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Programme: BSc (Hons) Software Engineering

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Acknowledgement

I would like to pay my graduate to my subject lecturer Dr.Pulasthi Gunawardhana for teaching me this subject as well as giving me with excellent guidance and supportive materials to finish my assignment on time. Then I would like to thank NSBM Green University for overseeing the course's quality. Then, I'd want to thank my friends and the other members of my batch for their assistance in helping me gather data, find various sources of information, and complete the task on time. I also want to express my gratitude to the writers of the books and websites I utilized to complete this task.

Thank You...!

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1. Introduction

This is a LMS application that designed for lectures and students in the university.

The handling of lecture materials, lecture scheduled and exam/ assignment mark for each modules for students at the institution will be completely revolutionized by this website. And also lectures have an access for adding lecture slides and assignment to the application. Our LMS platform provides one place where lectures, course materials, and schedules easily come together, enabling a more effective and interesting learning environment.

Students can readily access digital course materials, such as lecture slides, notes and other needed materials, wherever and whenever they preference with the help of our LMS. This guarantees that students have all the resources required to enhance their learning and succeed in their studies.

Our LMS tool makes it easier for lecturers to manage timetables and lecture materials. Lecturers can easily submit the course materials, ensuring that their students have accessibility to the most recent information. Faculty members are able to maintain consistency throughout various parts or semesters of an academic program because to the concentration of resources. Additionally, our LMS has a user-friendly interface that makes it simple for teachers to create, update, and share lecture schedules.

In conclusion, our LMS program is a complete solution that combines timetables and lecture materials in a convenient way. We want to improve learning by utilizing technology's potential, efficiency, and organization among both lecturers and students. With the help of our innovative LMS application, encouraged to a new era in school administration.

2. Objectives

For students

- The purpose of the mobile application is to give students quick, easy accessibility to lecture schedules so they can stay updated on upcoming lectures, venues, and times. Students can efficiently arrange their coursework while managing their time because of to this accessibility.
- The application's goal is to seamlessly deliver lecture materials and slides to students. Students are able to review the material at any time and anywhere by having access to the lecture materials on their smart phones or tablets, which promotes ongoing learning and revision.
- The LMS mobile application aims to make it easier for students to complete evaluations. It makes it simple for students to log in and submit in homework, tests, and exams.
- For students, the application aims to offer a planned and organized learning environment. They can access all necessary course resources, such as lecture timetables, slides, and exams, on a single centralized site. This organization assists students in staying on top of their assignments and makes sure they have access to all relevant materials.
- This application is designed to help students successfully manage their time and resources. It gives students access to the lecture schedules, which they can use to organize their study calendars and set out time for their schoolwork. Additionally, it makes sure that all relevant documents, including tests and lecture slides, are easily accessible, saving students' time and energy when looking for materials.
- Students can participate in educational activities at any time and from any location thanks to the LMS mobile application, which places an emphasis on flexibility and mobility. Students can learn at their own pace and modify their studies to match their busy schedules thanks to mobile accessibility to lecture timetables, slides, and tests.

For Lectures

- The mobile application is supposed to make it simple for lecturers to submit and organize lecture schedules, lecture materials and assignments within the LMS. To ensure that students have accessibility to the most recent information, lecturers should be able to efficiently arrange and update course content.
- To make it simple for students to have access to and review the information, lecturers should have the ability to share lecture slides and other documents directly through the app. This encourages efficient information transfer and makes certain that students have access to the resources they need for their studies.
- Use this application, Lecturers should be able to create and handle assignments through the LMS using the app. They should be capable to give instructions, set deadlines, and receive student submissions.
- The application should be designed to enable flexibility in the teaching process by enabling lecturers to easily access and manage course information from their mobile devices. This increases the efficiency and productivity of lecturers by enabling them to interact with the LMS at any time and from any location.

3. Methodology

We have used Agile methodology for create this mobile application.

3.1. Agile methodology for LMS mobile application

Software development using the agile technique places a strong emphasis on collaboration, flexibility, and client satisfaction. The project will be divided up into smaller units, where work will be planned, created, tested, and evaluated in rapid succession.

Due to a number of factors, the agile methodology is viable while developing a mobile LMS application for lecture timetables, slides, and evaluations.

1. Iterative Development:

The approach of Agile allows frequent iterations and incremental development. Developers are able to deliver functional features throughout each phase, allowing stakeholders to provide feedback and make changes as needed. The LMS mobile app will satisfy the changing needs of Students as well as lecturers according to this iterative process.

2. Collaboration and communication:

The Agile technique places a strong emphasis on close cooperation and good communication between the project team, stakeholders, and end users. This is essential to an LMS mobile app because it has numerous user roles and needs input from students as well as lecturers. Regular gatherings, such daily stands and phase reviews, promote constant collaboration and guarantee that the application complies with the requirements and standards of all stakeholders.

