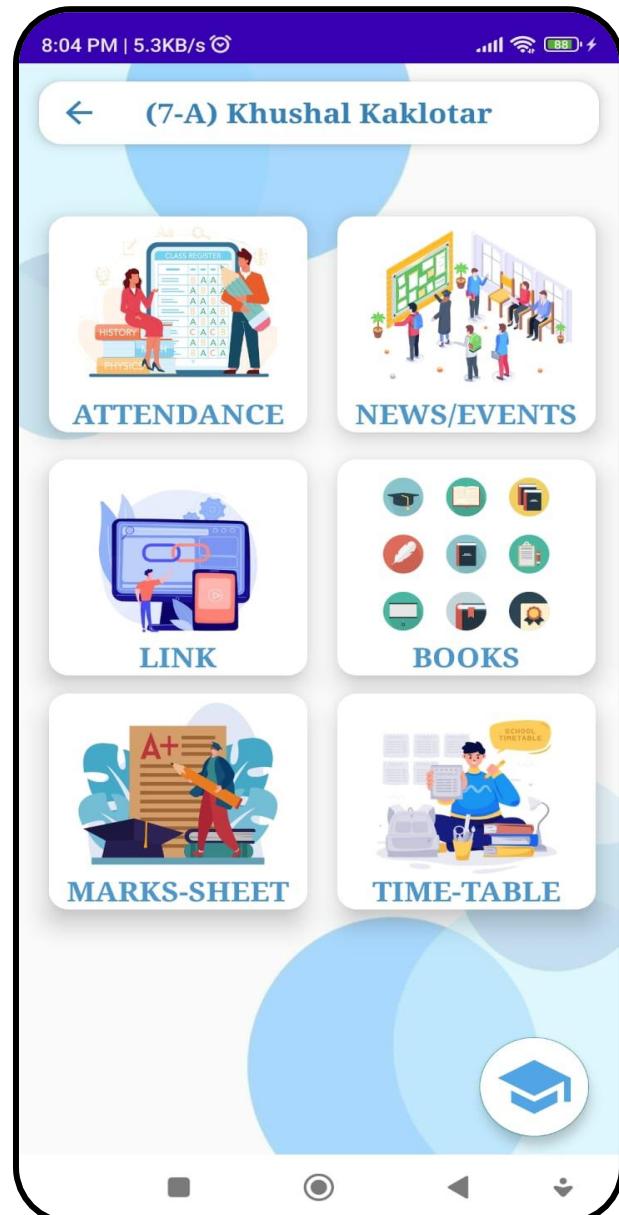


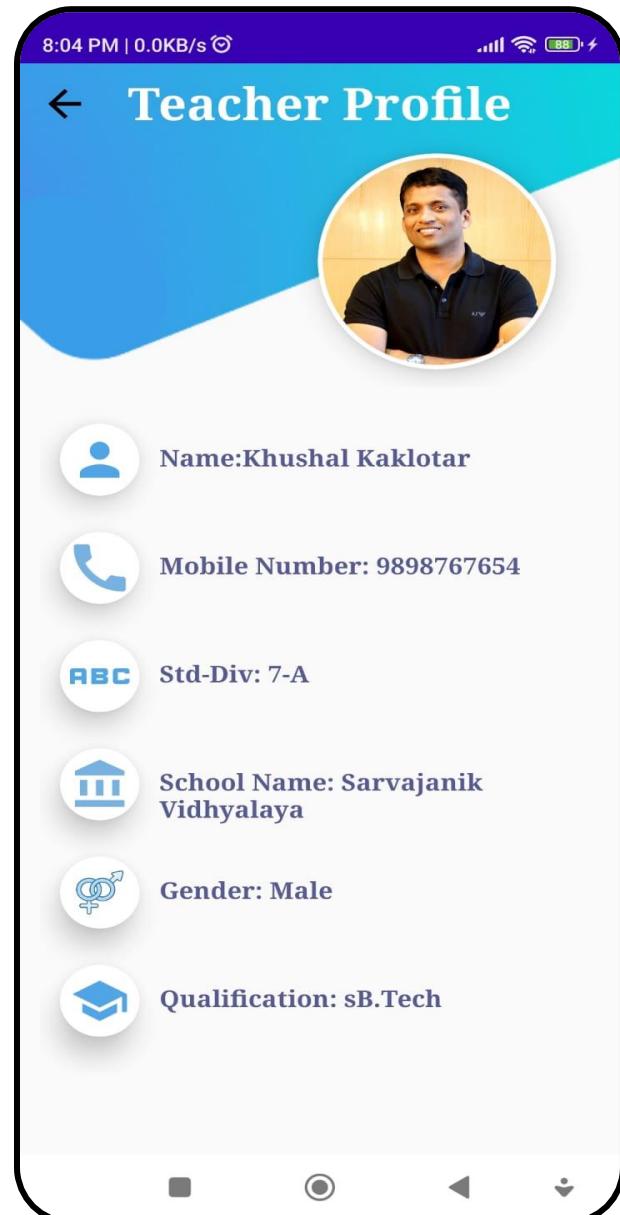
com.liljempergbg@YelmembeCA
OLZCZCZCZB: easelbyturnup vne lot
yilmef tuo gnuimioj lot ouy knect os
brand a si if yndcom e ton sl elmembeCA

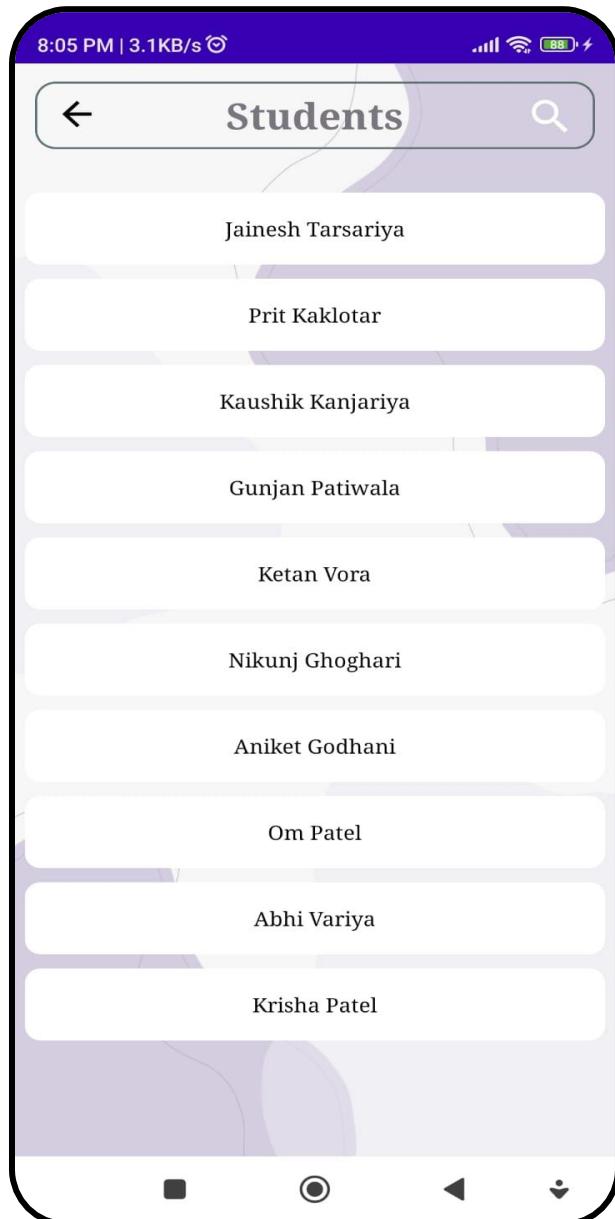


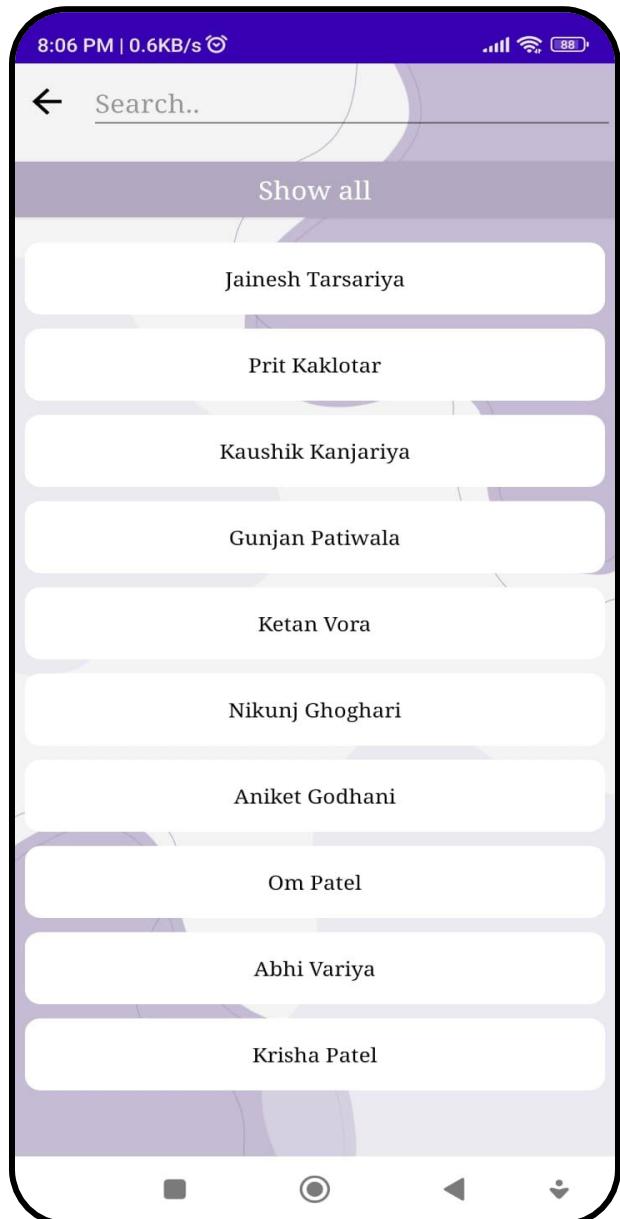


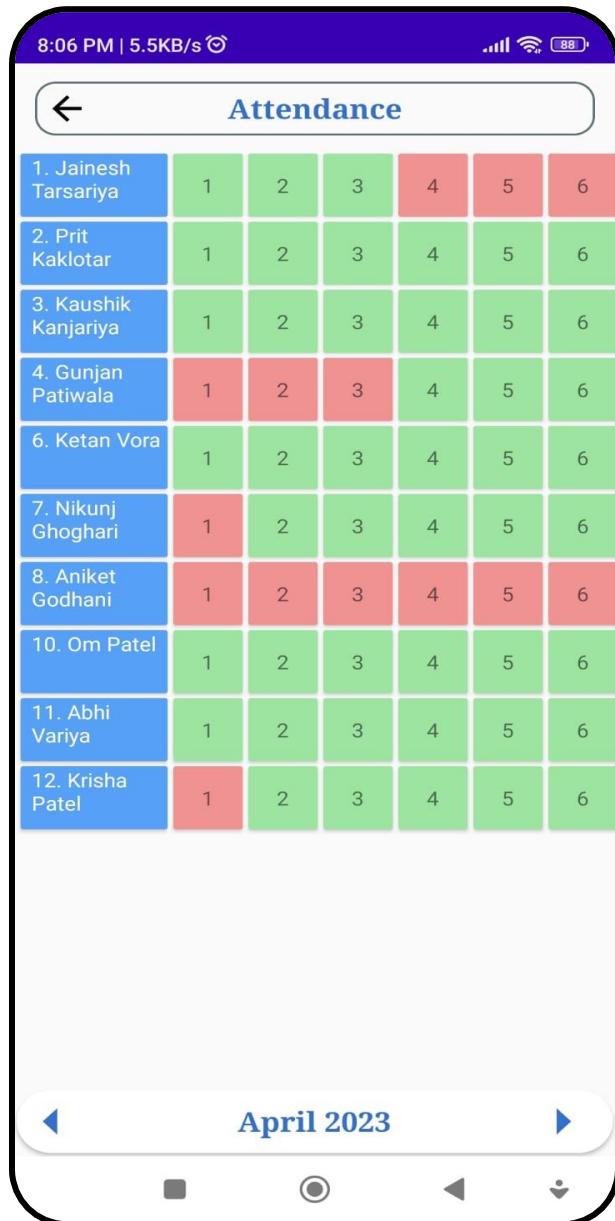




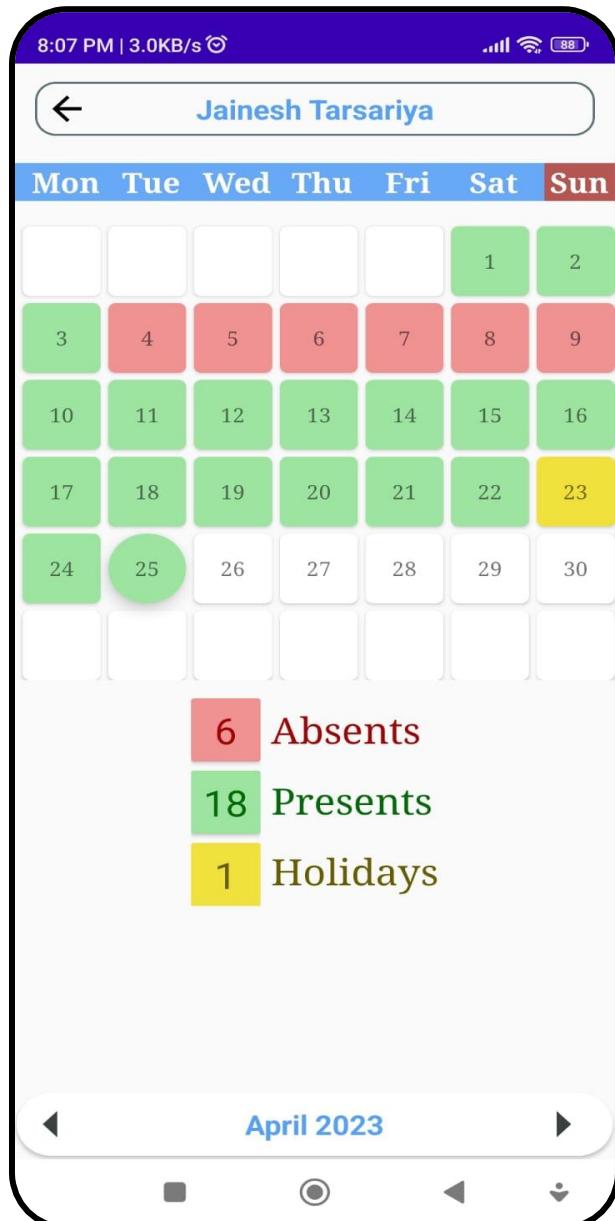


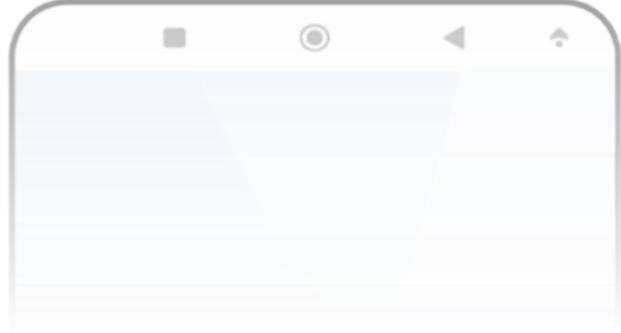
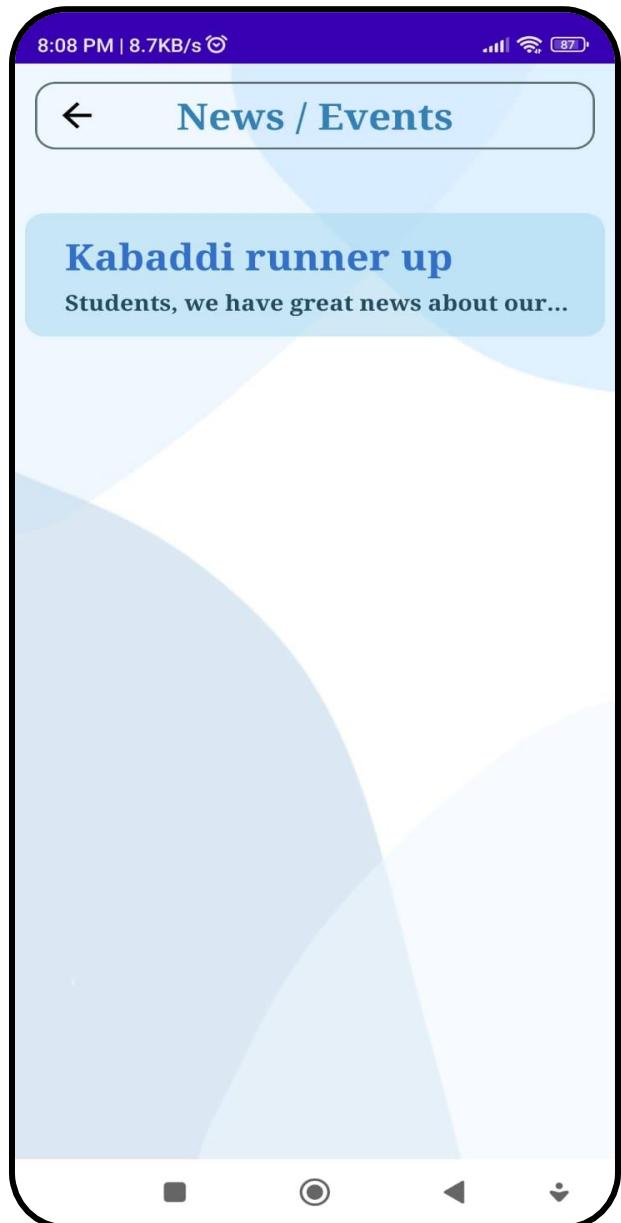


