Internship at Farmsbook Solution Pvt. Ltd.

Internship Report

Submitted for the partial fulfillment of the degree of

Bachelor of Technology

In

Computer Science & Design

Submitted By

Rahul Saxena

0901CD211041

UNDER THE SUPERVISION AND GUIDANCE OF

Dr. Praphula Kumar Jain

Assistant Professor

Department of Computer Science & Engineering

DECLARATION BY THE CANDIDATE

MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR (M.P.), INDIA
माधव प्रौद्योगिकी एवं विज्ञान संस्थान, ग्वालियर (म.प्र.), भारत
(Deemed to be University)
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January-May 2025

DECLARATION BY THE CANDIDATE

I hereby declare that the work entitled **"Internship at FarmsBook Solution Pvt. Ltd."** is my work, conducted under the supervision of **Mr. Jitendra Sharma, Operational Manager,** during the session Jan-May 2025. The report submitted by me is a record of bonafide work carried out by me.

I further declare that the work reported in this report has not been submitted and will not be submitted, either in part or in full, for the award of any other degree or diploma in this institute or any other institute or university.

Rahul Saxena

Rahul Saxena

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Date: 21/05/2025
Place: Gwalior

This is to certify that the above statement made by the candidates is correct to the best of my knowledge and belief.

Guided By:

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Checked & Approved By:

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ABSTRACT

During my internship at **FarmsBook Solution Pvt. Ltd.**, which began on **2nd January 2025**, I had the opportunity to work on a major Android development project in the **educational technology domain**—the design and implementation of an **e-learning mobile application**. The project aimed to create a feature-rich platform that enhances digital learning by providing seamless access to educational resources and interactive learning tools through mobile devices.

In the initial phase of the project, I focused on building a robust **user authentication system** that enabled secure login and role-based access for students, instructors, and administrators. I implemented these features using **Firebase Authentication** and **Realtime Database**, ensuring data integrity and real-time synchronization. I also contributed to the design of a responsive and user-friendly interface using **XML layouts**, **Material Design principles**, and **Recycler View** components to display dynamic content effectively.

In the later stage, I worked on integrating core features such as **course management**, **content delivery** (PDF, video, and text), and **quiz functionality**. The application allowed instructors to upload course materials and assessments, while students could enroll in courses, access learning content, complete quizzes, and view their progress. I utilized **Firebase Cloud Storage** and **Firebase Firestore** to manage and serve multimedia content efficiently. Notifications were implemented using **Firebase Cloud Messaging (FCM)** to keep users updated in real-time.

This internship provided me with hands-on experience in applying **Android development principles** to a real-world educational challenge. I gained practical skills in **Java programming**, **Firebase integration**, **UI/UX design**, and **mobile app architecture**. Additionally, I learned how to troubleshoot common issues related to data synchronization, user session management, and mobile responsiveness.

Overall, this experience significantly enhanced my technical proficiency, improved my understanding of user-centric app development, and demonstrated how mobile technology can be harnessed to improve accessibility and engagement in education.

ACKNOWLEDGEMENT

I would like to express my heartfelt gratitude to **FarmsBook Solution Pvt. Ltd.** for providing me with the opportunity to pursue this internship and work on a practical, real-world project—**the design and development of an e-learning platform using Android**. This experience has significantly enriched my technical knowledge and deepened my understanding of mobile application development.

I am especially thankful to my mentors and team members at **FarmsBook Solution Pvt. Ltd.** for their constant guidance, encouragement, and support throughout the internship. Their insights and constructive feedback were invaluable in helping me overcome technical challenges and improve the quality of the project.

I would like to extend my sincere thanks to **Mr. Jitendra Sharma** for his continuous support and expert mentorship throughout the internship. His guidance played a crucial role in the successful completion of my project and enhanced my overall learning experience.

A special thanks to my faculty mentor **Dr. Praphula Kumar Jain, Assistant Professor** for his academic support, timely suggestions, and encouragement during the internship period. I am also grateful to my institution for facilitating this valuable industry-academic collaboration.

Rahul Saxena

Rahul Saxena

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CHAPTER 1: INTRODUCTION

Introduction

In the modern world, mobile applications serve as powerful tools for transforming education and fostering creative skills. This report focuses on the development of an e-learning app, built using Kotlin, designed to provide a seamless platform where teachers can upload courses and students can enroll to learn various forms of art. The app emphasizes accessibility, interactivity, and a user-friendly interface to enhance the overall learning experience.