3. Flexibility and Adaptability:

Agile methodology encourages adaptability and flexibility, making it simple to absorb changes throughout the development process. Agile enables quick and effective adaptations when the needs of an LMS mobile app change or as new requirements appear. By doing this, the program is guaranteed to be current and able to handle any necessary adjustments, such as new features or adjustments to user workflows.

4. Continuous Improvement:

The agile methodology promotes an approach of continuous improvement by holding regular retrospectives. The development team evaluates its progress at the conclusion of each phase and notes opportunities for development. As the LMS mobile app is improved over time, its functionality, accessibility, and general quality are improved because of the emphasis on ongoing learning and improvement.

5. Stakeholder Involvement:

Throughout the development process, Agile approach actively incorporates clients, including students and lecturers. To make sure the application meets their needs and expectations, their feedback and ideas are gathered and implemented into it. The app becomes more user-oriented and can better satisfy the target audience by involving stakeholders.

6. Efficiency in Time-to-Market:

The continuous and iterative nature of agile approach provides a quicker the time to market of the LMS mobile app. Short cycle delivery of features enables regular releases and early deployment. This guarantees that students and professors can begin using an application sooner and gives a chance to get useful feedback early on in the development procedures.

Agile methodology is a sustainable strategy for developing an LMS mobile app because of its emphasis on cooperation, flexibility, adaptation, and continual development. A high-quality, audience-centric, and efficient application for managing lecture timetables, slides, and evaluations is produced as a result of efficient development, stakeholder collaboration, and the capacity to adjust to changing requirements and developing user demands.

4. Technologies

4.1. Android studio

As the designated IDE (Integrated Development Environment) for creating Android applications, Android Studio is used. To make the process of creating Android apps easier, it offers a complete set of resources, including an editor for code, debugger, emulator, and a number of libraries and APIs.

The capabilities, resources, and tools specifically designed for creating Android apps in Android Studio make it a great option for developing mobile LMS applications. The tools it provides for user interface design, debugging functions, testing, and distribution, together with its interaction with the Android operating system, make it easier to create an LMS app that is reliable, approachable, and packed with features that suit to the unique needs of students and lecturers. Because of these reasons we have decided to use the android studio for creating this application.

4.2. Java

Java is a popular and frequently used programming language that is renowned for its independence from platforms, object-oriented methodology, and vast libraries and frameworks. For the creation of a variety of applications, including mobile applications, it offers a stable and scalable base.

Java is an excellent solution for creating an LMS mobile app with lecture timetables, slides, assessments, and lecturer capabilities due to its adaptability and wide environment. Create a comprehensive and user-friendly program for both students as well as lecturers by utilizing Java's object-oriented options, networking capabilities, databases integration, and UI frameworks. Because of these reasons we have used java for creating this application.

5. Scope of the project

1. User roles:

- **Students:** access schedules for classes, presentations, quizzes, and information about their own performance.
- **Lectures:** Manage the schedules for lectures, and upload your PowerPoint presentations, handouts, and homework.

2. User Management:

- Student and lecturer login and registration.
- Management of user profiles, including personal data and preferences.

3. Course management:

- Assigning courses to lecturers and enrolling students in courses.
- Administrators and lecturers can create, edit, and delete courses.
- Organization of the course materials, including lecture slides, notes, and supplementary materials.

4. Lecture Schedule:

- Showing students, a calendar or schedule perspective of the lectures' schedules.
- Management and scheduling of lectures for lecturers.

5. Lecture Materials:

- The uploading of lecturers' notes, slides, and other instructional resources.
- Students can download and access lecture materials.
- Arrangement and classification of material for lectures by subject and course.

6. Assignments and Assessments:

- Lecturers provide quizzes, assignments, tests, and exams.
- Enabling access to and submission of tests and assignments by students.
- Results sheet with lecturer feedback.

7. Security:

- Implementing safe systems for authentication and authorization is important for security and access control.
- ensuring data security, privacy, and protection from illegal access.

8. Interface design and User Experience:

- Designing an intuitive, user-friendly interface that encourages ease of use and navigation is known as the user experience and interface design.
- Visual design and branding that are consistent throughout the application.

6. Requirements

6.1. Functional Requirements

1. User login:

- Users (Students) should be able securely log in using their credentials.

2. Users Roles and Permissions:

- Lecturers should have access to add, edit, and remove lecture slides, course materials, and assignments.
- Lecture timetables, lecture slides, and exams ought to be available to students.

3. Management of Lecture Schedules:

- The program should include a schedule or calendar view for accessing lecture schedules by lecturers and students.
- The dates, times, and locations for lectures should be able to be added, edited, and removed by lecturers.
- It should be available for students to see when their upcoming lectures are.