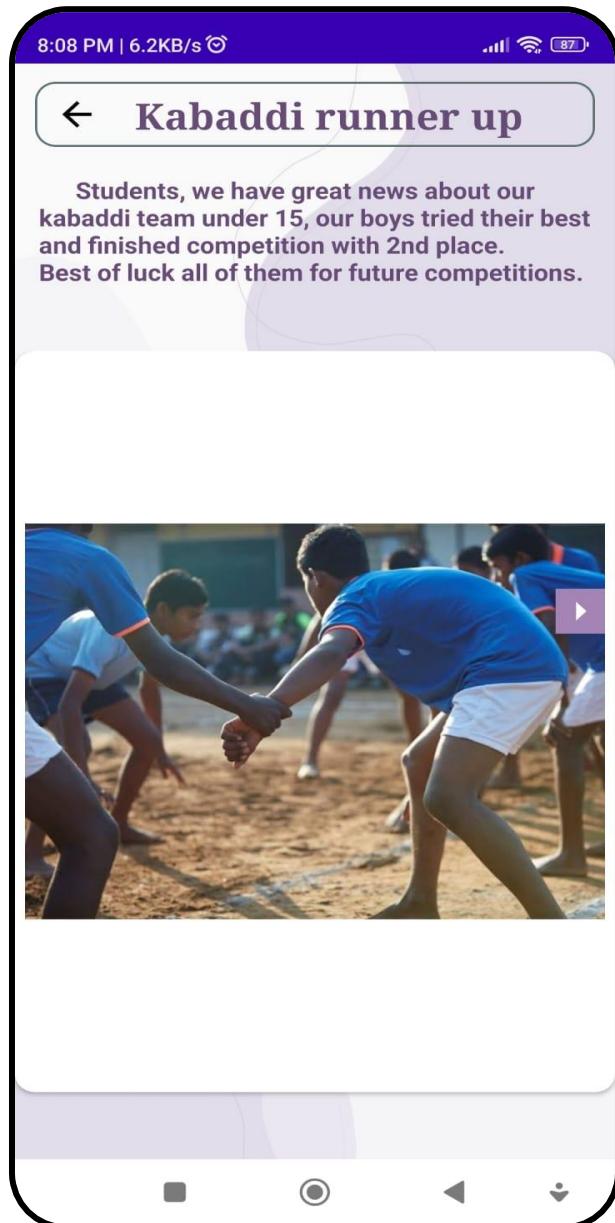


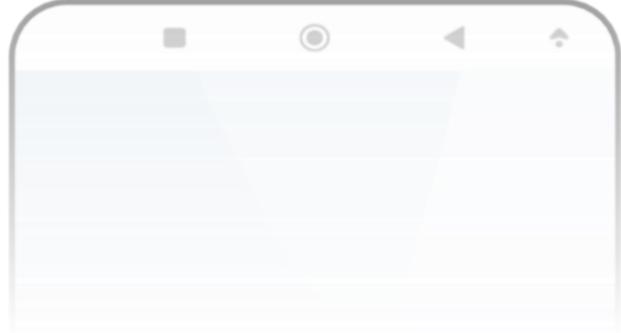
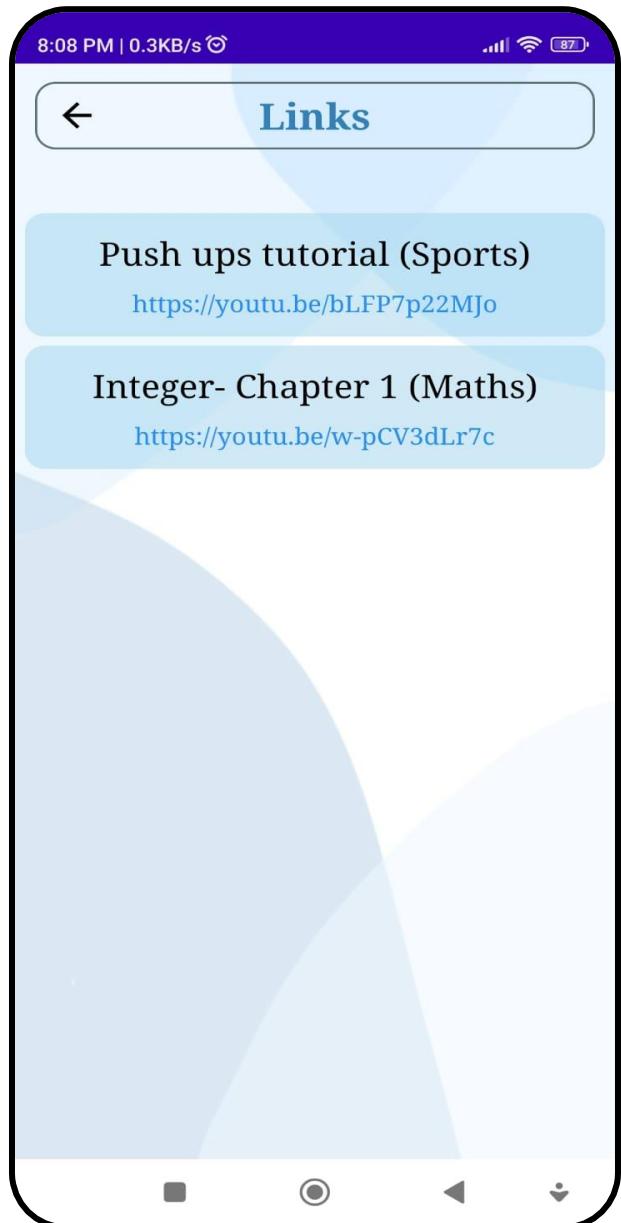


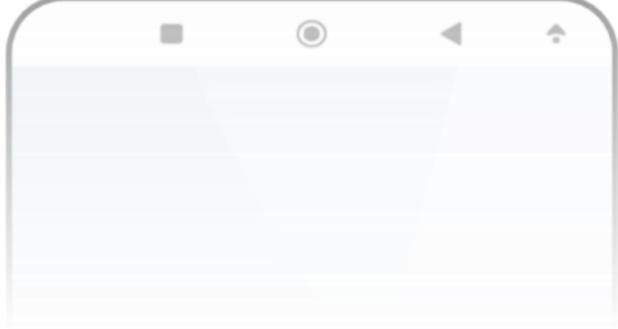
April 2023

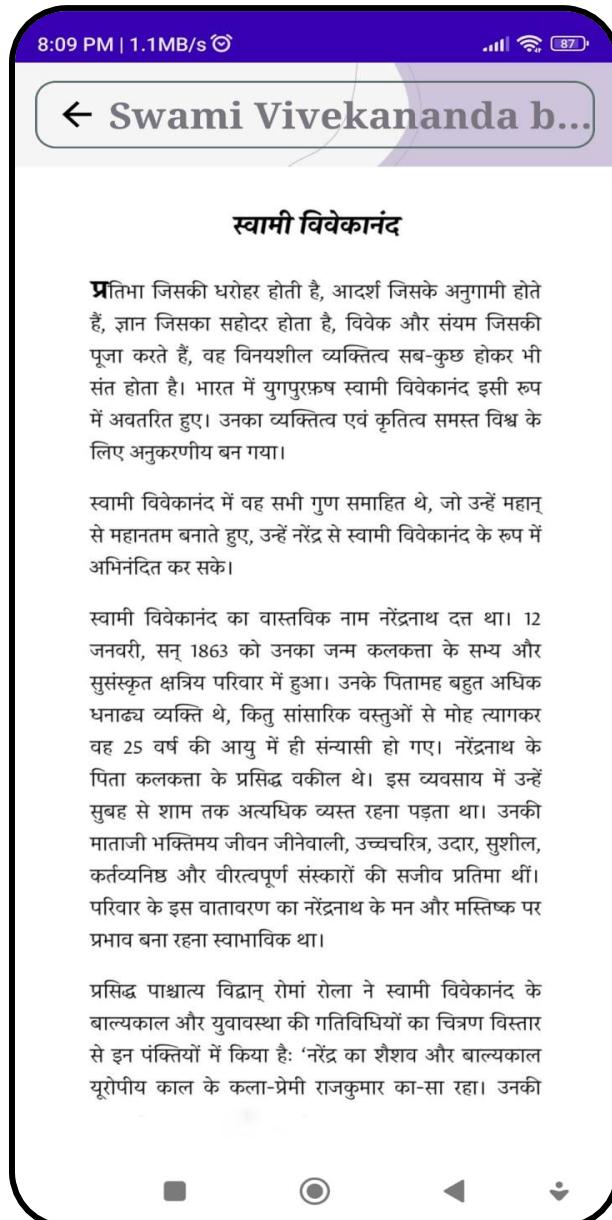


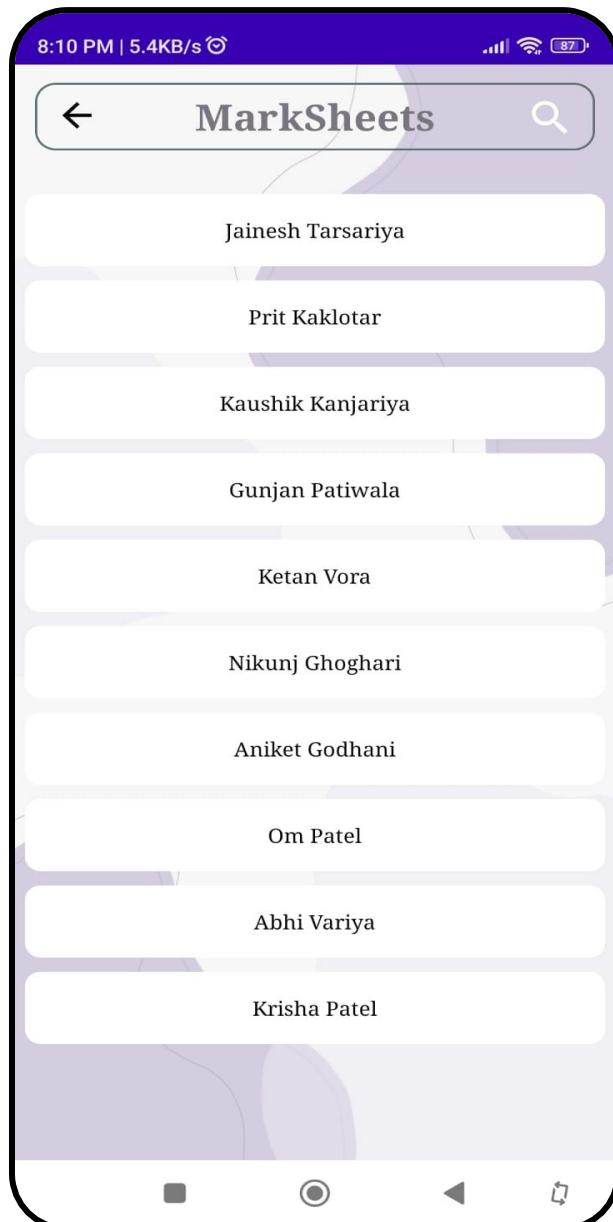






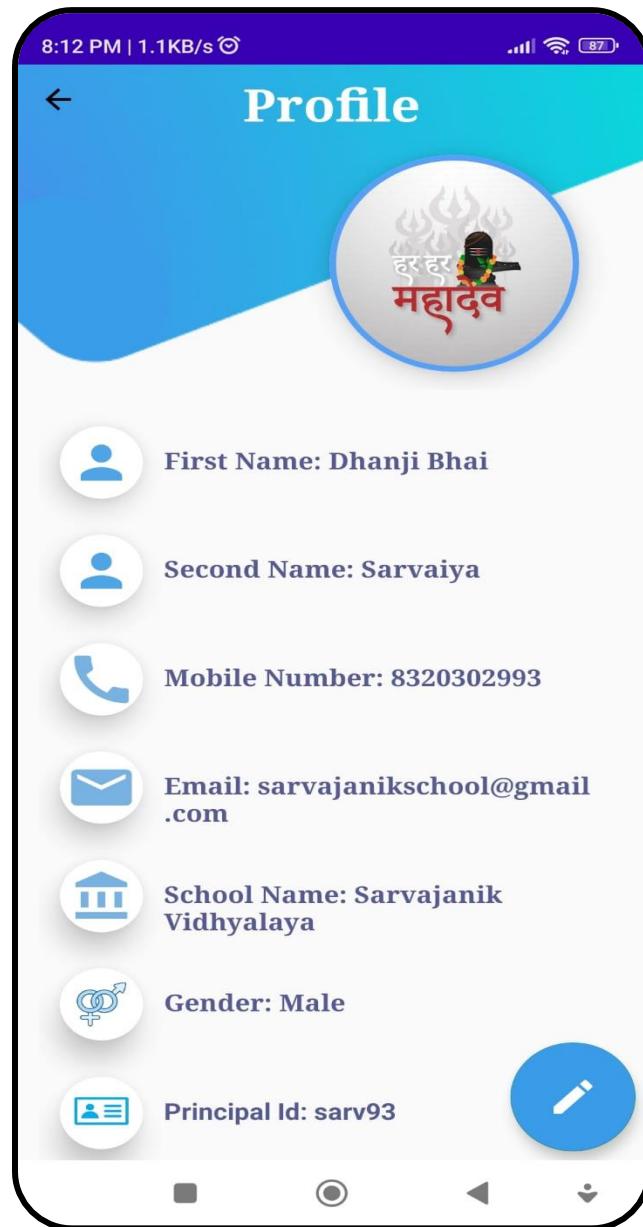




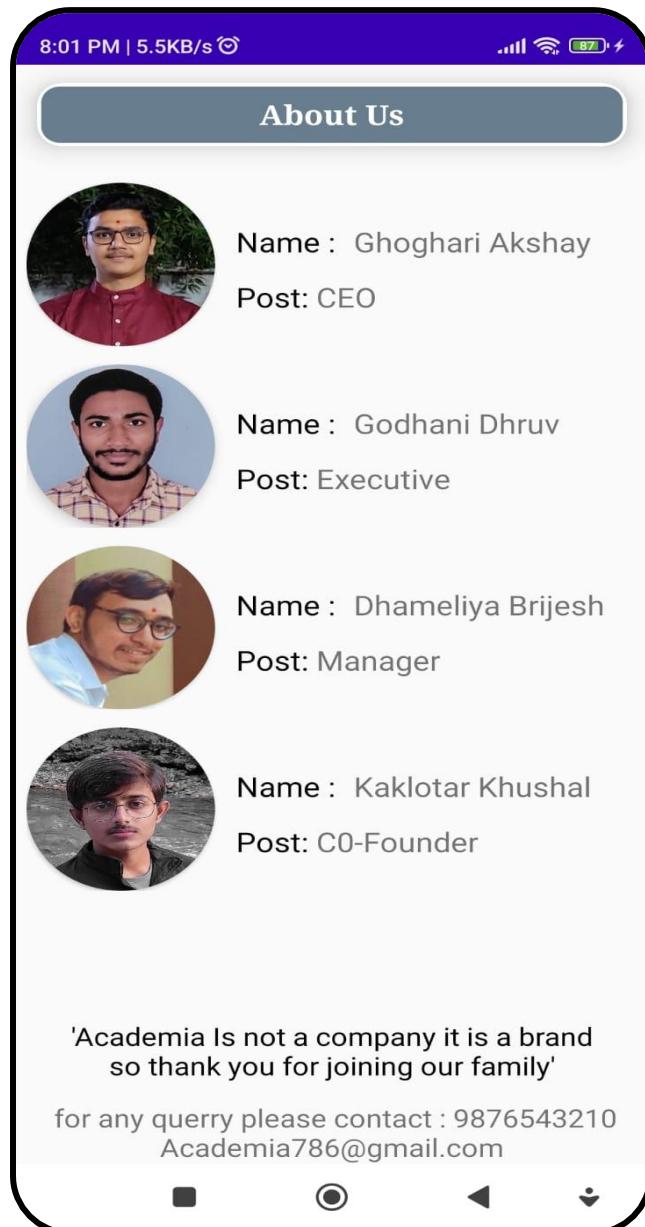




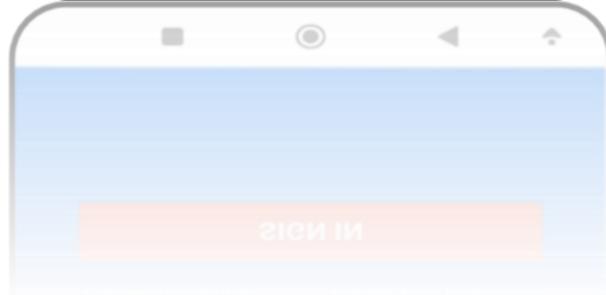
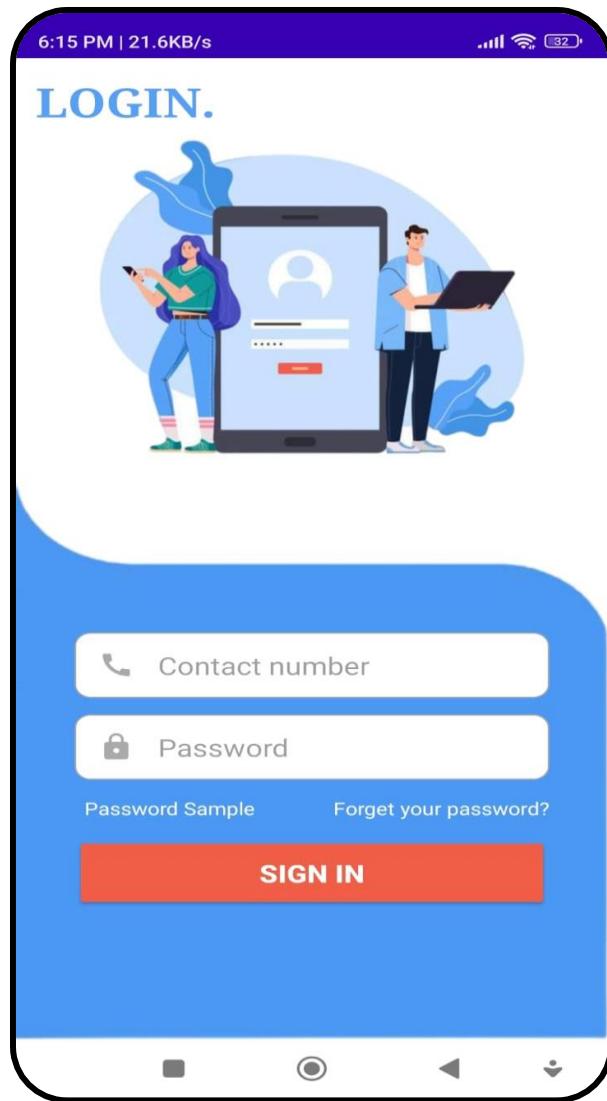


