Internship Report submitted in Partial Fulfillment for Diploma In **Computer Engineering**

Application Development – Lekeamp and Turf Application

Presented By

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Under the Guidance of

Industry Mentor:- Nayan Mavarkar

College Mentor:- Vedika Koli

DEPARTMENT OF COMPUTER ENGINEERING

VIDYAVARDHINI'S BHAUSAHEB VARTAK

POLYTECHNIC VASAI (W), PALGHAR – 401-202.

20252026

VIDYAVARDHINI'S BHAUSAHEB VARTAK POLYTECHNIC VASAI (W)

– 401-202 2025-2026

CERTIFICATE OF INDUSTRIAL TRAINING

This is to certify that Ms,Sanchita Yashwant Ambekar Enrollment No.23111000400, a student **Third Year Diploma in Computer Engineering**, has satisfactorily completed a **12-week Industrial Training (Internship)** under course code **ITR 315004** – Internship (12 Weeks), **as prescribed by MSBTE (Semester-5,K-Scheme).**

Training Period: From 2nd June, 2025 to 25th August, 2025 inclusive.

During this period, the student undergone the training in the Industry Lekeamp Mobility Pvt Limited, located at Broadway Commercial Center Basement Gala No.2, Near Tandool Bazar, Chandansar Road ,Virar (East) .Palghar ,Mumbai, MH and gained practical, hands-on experience in the domain of Application Development.

College Mentor **Industry Mentor**

Head of Department **External Examiner** **Principal**

ABSTRACT

As a computer engineering student, it is of utmost importance to not only develop a strong theoretical foundation but also gain practical exposure to emerging technologies that are shaping the future of the industry. Classroom learning provides the necessary fundamentals, but true competence in engineering comes from bridging the gap between theory and practice. With this vision, I undertook my internship at Lekeamp Mobility Pvt. Ltd., a company committed to building sustainable and innovative technological solutions in the field of mobility and recreation. My internship was within the Application Development domain, where I was given the opportunity to engage in real-world projects, work with modern frameworks, and understand the end-to-end process of developing digital solutions that have a direct social impact.

This internship proved to be a turning point in my professional growth as it not only enhanced my technical knowledge but also provided me with insights into software engineering methodologies, artificial intelligence applications, cloud-based systems, and user-centered design principles. Moreover, it allowed me to explore how technology can effectively address pressing societal challenges such as sustainable transportation, health, fitness, and recreation, which are increasingly becoming priorities in today's urban lifestyle.

The core focus of my internship was the design and development of two innovative mobile applications: LEKEAMP and Step-Out. These projects were conceived to promote convenience, ecofriendly practices, community engagement, and healthy living habits. The applications were built using a combination of modern frameworks, cloud computing services, GPS-based tracking systems, and secure payment integrations, ensuring that they are scalable, reliable, and user-friendly.

Project 1: LEKEAMP

The first application, LEKEAMP, is an electric bicycle (e-bike) sharing system designed to address issues of urban congestion and environmental pollution. With increasing population density in cities, traffic problems and carbon emissions have become critical concerns. LEKEAMP provides an innovative solution by offering a sustainable and eco-friendly mode of transportation through shared e-bikes.
The platform allows users to:

- Locate available e-bikes in their vicinity using real-time GPS tracking.
- Unlock and rent e-bikes using a digital interface and secure payment gateway.
- Ride to their destination and park the vehicle at designated hubs.
- Access ride history and performance data, encouraging consistent usage and monitoring. By promoting electric mobility, LEKEAMP not only encourages individuals to adopt greener transport methods but also plays a role in reducing traffic congestion, fuel consumption, and dependency on fossil fuels. The application further aligns with the global vision of sustainable urban transport and supports government initiatives promoting electric vehicles.

Project 2: Step-Out

The second application, Step-Out, focuses on the growing demand for sports, fitness, and recreation platforms. With an increasing awareness of the importance of health and wellness, there has been a significant rise in the need for accessible, well-managed recreational facilities. Step-Out bridges this gap by acting as a digital platform for booking turfs, playgrounds, and sports venues. The features of Step-Out include:

- Real-time availability checking of turfs and play areas.
- Slot reservation and booking through a streamlined interface.
- Secure online payments for hassle-free transactions.
- Notifications and reminders to enhance user engagement.
- Community-oriented features that encourage group bookings and participation in outdoor activities.

This platform is not only convenient for individuals but also fosters teamwork, social bonding, and active lifestyles. By providing easy access to sports facilities, it encourages people of all ages to step outdoors, engage in physical activity, and lead a healthier lifestyle, which is particularly relevant in the digital era where sedentary habits are on the rise.

Technological and Design Approach

Both applications were developed with a user-centric design philosophy, ensuring simplicity, accessibility, and high performance. They make use of modern technologies, including:

- GPS-based services for accurate location tracking.

- API integration for seamless data exchange between modules.
- Cloud-based storage and services to ensure scalability and reliability.
- Real-time notification systems to keep users informed.
- Secure payment systems integrated with encrypted gateways for safe transactions. The applications were also designed with a focus on performance optimization, cross-platform compatibility, and data security, which are critical factors in ensuring user trust and adoption.

Significance of the Internship

This internship experience has been invaluable in strengthening my ability to translate academic learning into real-world problem solving. It taught me the complete cycle of application development, starting from conceptualization and design to implementation, testing, and deployment. Additionally, I gained experience in working collaboratively within a professional environment, adapting to deadlines, and delivering solutions that align with business objectives. Most importantly, the projects I worked on highlight how digital innovation can merge sustainability with recreation, thereby addressing key social challenges while offering commercial value. The exposure I received to practical problem-solving, technical skill development, and professional collaboration has equipped me with the confidence and competence to contribute effectively to the field of computer engineering in the future.

ACKNOWLEDGEMENT

I take this opportunity to express my profound sense of gratitude and deep appreciation to all those who have supported, guided, and encouraged me during the successful completion of my internship and the preparation of this report. This internship has been one of the most enriching and memorable phases of my academic journey. The knowledge and experience that I have gained during this period would not have been possible without the valuable assistance, mentorship, and encouragement that I received from several individuals and institutions. Their support gave me the strength, confidence, and motivation to perform to the best of my abilities.

First and foremost, I would like to convey my sincere gratitude to my industry mentor, **Mr. Nayan Mavarkar**, for providing me with this invaluable internship opportunity at *Lekeamp Mobility Pvt. Ltd*. His constant guidance, mentorship, and trust in my abilities were instrumental in making this internship a productive and insightful learning experience. By providing me access to the company's resources, encouraging me to take up challenging assignments, and motivating me to think critically, he created an environment where I was able to apply my theoretical knowledge to practical, realworld projects. His confidence in my skills not only strengthened my technical expertise but also gave me the assurance and motivation to contribute meaningfully to the development of the *Lekeamp e-bike application* and the *Step-Out turf booking application*. I am truly grateful for his patient supervision, constructive feedback, and continuous encouragement, which played a significant role in enhancing both my professional and personal growth.

I also extend my heartfelt gratitude to my college mentor, **Miss Vedika Koli**, for her unwavering support, timely advice, and constant encouragement throughout this internship period. Her valuable insights helped me align my project work with academic requirements, while her motivation inspired me to improve continuously and remain focused on my goals. She guided me whenever I faced challenges and ensured that I was able to complete my tasks with clarity and purpose. Her mentorship has been a source of inspiration and has contributed greatly to my learning experience as well as my overall development as a computer engineering student.

My sincere thanks also go to our respected **Principal, Prof. Nagnath Kavhale**, for fostering an academic environment that encourages innovation, industry collaboration, and practical exposure for students. His constant support and visionary approach have created opportunities like this internship, where students like me can gain hands-on learning experiences that prepare us for the professional world. I am equally grateful to our **Head of Department, Prof. Anand A. Aware**, whose guidance, encouragement, and leadership have always been a source of inspiration throughout my academic journey. His emphasis on industry-oriented learning and skill development has been crucial in shaping my career path and motivating me to give my best in this internship.

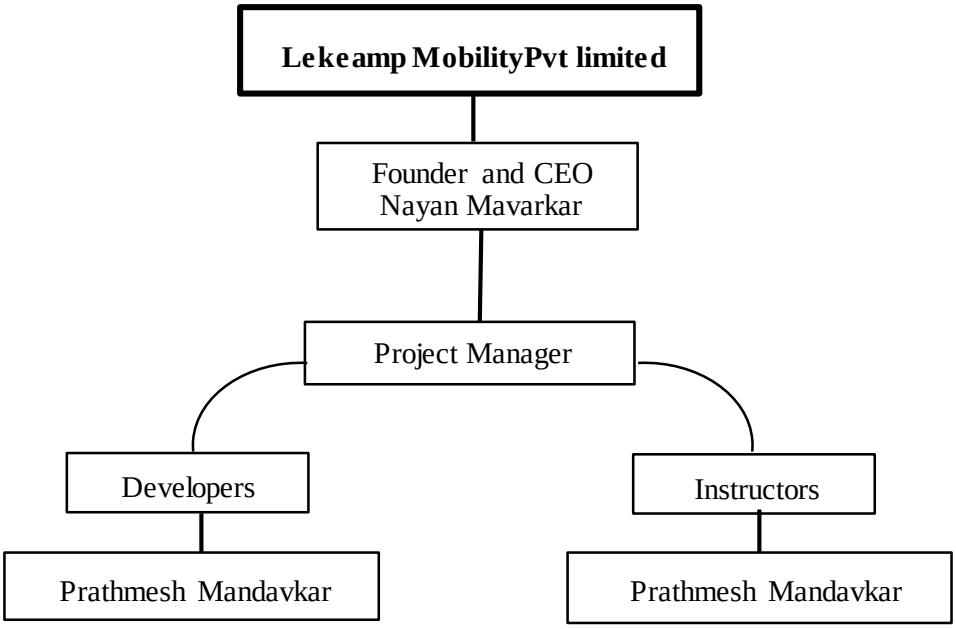
In addition, I would like to thank my teammates and peers, who have been a continuous source of collaboration, discussion, and motivation during this journey. Working with them, sharing ideas, and solving challenges together created an environment of teamwork and learning, which enriched my overall internship experience. Their companionship made the entire process more engaging and gave me the confidence to approach tasks with creativity and teamwork.