Purpose of the Report

The purpose of this report is to present a comprehensive overview of the development process, features, and impact of the e-learning app. By addressing key aspects such as app functionality, user interaction, and its role in promoting art education, this report highlights the app's contribution to modern learning methodologies.

Scope of the Development

Teacher-Side Development

The app includes features that allow teachers to upload courses efficiently. They can add multimedia resources, descriptions, and structured lessons to provide engaging and comprehensive learning materials. The teacher-side panel was built with Firebase integration, ensuring secure storage and real-time data updates.

Student-Side Development

The app’s student-side interface enables users to browse and enroll in courses effortlessly. Special attention was given to intuitive navigation and responsive design, allowing students to focus on their learning journey. Features like progress tracking and course recommendations further enhance the user experience.

Focus on Art Education

The app’s primary purpose is to promote art education, providing a platform for students to explore creative fields such as painting, music, photography, and design. Courses are tailored to encourage hands-on learning and self-expression, ensuring that the app becomes a hub for aspiring artists .

CHAPTER 2: LITERATURE SURVEY

Literature Survey

The development of the e-learning app tailored for art education is grounded in understanding the evolving needs of learners and educators in the digital age. This literature survey explores existing research and technologies in the domains of e-learning, mobile application development, and art education, highlighting the foundation upon which the app is built.

1. E-Learning Platforms and Their Evolution

E-learning platforms have transformed traditional education by providing access to learning resources anytime and anywhere. Research shows that platforms integrating multimedia content and interactive elements significantly improve learner engagement and retention. Apps like Coursera and Khan Academy leverage these principles to cater to diverse learning needs. This app builds upon these concepts, with a focus on creating a specialized platform for art education.

2. Mobile Application Development

The choice of Kotlin for app development aligns with industry trends that prioritize performance, scalability, and ease of maintenance in Android applications. Kotlin's interoperability with Java and modern features like null safety and concise syntax make it an ideal choice for building robust and user-friendly applications.

3. Art Education in the Digital Era

Art education traditionally relies on hands-on experiences and mentorship, making its integration into digital platforms a challenge. However, advancements in technology have enabled the creation of virtual tools that simulate practical learning experiences. Research emphasizes the importance of visual and interactive content in teaching creative skills, which has influenced the app's focus on multimedia course content and an intuitive interface for students.

4. Firebase for Real-Time Data Management

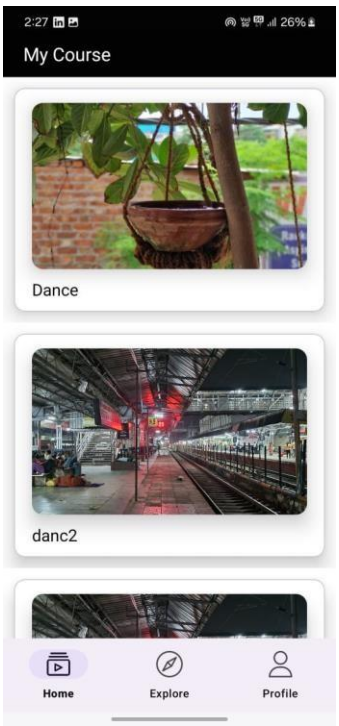
Firebase has emerged as a popular backend solution for modern mobile applications due to its real-time database, cloud storage, and authentication capabilities. Literature supports its use in education apps for enabling real-time updates, secure data management, and seamless user authentication. These features were critical in designing the teacher-side panel for uploading and managing courses.

CHAPTER 3: STUDENT SECTION

The student section of the e-learning app is designed to provide students with a seamless and engaging learning experience. This section includes several key features that enable students to interact with the platform efficiently, explore available courses, enroll in them, and manage their learning journey. Below is a detailed explanation of the core functionalities within the student section of the app.

