FARM BOOKING

A PROJECT REPORT

Submitted By

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190010116017

In fulfilment for the award of the degree of

BACHELOR OF ENGINEERING

in

Information Technology

A.D. Patel Institute of Technology, Anand

Gujarat Technological University, Ahmedabad

May, 2023

A. D. Patel Institute of Technology, Anand

CERTIFICATE

This is to certify that the project report submitted along with the project entitled **Farm Booking** has been carried out by **Soham Joita** under my guidance in partial fulfilment for the degree of Bachelor of Engineering in Bachelor of Engineering in Information Technology 8th Semester of Gujarat Technological University, Ahmadabad during the academic year 2022-23.

Prof. Smit Maniya

Internal Guide

Dr. Narendra Chauhan

Head of the Department

CODEFLASH
INFOTECH

Date: 30th April, 2023

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Joita Sohambhai Vinubhai** has successfully completed his internship in the field of **Flutter Developer** from **6th February, 2023 to 30th April, 2023** under the guidance of **Smit Maniya**.

During his internship, he demonstrated his skills with self-motivation to learn new skills. His performance exceeded our expectations. He was able to complete the work on time and with quality maintained. We also found excellent management and communication skills in him.

We wish him all the best for his upcoming career.

For,

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DECLARATION

We hereby declare that the Internship report submitted along with the Internship entitled **Farm Booking** submitted in partial fulfilment for the degree of Bachelor of Engineering in **Information Technology** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me at **Codeflash Infotech** under the supervision of **Prof. Mayur Ajmeri** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

	Name of the Student	Sign of Student
1	Soham Joita	

ACKNOWLEDGEMENT

First, I would like to thank **Mr. Smit Maniya (Founder)** of **Codeflash Infotech** for giving me the opportunity to do an internship within the organization.

I also would like all the people that worked along with me at **Codeflash Infotech** with them patience and openness they created an enjoyable working environment. It is indeed with a great sense of pleasure and immense sense of gratitude that I acknowledge the help of these individuals.

I would like to thank **Mr. Smit Maniya** Internal Guide of internship from Department of IT for their support and advices to get and complete internship in above said organization. I am extremely great full to my department staff members and friends who helped me in successful completion of this internship.

Sohambhai Vinubhai Joita

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ABSTRACT

The Farm Booking application is a comprehensive solution that provides an efficient and streamlined process for farm owners to manage their bookings and avoid conflicts. The app is designed to simplify the booking process by providing a user-friendly interface that allows owners to reserve their farm or agricultural experiences for specific dates and times. With real-time availability updates, the app ensures that owners can view the availability of their farm and make informed booking decisions. Additionally, the app provides a secure payment processing system, ensuring that all transactions are safe and reliable.

One of the primary objectives of the Farm Booking app is to provide a solution for the problem of conflict bookings. By enabling owners to manage their bookings and avoid conflicts, the app helps improve the overall experience for both owners and customers. This, in turn, promotes the growth and development of the agricultural tourism industry, which is becoming increasingly important in today's economy.

The app is built using the Flutter platform, which provides a robust and scalable framework for app development. With the integration of Firebase, the app is able to manage and define the database schema effectively, enabling efficient management of the bookings. The app is designed to meet the needs of farm owners who want to efficiently manage their bookings while providing an enjoyable experience for their customers.

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CHAPTER 1: OVERVIEW OF THE COMPANY

Codeflash began with the purpose of delivering custom app development services, but as time passed, we expanded our portfolio to include on-demand technology, IoT, and many more solutions, eventually becoming the world's leading mobile app development business. We are a custom app development company in India that revolutionizes businesses by combining design talent with innovation and cognition. We have been in the business for 3 years now and have gained the trust of more than 8 classified customers. We go above and beyond to make things happen for you. Our cutting-edge custom app development services make us your reliable technological partner. We design futuristic technology solutions for clients to assist them to overcome traditional and complicated app development-related issues.

1.1 HISTORY

"From creativity to innovation, we do it all effortlessly"

- Codeflash Infotech

Create, Curate, and Communicate. That is how we code at Codeflash.

Codeflash began with the purpose of delivering custom app development services, but as time passed, we expanded our portfolio to include on-demand technology, IoT, and many more solutions, eventually becoming the world's leading mobile app development business. We are a custom app development company in India that revolutionizes businesses by combining design talent with innovation and cognition. We have been in the business for 3 years now and have gained the trust of more than 8 classified customers. We go above and beyond to make things happen for you. Our cutting-edge custom app development services make us your reliable technological partner. We design futuristic technology solutions for clients to assist them to overcome traditional and complicated app development-related issues.

Managing a prosperous enterprise in this dynamic digital age without smart and competent technical solutions is pure fantasy. We understand that technology demands more drastic

changes than gradual advances, and hence, with our team of developers, we have kept on evolving through changes. At Codeflash, we realize that hiring the best and most qualified app development company is essential if we are to satisfy the demands of this fast-paced IT environment and contend with competitors.

1.2 SCOPE OF WORK

Codeflash Infotech is focused on providing its clients with best value for investments in internet technologies and mobile marketing, mobile application development and high-end multimedia applications.

Codeflash Infotech remains on top of every technological advance and best practices in its focused area to help clients reach their business objectives in most cost-effective and comprehensive manner.