In conclusion, I wholeheartedly acknowledge every individual, directly or indirectly, who has contributed to the successful completion of this internship and report. Without their consistent guidance, encouragement, and support, this achievement would not have been possible. Their contributions have helped me gain knowledge, skills, and confidence that will remain with me throughout my professional journey.

Sanchita Yashwant Ambekar.

CHAPTER 1

ORGANIZATION STRUCTURE OF INDUSTRY AND GENERAL LAYOUT



The organizational structure of **Lekeamp Mobility Pvt. Ltd.** has been designed to maintain a clear distribution of responsibilities, proper supervision, and effective coordination among different roles. Such a structure ensures smooth workflow, accountability, and streamlined communication between the various levels of management and operational staff.

At the top of the hierarchy, the organization is headed by the **Founder and Chief Executive Officer (CEO), Mr. Nayan Mavarkar**. As the visionary leader of the company, the CEO is responsible for defining the strategic goals, long-term objectives, and growth-oriented policies of the organization. He provides direction to the company by formulating innovative ideas, ensuring financial stability, and exploring new business opportunities. The CEO also plays a central role in building partnerships, leading decision-making processes, and ensuring that the company remains aligned with its mission of promoting sustainable mobility and recreation solutions.

Reporting directly to the CEO is the **Project Manager**, who acts as the bridge between senior leadership and the operational teams. The Project Manager plays a crucial role in planning, executing, monitoring, and delivering projects successfully. His responsibilities include resource allocation, progress tracking, risk management, and ensuring that projects are completed within the stipulated time frame and budget. Furthermore, the Project Manager facilitates collaboration between

different teams, resolves conflicts, and ensures that the company's goals are translated into actionable tasks.
Under the Project Manager, the structure is divided into two key operational roles: **Developers** and **Instructors**.

- The **Developers** are primarily responsible for the technical aspects of application development, which includes designing, coding, testing, and deploying software applications. In the case of Lekeamp Mobility Pvt. Ltd., the development team focuses on creating user-friendly and efficient applications such as the *Lekeamp e-bike sharing app* and the *Step-Out turf booking platform*. Their work ensures that the applications are not only functional but also scalable, secure, and aligned with user expectations.
- The **Instructors**, on the other hand, play a supportive yet vital role by guiding new employees, trainees, or interns in understanding organizational practices, technical processes, and project requirements. They provide mentorship, share domain knowledge, and ensure that team members are able to contribute effectively to ongoing projects. In this structure, **Mr. Prathamesh Mandavkar** is shown handling responsibilities under both the Developer and Instructor roles, reflecting his multi-faceted contribution to the organization.

This hierarchical structure, though simple in design, ensures effective communication, accountability, and specialization. By defining clear roles at each level — from leadership (CEO), to coordination (Project Manager), to execution (Developers and Instructors) — Lekeamp Mobility Pvt. Ltd. ensures that projects are managed efficiently, responsibilities are not duplicated, and goals are achieved systematically.

In conclusion, the organizational structure highlights the company's focus on clarity, efficiency, and teamwork. It demonstrates how leadership, management, and operational roles are interconnected to achieve the common vision of providing innovative, technology-driven solutions in the field of sustainable mobility and recreational applications.

CHAPTER 2

INTRODUCTION TO INDUSTRY (HISTORY, TYPES OF PRODUCTS AND SERVICES, TURN OVER AND NUMBERS OF EMPLOYEES)

Lekeamp Mobility Company is a rapidly growing and innovative organization in the field of **electric mobility solutions**, officially established on **19th January 2019**. Since its foundation, the company has been fully dedicated to designing and developing **sustainable, smart, and technology-driven mobility products** that encourage the adoption of eco-friendly transportation. In today's world, where the demand for **green energy, reduced fuel dependency, and minimized carbon emissions** is steadily rising, Lekeamp Mobility has positioned itself as a **forward-thinking enterprise** that not only contributes to environmental sustainability but also to the **future of intelligent transportation systems**. The company's vision and consistent innovation have enabled it to carve out a place in the competitive e-mobility market.

History and Establishment

Since its inception in **2019**, Lekeamp Mobility has steadily expanded its operations within the electric mobility sector. The company began its journey with a **clear vision**—to design and manufacture **high-quality electric bicycles** that serve as **affordable, efficient, and environmentally friendly alternatives** to conventional fuel-based vehicles. This vision aligned with the global need for sustainable development and urban transport solutions. Over time, the company's commitment to **continuous innovation** has allowed it to expand its product portfolio and diversify its services. What started as a small initiative to create cost-effective e-bikes has now grown into a broader mission of developing **smart mobility ecosystems** that suit the requirements of modern consumers, urban commuters, and environmentally conscious users.

Products

Lekeamp Mobility has developed a wide range of **innovative electric bicycle models** and related products, each carefully designed with **modern technology, customer comfort, and user convenience** in mind. These products showcase the company's ability to blend **sustainability with style and functionality**. Some of the major products include:

- **Waltz** – A stylish, lightweight, and efficient electric bicycle model created for everyday commuting. It is designed to meet the needs of users who prefer a sleek design without compromising on performance.
- **Hammock** – A comfortable and durable e-bike that is ideal for **long-distance travel**. Built with ergonomic design features, it allows riders to enjoy smooth and fatigue-free journeys.

- **JIT (Just-In-Time)** – A high-speed and agile model that is focused on **efficiency and performance**. This model is popular among users who value quick mobility and modern design.
- **Orca** – A powerful e-bike designed for **professional and advanced riders**. It combines strength with cutting-edge features to offer a superior riding experience.

Each of these products reflects the company's commitment to **innovation, customer satisfaction, and sustainable mobility solutions**.

Services

In addition to manufacturing advanced e-bikes, Lekeamp Mobility also offers **comprehensive services** to ensure that customers have access to complete mobility solutions rather than just products. These services include:

- **Sales of e-bikes** to both individual customers and corporate businesses, ensuring a wide reach and accessibility of their models.
- **Servicing and maintenance** of electric bicycles, which guarantees long-term performance, safety, and efficiency for users.
- **Customer support and consultation**, where professionals guide customers in selecting the best possible e-mobility solutions based on their needs, lifestyle, and budget.

This holistic approach ensures that every customer receives not only a **product** but also a **support system** that enhances their experience with electric mobility.

Turnover and Growth

With a **steadily increasing customer base** and rising market demand, Lekeamp Mobility has successfully achieved a **turnover of ₹1.69 crore**. This financial achievement highlights both the **potential** of the company in the e-mobility sector and its **dedication** to delivering quality products and services. The company has also been making efforts to **expand its market presence** across different regions and build a **strong brand identity**. Lekeamp Mobility's steady growth is a reflection of its commitment to **eco-friendly innovation, technological advancement, and customer trust**.

Employees and Leadership

Lekeamp Mobility currently employs **23 highly skilled professionals** who work across various departments, contributing their expertise towards the company's progress. Despite being a relatively small team, the organization has been able to function efficiently due to its **dynamic work culture, collaborative environment, and innovative leadership**.

The leadership is spearheaded by:

- **Mr. Nayan Mavarkar (CEO)** – Responsible for driving the company's overall vision, business strategy, and market expansion.
- **Mr. Prathmesh Mandavkar (Developer)** – Leading the innovation and technical development of the company's mobility products and ensuring the adoption of the latest technologies.

The collective effort of the team ensures **seamless operations, high-quality manufacturing, timely deliveries, and excellent customer service**, all of which strengthen the company's reputation in the market.

Core Values and Vision

The strong foundation of Lekeamp Mobility rests on three essential **core values**:

1. **Sustainability** – Committed to promoting the use of green energy, reducing dependency on fossil fuels, and lowering carbon emissions through electric mobility solutions.
2. **Innovation** – Constantly striving to improve product design, integrate advanced technologies, and introduce creative solutions that meet the evolving needs of modern transportation.
3. **Customer Satisfaction** – Focused on delivering **top-quality products** while also ensuring that customers receive reliable after-sales service, guidance, and long-term support.

Looking ahead, the company's long-term vision is to **become a leading player in both the Indian and global electric mobility market**. By offering eco-friendly, cost-effective, and technologically advanced mobility solutions, Lekeamp Mobility aims to transform the way people travel while contributing to a **cleaner and greener future**.

CHAPTER 3

TYPES OF MAJOR EQUIPMENT/RAW MATERIALS/INSTRUMENTS/MACHINES/HARDWARE/SOFTWARE USED IN INDUSTRY WITH THEIR SPECIFICATION, APPROXIMATELY COST, SPECIFIC USE AND ROUTINE MAINTENANCE DONE.