4. Access to Lecture Slides and Materials:

- Professors should have the ability to share lecture slides and materials and link them to particular lectures or courses.
- Access to lecture notes and other course materials should be available to students.

5. Assignment Management:

- Lecturers should be able to organize assignments, include guidelines and due dates, and link them to particular courses.
- It should be possible for students to view, turn in, and check their assignments.

6.2. Non-Functional Requirements

1. Performance and Scalability:

- The program must be capable of supporting multiple users at once without significantly affecting performance.
- Accessing course materials and submitting in assignments should happen quickly and effectively.

2. Usability & User Experience:

- Both lecturers and pupils should be able to easily navigate and use the program because to its user-friendly and intuitive interface.
- Mobile device responsiveness and performance are required.

3. Security and privacy:

- User data, including grades and personal data, should be transmitted, and maintained securely.
- To guarantee that those who are authorized are allowed access to the necessary functions and data, user authorization and authentication should be put into place.

7. Issues faced during the implementation and the approach adopted to resolve

The main problem we ran across as a team was a lack of people with technical skills. We had to work very hard to adjust to the technology. We had been searching for errors for a long time. Additionally, because different members of the team used varying editions of Android Studio to create their apps, we encountered some difficulties when constructing the app. We therefore had to change the versions. On the other hand, the development team finished most of the jobs earlier than expected.

By putting an effort to build an accurate road map for our project's development and modifying the project plan as necessary, we were able to avoid poor planning and time management. Our failure to meet our deadlines was one of most significant risks we faced. By evaluating the scope of our task and contrasting it with the effectiveness of our team, we were able to determine this. This made it easier for us to create an easy-to-follow project timeline for our team.

We designed our program with a user interface that is simple in mind because poor UI can cause it to fall lack of user expectations.

To prevent data loss from power outages, we ensured we had backups.

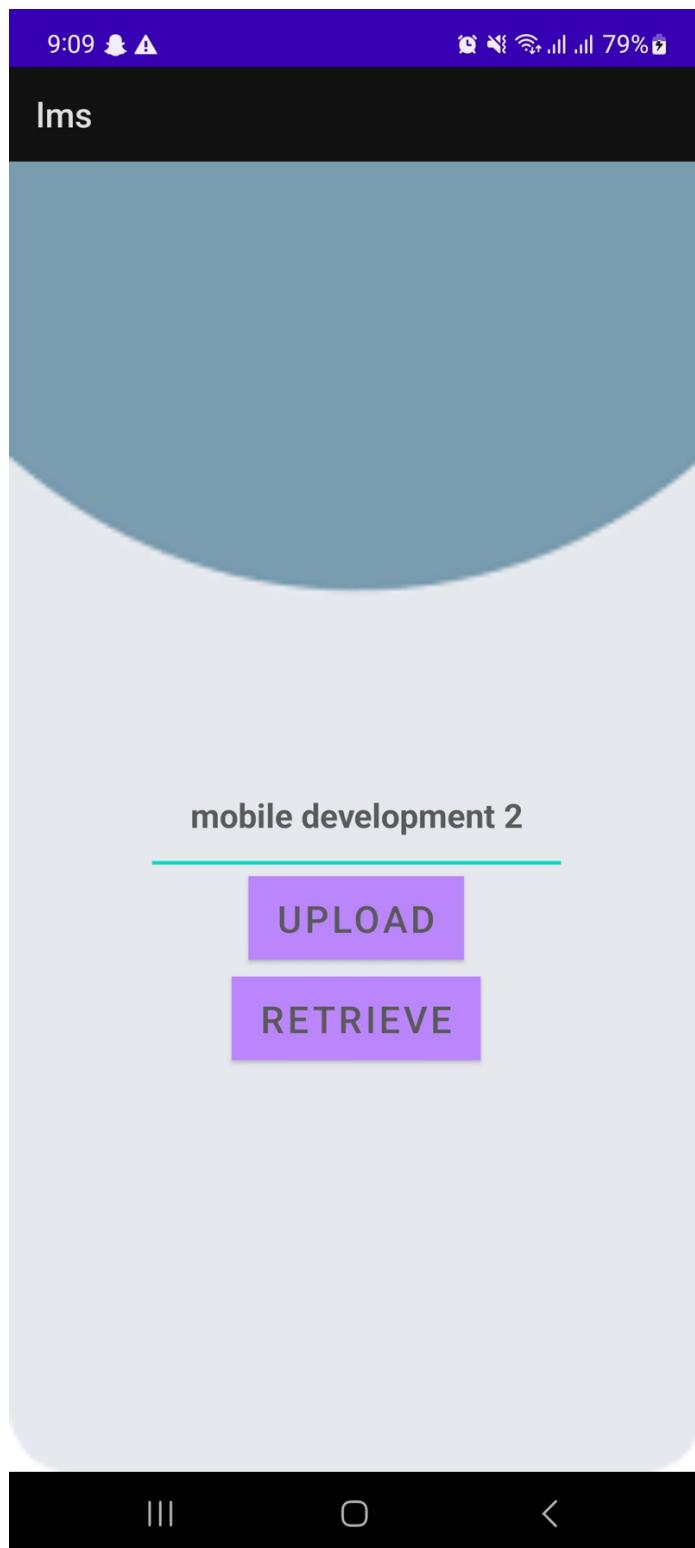
Lack of communication with the team members is one of the biggest challenges we face since it can lead to us not satisfying or misinterpreting client expectations. But we able to handle this problem arranging meetings with the team members frequently.