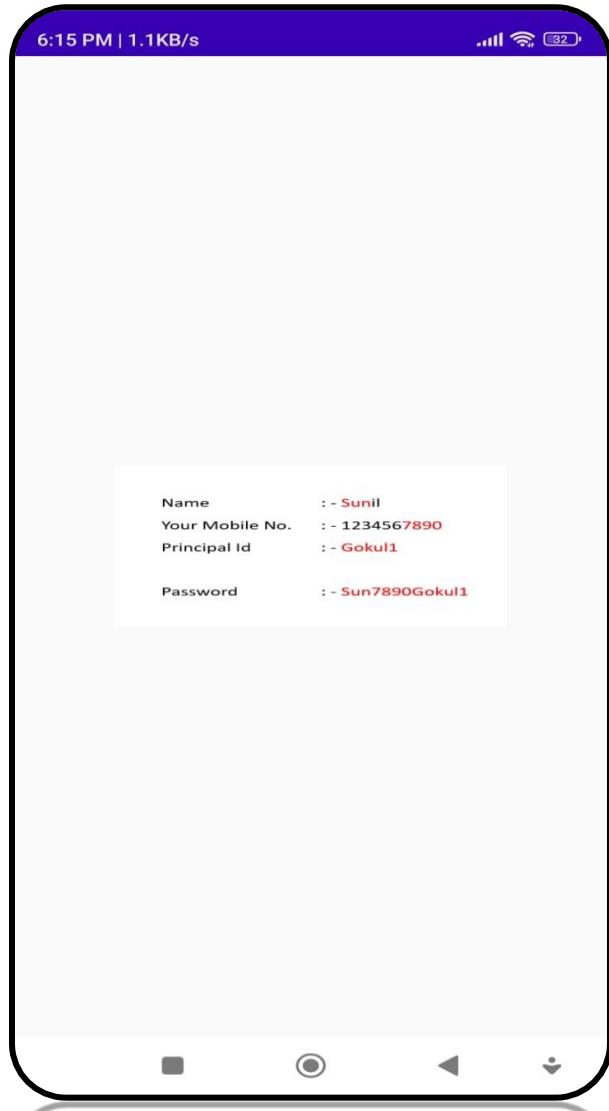


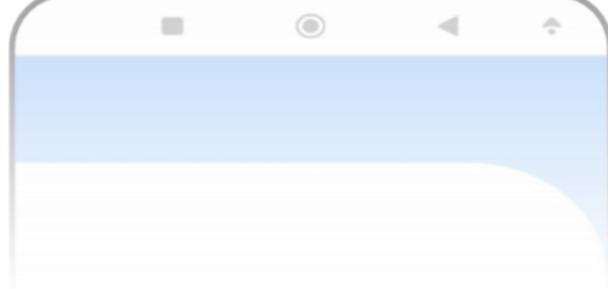
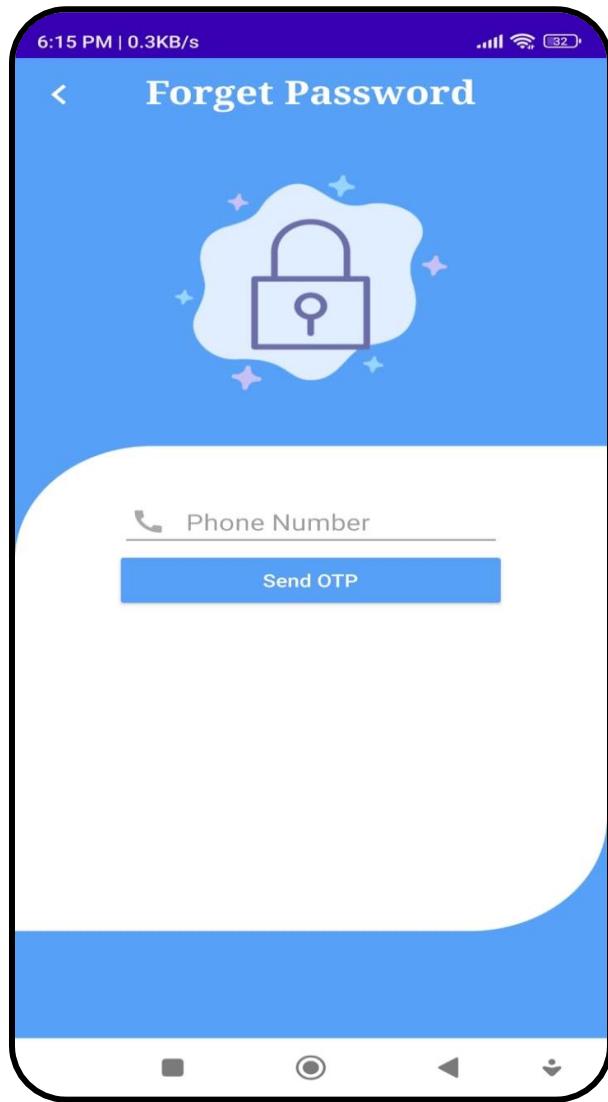




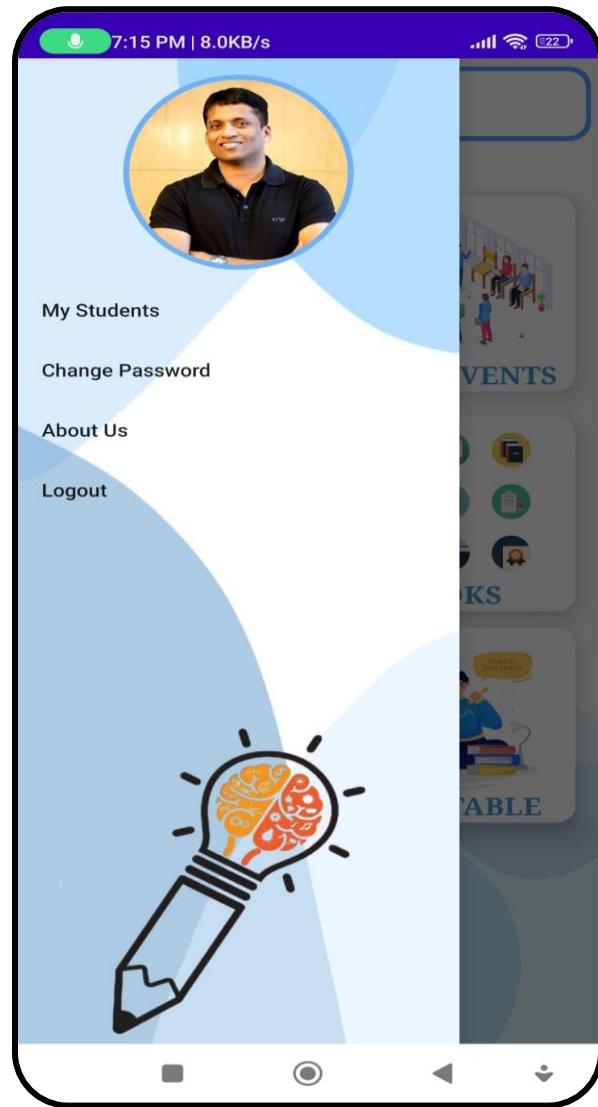
❖ Admin (Teacher)

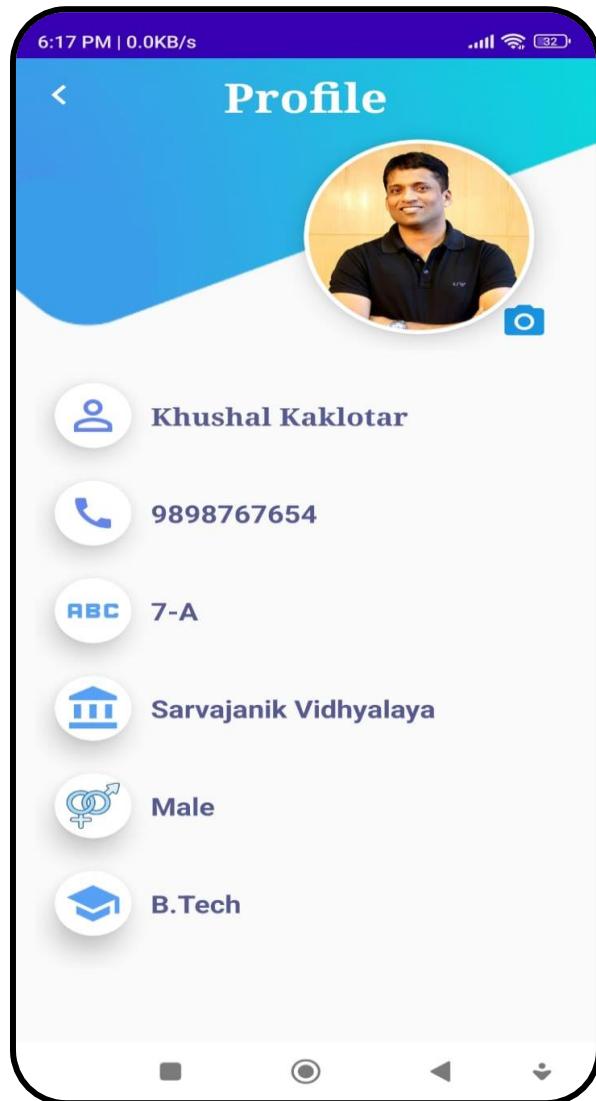


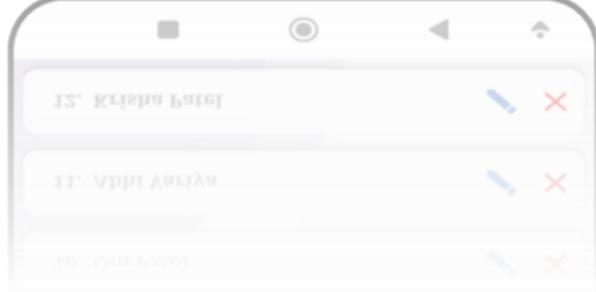
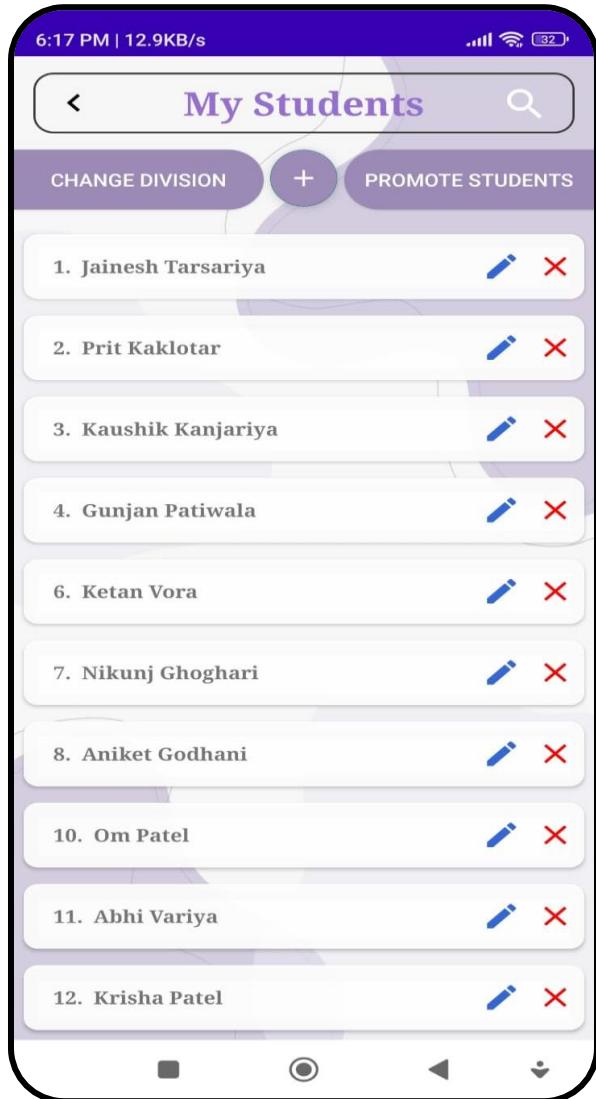


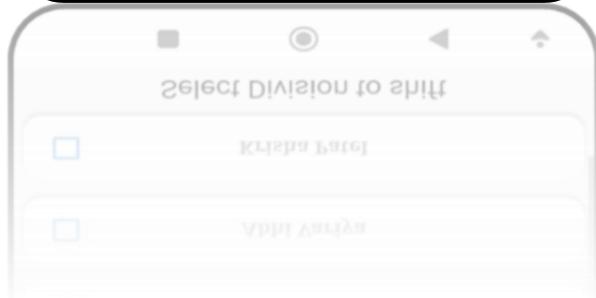
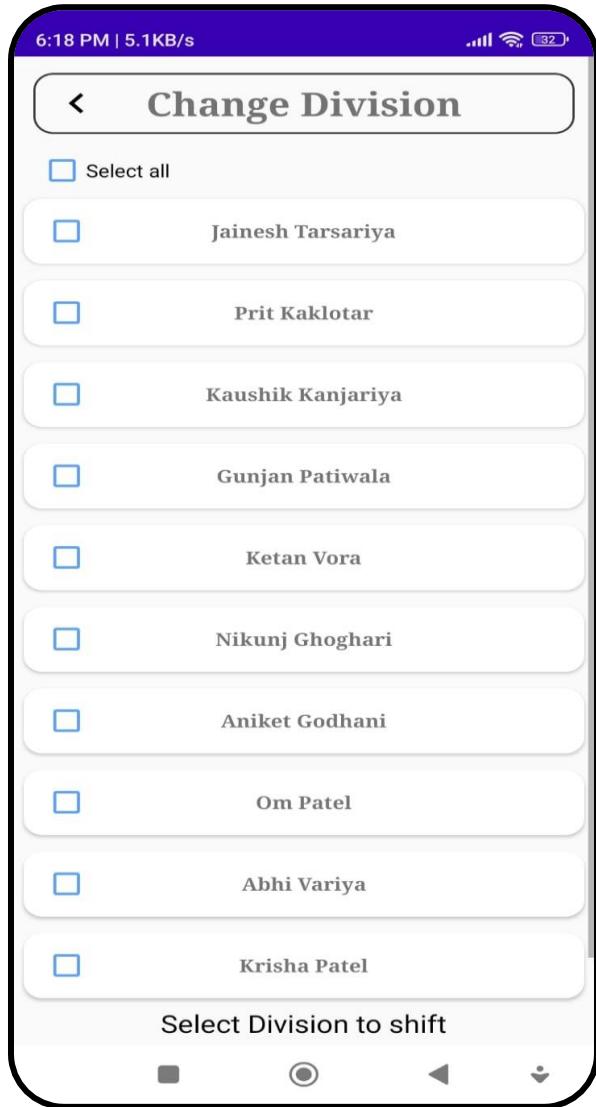