SOFTWARE COMPONENTS:-

Backend Framework

- **Type**: Spring Boot Framework
- **Specification**: Java 17+, Spring Boot 2.7+
- **Cost**: Free (Open Source)
- **Use**: REST API development, business logic
- **Maintenance**: Regular updates, security patches

Database System

- **Type**: PostgreSQL Database
- **Specification**: PostgreSQL 13+, 4GB RAM minimum
- **Cost**: Free (Open Source)
- **Use**: Data storage for turfs, bookings, users
- **Maintenance**: Daily backups, index optimization

Frontend Framework

- **Type**: Angular Framework
- **Specification**: Angular 15+, Node.js 16+
- **Cost**: Free (Open Source)
- **Use**: Admin panel, user interface
- **Maintenance**: Dependency updates, build optimization

HARDWARE INFRASTRUCTURE:-

Application Server

- **Type**: Windows Server
- **Specification**: 8GB RAM, 4 CPU cores, 100GB SSD
- **Cost**: $50-100/month (cloud hosting)
- **Use**: Host Spring Boot application
- **Maintenance**: OS updates, monitoring, scaling

Database Server

- **Type**: PostgreSQL Server

- **Specification**: 16GB RAM, 8 CPU cores, 500GB SSD
- **Cost**: $100-200/month
- **Use**: Store application data
- **Maintenance**: Backup verification, performance tuning

THIRD-PARTY SERVICES:-

SMS Gateway

- **Type**: SMS API Service
- **Specification**: REST API integration
- **Cost**: $0.02-0.05 per SMS
- **Use**: OTP verification, notifications
- **Maintenance**: API key rotation, usage monitoring

Payment Gateway

- **Type**: Razorpay Integration
- **Specification**: REST API, webhook support
- **Cost**: 2% transaction fee
- **Use**: Process booking payments
- **Maintenance**: Transaction reconciliation, security updates

Push Notifications

- **Type**: OneSignal Service
- **Specification**: REST API, mobile SDK
- **Cost**: Free up to 10K users
- **Use**: Send booking notifications
- **Maintenance**: Campaign monitoring, user segmentation

DEVELOPMENT TOOLS:-

IDE & Development

- **Type**: IntelliJ IDEA / VS Code
- **Cost**: $150/year (IntelliJ) / Free (VS Code)
- **Use**: Code development, debugging
- **Maintenance**: Plugin updates, license renewal

Version Control

- **Type**: Git Repository (GitHub/GitLab)
- **Cost**: Free for public repos
- **Use**: Source code management
- **Maintenance**: Branch management, access control

CHAPTER 4

PROCESSES/MANUFACTURING TECHNIQUES AND METHODLOGIES AND MATERIAL HANDLING PROCEDURES

In the IT services and consulting industry, the concept of "manufacturing" is not limited to physical goods or machinery. Instead, it is closely associated with **software development and deployment**, where digital products such as web applications, APIs, and backend systems are carefully designed, tested, and finally delivered to clients or end-users. Unlike traditional industries that deal with tangible materials, the IT domain deals with **digital assets**, which require systematic management and high precision to ensure quality and reliability. During my internship at **Lekeamp Mobility Pvt. Limited – Application Development**, I was introduced to a wide range of modern software engineering processes and methodologies. These practices not only enhanced my technical skills but also gave me a clear understanding of how real-world IT projects are executed with efficiency, scalability, and accuracy.

1. Software Development Processes

The company primarily follows an **Agile-based workflow**, where the development cycle is divided into short, iterative sprints. This method ensures that smaller modules of the project are developed, tested, and reviewed within a short time frame, allowing for faster delivery and flexibility. Agile development also emphasizes teamwork and communication, making it easier to adapt to any changes in project requirements. Continuous feedback and improvements are part of every sprint, which ensures that the final product is well-refined and error-free.

2. Methodologies Applied

While working on various projects, I was introduced to a number of industry-standard methodologies that are widely used in IT organizations. These included:

- **Agile & Scrum**: Regular weekly sprints, daily stand-up meetings, and sprint reviews ensured smooth progress and collaborative teamwork.
- **Version Control (Git/GitHub)**: I learned how to create repositories, manage branches, merge code, and maintain commit histories. This was extremely useful for managing collaborative projects.
- **CI/CD (Continuous Integration and Continuous Deployment)**: This methodology ensured that whenever a new update was made to the codebase, it was automatically tested and deployed, reducing the chances of errors in production.
- **API-First Development**: Applications were built with modular APIs at the core, which improved reusability, scalability, and ease of integration with other systems.

3. Material Handling in IT Context

In traditional industries, material handling involves physical components such as raw materials, spare parts, or machinery. In contrast, in IT the "materials" are purely digital, and they must be managed carefully for smooth project execution. Some of the key digital materials I worked with included:

- **Source Code (GitHub Repositories)**: Code management was done through commits, pull requests, and branching to ensure proper updates and team collaboration.
- **Static & Dynamic Files**: Files such as HTML boilerplates, CSS stylesheets, JavaScript modules, and Next.js pages acted as the core building blocks of web applications.
- **APIs & URLs**: These were handled using JavaScript asynchronous functions (async/await), allowing smooth data fetching and dynamic interactions in applications.
- **Databases (Supabase/PostgreSQL)**: CRUD operations were performed for data management, while authentication techniques ensured data privacy and security.

4. Practical Exposure During Internship

The most valuable aspect of my internship was the practical exposure I received. I not only observed these processes but also actively participated in implementing them. Some of the tasks I successfully worked on included:

- Developing small projects in **Next.js** (such as a Counter App and App Routing) to learn component-based development and navigation.
- Configuring **GitHub repositories** for version control and maintaining proper commit histories.
- Integrating **Supabase** as a backend service to handle authentication, database management, and data retrieval.
- Learning and applying **JavaScript fundamentals** such as ES6 features, async/await functions, and error handling in API calls.
- Participating in **coding tests, MCQs, and rapid-fire rounds**, which tested my technical knowledge and strengthened my problem-solving abilities.

CHAPTER 5

TESTING AND HANDLING PROCEDURES

During our internship at **Lekeamp Mobility Company**, testing and evaluation were carried out only on **specific days** to review our learning and progress. The procedures included:

- **MCQ Tests (Occasional):**
  - Conducted on selected days to quickly check our understanding of concepts related to e-bikes, application development, and workplace practices.
  - These were short and objective, helping us recall important points.

- **Quizzes (Team-Based):** ○ Organized on certain days, usually at the end of a learning module or training session. ○ Encouraged brainstorming, healthy competition, and knowledge-sharing among our team of five.

- **Group Activities:**
  - Sometimes, we were divided into smaller groups to solve case studies or real-life problem situations. ○ This helped in improving teamwork, coordination, and quick decision-making.

- **Feedback Sessions:**
  - After each test or quiz, mentors discussed the answers and provided constructive feedback. ○ We were guided on how to improve in areas where we lacked clarity.

- **Handling Approach:**
  - Since these tests were not regular but occasional, they acted as a **checkpoint** rather than a routine task.
  - This reduced pressure and allowed us to focus on both practical tasks and theoretical knowledge.

- **Outcome:** ○ Helped us assess our preparation in between the training.
  - Motivated us to revise concepts and stay attentive during sessions.

CHAPTER 6

SAFETY PROCEDURES FOLLOWED AND SAFETY GEARS USED BY INDUSTRY

Although my internship was in the IT services and consulting industry, safety procedures were still an important aspect of daily operations. The organization ensured that interns were trained to follow proper digital, physical, and professional safety practices to maintain a secure and productive learning environment.

1. Digital Safety

- Data Security: Confidential project data, GitHub repositories, and API keys were handled responsibly. Interns were instructed not to share credentials or sensitive information outside the organization.
- Password Protection: Strong passwords and two-factor authentication (2FA) were used for GitHub, Supabase, and other tools.
- Safe Coding Practices: Code was regularly reviewed to prevent vulnerabilities such as SQL injection or cross-site scripting (XSS).
- Regular Backups: Databases and code repositories were routinely backed up to prevent data loss.
- Secure Browsing: Only authorized URLs, hyperlinks, and resources were accessed, avoiding malicious downloads or phishing attempts.

2. System and Workspace Safety

- System Maintenance: Laptops and workstations were updated with the latest patches, antivirus software, and firewalls.
- Hardware Safety: Proper care was taken when handling external devices such as hard drives or USBs to avoid malware infections.
- Ergonomics: Safe posture, regular screen breaks, and comfortable seating were emphasized to prevent strain during long coding sessions.

3. Collaboration and Communication Safety

- Version Control (GitHub): Team contributions were managed carefully to prevent overwriting or losing code. Pull requests and reviews were mandatory before merging.
- API Handling: API calls were monitored to ensure no misuse of resources and to maintain server safety.
- Responsible Communication: Professional etiquette was maintained in group discussions, online meetings, and project collaborations.

4. Emergency Preparedness

- System Failures: Procedures were in place to recover code from GitHub repositories or Supabase backups in case of unexpected crashes.
- Data Breach Awareness: Interns were trained to immediately report suspicious activity, unauthorized access, or security breaches.
- Health & Safety: During offline sessions, standard workplace safety protocols such as fire exits, emergency contacts, and first-aid kits were explained.

5. Personal Safety and Professional Conduct

- Interns were reminded to respect organizational policies and maintain confidentiality.
- Safe use of online platforms such as Slack, Zoom, and Google Meet was practiced.
- All interns were encouraged to ask questions freely but to remain cautious when sharing project-related information outside official channels.

CHAPTER 7

PARTICULAR OF PRACTICAL EXPERIENCES IN INDUSTRY IF ANY IN PRODUCTION/ASSEMBLY/TESTING/MAINTENANCE

During my internship, I gained **hands-on exposure to the end-to-end process of software development**. The entire learning process was systematically categorized into four major stages: **Production, Assembly, Testing, and Maintenance**. Each stage reflected real-world practices of the IT industry and gave me the opportunity to connect classroom knowledge with practical applications.

1. Production (Software Development & Implementation)

In this stage, I worked on the initial creation of applications and features, gaining direct exposure to how software is developed from scratch.