8. User Interfaces

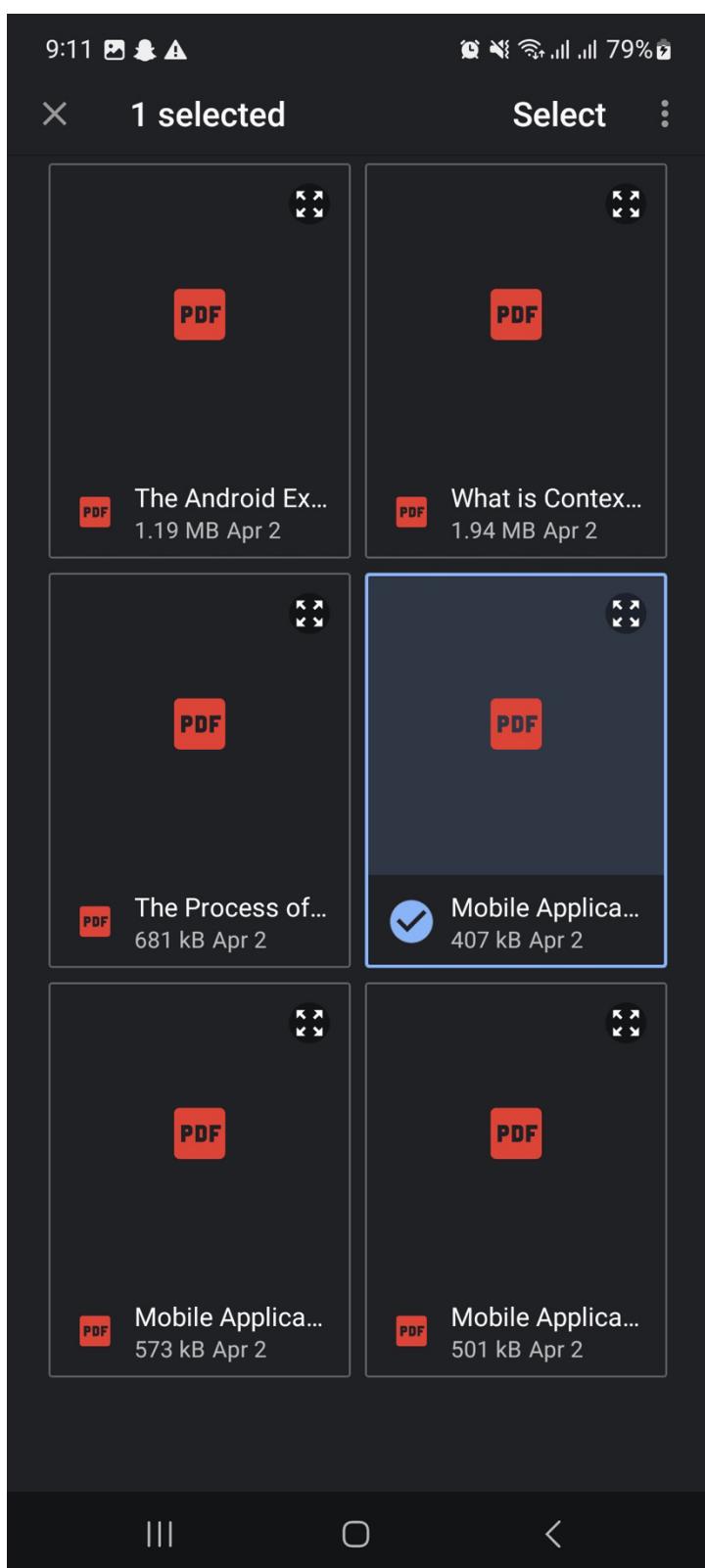
- Upload lecture slides lecturer view



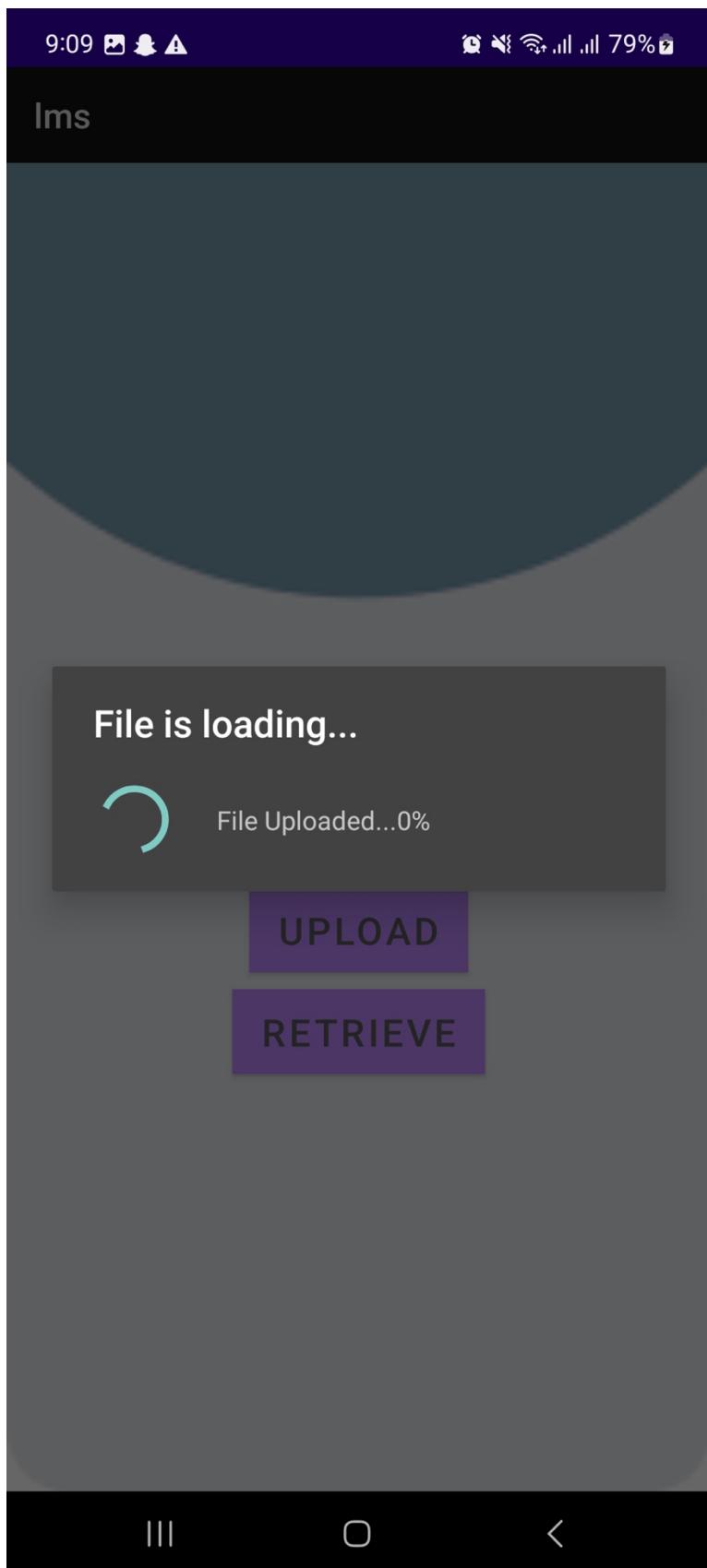