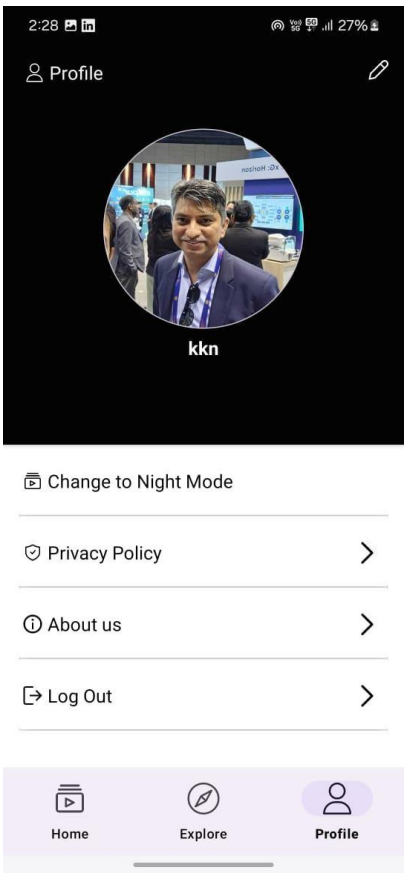
3.1. Course Enrollment and Management

- **Browse and Explore Courses:**
  The student section allows users to explore a variety of courses in different art disciplines, such as painting, photography, sculpture, design, and more. The app provides an easy-to-navigate interface where students can browse through available courses based on their interests. Each course includes a description, syllabus, and other relevant details, enabling students to make informed decisions about the courses they want to enroll in.
- **Course Enrollment:**
  Students can easily enroll in courses with just a few taps. Once enrolled, students gain immediate access to the course content, which includes lessons, assignments, and additional resources. The app allows students to view their enrolled courses in a dedicated section, ensuring they can access course materials at any time. The enrollment process is streamlined and straightforward, eliminating unnecessary steps and ensuring an efficient user experience.



3.2. Profile Management

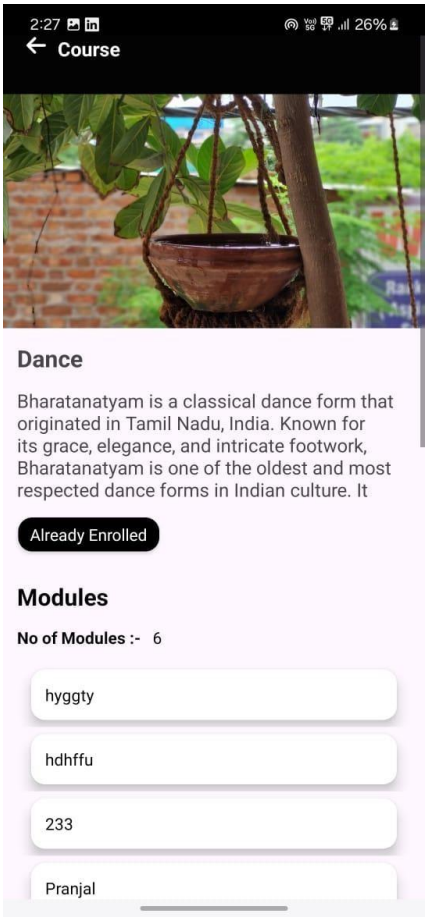
- **Edit Personal Information:**
  Each student has a customizable profile where they can input and update their personal information. This includes basic details such as their name, email, and profile picture. The profile section serves as the student's personalized space within the app, allowing them to manage and reflect their learning goals and preferences.
- **Track Learning Progress:**
  The profile section also includes a progress tracker that displays the student's current learning journey. It provides information on the courses they are enrolled in, their progress within each course, and the completion status of individual lessons or assignments. This feature allows students to monitor their growth and set goals for future learning.



3.3. Access to Enrolled Courses

- **Easy Access to Course Content:**
  Once enrolled in a course, students can easily access course materials from their profile or the course dashboard. All content, including video lectures, assignments, quizzes, and reading materials, is organized within the course page for easy

  navigation. This ensures that students can dive straight into learning without any difficulty.
- **Track Course Progress:**
  As students work through the course, they can track their progress in real-time. This includes viewing which modules or lessons have been completed, as well as upcoming tasks or assignments. The ability to track progress helps maintain motivation and ensures that students stay on track with their learning objectives.