- Developed a **basic Counter App in Next.js** to understand component structure, state management, and the flow of data between components.
- Designed and implemented **static and dynamic pages in Next.js**, learning how modern websites balance speed, performance, and interactivity.
- Integrated **APIs using JavaScript async/await**, ensuring smooth data fetching, proper error handling, and seamless communication between frontend and backend.
- Implemented **authentication and database connectivity using Supabase**, simulating a realworld backend integration process and learning how applications handle user accounts and data storage.
- Gained confidence in **converting ideas into functional applications**, which built the foundation for further complex project tasks.

2. Assembly (Integration & Configuration)

The second stage was focused on bringing different components together to form a unified and functional system.

- **Assembled project components** such as frontend, backend, APIs, and database into a complete working application.
- Configured **GitHub repositories for version control**, ensuring smooth collaboration, backup, and tracking of code changes.
- Learned and applied **routing in Next.js**, connecting multiple pages into a structured and seamless workflow for better user experience.
- Practiced **linking hyperlinks, URLs, and HTML boilerplates**, which enhanced my understanding of page navigation and application layout.

- Experienced how integration ensures that independently developed parts of a system function properly when combined.

3. Testing (Quality & Performance Assurance)

This stage emphasized the importance of ensuring quality, accuracy, and performance in real-world applications.

- Participated in **weekly assessments** such as quizzes, MCQs, coding rounds, and mock exams to evaluate technical understanding and progress.
- Conducted **unit testing** for smaller modules (e.g., counter functionality) to ensure individual parts of the application were working correctly.
- Performed **integration testing** to verify smooth communication between modules, especially during API calls and data fetching.
- Used **debugging tools in VS Code** to identify, analyze, and fix coding errors in JavaScript and Next.js projects.
- Gained exposure to **presentation-based assessments**, where I prepared PowerPoint presentations to explain my work, thereby improving both technical explanation skills and confidence in public speaking.

4. Maintenance (Routine Updates & Enhancements)

The final stage focused on keeping applications stable, updated, and secure after initial development.

- Performed **regular updates of npm packages and dependencies** in Next.js projects to ensure compatibility with the latest tools and frameworks.
- Maintained **Supabase databases** by performing CRUD operations (Create, Read, Update, Delete) and conducting regular data backups.
- Engaged in **GitHub repository maintenance**, including branch cleanup, commit history management, and workflow configuration.
- Applied **async/await in JavaScript** for consistent and reliable API calls, ensuring smooth performance of applications in real time.
- Implemented **security practices** such as safe handling of API keys, configuring environment variables, and following coding best practices to protect applications from vulnerabilities.

CHAPTER 8

DETAILED REPORT OF THE TASKS UNDERTAKEN DURING THE TRAINING

The internship at **Lekeamp Mobility Pvt Limited** – **Application Development** Program was structured in a progressive, week-by-week format, ensuring a strong foundation in both full-stack development and machine learning. Each phase was designed to combine theoretical understanding with practical implementation, culminating in hands-on projects and a final industry-oriented deliverable.

Week 1: Environment Setup:-

Angular CLI Setup: Installed Angular 19-20 across all projects

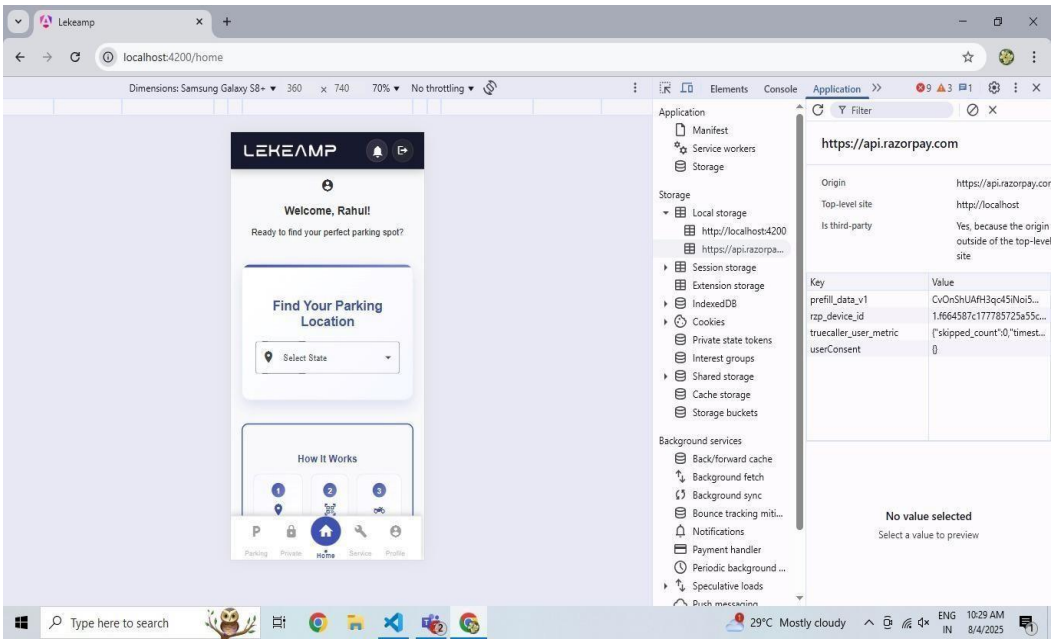
Project Structure: Created 4 main project directories

LekeampApplication (Parking Management)
TurfApplication (Sports Booking)
LekeampAdminPanel (Parking Admin)
TurfAdminPanel (Sports Admin)

Capacitor Integration: Set up mobile app framework for cross-platform development

Basic Routing: Implemented Angular routing structure

Material Design: Integrated Angular Material UI components



Week 2: Authentication Foundation:-

JWT Authentication: Implemented token-based authentication system

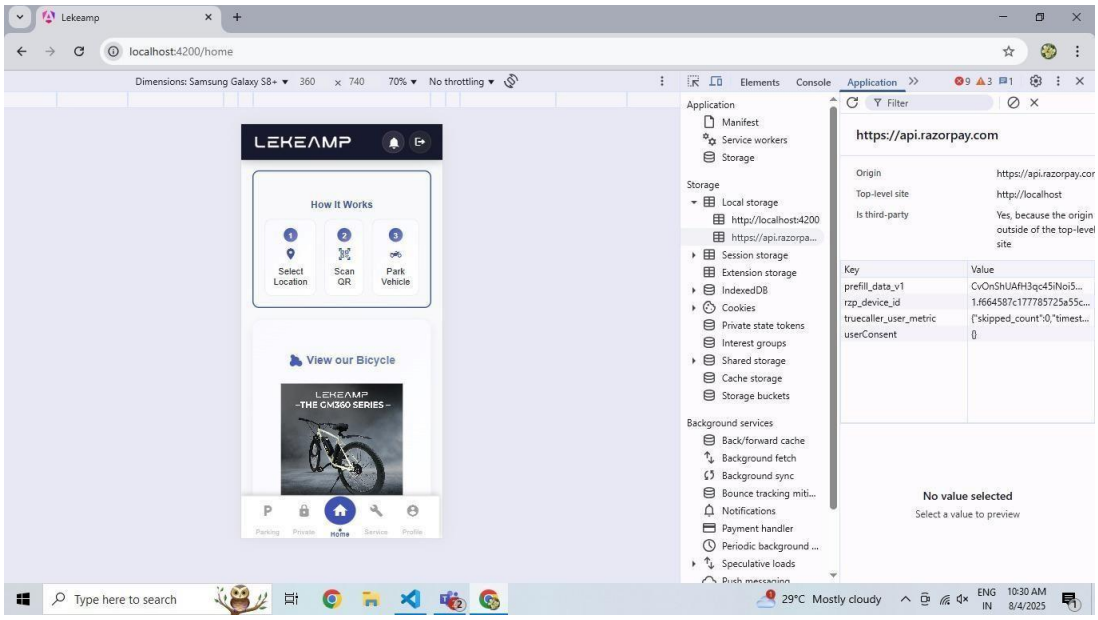
Login/Register Components: Created user authentication interfaces

OTP Verification: Built OTP-based phone number verification

Auth Guards: Implemented route protection and security

Auth Services: Created authentication service layer

Token Management: Built token refresh and storage mechanisms



Week 3-4: Lekeamp Application Core

Week 3: Parking System Foundation:-

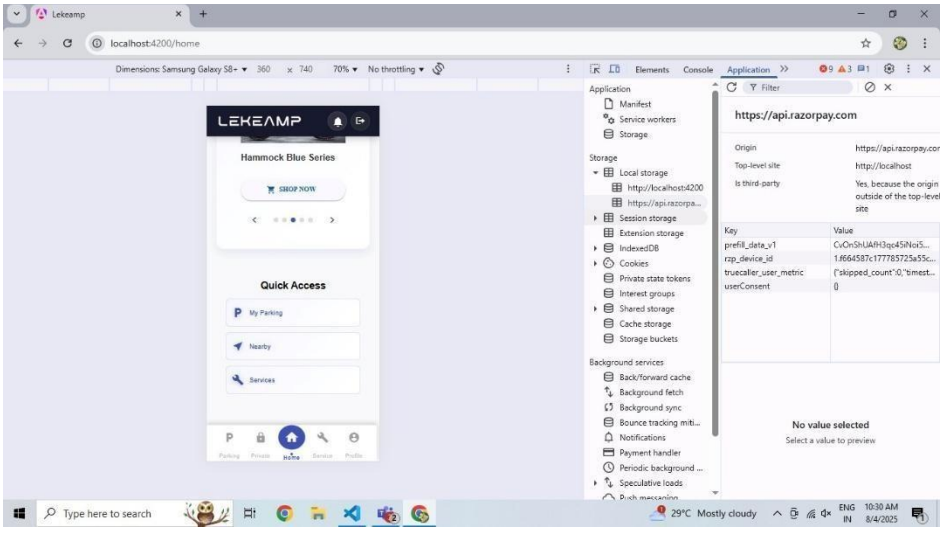
Parking Components: Built parking session management