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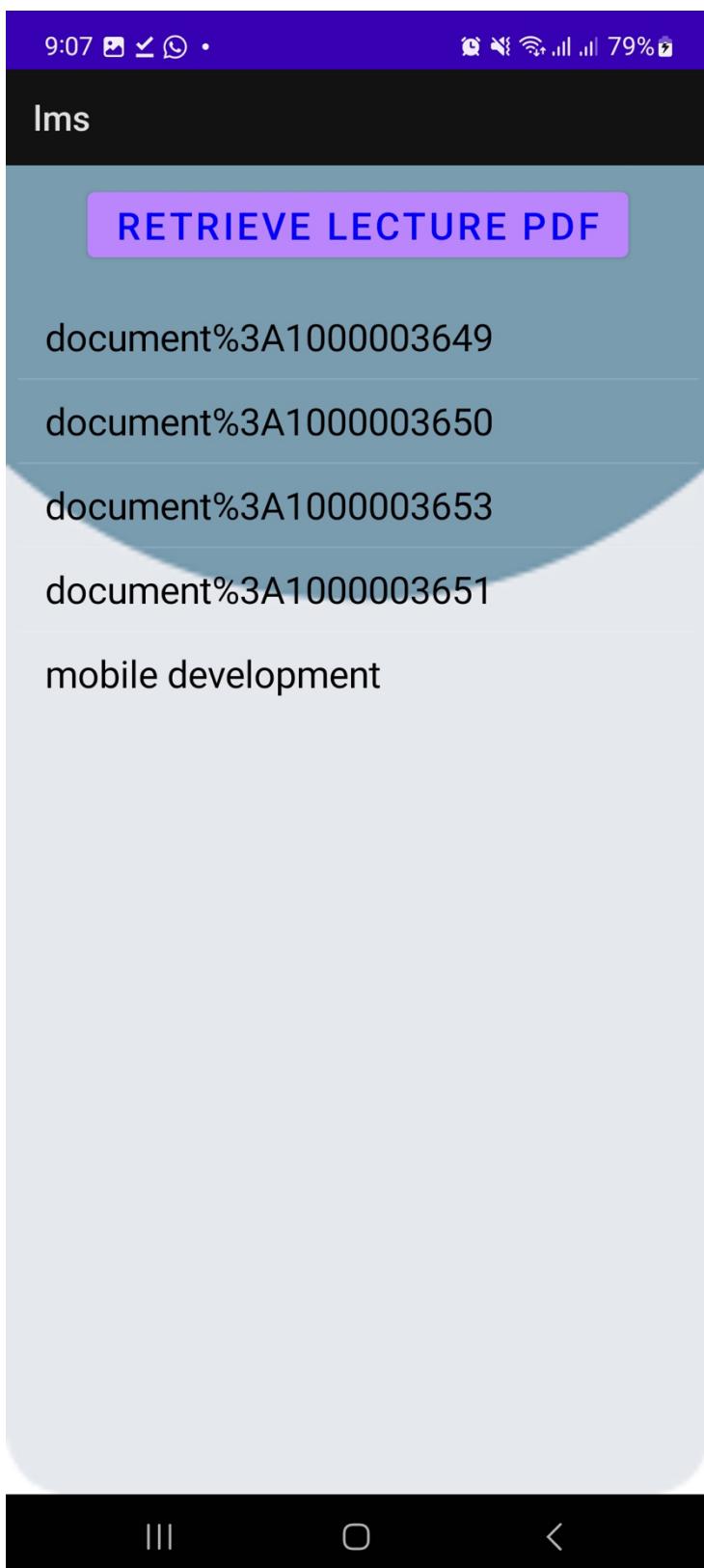
- Select lecture slides