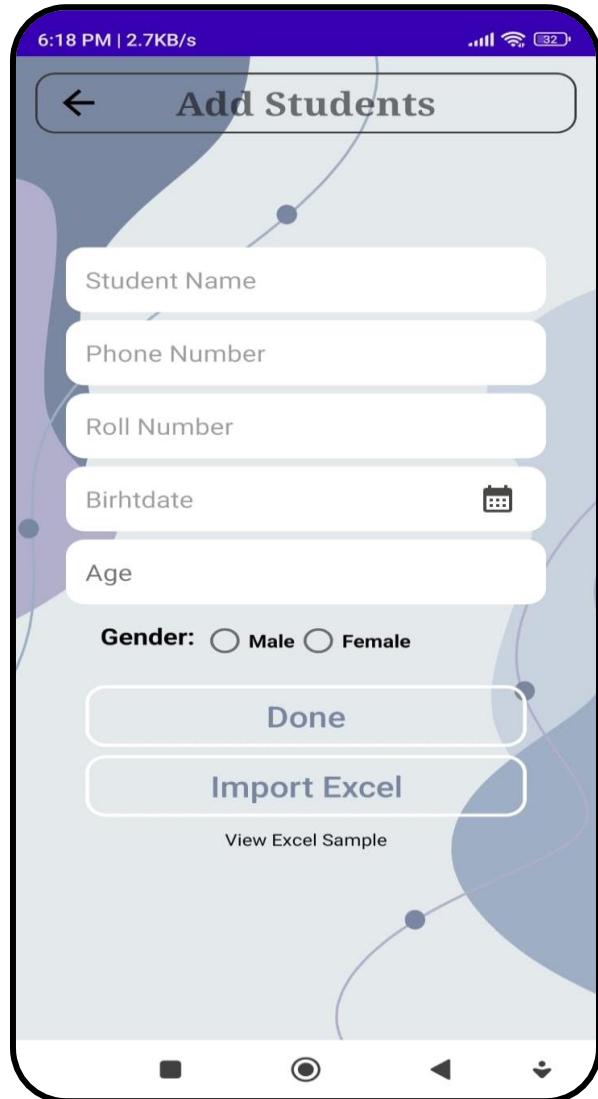


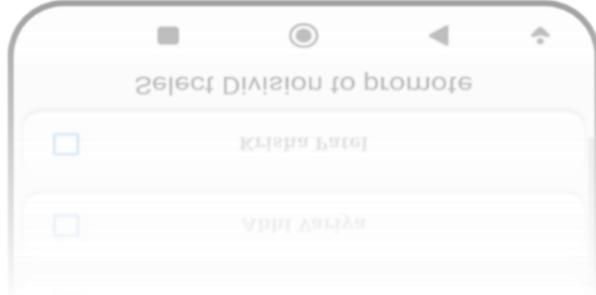
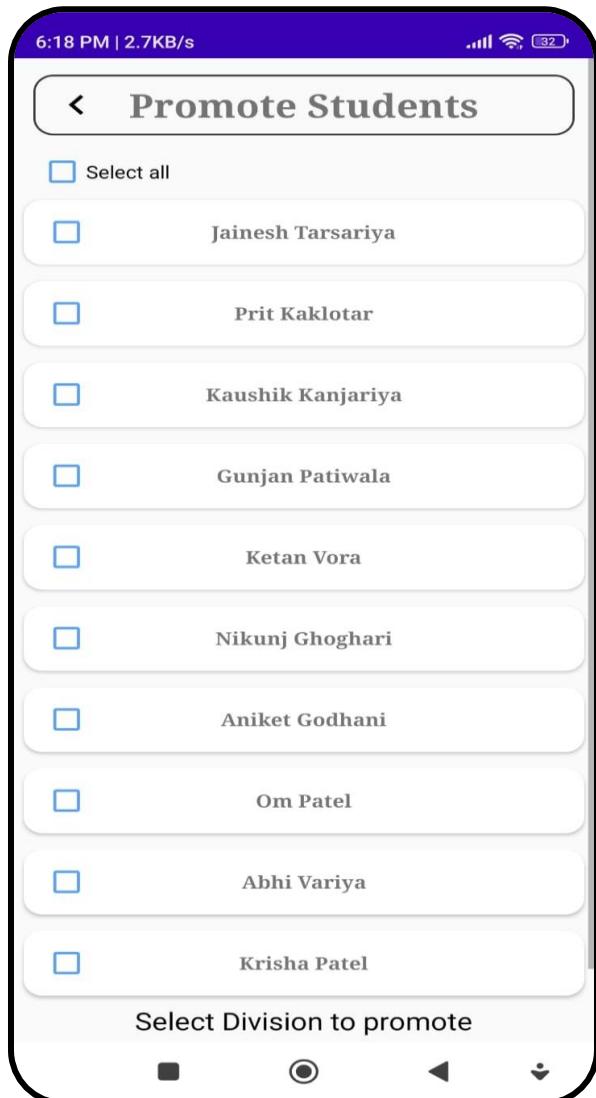




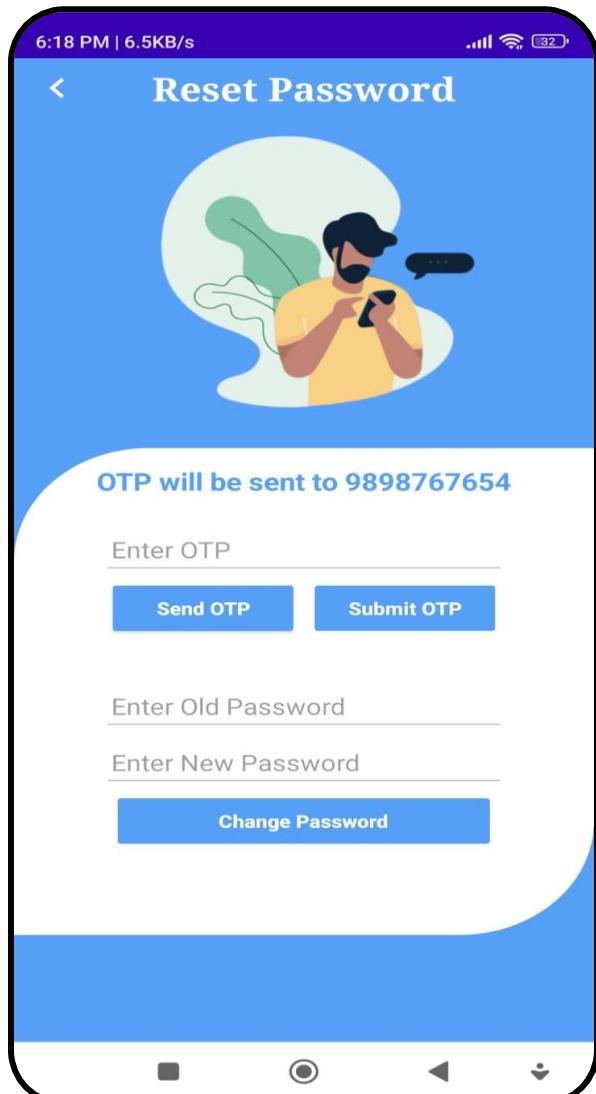


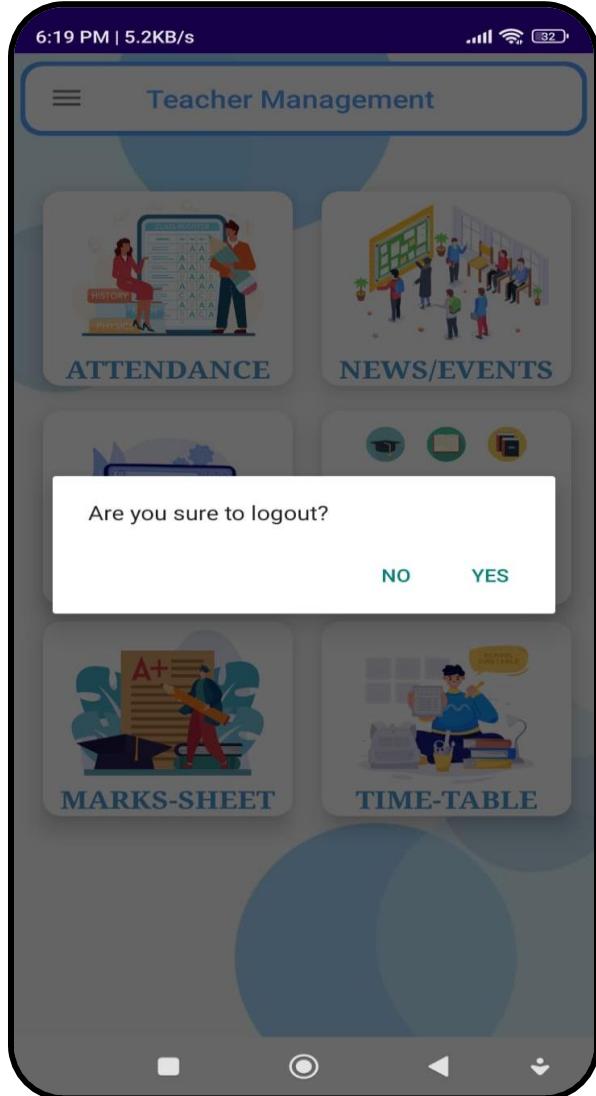


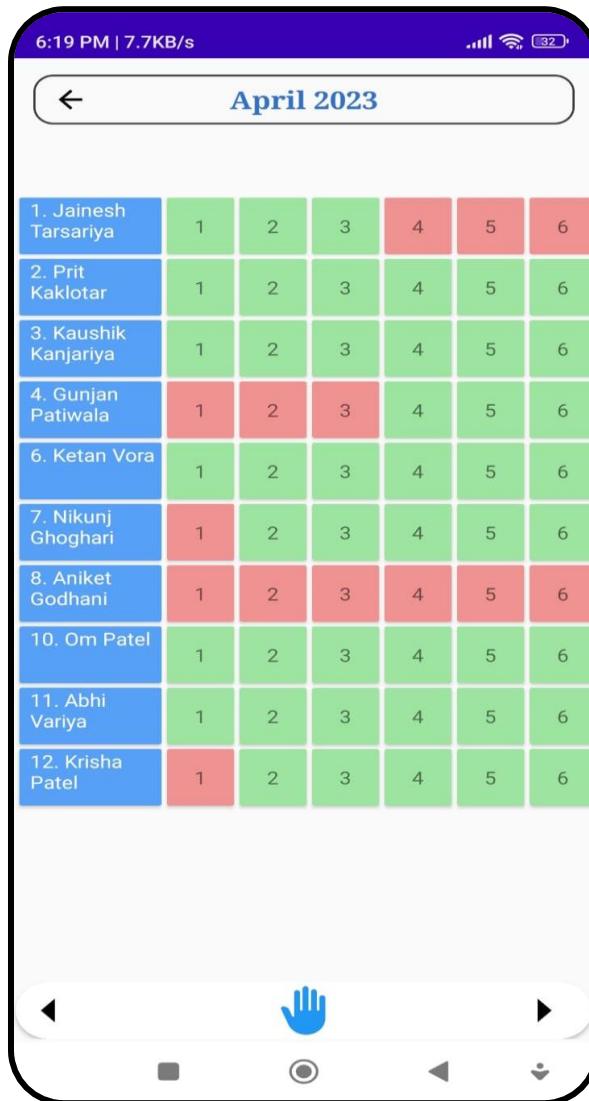


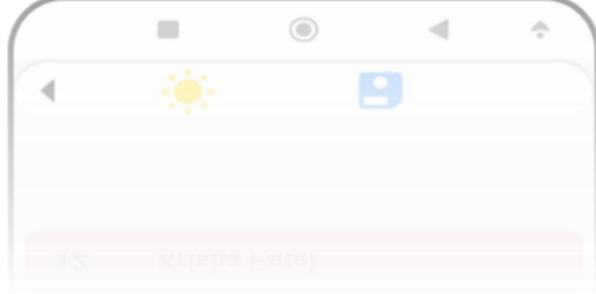


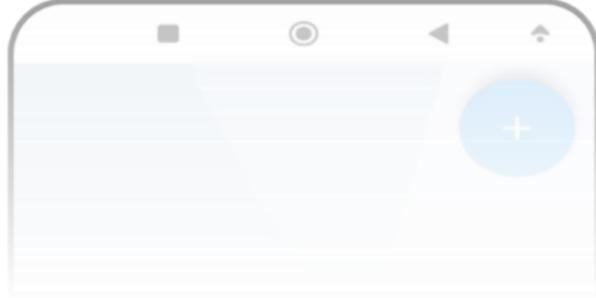
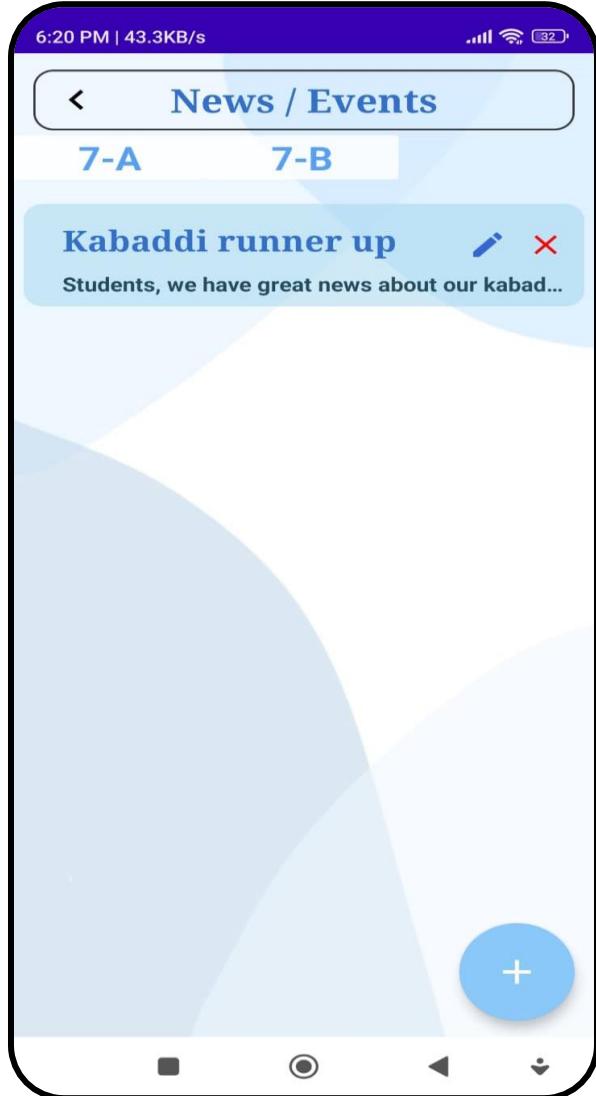


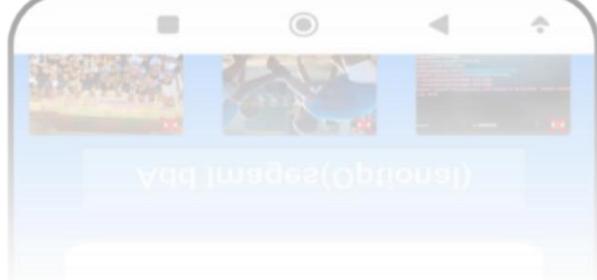
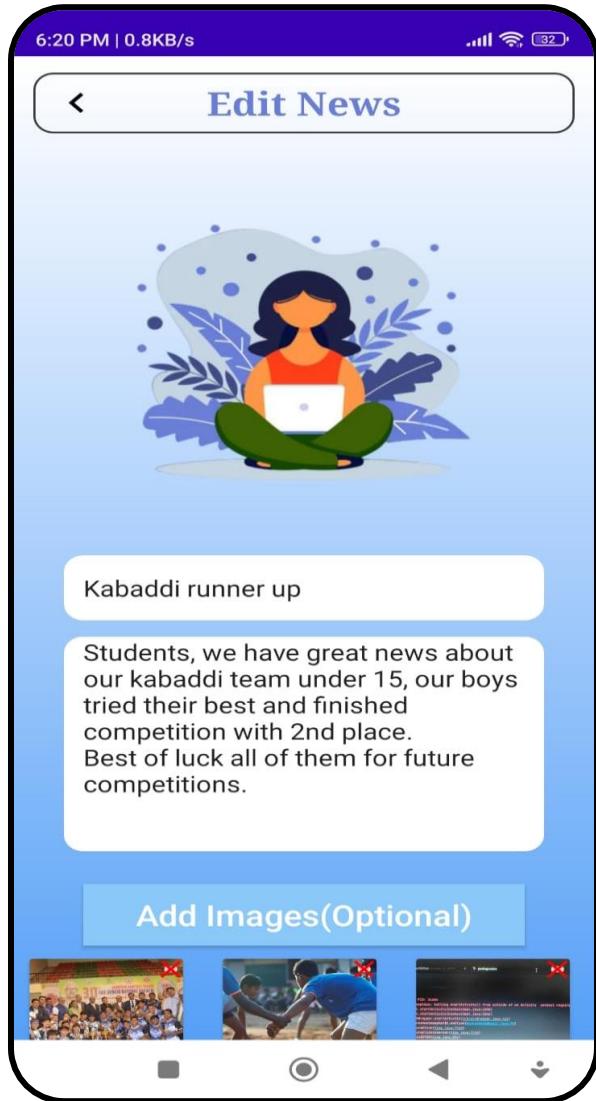


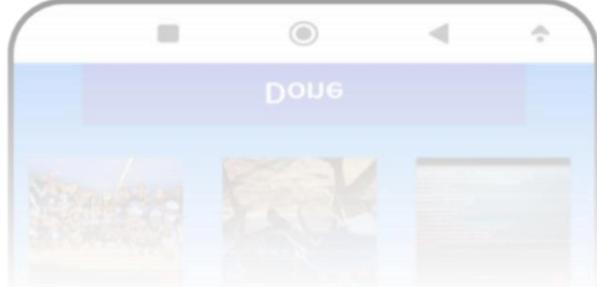
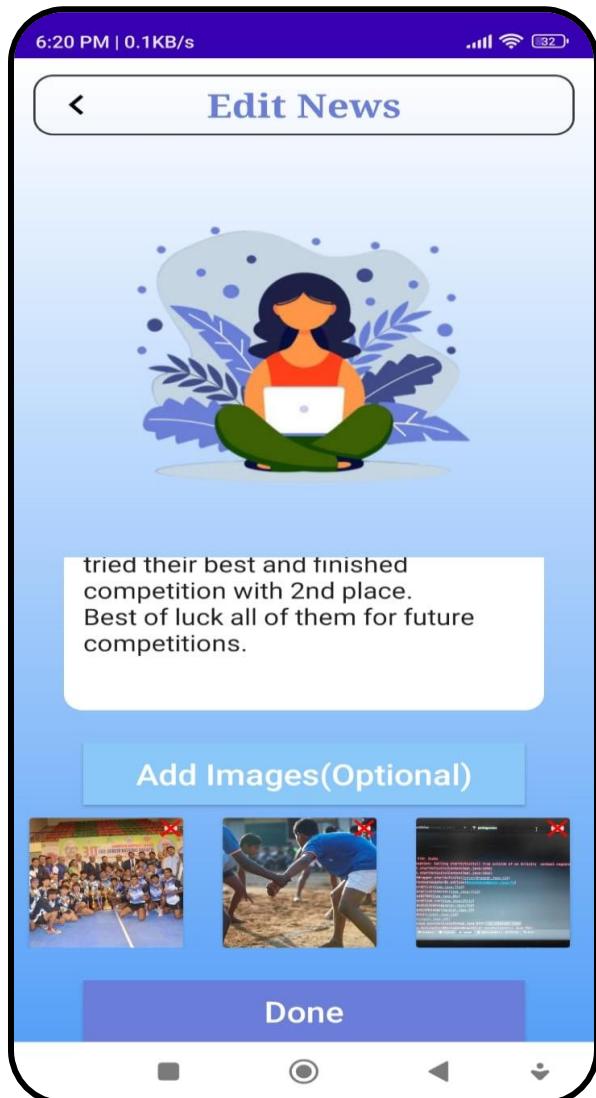