3.4. Recommendations and Exploration of New Courses

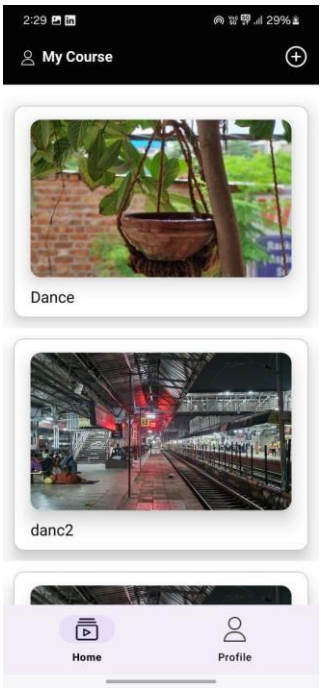
- **Exploration of New Content:**
  Students are encouraged to explore additional content within the app. This includes recommendations based on trending courses, new releases, and courses that other students have enjoyed. By offering diverse options, the app keeps students engaged and motivated to continue learning.

CHAPTER 4: TEACHER SECTION

The teacher section of the e-learning app is designed to empower educators to share their expertise and create engaging learning experiences for students. This section provides teachers with intuitive tools to manage courses and content efficiently, enabling them to focus on delivering high-quality educational material. Below is a detailed explanation of the key functionalities within the teacher section of the app.

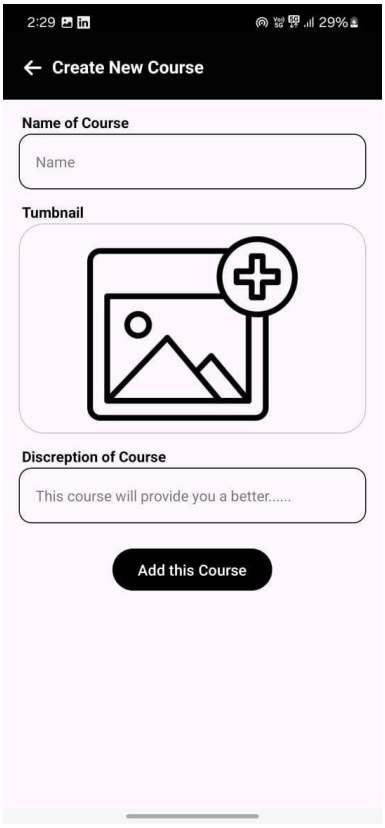
4.1. Course Creation and Management

- **Adding New Courses:**
  Teachers can create new courses tailored to specific art disciplines or skills. The course creation process is simple and user-friendly, allowing educators to specify the course title, description, objectives, and target audience. Teachers can also upload a course image to visually represent the content, making it more appealing to potential students.
    - **Key Fields for Course Creation:**
        - Course Title: The name of the course.
        - Description: A detailed overview of the course.
        - Objectives: Learning outcomes students can expect.
        - Image Upload: Visual representation of the course.
- **Editing Existing Courses:**
  Teachers can modify details of existing courses to keep them updated and relevant. This includes editing the course description, updating objectives, or enhancing visual elements to improve student engagement.



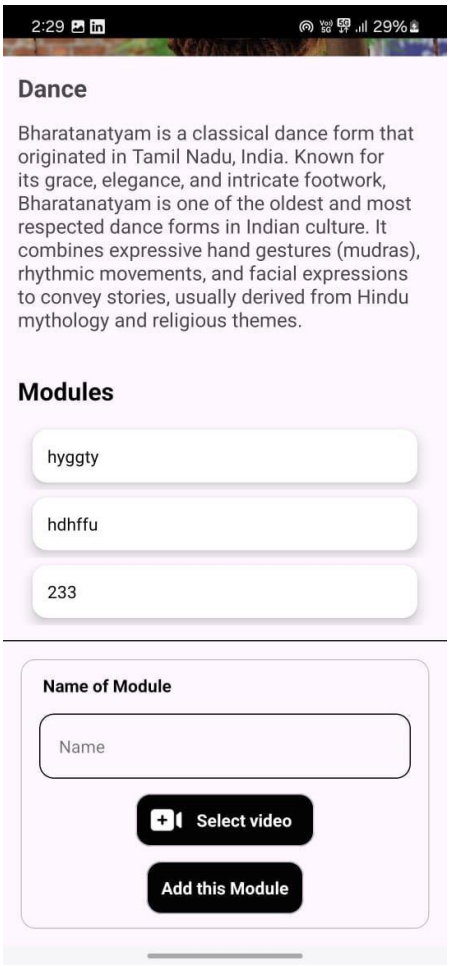
4.2. Module Addition and Management

- **Adding New Modules:**
  Once a course is created, teachers can add modules to structure the content effectively. A module represents a specific topic or lesson within the course, and each course can have multiple modules. Teachers can upload multimedia content such as videos, PDFs, or interactive activities to enhance the learning experience.
    - **Key Fields for Module Creation:**
        - Module Title: The name of the module.
        - Description: A brief overview of the module.
        - Content Upload: Videos, PDFs, and other resources.
- **Organizing Modules:**
  Teachers can arrange modules in a logical order to guide students through the course content seamlessly. Modules can be restructured or reordered to improve the course flow, ensuring an optimal learning experience.