QR Scanner Integration: Implemented barcode/QR code scanning

Geolocation Services: Added location-based station discovery

Station Management: Created nearby stations functionality

Basic UI Components: Developed bottom navigation and top bar



Week 4: Advanced Parking Features:-

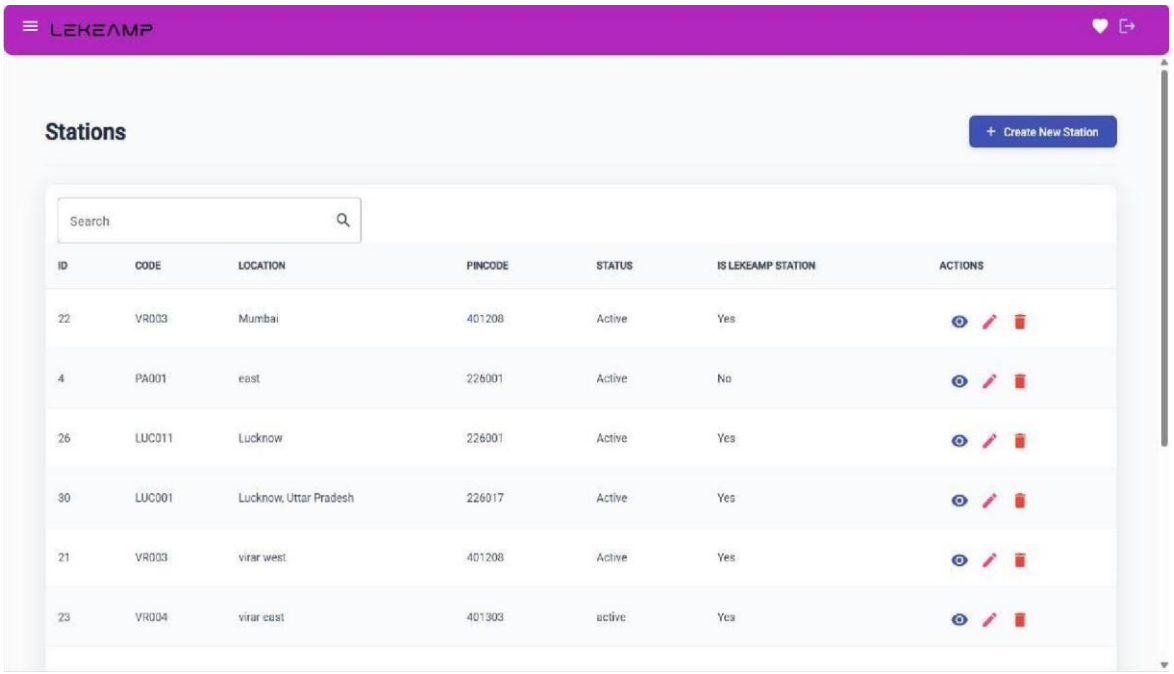
Bluetooth Integration: Implemented bicycle unlocking via Bluetooth

Payment Integration: Added payment processing for parking fees

Session Tracking: Built active parking session monitoring

History Management: Created parking history and invoice system

State Management: Implemented parking state service for data optimization



Week 5-6: Turf Application Development

Week 5: Sports Booking Core:-

Turf Listing: Built turf discovery and listing functionality

Booking System: Created time slot booking mechanism

User Profile: Implemented user profile management

Team Management: Built team creation and player management

Basic Navigation: Developed bottom navigation for sports app

Week 6: Advanced Sports Features:-

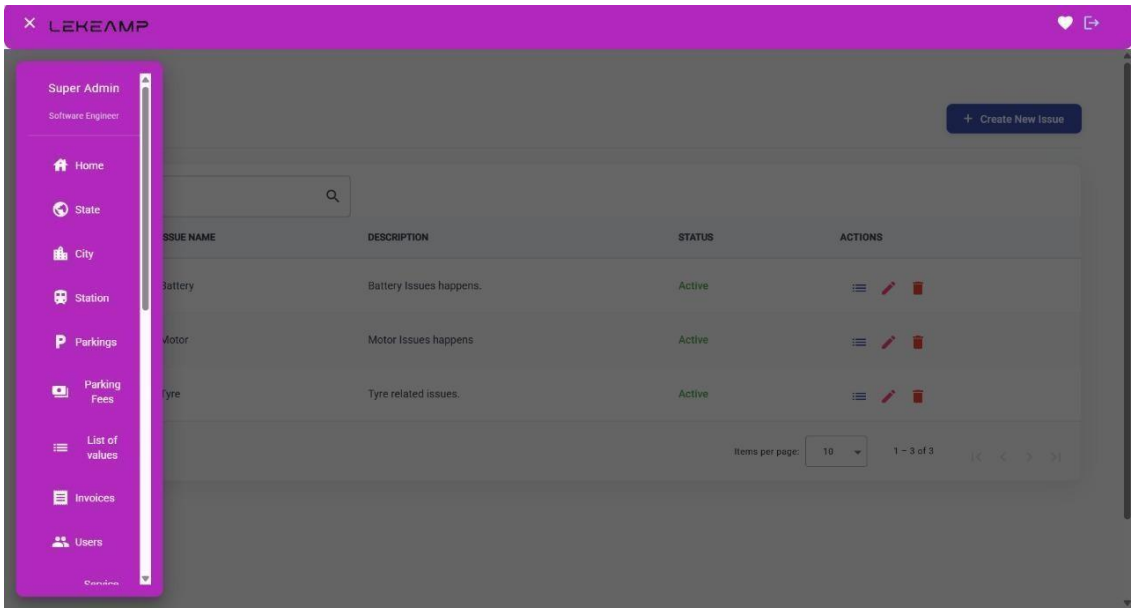
Payment Integration: Integrated Razorpay payment gateway

Match Management: Built cricket scoring system

Favorites System: Added favorite turfs functionality

Messaging System: Implemented in-app player communication

SQLite Integration: Added local database for offline functionality



Week 7-8: Backend Development

Week 7: Spring Boot Setup:-

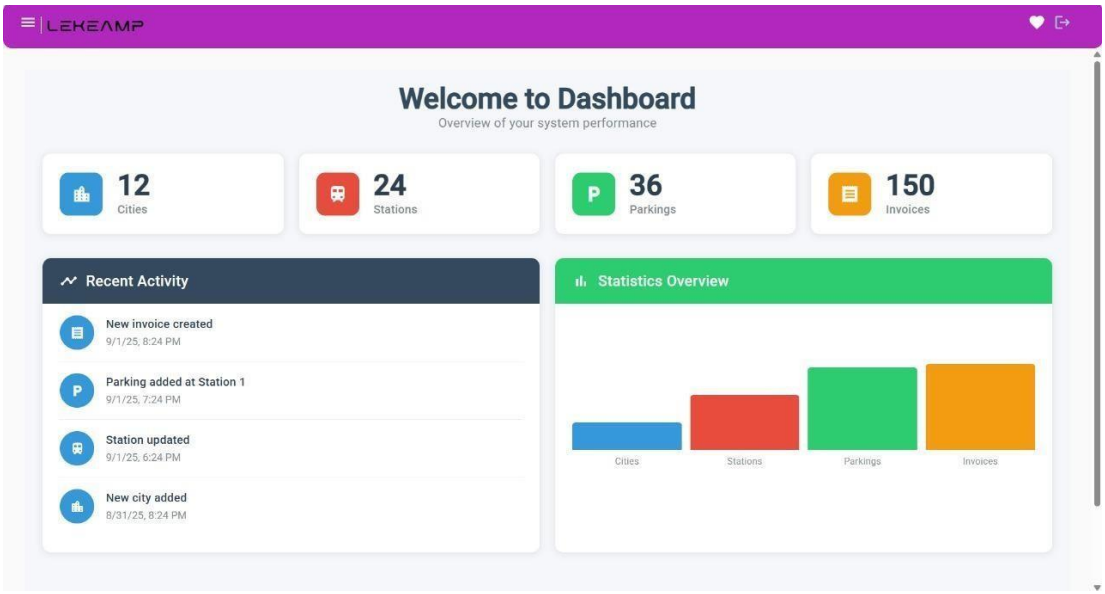
Spring Boot Project: Created comprehensive backend API

Database Design: Designed MySQL database with 15+ entities

JPA/Hibernate: Implemented data persistence layer

Security Configuration: Set up Spring Security with JWT

Basic CRUD APIs: Created fundamental API endpoints



Week 8: Advanced Backend Features:-

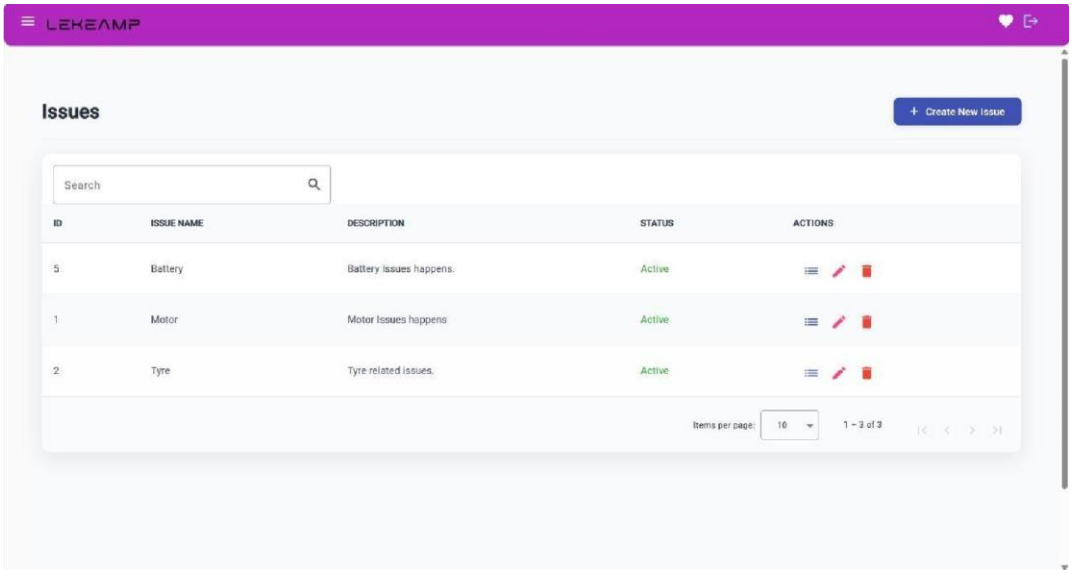
Payment APIs: Integrated Razorpay payment processing