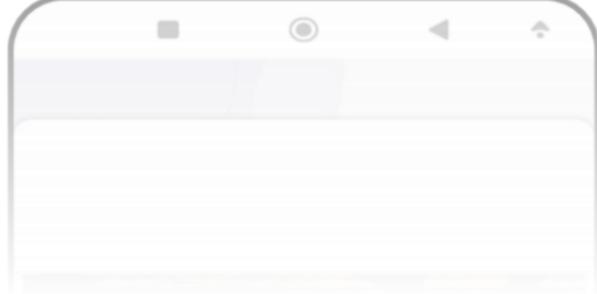
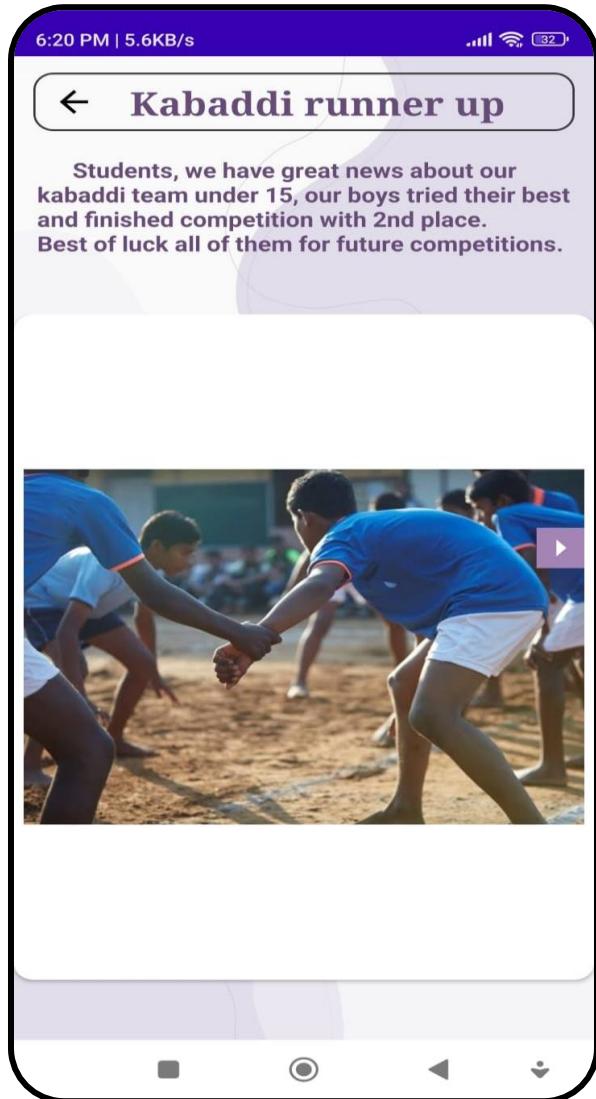


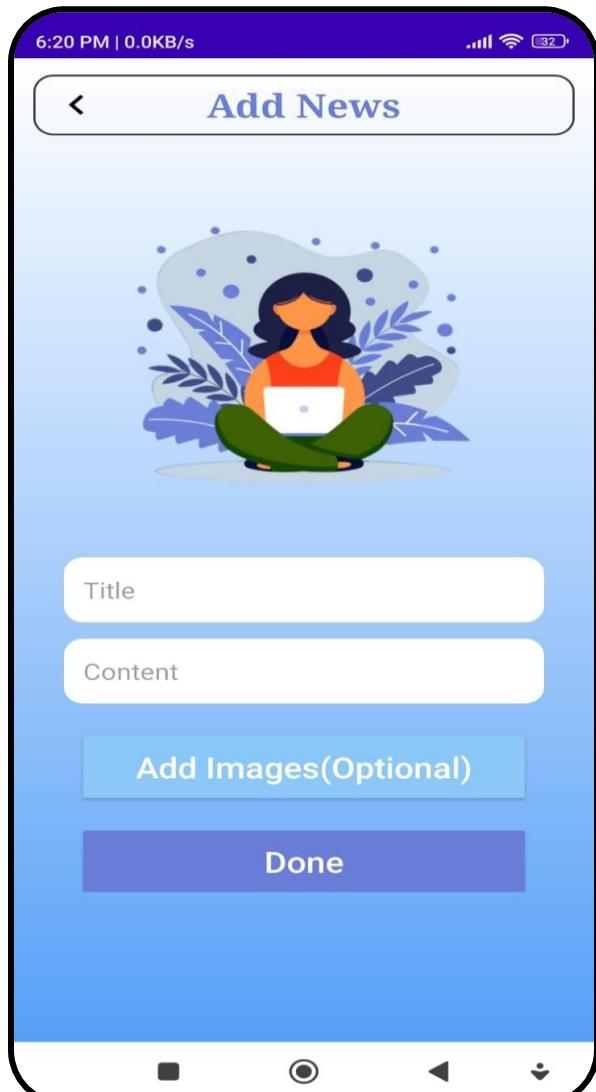


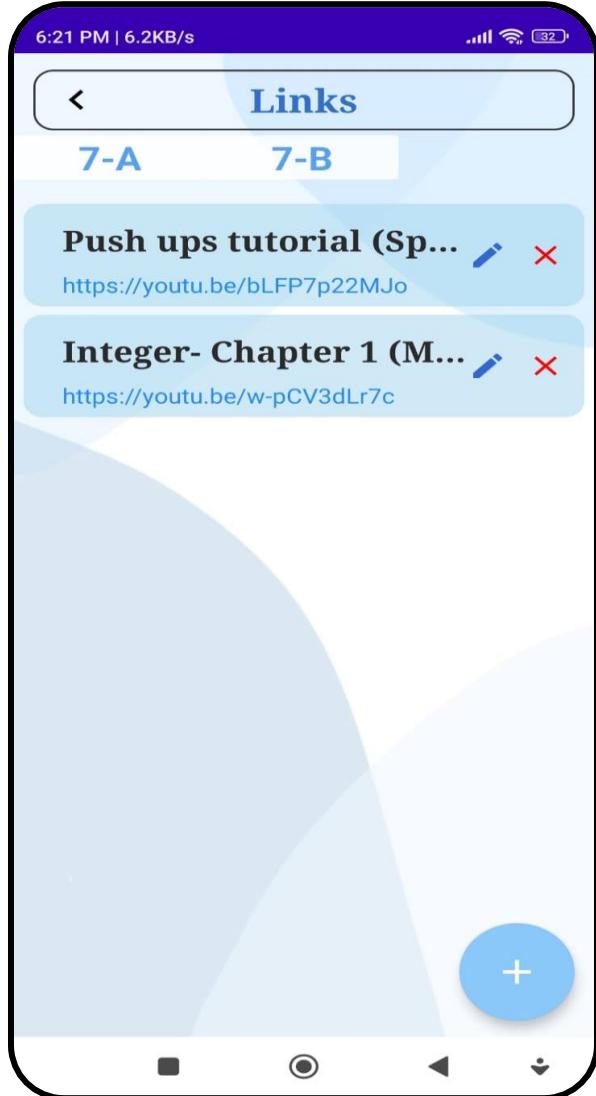


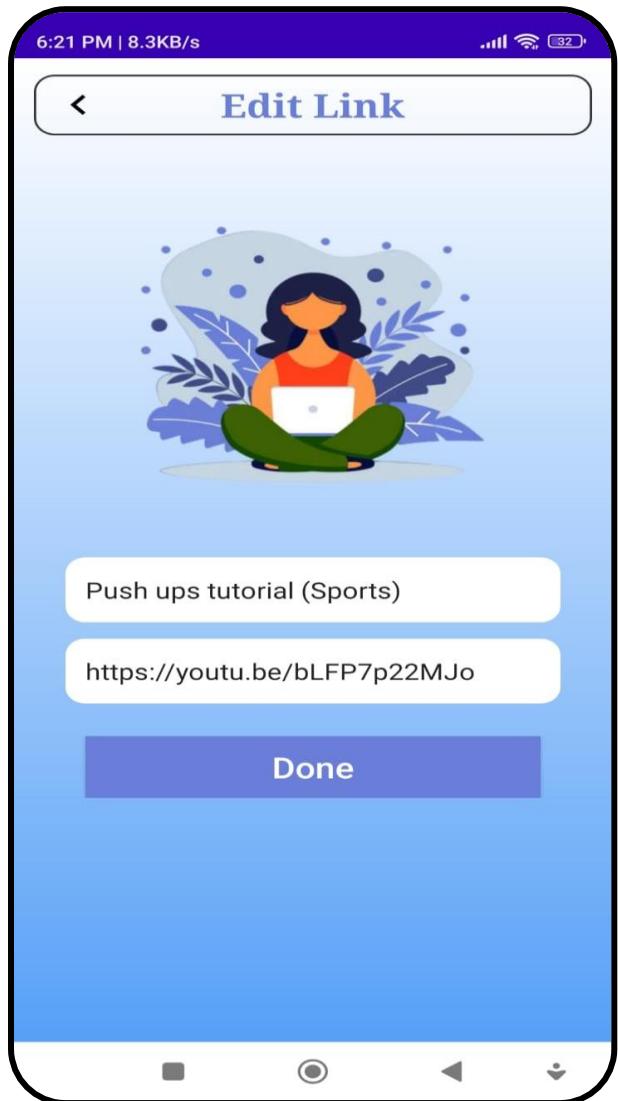


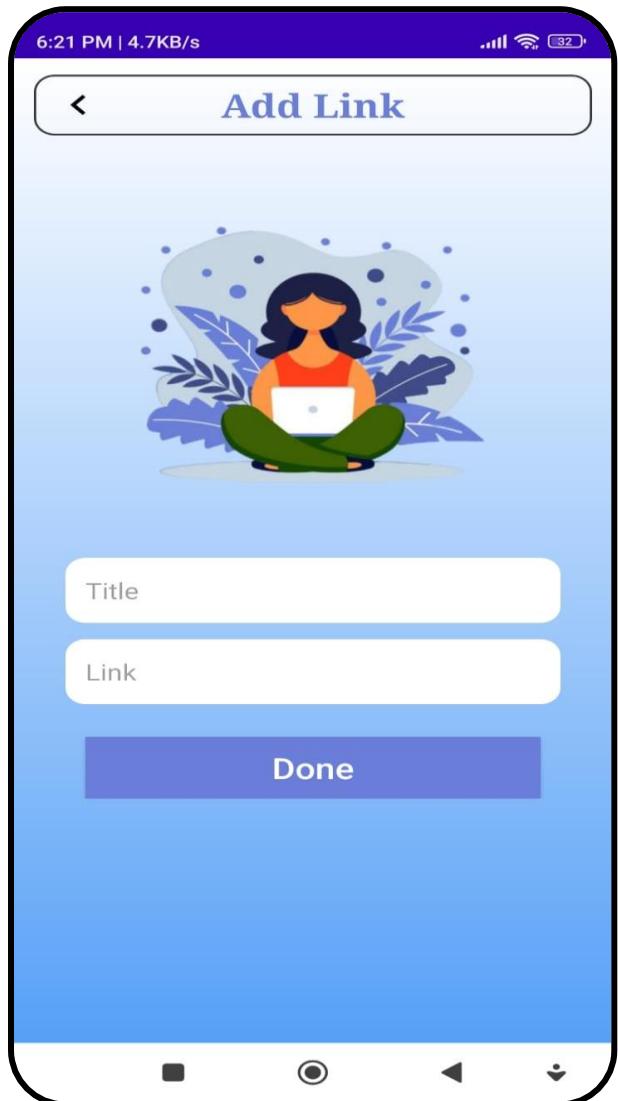


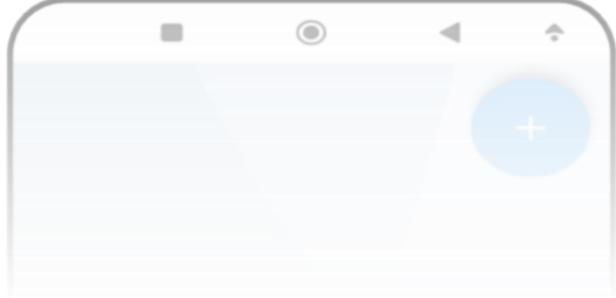
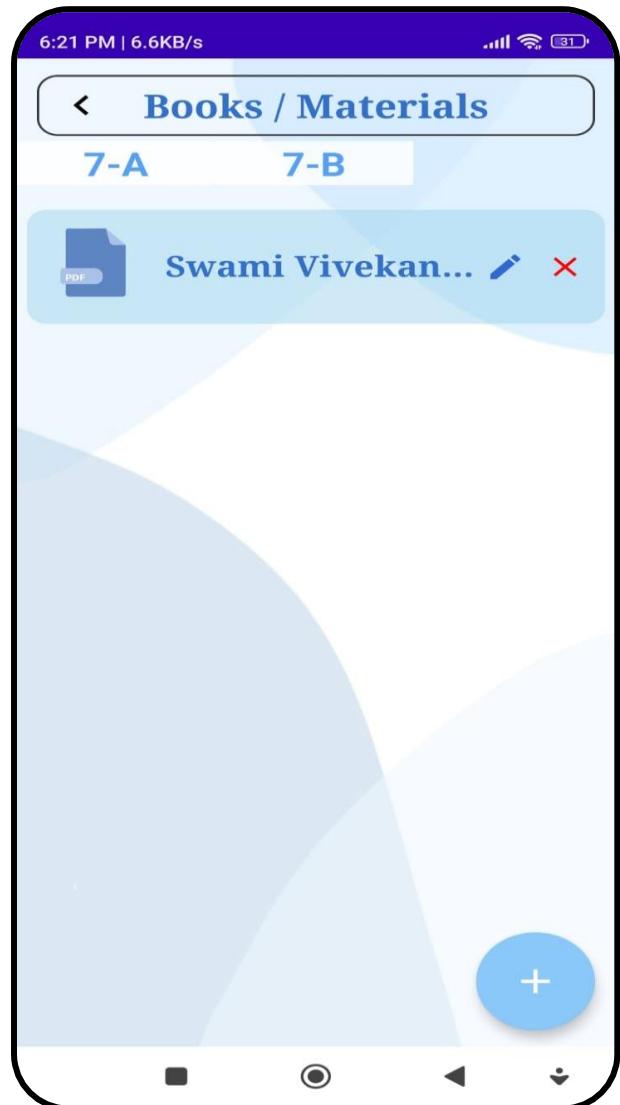


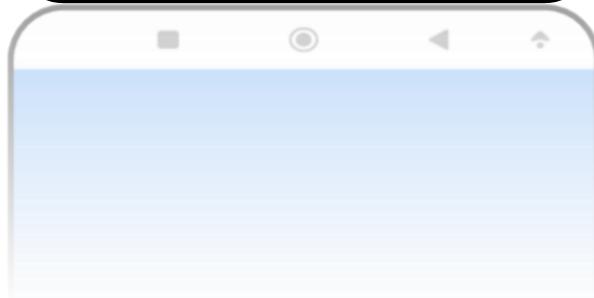
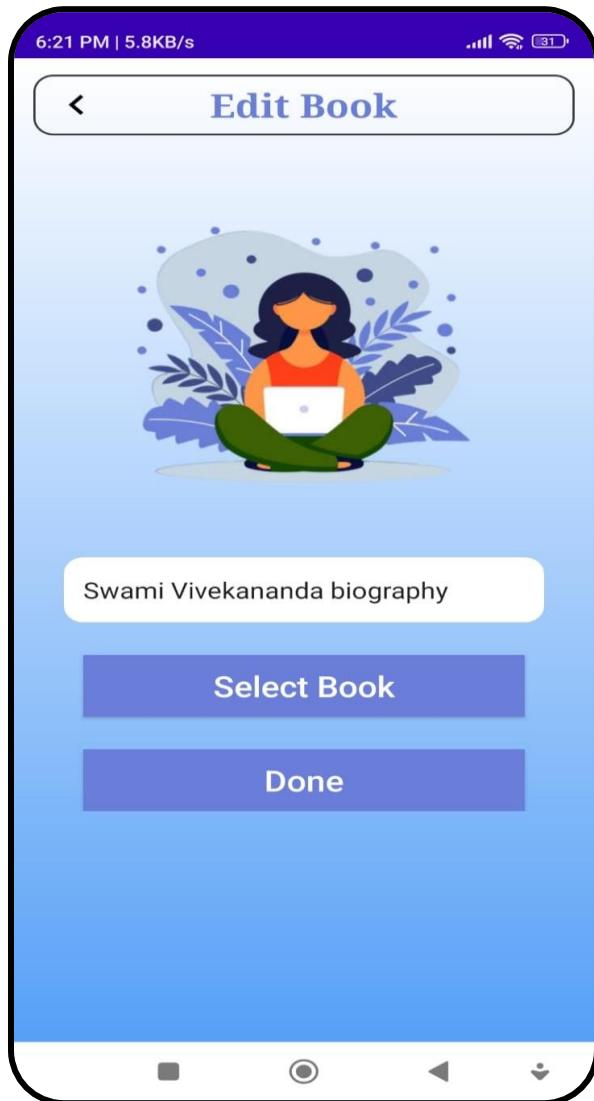