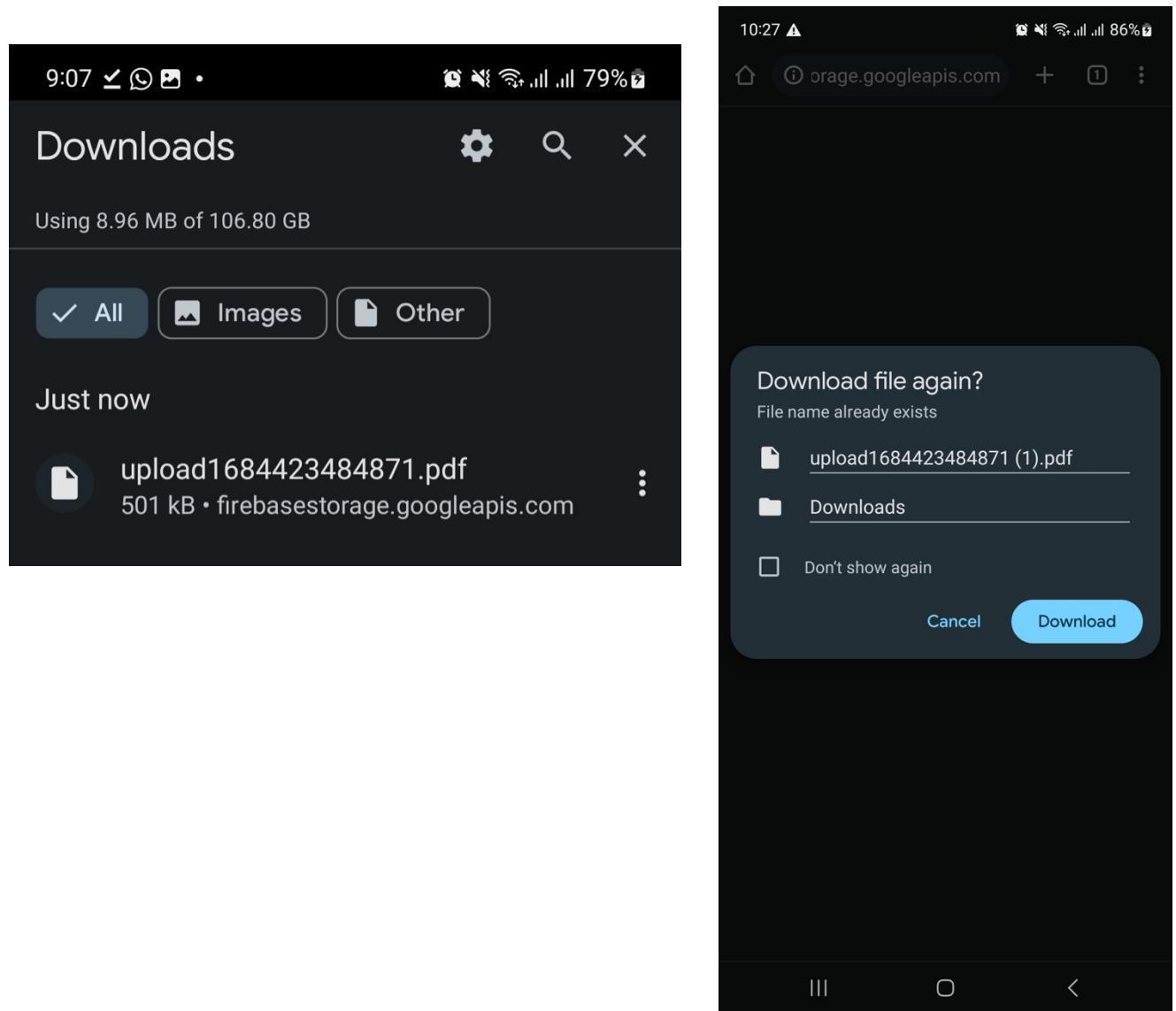
- Lecture slide uploading success



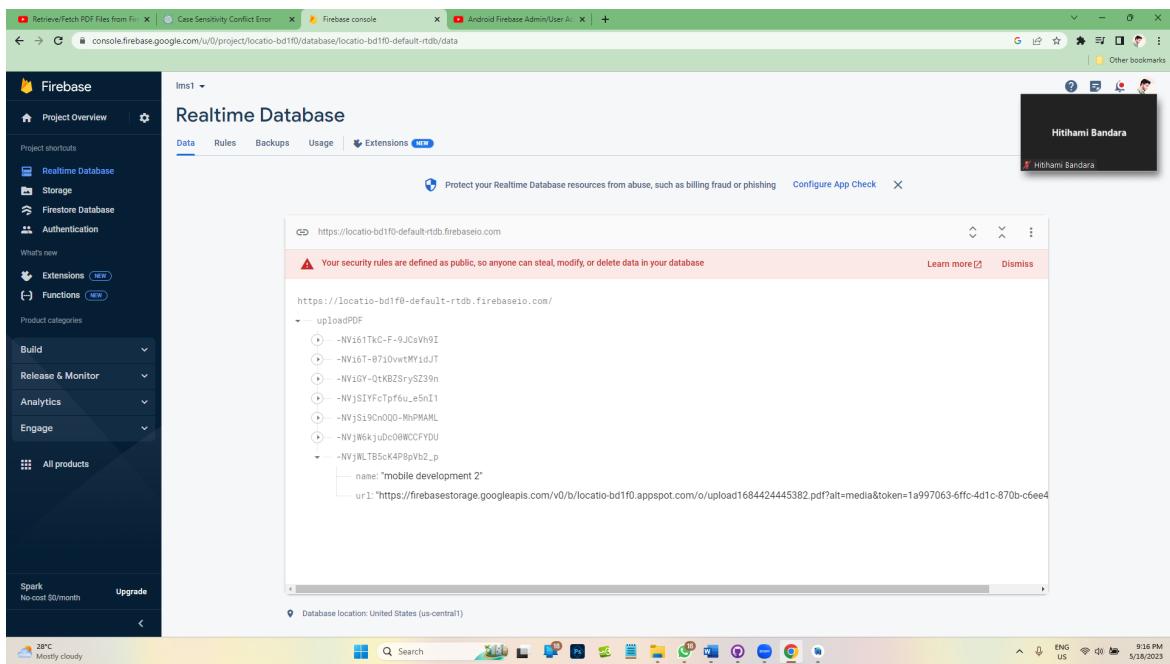
- Lecture slide's view for students



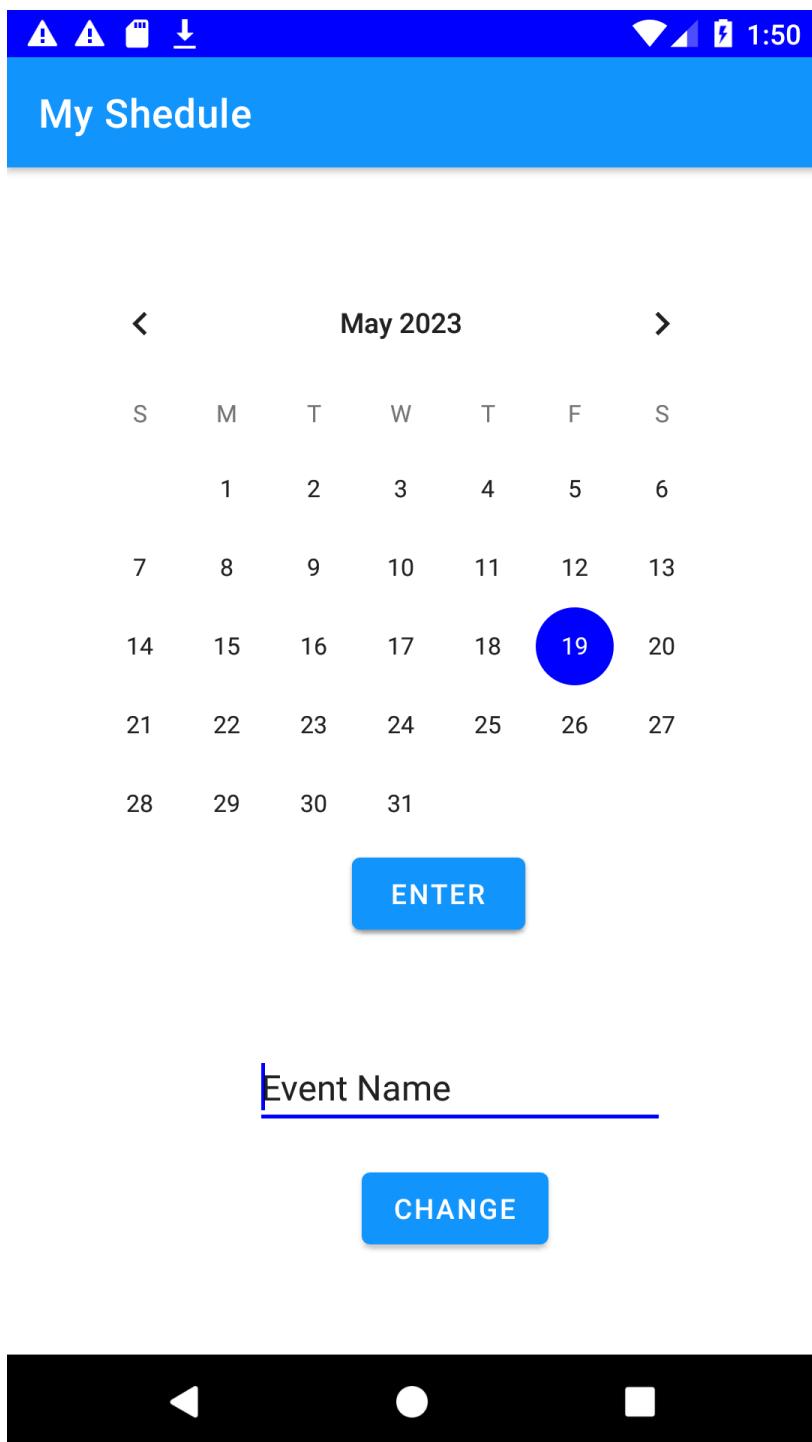
- **Download view**



- **Firebase connection**



- My schedule lecturer view



- My schedule student's view



Mobile App 1.pm to 4.pm



9. Conclusion

In conclusion, a highly useful tool for educational institutions is the LMS mobile application providing access for both students and professors. This application streamlines several areas of teaching and learning by delivering an established platform, bringing multiple advantages to students as well as teachers.

The LMS program gives students a convenient and reachable location to view course materials, submit assignments and view results sheets. They can use it to effectively manage their studies, have anytime access to materials. The LMS promotes a dynamic and interesting learning environment that enables students to better understand the course material and actively engage in their education.

Lecturers may easily upload and update the course materials, create and provide assessments, and monitor the process of their students. Administrative responsibilities are made simpler, saving effort and time that may be used to improve the standard of instruction.

Overall, by utilizing technology to improve the learning experience, the LMS program, which is accessible to both students and lecturers, improves the existing educational system. While giving lecturers effective tools to conduct high-quality training, it gives students more influence over their education. The LMS application shows to be a useful tool for educational institutions working to create a modern productive learning environment because of its versatility, accessibility, and interactive characteristics.

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11. Workload matrix

Name	Plymouth Index No	Contribution
Hitihami M Bandara	10819538	Create login page, lecture material upload and help to connect firebase connectivity.
Kasthuri A Arachchi	10819557	Create calendar and help to report writing
Wickramarachchi Athukorala	10819526	Create lecture material upload and help to report writing.
Vithanage Bandara	10818157	Create login page and help to report writing.
Akila Kalupahana	10820798	Create login and help to connect firebase connectivity.
Wadiyage Sandaruwan	10819516	Create profile and help to connect firebase connectivity.