1.3 ORGANIZATION CHART

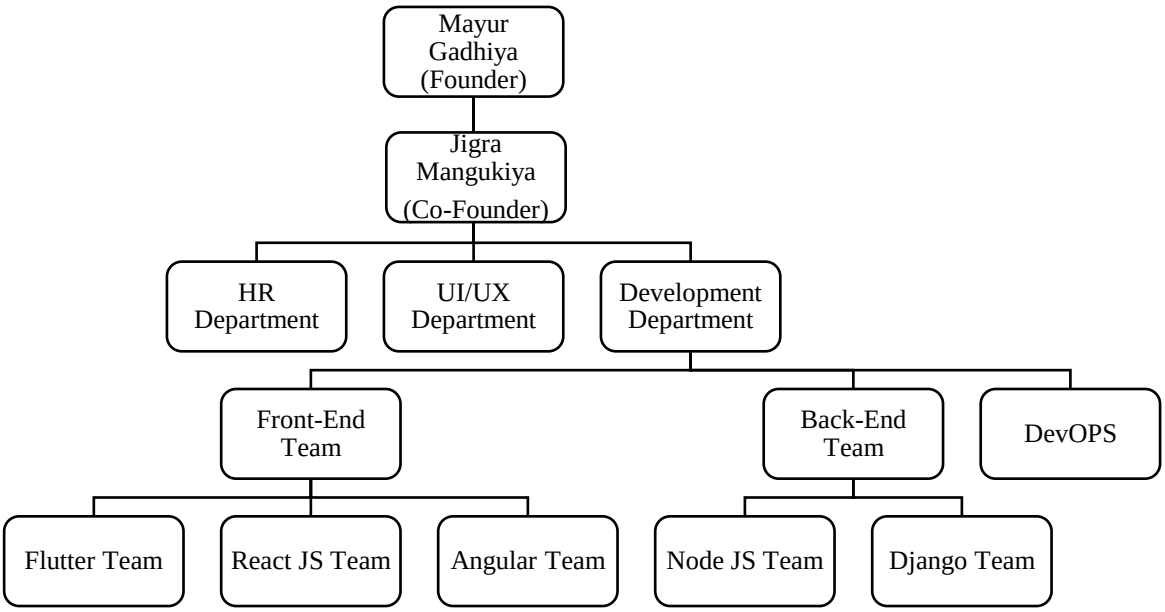

Fig. 1.1 Organization Chart

1.4 COMPANY CAPACITY

Currently, the company's capacity exceeds 10 personnel, and as part of its expansion efforts, it is actively adding new team members. It is anticipated that the company's workforce will reach or exceed 50 personnel in the future. The company's physical infrastructure can adequately accommodate up to 50 members, and as such, there is ample room for the expected increase in staff numbers. The expansion plans entail the addition of new members to various departments such as Website Development, UI/UX design, Mobile App Development, Quality Assurance, among others.

CHAPTER 2: OVERVIEW OF DIFFERENT DEPARTMENT OF THE ORGANIZATION

2.1 WORK BEING CARRIED OUT IN EACH DEPARTMENT

2.1.1 Project Development Approach

The software development process employed for our project is the Iterative and Incremental Development model, which is also known as the Iterative Waterfall Development Approach. This approach was implemented as a response to the conventional waterfall model. It is a software development process that involves an iterative and incremental approach to project development, whereby software is developed and tested in phases, and the process is repeated until the final product is achieved.

The activities we followed for this project is listed below:

- Planning the work or objectives
- Analysis & Design of objectives
- Assessing and controlling risk
- Allocation of resources
- Organizing the work
- Database Designing

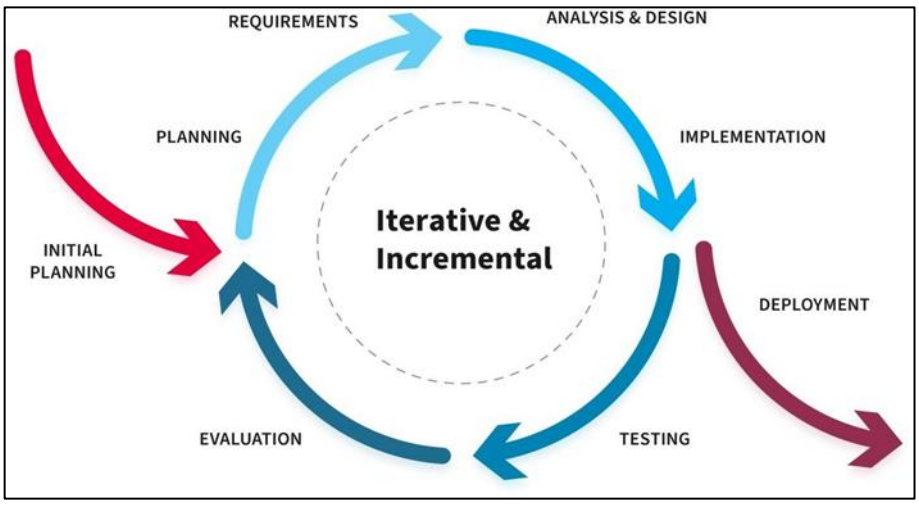

Fig. 1.2 Iterative & Incremental model

2.1.2 Initial Planning

In this phase, the project's feasibility is evaluated, and a decision is made on whether to proceed with the project or not. If the project is approved, the project's goals, objectives, scope, and constraints are defined, and a high-level project plan is created.

2.1.3 Planning

In this phase, the project plan is refined, and detailed planning is done for each phase of the project. This includes defining the tasks, assigning resources, estimating the time and cost required for each task, and creating a detailed project schedule.

2.1.4 Requirements

In this phase, the requirements for the software are identified and documented. This includes identifying the needs of the end-users, defining the features and functionality required, and creating use cases and user stories. The requirements are then reviewed and approved by the stakeholders.

2.1.5 Analysis & Design

In this phase, the software architecture and design are created. The architecture defines the structure of the software, including the different components and how they interact with each other. The design defines the specifics of how the software will function, including the algorithms, data structures, and user interfaces.

2.1.6 Schedule Representation

Schedule representation is a crucial activity in software engineering, as it involves distributing the estimated effort required for the planned project duration among specific tasks. As part of our project planning process, we have developed a weekly schedule that is visually represented in the attached figure. This schedule outlines the tasks to be completed in each week of the project and the estimated effort required for each task,

helping us to track our progress and ensure that the project is completed within the planned timeline.