Email/SMS Services: Implemented notification services

File Upload: Added image and document upload functionality

Advanced Queries: Built complex database queries and relationships

API Documentation: Created Swagger/OpenAPI documentation



Week 9-10: Admin Panel Development

Week 9: Lekeamp Admin Panel

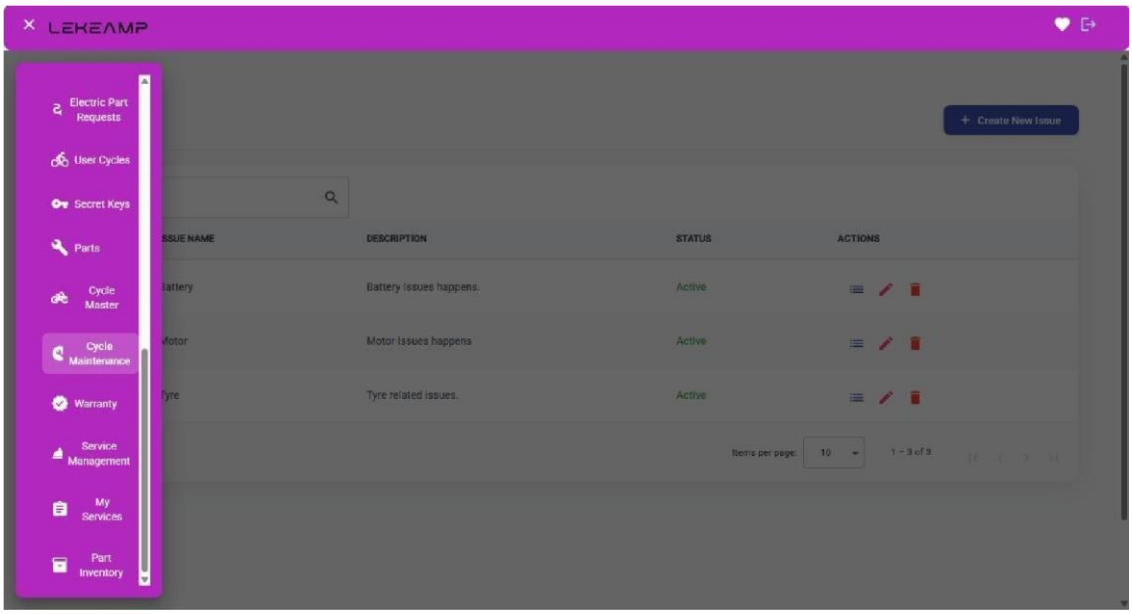
Cycle Maintenance UI: Built hierarchical maintenance management (Issues → Sub-Issues → Solutions)

Pickup Management: Created role-based pickup request system

QR Code Management: Implemented QR code generation and management

Data Tables: Advanced data management with sorting/filtering

Dashboard Analytics: Built admin dashboard with statistics



Week 10: Turf Admin Panel

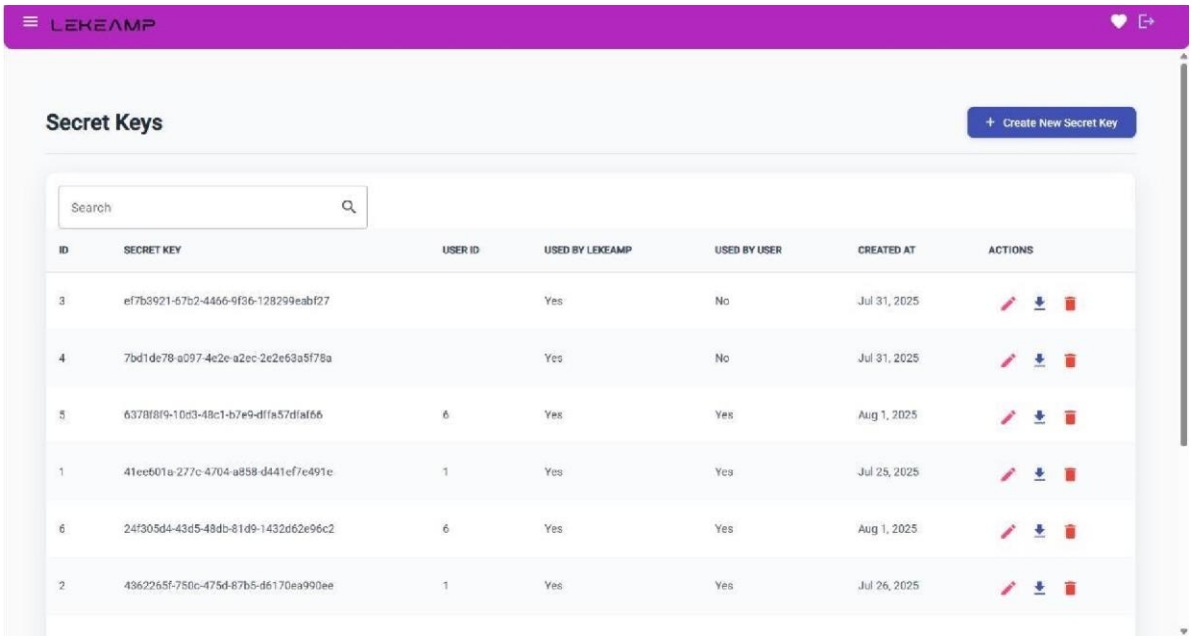
State/City Management: Created geographical data management

Turf Management: Built venue management system

Booking Management: Implemented booking oversight and management

Group Management: Created user group administration

Chart Integration: Added Chart.js for analytics and reporting



Week 11-12: Advanced Features & Optimization

Week 11: Advanced Mobile Features

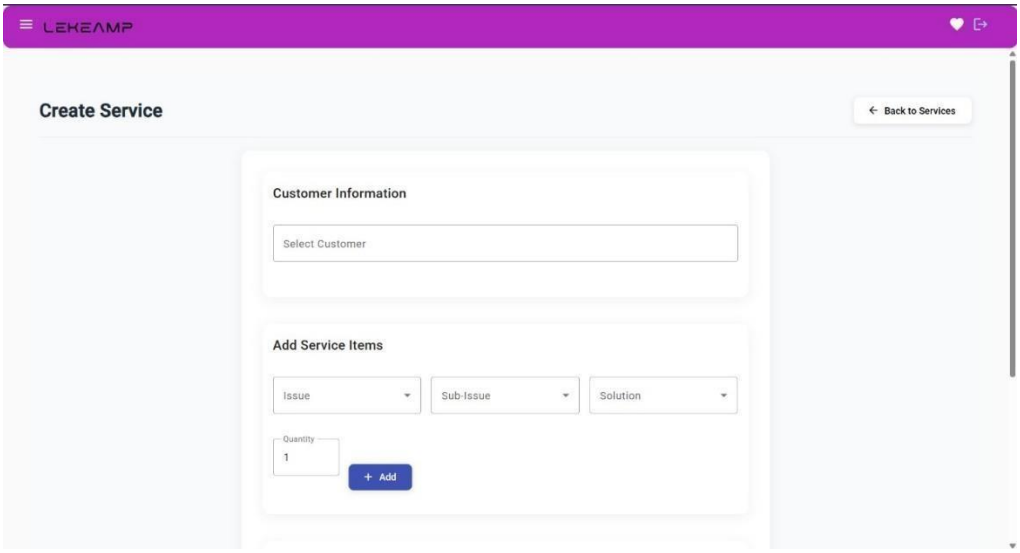
Bluetooth Controls: Enhanced Bluetooth device communication

File Download System: Implemented cross-platform file download

Invoice Generation: Built PDF invoice generation and download

Slot Swapping: Created booking slot exchange system

Team Communication: Advanced messaging and notification system



Week 12: State Management & Optimization

Parking State Management: Implemented smart data loading and caching

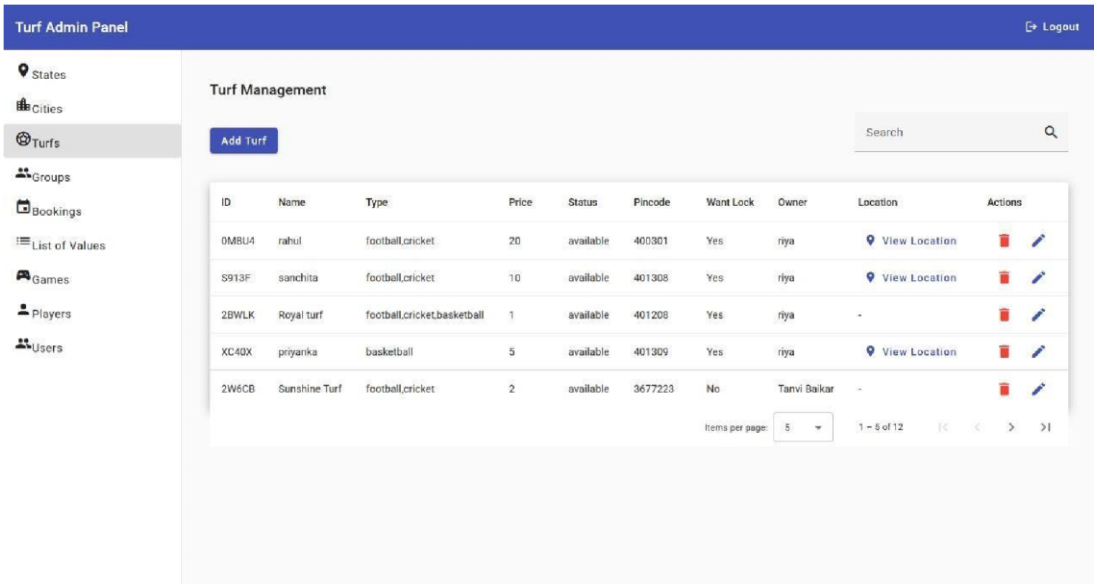
Private Parking State: Built optimized private parking management