4.3. Interaction with Students

- **Feedback and Communication:**
  Teachers can interact with students by responding to queries, providing feedback on assignments, and engaging in discussions. This two-way communication fosters a collaborative learning environment.
- **Assignment Reviews:**
  Teachers can review and grade assignments submitted by students. They can provide constructive feedback to help students improve their skills and understanding.



CHAPTER 5: OUTCOMES GAINED

Technical Outcomes

- Developed a fully functional Android e-learning platform with secure login and role-based access for students, instructors, and administrators.
- Integrated Firebase services including Authentication, Realtime Database, Cloud Storage, and Cloud Messaging for real-time data sync, content management, and notifications.
- Designed and implemented user-friendly interfaces with smooth navigation and multimedia content support (videos, PDFs, quizzes).
- Ensured real-time updates and notifications to enhance learner engagement and communication.
- Conducted comprehensive testing and debugging to improve app performance and reliability.
- Gained proficiency in Android development tools and Firebase integration.

Professional Outcomes

- Experienced the entire software development lifecycle from requirement analysis to deployment.
- Worked under project deadlines and followed professional standards and best practices.
- Improved technical documentation skills and presented the project effectively.
- Understood the significance of mobile technology in transforming education and improving accessibility.

Learning and Personal Development

- Enhanced problem-solving skills by addressing real-world challenges like data synchronization and multi-role user management.
- Developed adaptability by learning and applying new technologies and frameworks.
- Strengthened understanding of how mobile applications can support education and flexible learning.
- Appreciated the importance of designing accessible and user-centric digital learning tools.

CHAPTER 6: SKILLS GAINED

Technical Skills Acquired:

- Android Development: Gained hands-on experience with Java, XML layouts, and Android Studio for building mobile applications.
- Firebase Integration: Learned to implement Authentication, Realtime Database, Cloud Storage, and Cloud Messaging services for app backend.
- UI/UX Design: Applied Material Design principles to create intuitive and responsive user interfaces.
- Multimedia Content Handling: Managed video, document, and quiz content delivery within the app.
- Push Notifications: Implemented real-time notifications to enhance user engagement.
- Debugging and Testing: Developed skills in identifying and resolving app issues to improve stability and performance.

Soft Skills Acquired:

- Analytical Thinking: Improved ability to break down app requirements and troubleshoot technical issues.
- Time Management: Balanced app development, testing, and documentation within project deadlines.
- Communication: Enhanced skills in documenting and presenting technical work clearly.
- Adaptability: Quickly learned and applied new tools and technologies to meet project needs.
- Attention to Detail: Maintained accuracy and consistency during coding and testing phases.

CHAPTER 7: CONCLUSION

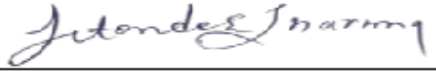
The development of this e-learning app represents a significant step toward making art education more accessible and engaging for students and empowering educators to share their expertise effectively. The app addresses key challenges in traditional art education by offering a comprehensive, user-friendly digital platform tailored for interactive and personalized learning.

For students, the app provides features such as course exploration, enrollment, progress tracking, and profile management, enabling them to take ownership of their learning journey. With a focus on art education, students can immerse themselves in various disciplines, from painting and sculpture to design and photography, all while learning at their own pace. The inclusion of multimedia content and interactive modules enhances the learning experience, making it dynamic and enjoyable.

For educators, the app simplifies the process of creating and managing courses through features like module addition, student progress tracking, and direct communication. This ensures that teachers can focus on delivering high-quality content while maintaining a structured and engaging curriculum. By leveraging Firebase for real-time data management, the app ensures seamless and secure interactions for both students and teachers.