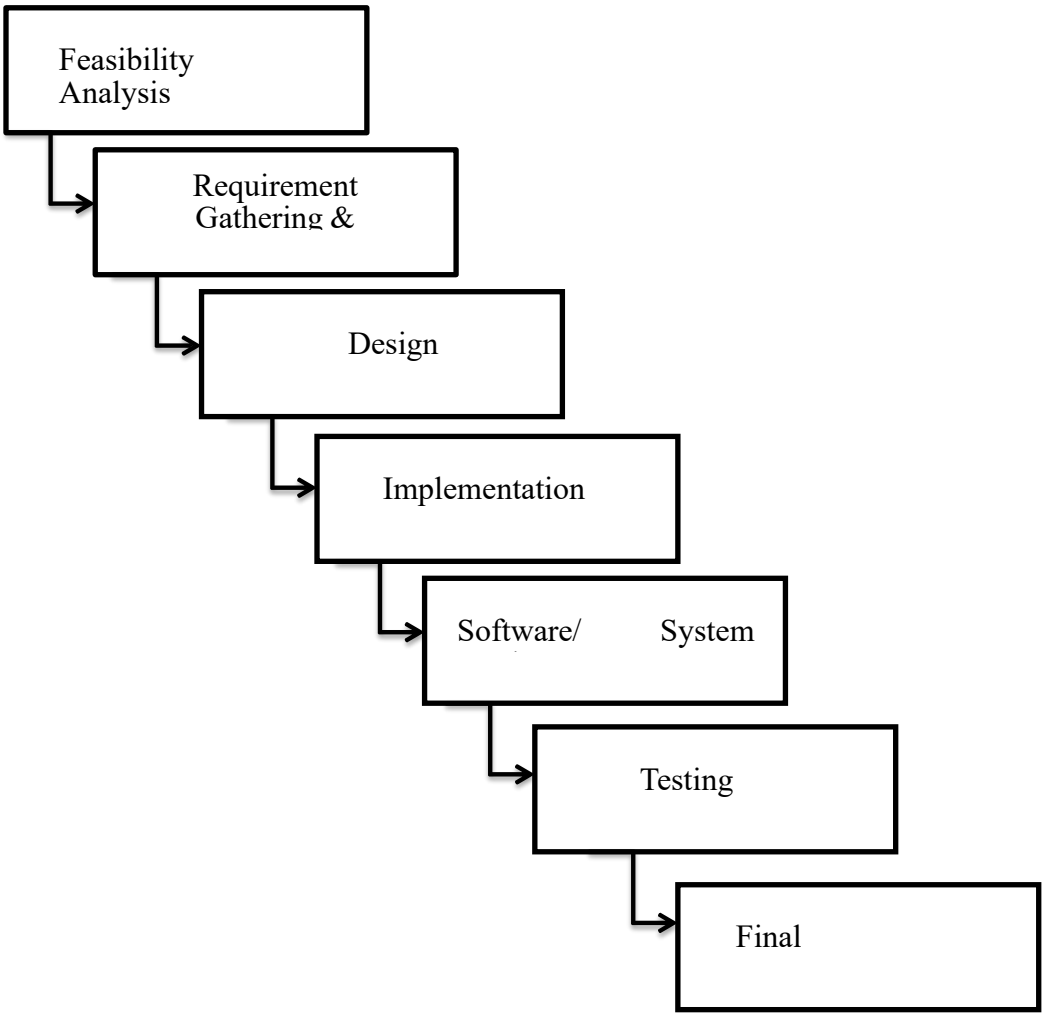

Fig. 1.3 Schedule Representation

2.1.7 Implementation

In this phase, the software is developed based on the design and architecture created in the previous phase. This involves coding, testing, and debugging the software, and integrating different components of the software to create the final product.

2.1.8 Testing

In this phase, the software is tested to ensure that it meets the requirements and functions as expected. Different types of testing are performed, including unit testing, integration testing, system testing, and acceptance testing. Any defects found are fixed, and the software is re-tested to ensure that the fixes are effective.

2.1.9 Deployment

In this phase, the software is released to the end-users. This involves installing the software on their systems, configuring it, and providing training and support to the users. The deployment is done in a controlled manner to ensure that the software is stable and functional.

2.1.10 Evolution

In this phase, the software is maintained and updated over time to ensure that it remains relevant and useful. This includes fixing any defects found, adding new features and functionality, and updating the software to be compatible with new technologies and platforms.

2.2 TECHNICAL SPECIFICATIONS OF MAJOR EQUIPMENT USED IN EACH DEPARTMENT

2.2.1 Risk Identification

Risk identification is a fundamental step in the risk management process that involves systematically documenting potential risks that may impede an organization or program from achieving its objectives. The process is critical in helping companies understand the various risks that they may face and developing strategies to mitigate or manage those risks. Risks may manifest in many forms, including but not limited to theft, economic downturns, accidents, legal disputes, or data breaches. By identifying and documenting these risks, organizations can take proactive measures to prepare for and minimize their impact, ensuring the overall success and sustainability of their operations.

2.2.2 Risk Analysis

Risk analysis is a useful tool to use in the decision-making process. It allows you to identify the potential benefits and detriments of each option, evaluate the likelihood of problems occurring and decide whether to move forward considering such risks. Once you have identified potential risks, you can determine how to manage them and even develop a comprehensive preventative plan.

2.2.3 Risk Planning

It is a process that consists of the following steps:

- Plan entire schedule on paper in the beginning and follow it
- Understand the scope from external guide to have the correct design.
- Find out proper documentation, manuals and guides from the person having the require knowledge.
- Schedule should not be delayed too much.
- Take backups regularly.
- Perform thorough requirement gathering and analysis. Confirm the collected requirements with the guide.

2.3 SCHEMATIC LAYOUT

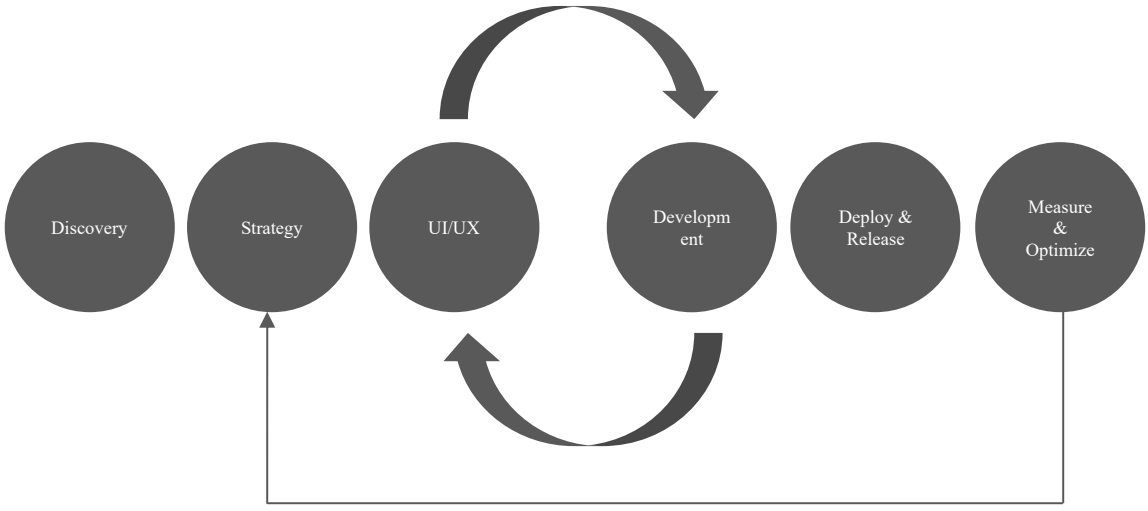

Fig. 2.1 Schematic Layout

Above Chart/Figure Show how the work is carried out in organization and in figure as we can see the flow the very first step will be the discovery after that planning/strategy phase and then design and development phase there might me some back-and-forth situation between design and development because of requirements changes after that deployment and final stage will be measurement and optimization that will repeat whole cycle if there is any optimization.