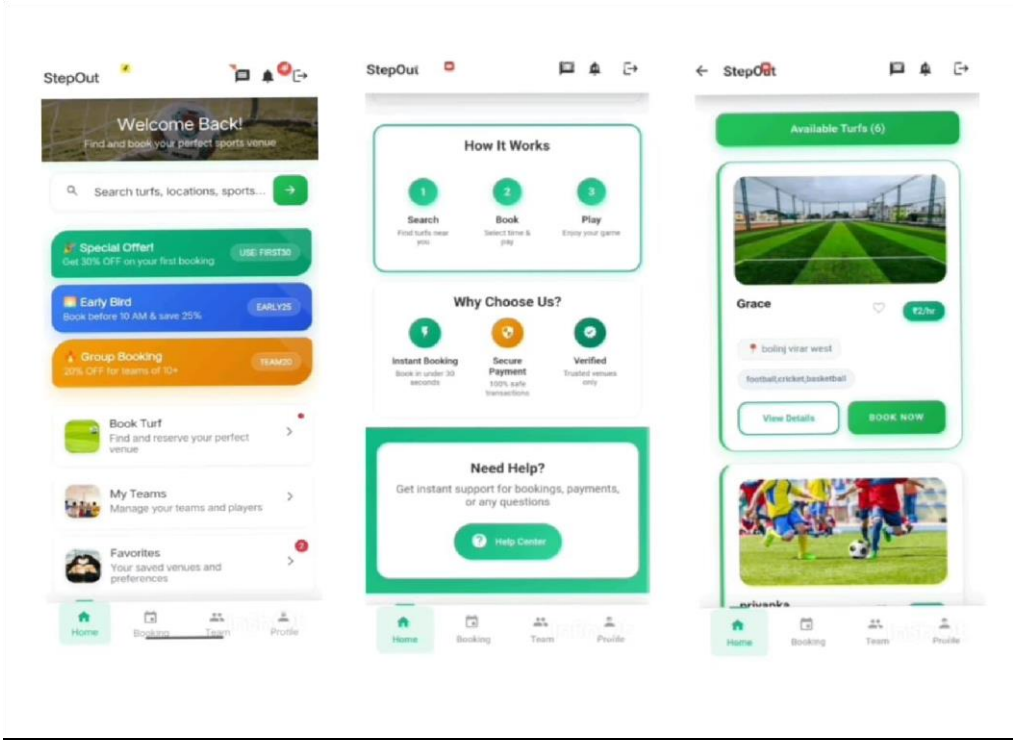
Performance Optimization: Added conditional data loading

Error Handling: Comprehensive error management across all apps

Final Testing: Cross-platform testing and bug fixes

Documentation: Created detailed technical documentation




StepOut
Welcome Back!
Find and book your perfect sports venue
Search turfs, locations, sports...
Special Offer!
Get 30% OFF on your first booking
USE: FIRST30
Early Bird
Book before 10 AM & save 25%
EARLY25
Group Booking
20% OFF for teams of 10+
TEAM20
Book Turf
Find and reserve your perfect venue
My Teams
Manage your teams and players
Favorites
Your saved venues and preferences
Home
Booking
Team
Profile
How It Works
1
Search
2
Book
3
Play
Why Choose Us?
Instant Booking
Secure Payment
Verified
Need Help?
Get instant support for bookings, payments, or any questions
Help Center
Available Turfs (6)
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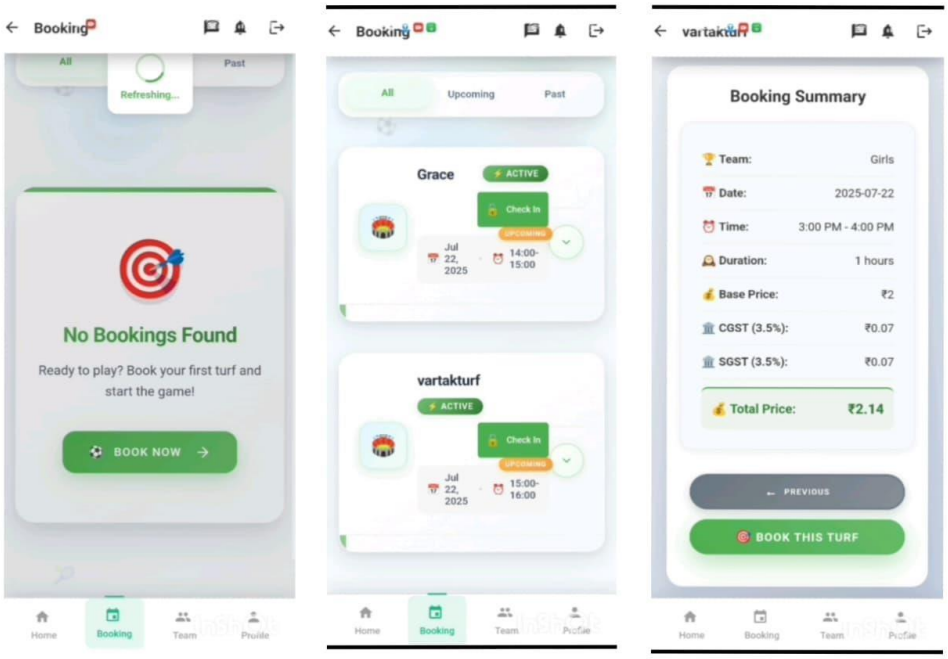
football,cricket,basketball
View Details
BOOK NOW


Booking
All
Past
Refreshing...
No Bookings Found
Ready to play? Book your first turf and start the game!
BOOK NOW
Home
Booking
Team
Profile
Booking
All
Upcoming
Past
Grace
ACTIVE
Check In
UPCOMING
Jul 22, 2025
14:00-15:00
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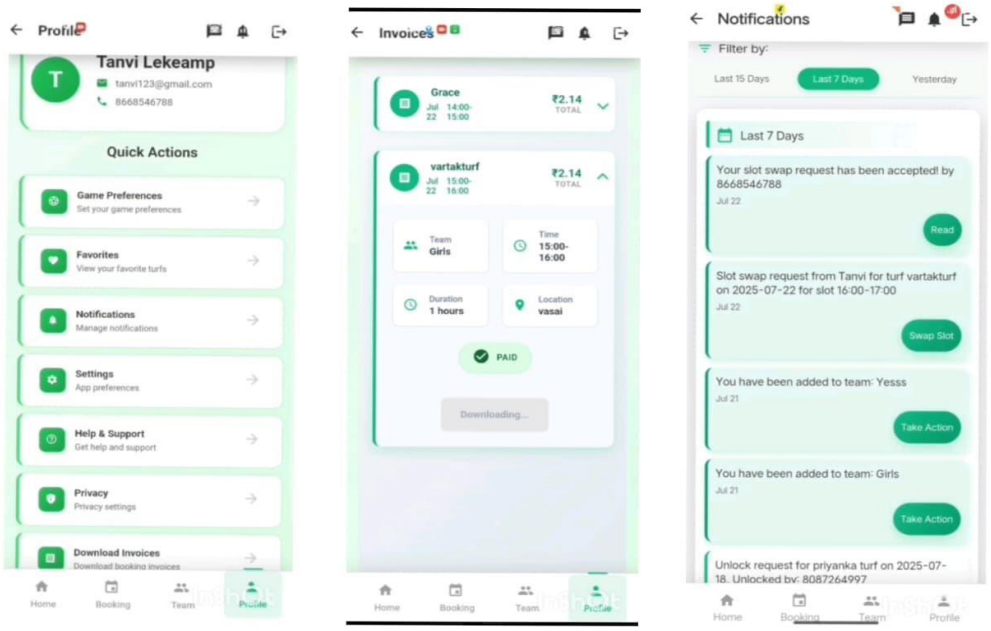
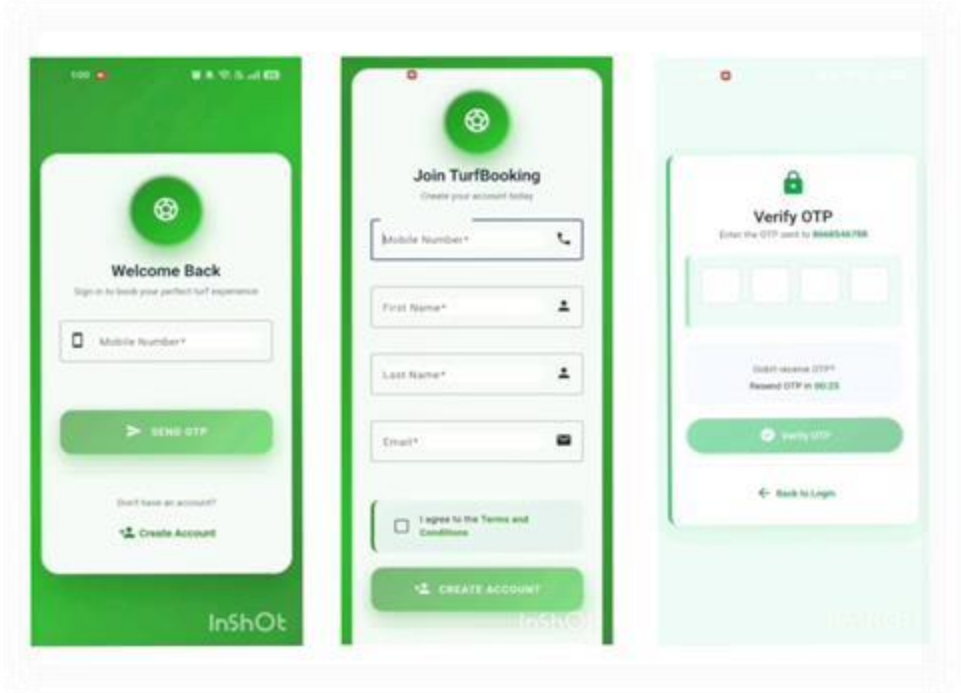
ACTIVE
Check In
UPCOMING
Jul 22, 2025
15:00-16:00
Booking Summary
Team: Girls
Date: 2025-07-22
Time: 3:00 PM - 4:00 PM
Duration: 1 hours
Base Price: ₹2
CGST (3.5%): ₹0.07
SGST (3.5%): ₹0.07
Total Price: ₹2.14
PREVIOUS
BOOK THIS TURF