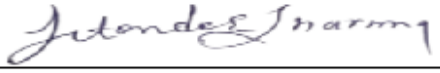
This project underscores the potential of technology in transforming traditional education methods. By bridging the gap between educators and learners, the app creates a vibrant ecosystem where creativity thrives, and knowledge flows freely. The platform not only supports skill development but also fosters a lifelong appreciation for art. Moving forward, it holds the potential to expand into new fields and incorporate advanced technologies to further enhance its capabilities.

MONTHLY REPORT OF PROGRESS (MRP) FROM INDUSTRY MENTOR

Name of student	Rahul Saxena		Department	CSE	
Industry/Organization	Farmsbook private limited		Date/Duration	02/01/2025 -08/02/2025	
Criterion	**Poor**	**Average**	**Good**	**Very Good**	**Excellent**
Punctuality/Timely completion of assigned work					✓
Learning capacity/Knowledge upgradation				✓	
Performance/Quality of work					✓
Behaviour/Discipline/Team work					✓
Sincerity/Hard work				✓	
Comment on nature of work done/Area/Topic	During the first month of the internship, the intern focused on understanding the project requirements and the overall architecture of the **e-learning platform**. They worked on designing and developing the **UI/UX for core screens**, integrating **Firebase for authentication and database management**, and implementing key frontend functionalities using **Kotlin**. Additionally, they explored best practices for real-time data synchronization and began optimizing app performance for a seamless user experience. They have shown strong adaptability and a willingness to learn new technologies.				
OVERALL GRADE (Any one)	**EXCELLENT**				
Name of Industry Mentor	Jitendra Sharma				
Signature of Industry Mentor					

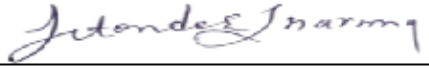
Receiving Date	**08/02/2025**	**Name of Faculty Mentor**	**Dr. Praphula Kumar Jain**	**Sign**	

MONTHLY REPORT OF PROGRESS (MRP) FROM INDUSTRY MENTOR

Name of student	Rahul Saxena		Department	CSE	
Industry/Organization	Farmsbook private limited		Date/Duration	12/02/2025 -12/03/2025	
Criterion	**Poor**	**Average**	**Good**	**Very Good**	**Excellent**
Punctuality/Timely completion of assigned work					✓
Learning capacity/Knowledge upgradation					✓
Performance/Quality of work					✓
Behaviour/Discipline/Team work					✓
Sincerity/Hard work					✓
Comment on nature of work done/Area/Topic	In the second month of the internship, the intern focused on enhancing the **functionality and performance** of the e-learning platform. They worked on implementing **course management features**, enabling users to access and interact with educational content seamlessly. They integrated **Firebase Firestore for real-time data storage** and optimized the **authentication system** for a secure user experience. Additionally, they improved the **UI/UX design**, making the app more intuitive and user-friendly. Their problem-solving skills and ability to work with complex data structures have been commendable.				
OVERALL GRADE (Any one)	**EXCELLENT**				
Name of Industry Mentor	Jitendra Sharma				
Signature of Industry Mentor					

Receiving Date	**15/03/2025**	**Name of Faculty Mentor**	**Dr. Praphula Kumar Jain**	**Sign**	

MONTHLY REPORT OF PROGRESS (MRP) FROM INDUSTRY MENTOR

Name of student	Rahul Saxena		Department	CSE	
Industry/Organization	Farmsbook private limited		Date/Duration	15/03/2025 -15/04/2025	
Criterion	**Poor**	**Average**	**Good**	**Very Good**	**Excellent**
Punctuality/Timely completion of assigned work					✓
Learning capacity/Knowledge upgradation					✓
Performance/Quality of work					✓
Behaviour/Discipline/Team work					✓
Sincerity/Hard work					✓
Comment on nature of work done/Area/Topic	In the third month of the internship, the intern focused on integrating **interactive features** into the e-learning platform, such as **quizzes, progress tracking, and video content playback**. They also worked on refining the **backend logic** to support user-specific content delivery and implemented **notification features** using Firebase Cloud Messaging (FCM). The intern took responsibility for debugging and testing critical modules to ensure stability and smooth user experience. Their contributions during this phase significantly improved the app's overall functionality and user engagement.				
OVERALL GRADE (Any one)	**EXCELLENT**				
Name of Industry Mentor	Jitendra Sharma				
Signature of Industry Mentor					

Receiving Date	**16/04/2025**	**Name of Faculty Mentor**	**Dr. Praphula Kumar Jain**	**Sign**	

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