CHAPTER 3: INTRODUCTION TO INTERNSHIP

3.1 INTERNSHIP SUMMARY

The Farm Booking feature is an integral component of our Flutter-based farm booking application, designed to provide users with a seamless experience when reserving a farm or agricultural experience. The feature streamlines the booking process by offering an intuitive interface that allows users to browse available farm experiences, view detailed descriptions, and select their preferred date and time.

One of the key benefits of this feature is the real-time availability updates, which allow users to see up-to-date information on available dates and times. This feature not only ensures accuracy but also prevents double bookings and eliminates the need for manual reservation confirmations.

The Farm Booking feature also provides users with the flexibility to modify or cancel their reservations based on their changing needs. This is achieved by integrating an easy-to-use booking management system that allows users to modify their reservation details or cancel their booking altogether. Furthermore, the feature ensures the security of user data by implementing secure payment gateways and adhering to industry-standard data privacy protocols.

Overall, the Farm Booking feature is an essential component of our farm booking application, providing users with an intuitive and efficient way to reserve their preferred farm experiences. By simplifying the booking process, reducing the possibility of errors, and providing real-time availability updates, we are confident that our users will enjoy a seamless and stress-free booking experience.

3.2 PURPOSE

Running a farm that caters to families and friends with a swimming pool and calm atmosphere can be a complex undertaking. In addition to providing high-quality

accommodations and amenities, there are several challenges that the farm may face in ensuring the safety and security of its customers. One such challenge is ensuring that the swimming pool and its surrounding areas are safe and well-maintained, which may require implementing safety measures such as pool fences, life-saving equipment, and regularly scheduled cleaning and maintenance.

Another challenge is ensuring that the farm is free from hazards that could potentially harm customers. This may involve conducting regular inspections of the property and taking proactive measures to address any potential hazards, such as uneven terrain or dangerous wildlife.

In addition to safety concerns, the farm may also face challenges in managing customer expectations and providing a high-quality experience during their stay. This may involve offering a range of amenities and services, such as comfortable accommodations, clean and well-maintained facilities, and responsive customer service. Providing high-quality amenities and services can help the farm differentiate itself from competitors and attract and retain customers.

Overall, the success of the farm will depend on its ability to provide a safe, enjoyable, and relaxing experience for customers while differentiating itself from competitors. By proactively addressing safety concerns, offering high-quality amenities and services, and providing a welcoming atmosphere, the farm can position itself as a desirable destination for families and friends looking for a tranquil and memorable getaway.

3.3 OBJECTIVE

The main aim of the farm booking application is to simplify the process of booking farm experiences for owners. By providing a user-friendly and efficient platform, the application aims to enable owners to manage their bookings easily and effectively. The objective of the application is to make the process of booking farms online safe and easy for owners, by providing real-time availability updates, automated booking confirmations, and secure payment processing. By achieving these objectives, the application aims to improve the overall experience for both owners and customers, while also promoting the growth and development of the agricultural tourism industry.

3.4 SCOPE

The farm booking application will be developed to provide a user-friendly and efficient platform that enables owners to manage their farm bookings with ease and effectiveness. The application aims to make the process of booking farms online safe and easy for owners by providing real-time availability updates, automated booking confirmations, and secure payment processing. The application will also provide value-added services and features such as customer support, customized booking options, and personalized recommendations.

The scope of this project includes the following deliverables:

- A user-friendly mobile application that allows owners to easily create and manage their farm bookings.
- Real-time availability updates, automated booking confirmations.

3.5 TECHNOLOGY AND LITERATURE REVIEW

- **Platform**: Android/IOS mobile application
- **Framework**: Flutter
- **Language**: Dart
- **Database**: Firebase
- **Pipeline**: Manual deployment
- **Environment**: Dev, Staging, Production

3.6 INTERNSHIP PLANNING

Project planning is part of project management, which relates to the use of schedules such as Gantt chart so plan and subsequently report progress within the project environment. Initially, the project scope is defined and the appropriate methods for completing the project are determined. Following this step, the durations for the various tasks necessary to complete the work are listed and grouped into a work breakdown structure.

Project planning is often used to organize different areas of a project, including project plans, workloads and the management of teams and individuals.

3.6.1 Internship Development Approach and Justification

The project development approach for a Flutter app development internship is an iterative and incremental model. This approach is ideal for software development projects where the requirements are not well-defined or are likely to change during the development process.

In an iterative and incremental model, the project is divided into smaller parts, and each part is developed iteratively, with feedback and testing incorporated into each iteration. This approach allows for greater flexibility in responding to changes in requirements and reduces the risk of costly errors or rework.

Justification for using the iterative and incremental model for Flutter app development include:

Frequent feedback: With each iteration, the development team can receive feedback on the app's functionality, design, and performance. This feedback can help to identify and fix issues early in the development process, reducing the risk of costly errors or rework later on.

Increased flexibility: In Flutter app development, requirements can change rapidly due to the rapidly evolving mobile technology landscape. The iterative and incremental model allows for changes to be incorporated into the development process quickly and efficiently, reducing the risk of missed deadlines or budget overruns.

Continuous improvement: With each iteration, the development team can focus on improving the app's functionality and user experience. This approach ensures that the app is continually evolving to meet the changing needs and expectations of users.

Risk management: By dividing the project into smaller parts and developing each part iteratively, the risk of errors or rework is reduced. This approach also allows for early

identification of potential risks and the implementation of appropriate risk management strategies.