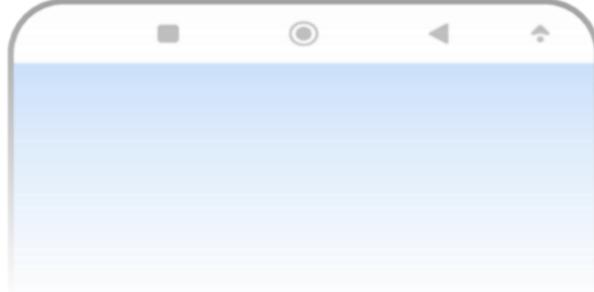
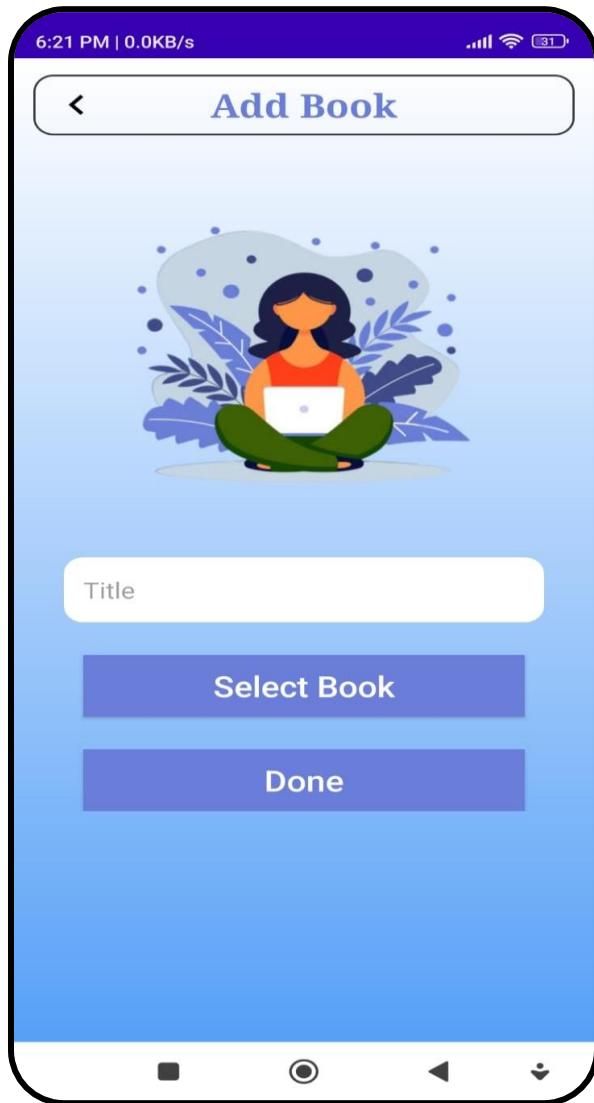


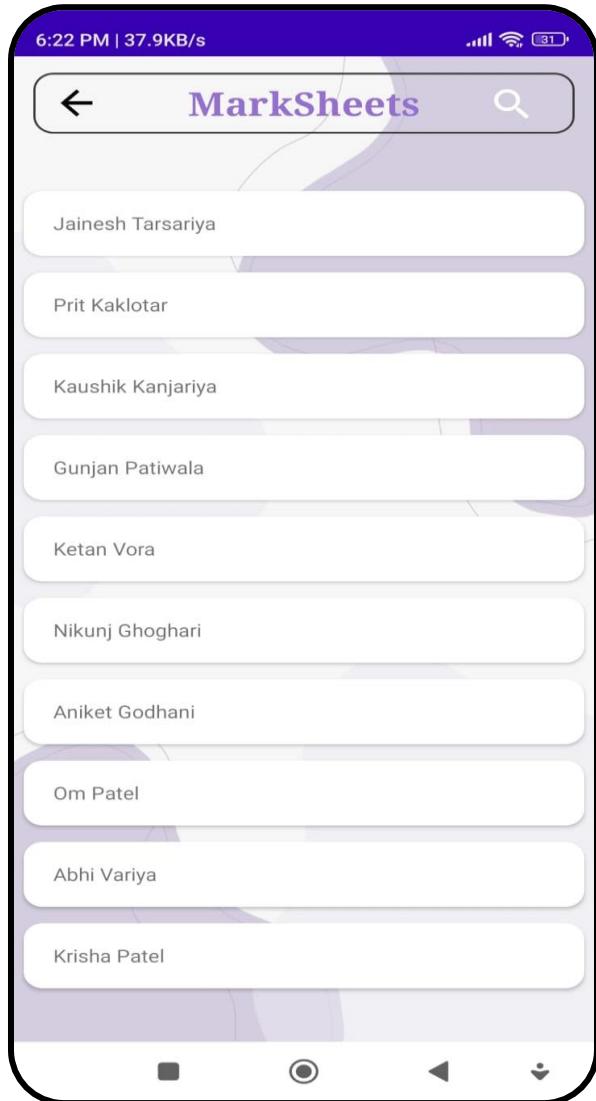






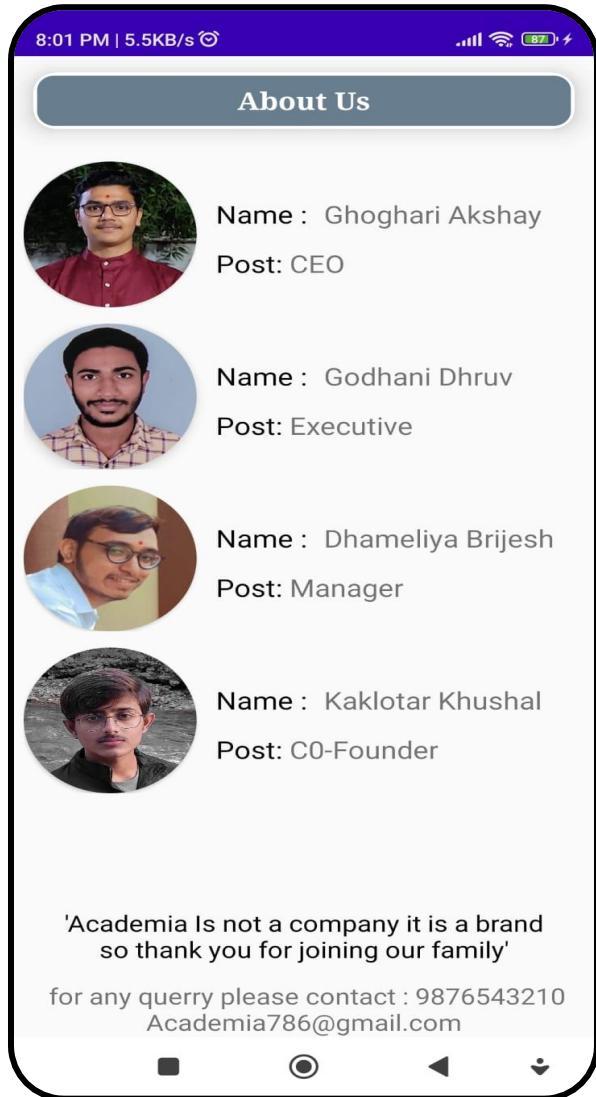




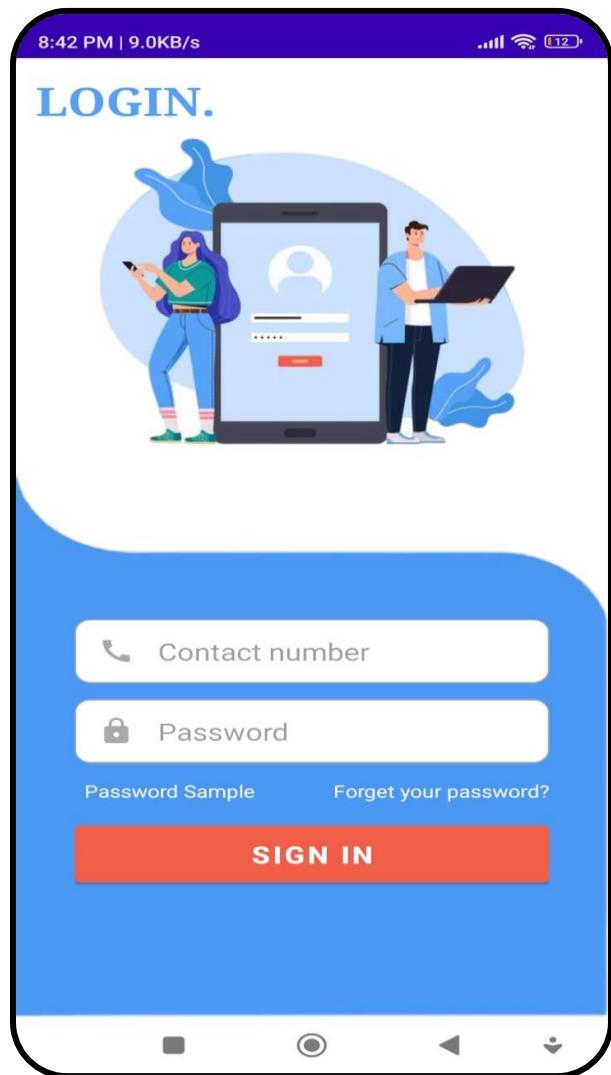


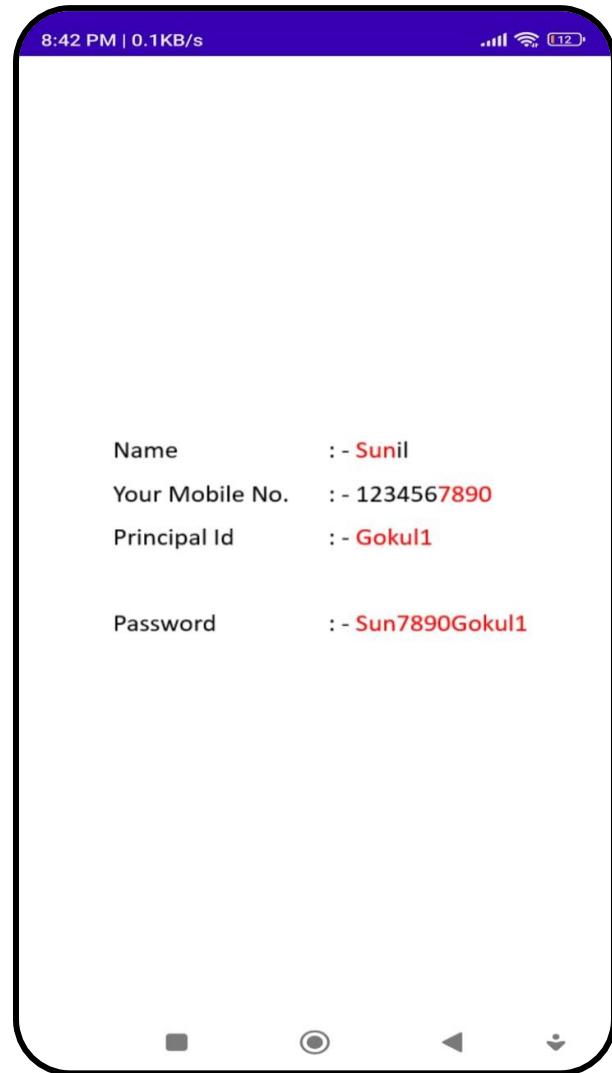


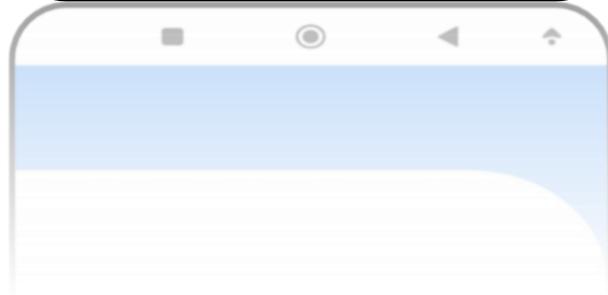
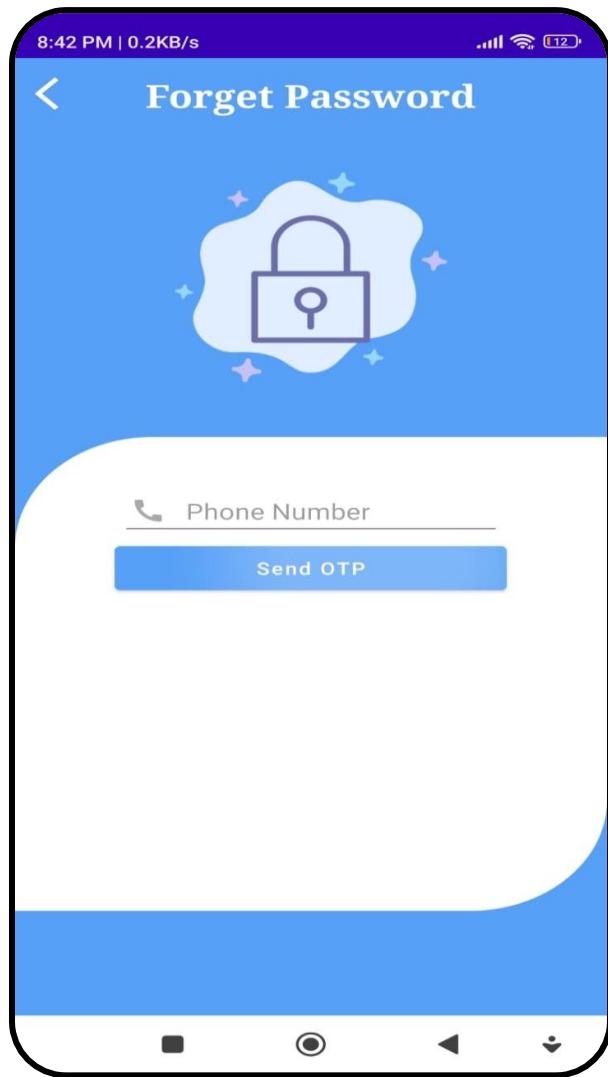


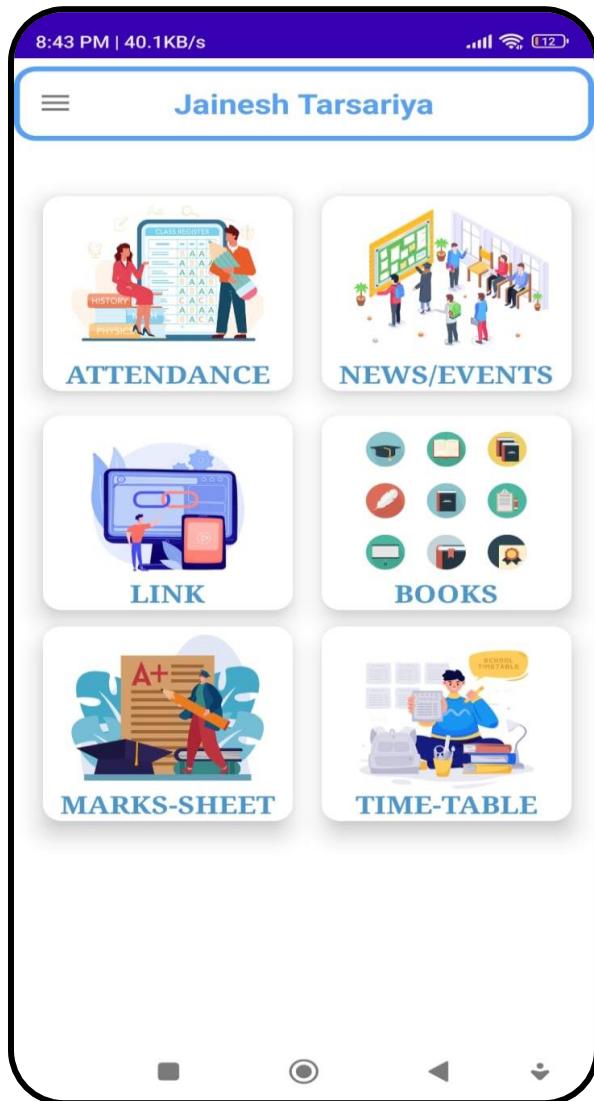


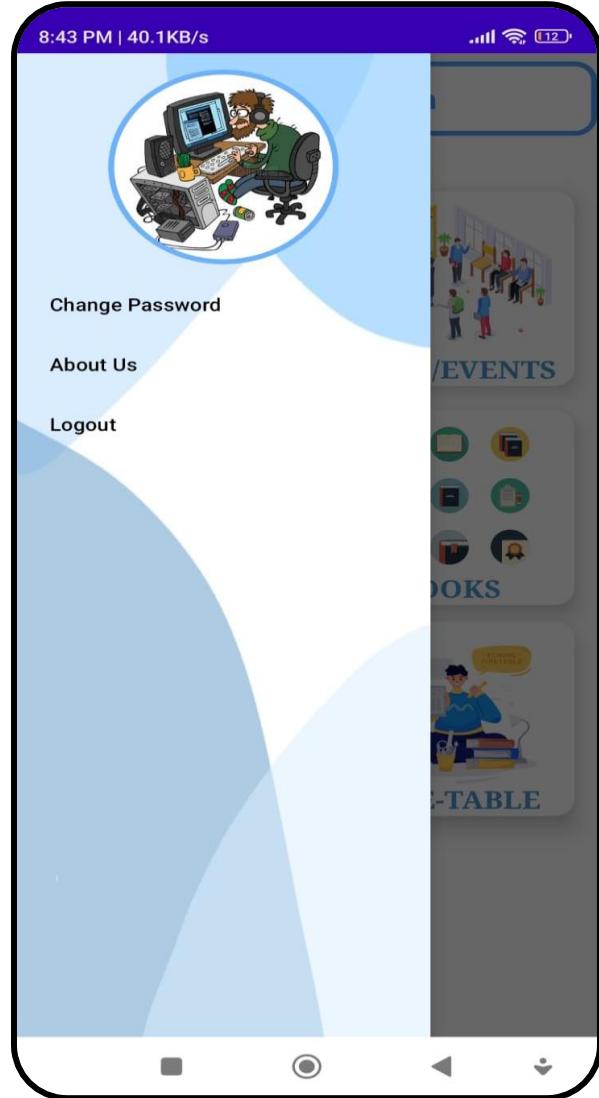
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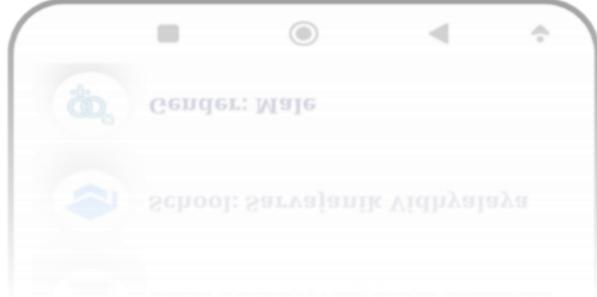