CHAPTER 9

SPECIAL/CHALLENGING EXPERIENCES ENCOUNTERED DURING TRAINING IF ANY (MAY INCLUDE STUDENTS LIKING AND DISLIKING

OF WORKPLACES)

During my internship at **Lekeamp Mobility Pvt. Ltd.**, I encountered several new and challenging situations that helped me grow both personally and professionally. These challenges not only tested my technical knowledge but also gave me an opportunity to strengthen essential soft skills such as adaptability, time management, and collaboration. Overcoming them turned my internship into a meaningful journey of continuous learning and self-improvement.

One of the main challenges I faced was **understanding the real-time requirements of applications and converting them into workable solutions**. In academic projects, requirements are usually predefined and straightforward. However, in this internship, I realized that industry projects are more dynamic, with client needs, user expectations, and technical constraints constantly evolving. While developing the **Lekeamp application** for electrical bicycles, I had to deal with multiple issues related to **user interface design, system compatibility across devices, and smooth integration of different features**. At first, these issues seemed complex, but with proper guidance from my mentors and through continuous experimentation, I was able to create solutions that ensured both usability and functionality.

Similarly, while working on the **Step-Out application**, designed for players to book turfs and improve their sporting experience, I encountered difficulties related to **performance optimization, managing multiple user inputs, and ensuring the stability of the application under heavy usage**. These problems required me to think critically, apply debugging techniques, and test different alternatives before arriving at the most effective solutions. Although the process was demanding, it significantly improved my technical problem-solving skills and boosted my confidence in handling real-world scenarios.

Another major challenge was **working under deadlines and managing time effectively**. Unlike college-level projects, which usually allow flexible timelines, industry projects are highly deadlinedriven. Initially, I found it difficult to adjust to the pressure of completing multiple tasks within short timeframes. However, by prioritizing tasks, breaking down complex problems into smaller milestones, and seeking timely feedback from my mentors, I gradually became more efficient at meeting deadlines without compromising on quality. This experience taught me the importance of discipline, planning, and focus in a professional setup.

In addition to technical and time-related challenges, I also faced the difficulty of **adapting to new tools, technologies, and workflows**. Some of the development tools and frameworks used at Lekeamp Mobility were entirely new to me. At times, it was overwhelming to learn and apply these tools quickly while simultaneously working on project tasks. Nevertheless, this challenge turned out to be one of the most valuable learning opportunities of the internship. It pushed me beyond my comfort zone, encouraged me to explore new resources, and gave me the confidence to learn new technologies independently in the future.

On the positive side, the **workplace environment** at Lekeamp Mobility played a key role in helping me overcome these challenges. The organization fostered a culture of **teamwork, open communication, and continuous learning**. My mentors and senior colleagues were approachable and always ready to provide guidance whenever I faced difficulties. This supportive environment encouraged me to discuss problems openly, learn from feedback, and implement solutions more

effectively. The friendly and motivating culture of the workplace inspired me to give my best in every task I undertook.

Overall, these challenges transformed my internship into a **rewarding and enriching experience**. They not only improved my technical expertise but also enhanced my **adaptability, resilience, patience, and ability to thrive in a professional environment**. The lessons I learned during this period will remain valuable throughout my career, preparing me to face future challenges with confidence and a problem-solving mindset.

CHAPTER 10

CONCLUSION

My internship at **Lekeamp Mobility Pvt. Ltd.** has been an extremely valuable, insightful, and transformative phase of my academic and professional journey. Over the course of this training, I had the privilege of contributing to the development of two major applications – **Lekeamp**, an

application designed to support, manage, and enhance the use of electrical bicycles, and **Step-Out**, a turf booking and sports application aimed at providing players with better opportunities, improved performance management, and an overall enhanced user experience. Working on these projects allowed me to gain a deeper understanding of how technology can be effectively leveraged to create sustainable solutions for urban mobility as well as promote recreation and health.

Throughout this internship, I was actively engaged in different stages of the **Software Development Life Cycle (SDLC)**, including requirement gathering, system design, front-end and back-end coding, integration, testing, debugging, and final deployment. By being exposed to the complete workflow, I was able to bridge the gap between theoretical concepts learned in the classroom and their application in real-world projects. I gained valuable technical skills in designing user-friendly interfaces, optimizing performance, ensuring scalability, and integrating multiple modules to build smooth, functional applications. This practical exposure has not only strengthened my programming expertise but has also given me the confidence to work on complex projects independently.

Apart from technical expertise, this internship was equally instrumental in shaping my **professional and interpersonal skills**. I developed a better understanding of the importance of teamwork, collaboration, and communication in a professional setup. Working under strict deadlines and within well-defined project goals taught me the value of time management, accountability, and discipline. I also learned to follow coding standards, use version control tools effectively, and maintain proper documentation — skills that are essential for success in any software development career. The constructive feedback and guidance I received from my industry mentors were invaluable in helping me identify my strengths and continuously improve on my weaknesses.

Another important outcome of this internship was the **exposure to industry practices and corporate culture**. I observed how projects are planned, allocated, monitored, and executed at a professional level. This experience made me more aware of the importance of clarity in communication, structured workflows, and systematic problem-solving approaches. I also realized how essential it is to think critically, adapt quickly to new challenges, and maintain professionalism in all aspects of work. These lessons will undoubtedly play a vital role in my future career.

The internship also opened my eyes to the **emerging opportunities in the fields of electric mobility and smart applications**. With rapid technological advancement and increasing global focus on sustainability, electric vehicles and digital platforms are becoming essential components of modern society. Being able to contribute to projects that promote sustainable urban transportation and recreational engagement gave me a strong sense of purpose and motivation. It reinforced my interest in pursuing a career where technology can be applied to solve meaningful real-world problems.

In summary, this internship has been much more than just a learning experience — it has been a turning point that has significantly strengthened my **technical foundation, professional outlook, and personal confidence**. It helped me connect my academic learning with industry practices, enhanced my problem-solving abilities, and encouraged me to keep exploring new technologies and ideas. Most importantly, it prepared me to handle real-time challenges, adapt to dynamic work environments, and contribute effectively as a team member in any professional organization.

I am sincerely grateful to **Lekeamp Mobility Pvt. Ltd.** and my mentors for giving me this invaluable opportunity. Their trust, guidance, and encouragement have played a key role in my growth during this internship. The knowledge, skills, and experiences gained here will remain with me throughout my career, inspiring me to keep learning, innovating, and working towards creating impactful technological solutions.

CHAPTER 11

REFERENCES/SOURCE OF INFORMATION

References / Sources of Information

1. Official Documentation & Guides

- **Overview** – Lekeamp: eBike rental; Turf App: Turf booking.

- **Tech** – Angular 19, Spring Boot, PostgreSQL.
- **Modules** – Login, Booking, Payment, Admin.
- **Process** – Setup → DB → Run Backend → Run Frontend.
- **Testing** – Unit, Integration, End-to-End.
- **User** – Register → Book → Pay → History.
- **Admin** – Manage users, bikes/turfs, bookings.
- **Benefits** – Fast, eco-friendly, simple.
- **Future Scope** – Mobile app, multi-language, UPI wallet, analytics.

2. Learning Platforms

- **GeeksforGeeks** – A platform for strengthening problem-solving, coding, and understanding core computer science concepts.

- **W3Schools** – Helpful for quick reference in web technologies like HTML, CSS, JavaScript, and database concepts.

3. Research Papers & Books

Full Stack AngularJS for Java Developers

- A comprehensive guide to building web applications using AngularJS and Spring RESTful services; includes setting up Spring Boot, securing APIs, and integrating frontend with backend.

Full Stack Development with Angular and Spring Boot

- Teaches developing scalable web applications using Angular (components, routing, RxJS, forms, HTTP client) and Spring Boot (REST APIs, JPA, testing, best practices).

4. Tools & Software Used ○ Visual Studio Code (IDE) ○ GitHub (Version Control)

○ Node.js & npm (Runtime & Package Management)