Overall, the iterative and incremental development approach is well-suited for Flutter app development. It allows for flexibility, feedback, continuous improvement, and effective risk management, ensuring the successful development of a high-quality mobile app.

3.6.2 Internship Effort and Time, Cost Estimation

Project estimation is the process of forecasting the time, cost, and resources needed to deliver a project. It typically happens during project initiation and/or planning and takes the project's scope, deadlines, and potential risks into account.

A project estimate gives you and your stakeholders a general idea of how much time, effort, and money it'll take to get the job done. That makes it easier to build a feasible project budget and plan so you can set your team and organization up for success.

A realistic effort estimate requires you to have a clear understanding of certain elements of the project: After getting assigned with any component, developer first reviews the design, understands the functional requirement, analyse their own capabilities and dependency on others for development and estimates Time and effort cost in story points.

3.6.3 Roles and Responsibility

Roles

- My role was to create the complete app from design in production.

Responsibility

- **Analysis:**
  During the initial phase of the project, the client's requirements are provided to the project manager. The marketing team then modifies the requirements based on current market trends, and all changes are verified by the project owner or cumulative project handler. This process ensures that the project aligns with the client's needs and objectives while also being relevant and competitive in the current market.

- **Design**

  While designing the system we had many meetings with our project leader and team member and got valuable input from them. During this time, we collected information from each transaction of the system and various tables from the database. Then did tasks like database design, screen design, report design etc.

- **Developing**

  After the system was designed, we started developing the system, for which we implemented the application structure and database structure with the help of our project leader. All the information we need in system development has been provided. We developed the system accordingly.

- **Testing**

  Prepared test data after system development and verified accordingly. In which we found defects in some places. To fix these shortcomings we decided to make modifications to the system

- **Modification**

  We do required modification as per client requirement change and some flow change. In middle if some major breakdown discovered then also, we do re-design particular flow and start work on it.

- **Production**

  As the app is now live on both the Play Store and App Store, we continue to track user behaviour and modify the website as needed. We are committed to maintaining the website and ensuring that any new requirements from the client are met. Before deployment, the website must pass all five stages of testing to ensure it meets our high standards for performance and security. Our team is dedicated to providing a top-quality user experience and will continue to iterate and improve the website based on user feedback and client requirements

3.6.4 Group Dependencies

In this case I was dependent on UI/UX designer team as the frontend done by me.

3.7 INTERNSHIP SCHEDULING (GANTT CHART)

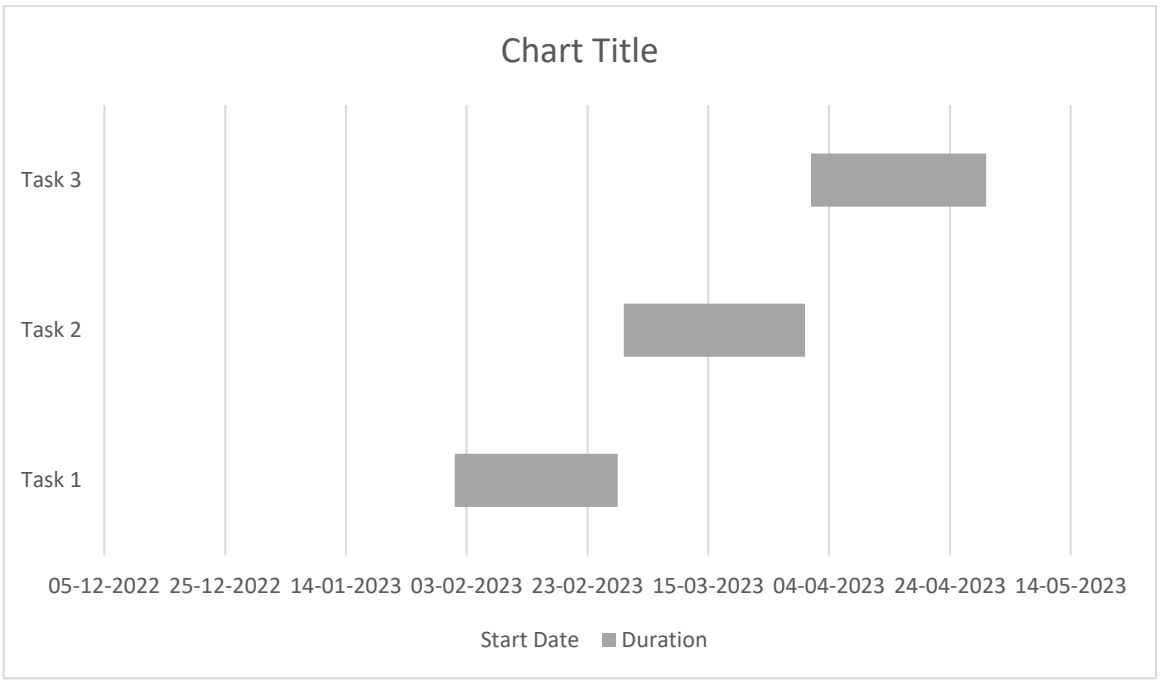

Fig. 3.1 Internship Schedule (Gantt Chart)

CHAPTER 4: SYSTEM ANALYSIS

4.1 STUDY OF CURRENT SYSTEM

Managing a farm booking system manually can often result in confusion and conflicts, especially when multiple bookings are made for the same day or time period. These issues not only impact the client's ability to effectively manage their farm, but also damage their public image and reputation. To avoid these problems, it is important for the client to implement a more professional and streamlined booking system that can effectively manage their farm bookings and prevent such conflicts from occurring in the future.

4.2 PROBLEM AND WEAKNESS OF CURRENT SYSTEM

4.2.1 Lack of Automation

The client is currently managing their farm bookings manually, which can be time-consuming and prone to errors. Without an automated system, it may be difficult to keep track of bookings and ensure that there are no conflicts.

4.2.2 Potential for Double Bookings

As mentioned in the scenario, the client experienced an issue where the same farm was booked for two different people on the same day. This can lead to customer dissatisfaction and damage the client's reputation.

4.2.3 Damage to Public Image

If customers repeatedly experience issues with booking or have negative experiences on the client's farm due to conflicts or mismanagement, this can result in a damaged public image and loss of business.

4.2.4 Inefficient Use of Resources

If the client is spending a significant amount of time manually managing their farm bookings, they may not be able to focus on other important tasks, such as maintaining the farm, marketing their business, or expanding their offerings.