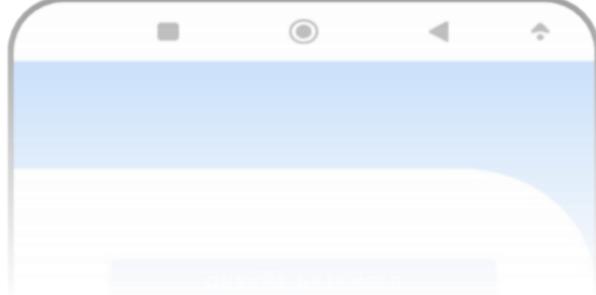
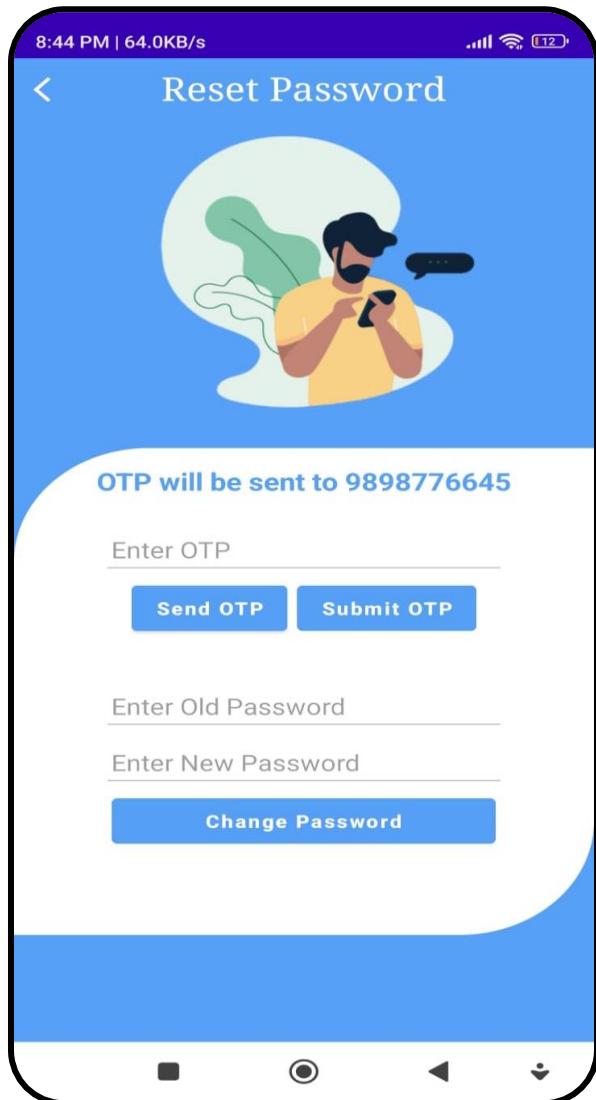


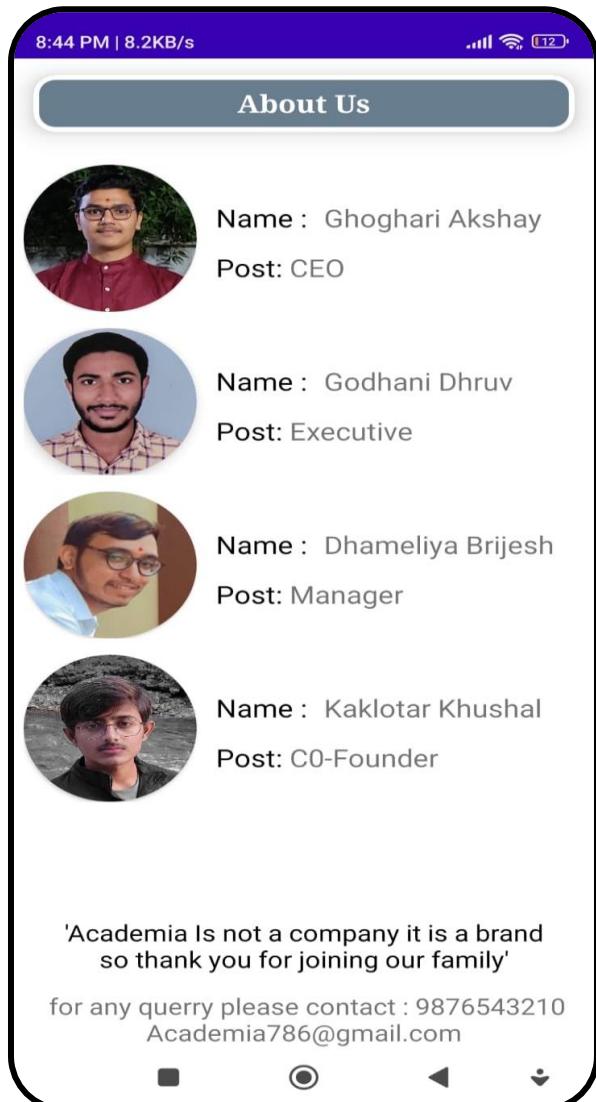






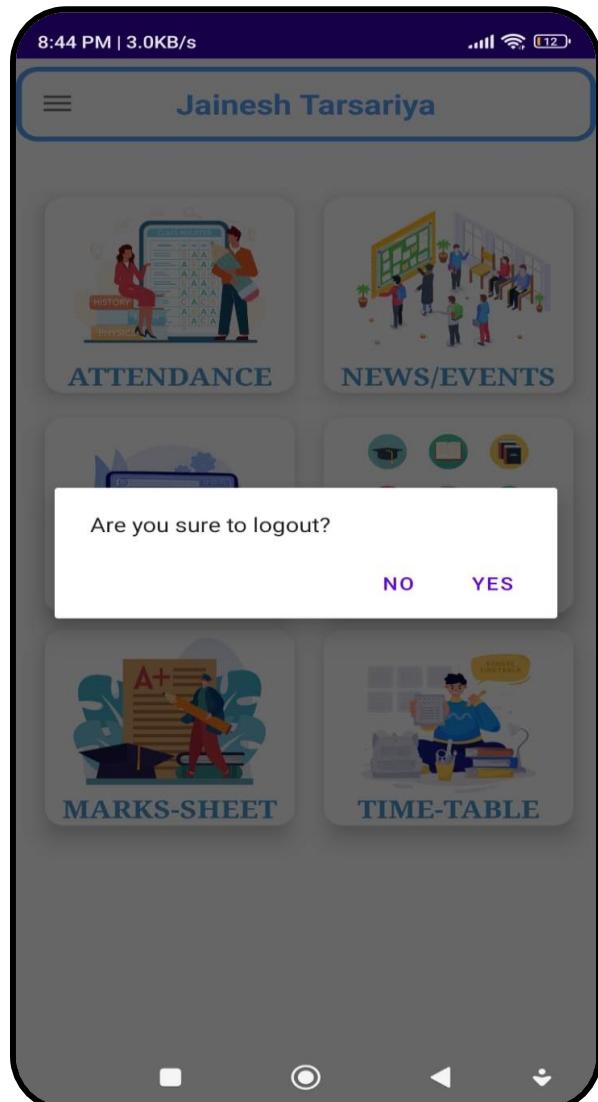


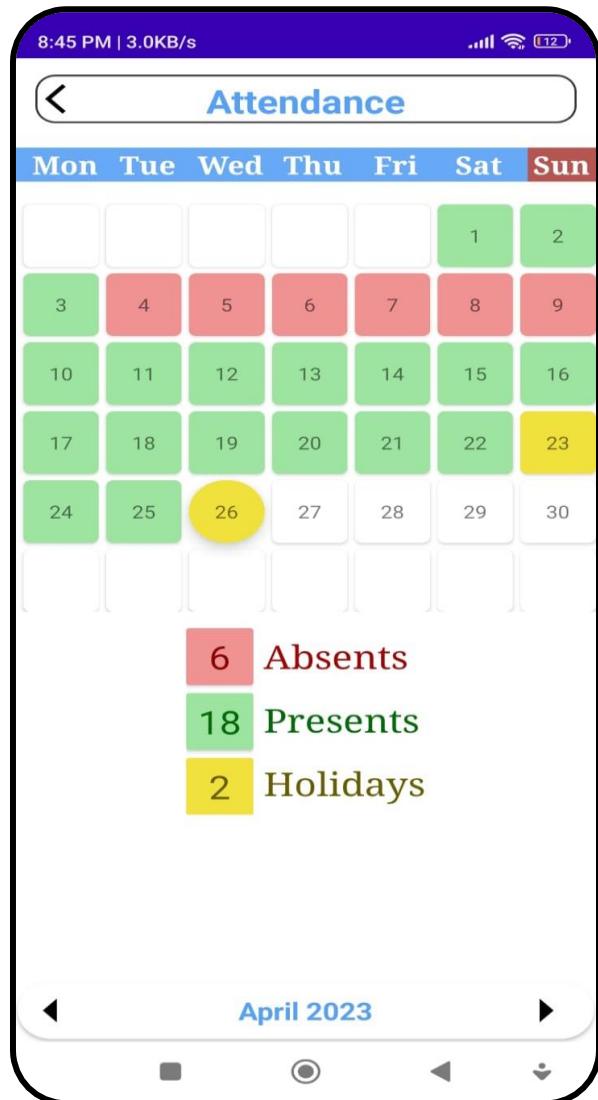


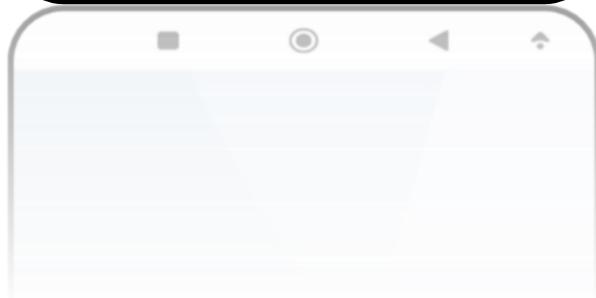
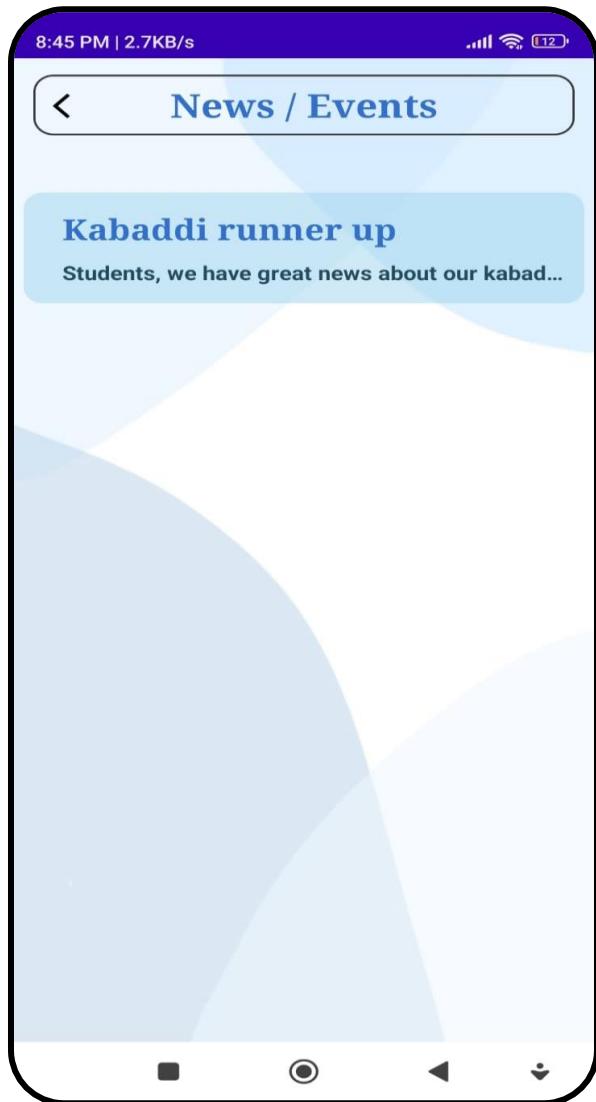


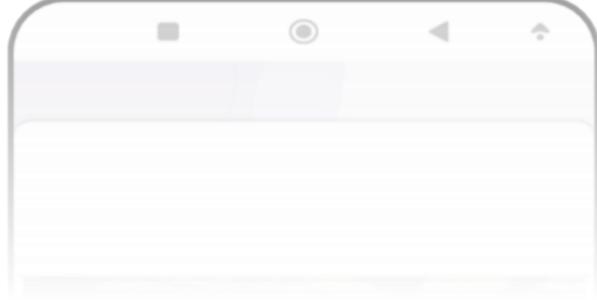
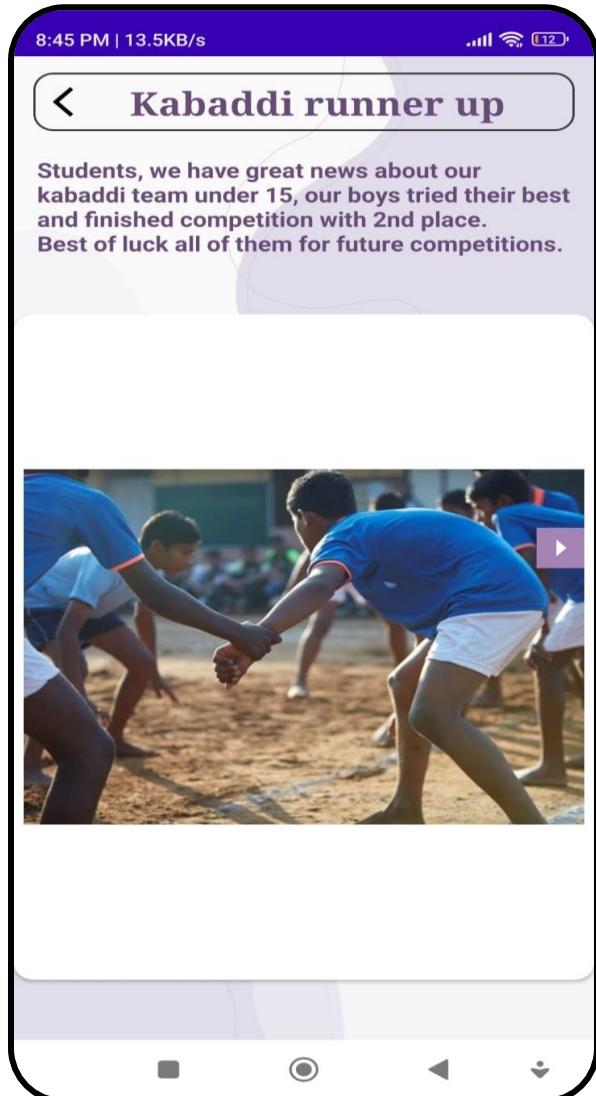
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academia786@gmail.com