4.2.5 Limited Scalability

A manual booking system may be suitable for a small farm with a low volume of bookings, but it may become more challenging to manage as the business grows and the number of bookings increases.

4.3 REQUIREMENT OF NEW SYSTEM

An automated farm booking mobile application should have a user-friendly interface that is easy to navigate and use for both farm owners and customers. The interface should be intuitive and visually appealing, with clear and concise information displayed in a logical manner. A seamless user experience is important, with minimal clicks required to book a farm and complete the payment process.

The application should also provide real-time availability of farm bookings to customers. This will allow customers to easily view available dates and times for their desired farm, reducing the risk of double bookings and conflicts. To further avoid conflicts, the application should allow farm owners to customize their booking options, including setting prices, adding descriptions, and specifying the number of guests allowed per booking.

Once a booking is made, the application should automatically send booking confirmation to both the customer and farm owner, reducing the risk of double bookings and ensuring that both parties are aware of the booking. Push notifications should also be available for important updates, such as booking confirmations, changes to booking details, and reminders of upcoming bookings.

4.4 SYSTEM FEASIBILITY

4.4.1 Does the System Contribute to The Overall Objectives of The Organization?

Objectives are critical, measurable endpoints that help guide a set process. By identifying goals and taking targeted actions to achieve them, organizations can ensure that their activities align with a singular direction. In this way, organizational objectives serve as a crucial framework for setting goals and guiding company-wide activities towards achieving a desired future outcome. With well-defined objectives in place, organizations can establish a clear roadmap for success, enabling them to measure their progress and make informed decisions to keep moving in the right direction.

4.4.2 Can the system be implemented using the current technology and within the given cost and schedule constraints?

Project constraints are fundamental limitations that must be taken into consideration throughout the entire project life cycle. These constraints may take various forms, such as cost, time, or quality requirements that must be met in order to achieve the project objectives. In practice, cost constraints may require projects to be completed within a specific budget, while time constraints may demand the project to be finished within a particular timeframe. Other constraints, such as technical or regulatory requirements, may also impact the project scope and planning. Effective management of project constraints is critical for ensuring the successful delivery of projects that meet stakeholder expectations and requirements. By identifying and managing these limitations proactively, project teams can avoid potential delays, costs overruns, or other negative impacts that may compromise project success.

4.4.3 Can the system be integrated with other systems which are already in place?

While many systems can read or write information to a file folder, there are instances where sub-system integration requires direct data reading and/or writing to a database. Although file folders can enable interoperability between systems, there may be scenarios where data synchronization or real-time information sharing between sub-systems necessitates direct access to their databases. This can be particularly true in cases where timely data retrieval

or manipulation is critical for system performance or decision-making processes. However, direct database access also requires careful consideration and management of potential security and data integrity risks, as well as adherence to relevant compliance requirements. As such, it is crucial to carefully evaluate the benefits and risks associated with direct database access and assess the potential impact on overall system performance and functionality.

4.5 PROPOSED SYSTEM

When a new project is proposed, it normally goes through feasibility assessment. Feasibility study is carried out to determine whether the proposed system is possible to develop with available resources and what should be the cost consideration. Facts considered in the feasibility analysis were.

- Technical Feasibility
- Economic Feasibility
- Behavioural Feasibility

Technical Feasibility

Technical Feasibility deals with the hardware as well as software requirements. Technology is not a constraint to type system development. We have to find out whether the necessary technology, the proposed equipment has the capacity to hold the data, which is used in the project, should be checked to carry out this technical feasibility. The technical feasibility issues usually raised during the feasibility stage of investigation includes these

- This app will run in Android and IOS both, which can be easily- installed from their stores.
- The hardware required is Android phone or iPhone.
- The system can be expanded.

Economic Feasibility

This feasibility study present tangible and intangible benefits from the prefect by comparing the development and operational cost. The technique of cost benefit analysis is often used as a basis for assessing economic feasibility. This system needs some more initial investment than the existing system, but it can be justifiable that it will improve quality of service.

- Thus, feasibility study should Centre along the following points:
- Improvement resulting over the existing method in terms of accuracy, timeliness.
- Cost comparison
- Estimate on the life expectancy of the hardware
- Overall objective of our project is economically feasible. It does not require much cost to be involved in the overall process. The overall objectives are in easing out the requirement processes.

Behavioural Feasibility

This analysis involves how it will work when it is installed and the assessment of managerial environment in which it is implemented. People are inherently resistant to change and computers have been known to facilitate change. The new proposed system is very much useful to the useful to the users and there for it will accept broad audience from around the world.

4.6 FEATURES OF NEW SYSTEM

- Authenticated person only can use
- Book farm from list of farms
- City wise farm listing
- Cancel farm
- Can see photos and amenities of farm
- Search farm and city

4.7 COMPONENTS

App

- Only Authenticated person can access it.
- Can see list of cities.
- Can search among all city list.
- Can see farm list inside city page.
- Can search among all farm list.
- Can see quick look like photo, name, address, price, capacity, etc…
- Can open detailed screen for farm with having multiple photos and list of amenities.
- Can book farm by filling up all the details.
- Can see booked farm list.
- Can see booking information.
- Can cancel booking.

Firebase

- Admin can add multiple cities.
- Admin can add farms in city.
- Admin can add authenticated users and can verify them.

4.8 SELECTION OF HARDWARE AND SOFTWARE

Software Requirement

The S/W for developing and deployment of this project was

- Flutter
- Firebase
- Dart dev tools
- Git
- GitHub
- Some Extension of Visual Studio Code

Hardware Requirement

The H/W for developing and deployment of this project was

- 8GB Ram
- i5 or equivalent processor
- SSD (preferable)
- Server (CI/CD)

CHAPTER 5: SYSTEM DESIGN

5.1 SYSTEM DESIGN & METHODOLOGY

System analysis is a critical process that involves breaking down a system into its constituent parts to understand how they interact to fulfil the specified requirements. This process involves an in-depth analysis of the system's functional and non-functional requirements, as well as its current state, to identify areas of improvement and potential challenges. Through the system analysis process, the project team can gain a comprehensive understanding of the system's structure, behaviour, and interdependencies to inform the subsequent phases of development.

The purpose of the system design process is to provide detailed data and information about the system and its individual elements, enabling their implementation in a manner consistent with architectural entities. This phase involves designing the system's architecture, defining system components, specifying their interfaces and interactions, and documenting the system design. The system design process is crucial in ensuring that the system fulfils its intended purpose and meets the specified requirements. It enables stakeholders to visualize and understand the system's structure and functionality, facilitating the development process and enabling effective testing and evaluation. By conducting a comprehensive system analysis and design, organizations can develop systems that are efficient, effective, and aligned with their overall goals and objectives.

5.2 DATABASE DESIGN

Database design is a crucial process that involves organizing data according to a specific database model. The database designer is responsible for identifying the data that must be stored and how these data elements are interrelated. This information is then used to fit the data into the database model.

Effective database design requires a thorough understanding of the data and its relationships, as well as the requirements of the organization. The database designer must

classify the data and identify interrelationships between data elements to create a theoretical representation of the data, known as an ontology. This ontology serves as the foundation for the database design and defines the structure of the database and how data is organized and accessed.

By applying a rigorous approach to database design, organizations can ensure that their data is well-organized, easily accessible, and consistent. This can lead to improved operational efficiency, better decision-making, and enhanced customer experiences. Additionally, effective database design can reduce the risk of data errors, inconsistencies, and data loss, which can be costly and damaging to an organization.

5.3 STRUCTURAL VIEW

5.3.1 State Transition Diagram

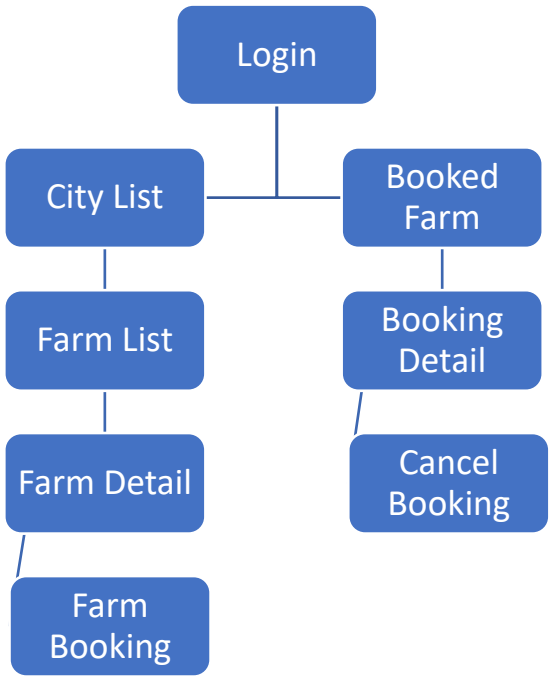

Fig. 5.1 State Transition Diagram

5.3.2 Samples of Forms, Reports and Interface

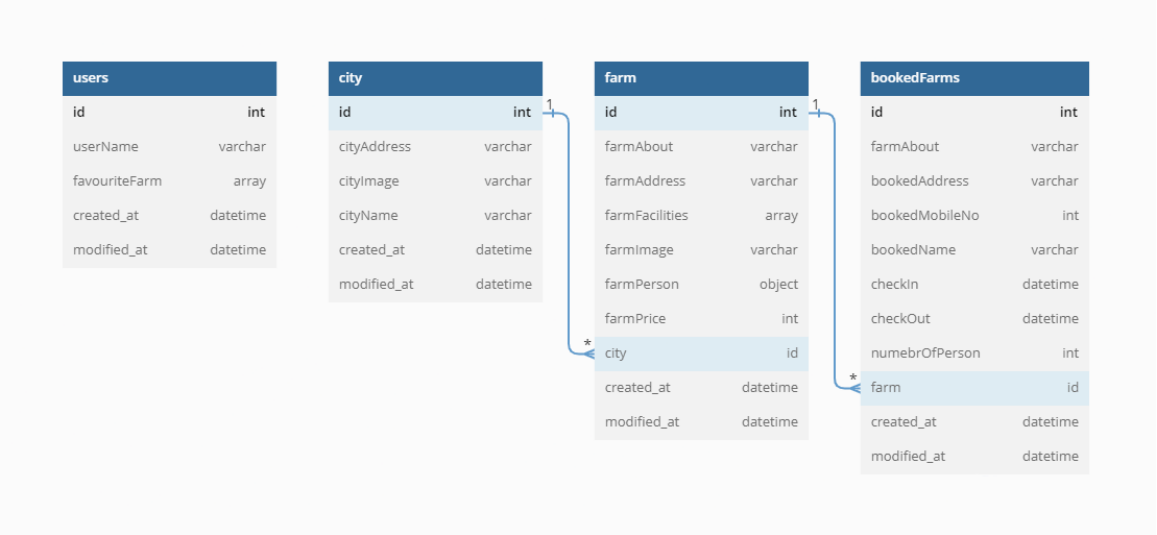

Fig. 5.2 Database design

5.3.3 Access Control / Mechanism / Security

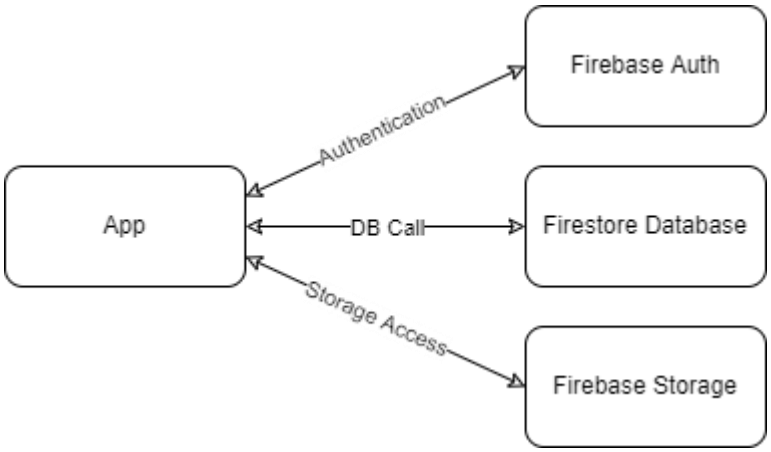

Fig. 5.3 Access control

CHAPTER 6: IMPLEMENTATION

6.1 IMPLEMENTATION PLATFORM

The mobile app has been developed for both Android and IOS platforms, utilizing the Flutter framework with Dart programming language. To facilitate development, Visual Studio Code has been utilized as the integrated development environment (IDE). To manage project versions, a version controlling system called Git has been implemented. Additionally, to enable collaborative development and maintenance of the project, the GitLab repository has been used for publishing the project's codebase.