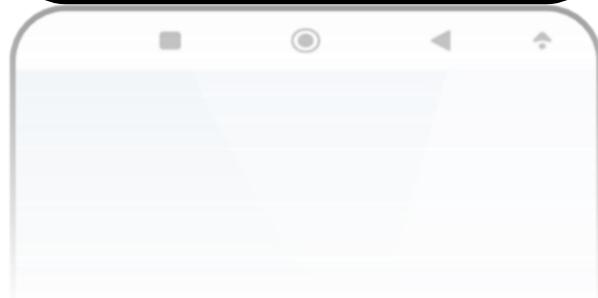
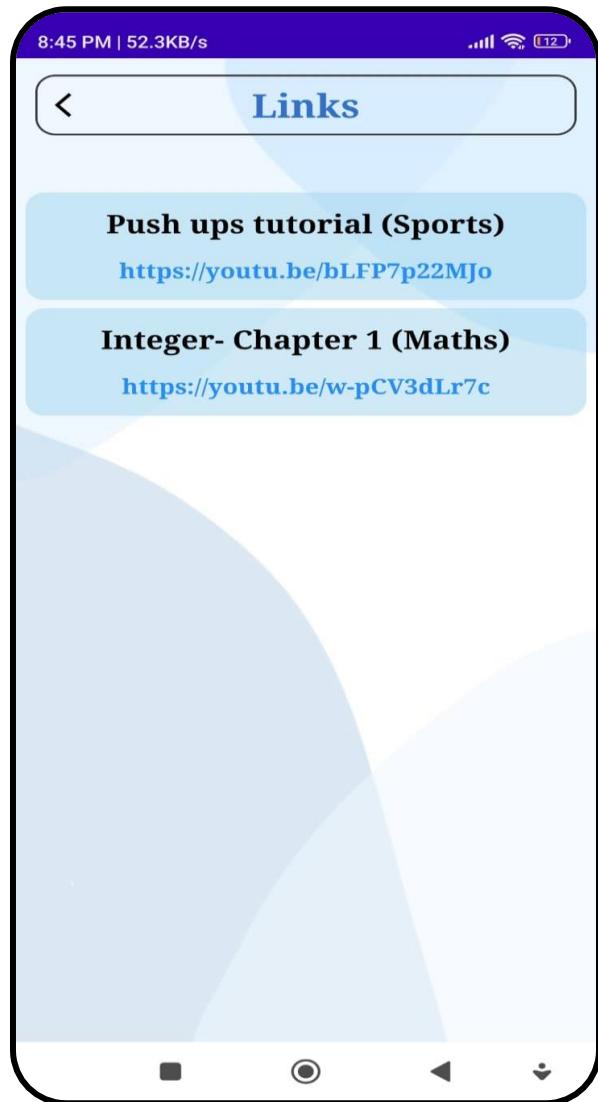
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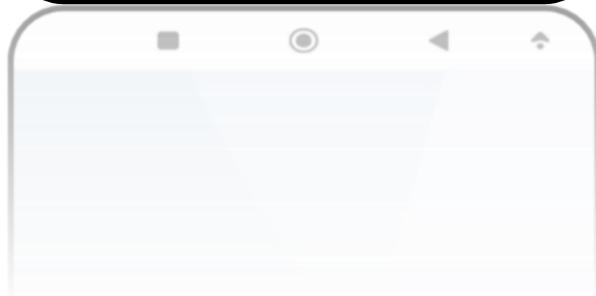
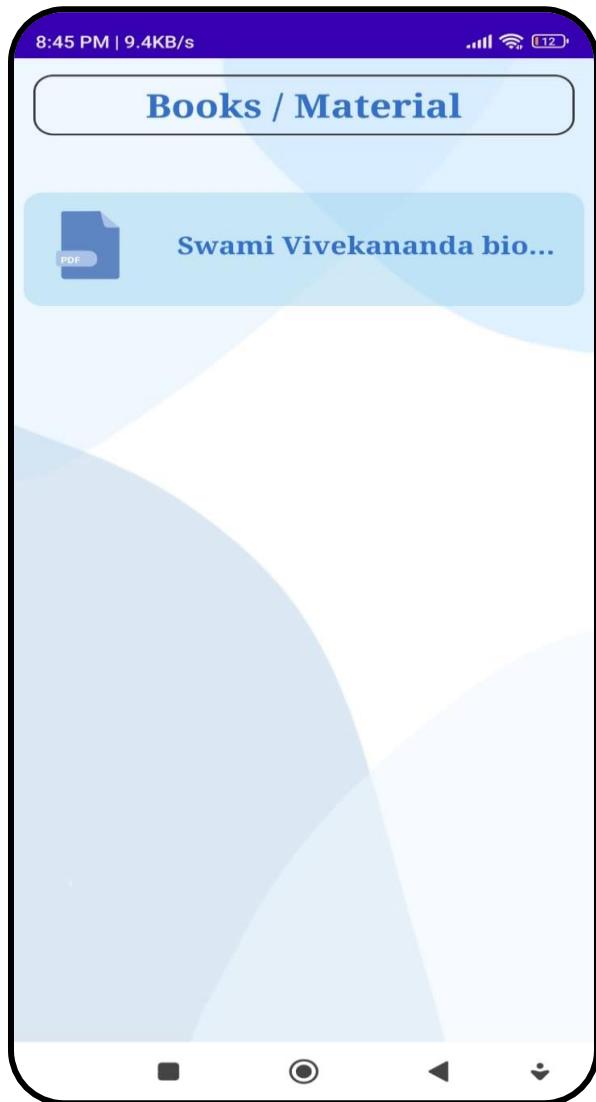


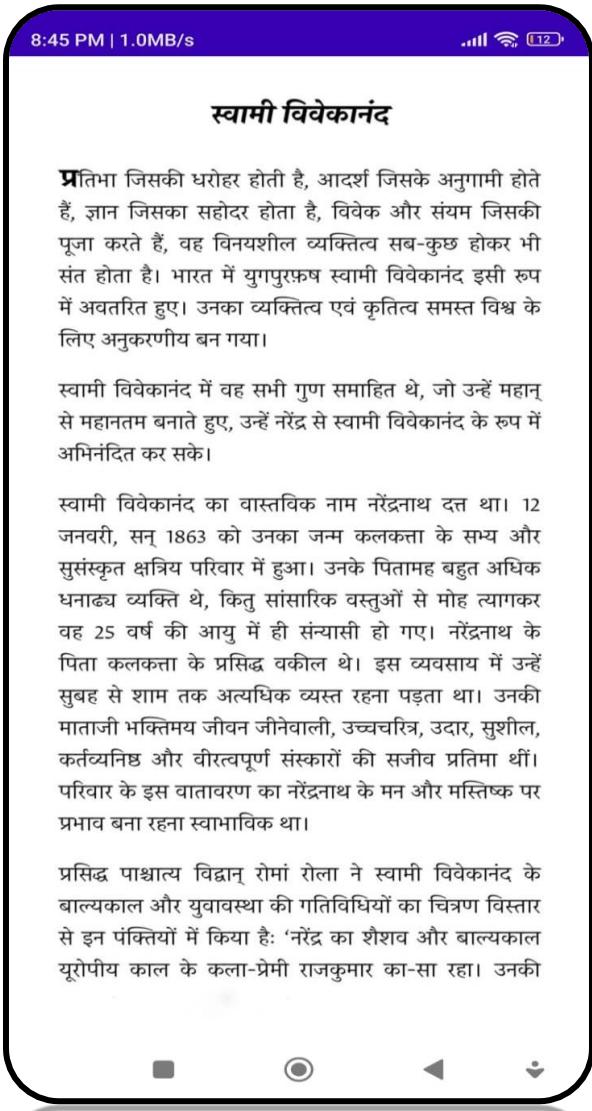










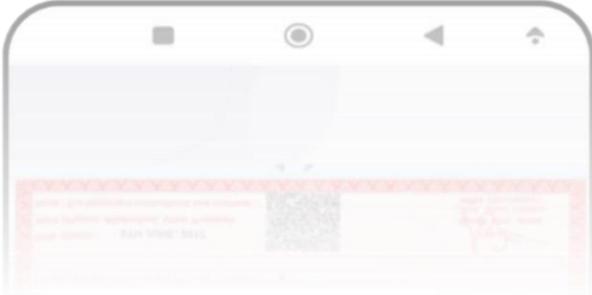


प्रतिभा जिसकी धरोहर होती है, आदर्श जिसके अनुगामी होते हैं, ज्ञान जिसका सहोदर होता है, विवेक और संयम जिसकी पूजा करते हैं, वह विनयशील व्यक्तित्व सब-कुछ होकर भी संत होता है। भारत में युगपुरक्ष स्वामी विवेकानंद इसी रूप में अवतरित हुए। उनका व्यक्तित्व एवं कृतित्व समस्त विश्व के लिए अनुकरणीय बन गया।

स्वामी विवेकानंद में वह सभी गुण समाहित थे, जो उन्हें महान्‌ से महानतम बनाते हुए, उन्हें नरेंद्र से स्वामी विवेकानंद के रूप में अभिनन्दित कर सके।

स्वामी विवेकानन्द का वास्तविक नाम नरेंद्रनाथ दत्त था। 12 जनवरी, सन् 1863 को उनका जन्म कलकत्ता के सम्य और सुसंस्कृत क्षितिय परिवार में हुआ। उनके पितामह बहुत अधिक धनाढ़ी व्यक्ति थे, किन्तु सांसारिक वस्तुओं से मोह त्यागकर वह 25 वर्ष की आयु में ही संन्यासी हो गए। नरेंद्रनाथ के पिता कलकत्ता के प्रसिद्ध वकील थे। इस व्यवसाय में उन्हें सुवह से शाम तक अत्यधिक व्यस्त रहना पड़ता था। उनकी माताजी भक्तिमय जीवन जीनेवाली, उच्चरित्रि, उदार, सुशील, कर्तव्यनिष्ठ और वीरत्वपूर्ण संस्कारों की सजीव प्रतिमा थीं। परिवार के इस वातावरण का नरेंद्रनाथ के मन और मस्तिष्क पर प्रभाव बना रहना स्वाभाविक था।

प्रसिद्ध पाश्चात्य विद्वान् रोमां रोला ने स्वामी विवेकानंद के बाल्यकाल और युवावस्था की गतिविधियों का चित्रण विस्तार से इन पंक्तियों में किया है: ‘नरेंद्र का शैशव और बाल्यकाल युरोपीय काल के कला-प्रेमी राजकुमार का-सा रहा। उनकी





System Testing

❖ Software Testing

➤ Software Testing

Software Testing Is a Critical Element Of Software Quality Assurance And Represents The Ultimate Review Of Specification Design And Coding.

Testing Is An Exposure Of A System To Trial Input To See Whether It Produces Correct Output. Testing Cannot Be Determined Whether Software Meets User's Needs, Only Whether It Appears to Confirm to Requirements.

Testing Can Show That A System Is Free Of Errors, Only That It Contains Error. Testing Finds Errors, It Does Not Correct Errors.

Software Success Is A Quality Product, On Time And Within Cost. Though Testing Can Revel Critical (Costly) Mistakes.

Therefore, Testing should be performed to:

- Validate Performance.
- Detects Errors.
- Identify Inconsistencies.

Test Objectives:

There Is Strong Evidence That Effective Requirement Management Leads To Overall Project Cost Savings.

The Three Primary Reasons For This Are:

Requirement Errors Typically Cost Well Over 10 Times More To Repair Than Other Errors.

Requirement Errors Typically Comprise Over 40% Of All Errors In A Software Project. Small Reduction In The Number Of Requirement Errors Pays Big Dividends In Avoided Rework Costs And Schedule Delays.

The Testing Procedure Should Care For All Of These, As Well As, In Order To Attain A Flawless, Error-Free And Efficient Functioning System; Too, Software Testing Is An Important Phase Of Any Software Development Life Cycle. Various Reports And Data Used For The Same Are The Core Of The System. The Testing, Therefore, Becomes Important In Order To Maintain The Cost As Well As Improve Performance And Consistency. The Testing Procedure For The System Has Been Divided In To Various Parts Ranging From Single Unit Testing To Entire System Testing.

Test Planning:

- Test Planning Evolves The Following Steps:
- Estimate The Size And Cost Of The Testing Efforts.
- May Allocate Test Resources.
- Schedule Test Activities in Accord with Other Development Work.
- Generate Test Cases.

Generating Testing Cases:

- A Test Case Is A Unit Of Testing Activity. Test Cases Have Three Parts:
 - Goal- The Aspect of the System Being Tested.
 - Input And System State- Data Provided To The System Under Stated Conditions.
 - Expected Behaviour - The Output Or Action The System Should Take According To These Requirements.

Test Case Selection:

The Presented System “Coderszone.Com” Is Tested Using White Box Testing Which Is Based On The Internal Structure Of The System, May Also Called As Testing To Code, Path-Oriented Testing, Or Logical Driven Testing. A Common Goal Of White-Box Testing Is To Have A Test Case To Exercise Every Path Through A Program. This May Become Exhaustive.

White box Testing Case Selection:

Because Exhaustive White-Box Testing Is Infeasible, Test Or Code Coverage Metrics Are Used To Select Test Cases, Which Measure The Fraction Of Code Exercised By Test Cases. Test Cases Are Selected To Achieve Target Test Coverage Levels.

➤ Test Coverage Metrics

- **Statement Coverage:** The Fraction Of Statements Executed At Least Once Is Running A Collection Of Test Cases.
- **Branch Coverage:** The Fraction Of Total Branch Directions That Have Been Taken At Least Once In Running A Collection Of Test Cases.
- **Path Coverage :** The Fraction Of Paths Taken At Least Once In Running A Collection Of Test Cases, Where A “Path” Is Defined In Some Way To Limit The Totals Of Feasible Collection

Unit Testing:

The Presented System Is Tested First Using Unit Testing. Unit Testing Is Test Of Code Written By A Single Programmer.

Integration Testing:

Top-Down:

Combine, Test And Debug Top-Levelled Routines That Become The Integration Test That Harms For Lower-Level Units.

Bottom-Up:

Combine, Test Low-Level Routines Into Progressively Larger Modules And Subsystems.

Sandwich:

Mainly top-down with bottom-up integration and testing applied to certain widely used components.

Integration Testing:

The system is tested using sandwich testing so as it has integrated advantages of both the top-down integration as well as bottom-up integration testing.

Advantages of Using Top Down Integration:

- The top levels of the system are tested the most.
- Distributes integration and testing throughout the coding phase.
- Tends to make bug location easier.
- Minimizes test harms creation.

Advantages of Using Bottom-Up Integration:

Works well early in the integration process; thorough testing is possible and bugs are easy to be found.

Test Completion:

- White-box test coverage targets are met.
- Rate of error discovery reduced the target value.
- Measured reliability of the system achieves its target value.

Limitation System Enhancement

1. **Limited access:** Some parents and students may not have access to smartphones or may not be comfortable using mobile applications, which limits their ability to take full advantage of the features offered by the application.
2. **Technical issues:** The application may be subject to technical issues such as slow loading times, app crashes, and compatibility issues with different devices and operating systems.
3. **Privacy concerns:** The application may collect and store sensitive data such as student and parent information, which raises privacy concerns if the data is not adequately secured and protected from unauthorized access.
4. **Cost:** Developing and maintaining a school management mobile application can be costly, and schools may not have the resources to invest in such technology.
5. **Learning curve:** Teachers and administrators may need to invest time and effort in learning how to use the application, which may be a challenge for those who are not comfortable with technology.
6. **Lack of personal interaction:** While a school management mobile application can enhance communication and collaboration, it cannot replace personal interaction between teachers, students, and parents, which is crucial for building relationships and trust.
7. **Reliance on technology:** A school management mobile application can create a reliance on technology, which may cause problems if the application experiences technical issues or if schools are not equipped to handle the technology.
8. **User adoption:** If parents, students, and teachers do not adopt the application, its usefulness will be limited. Ensuring user adoption can be a challenge that requires active promotion and training.
9. **Integration with existing systems:** The application may need to integrate with existing school systems, such as student information systems and learning management systems, which can be difficult and require additional technical support.
10. **Language barriers:** If the application is not available in different languages, it can limit access for non-English-speaking parents and students.
11. **Limited functionality:** Some school management mobile applications may have limited functionality, such as only offering basic features like attendance tracking and grade book management, which may not fully meet the needs of schools and their stakeholders.
12. **Network connectivity:** To use the application, users need a stable internet connection. Without internet access, they may not be able to access important information or use the application's features.
13. **User training:** The successful implementation of a school management mobile application requires training of teachers, administrators, parents, and students. If the training is not thorough or accessible, users may struggle to understand how to use the application effectively.

14. **Data accuracy:** If data entered into the application is inaccurate or incomplete, it can limit the usefulness of the application and lead to errors in decision making.
15. **Security concerns:** Mobile applications can be vulnerable to cyber threats such as hacking, malware, and phishing attacks. Schools must ensure that the application is secure and that sensitive data is protected.
16. **Maintenance and updates:** Schools must maintain and update the application regularly to ensure that it remains functional, secure, and up-to-date with the latest features and technologies.
17. **Legal compliance:** Schools must ensure that the application is compliant with relevant legal and regulatory requirements, such as data protection laws and accessibility standards.
18. **Limited access to hardware:** In some cases, students may not have access to the necessary hardware, such as smartphones or tablets, to use the application effectively.
19. **Limited support:** Schools may face challenges in providing adequate technical support for the application, which can limit its usefulness and impact.
20. **Internet connectivity issues:** Schools located in areas with poor internet connectivity may face challenges in using a mobile application that relies on stable and fast internet connection. This can limit the effectiveness of the application and affect the quality of service provided by the school.
21. **Reliance on third-party vendors:** Schools may rely on third-party vendors for the development and maintenance of the application. This can create a dependence on these vendors and limit the school's control over the application's functionality and security.
22. **Lack of customization:** Some school management mobile applications may have limited customization options, which can limit the ability of schools to adapt the application to their specific needs and workflows.
23. **Technological obsolescence:** Rapid technological advancements may render the application obsolete within a short period. This can create a need for frequent updates and upgrades to ensure that the application remains useful and relevant.
24. **Resistance to change:** Resistance to change among teachers, administrators, and other stakeholders can limit the adoption and effectiveness of the application. Addressing this resistance requires effective change management strategies and communication efforts.
25. **User fatigue:** Overuse of the application by teachers, students, and parents can lead to user fatigue, reducing the effectiveness of the application and affecting the quality of service provided by the school.
26. **Cost:** Developing and maintaining a school management mobile application can be expensive, especially for schools with limited resources. The costs of hardware, software, and technical support can also add to the overall cost.
27. **Privacy concerns:** The application may collect and store sensitive data about students, teachers, and parents, such as personal information, grades, and attendance records. Ensuring the privacy and security of this data is critical to maintain trust and confidence in the application.
28. **Limited accessibility:** Some users, such as those with disabilities or those with limited access to technology, may face challenges in using the application

- effectively. Ensuring that the application is accessible to all users requires careful consideration of accessibility standards and guidelines.
- 29. **Cultural barriers:** The application may not be culturally appropriate for all users, particularly those from different cultural backgrounds or those who speak different languages. Addressing cultural barriers requires sensitivity to diversity and inclusion issues.
 - 30. **Incomplete information:** The application may not provide all the information that parents and students need, particularly in cases where additional communication or clarification is necessary. Ensuring effective communication and providing additional channels for support is critical to addressing this limitation.
 - 31. **Integration with existing systems:** Schools may have existing systems and processes that are not fully integrated with the new application. This can lead to redundancies, inefficiencies, and errors that can affect the effectiveness of the application.
 - 32. **Limited functionality:** Some school management mobile applications may have limited functionality, which can limit the ability of schools to perform complex tasks or customize the application to their specific needs.
 - 33. **Lack of standardization:** There may be a lack of standardization in the features and functionality of school management mobile applications, making it difficult for schools to compare and choose between different options.
 - 34. **Limited interoperability:** Schools may face challenges in integrating the application with other systems or applications used by teachers, students, and parents, which can limit the effectiveness of the application.
 - 35. **Social and cultural implications:** The use of a school management mobile application can have social and cultural implications, particularly in cases where it affects the balance of power between teachers, students, and parents. Ensuring that the application supports positive social and cultural dynamics requires careful consideration of these issues.
 - 36. **Limited scalability:** Schools may face challenges in scaling the application to accommodate growth or changes in the student population. Ensuring that the application is scalable requires careful planning and consideration of the long-term needs of the school.

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Thank You