During the development stage, the app has been tested and refined using the debug mode. Once the app is ready for deployment, it is optimized for performance and size and is released in the production mode with a signature for authentication purposes. The utilization of these development practices ensures the efficient and effective production of a high-quality mobile application.

6.1.1 System Flow

The company has chosen to follow Agile Development and SCRUM methodologies for the development process of this project. Agile development is widely recognized as one of the best processes for developing industrial products due to its iterative, incremental, and flexible approach.

The Agile Development process emphasizes collaboration between cross-functional teams, continuous feedback, and adaptability to changing requirements. It prioritizes customer satisfaction by delivering working software in shorter cycles, enabling faster and more efficient responses to feedback and change requests.

The SCRUM framework is one of the most widely used Agile methodologies, and it enables teams to work together in a highly collaborative and self-organizing manner. SCRUM encourages regular communication, transparency, and frequent progress reviews to ensure that the project stays on track and that any issues are addressed in a timely manner.

By following the Agile Development and SCRUM methodologies, the company aims to ensure that the project is developed in a highly efficient, transparent, and collaborative manner, delivering high-quality products that meet the project objectives and customer requirements.

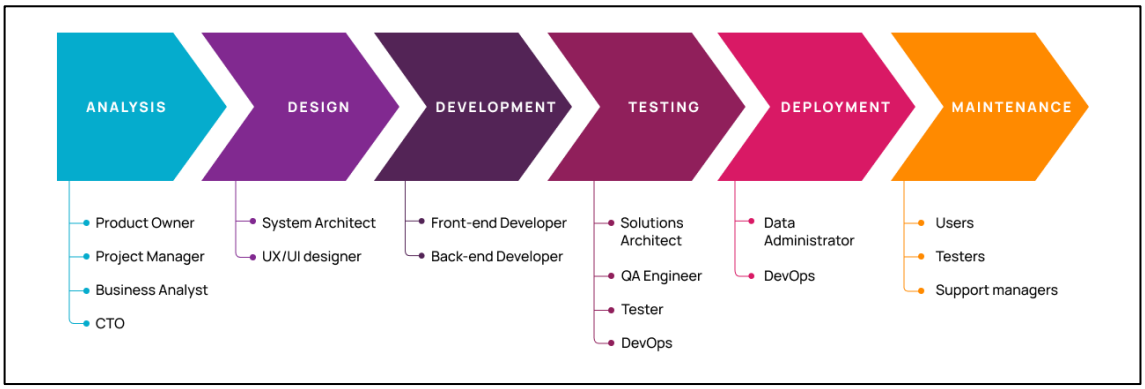

Fig. 6.1 System Flow

6.2 PROCESS AND TECHNOLOGY

The Flutter development team received the Figma design from the design team and divided the website into multiple parts, creating milestones for each part. The team is using Jira software to manage both the front-end and back-end development. The development progress is being tracked through Jira, enabling the team to monitor each implementation and module. The back-end development team has started working on the core functionality of the website, while the DevOps team has set up CI/CD to connect the front-end and back-end. This has allowed the team to consistently deploy changes at an internal level, ensuring that everything is working fine at this stage of the development process.

The tools and technologies which is used in this project is as below:

- Flutter
- Firebase
- Dart dev tools
- Git
- GitHub
- VS Code

6.3 RESULTS

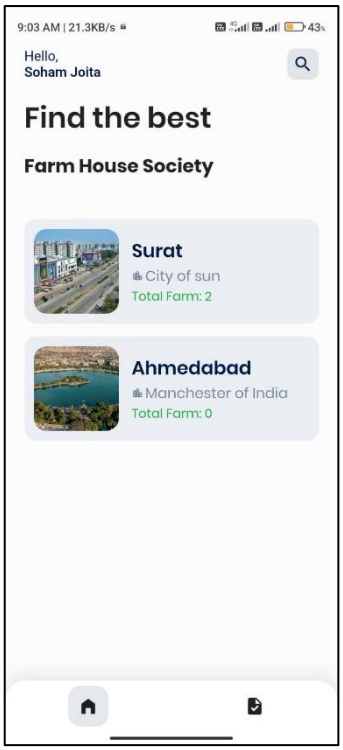

Fig. 6.2 Home Screen

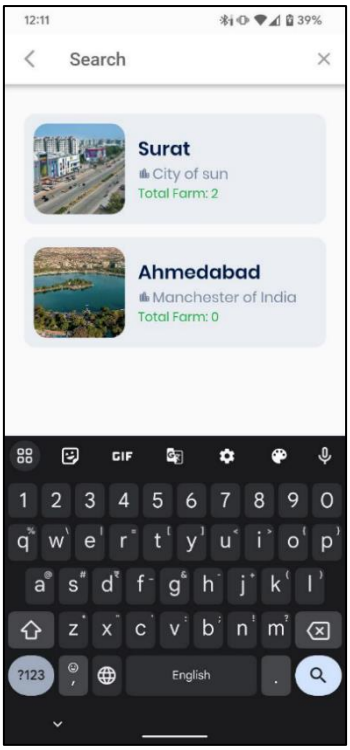

Fig. 6.3 City Search

Fig. 6.4 City Search Functionality

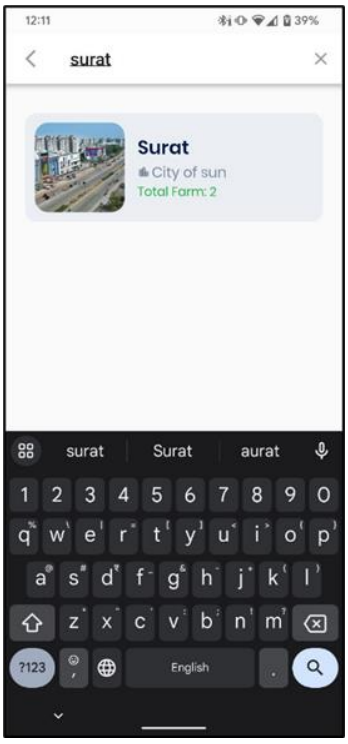

Fig. 6.5 Farm List

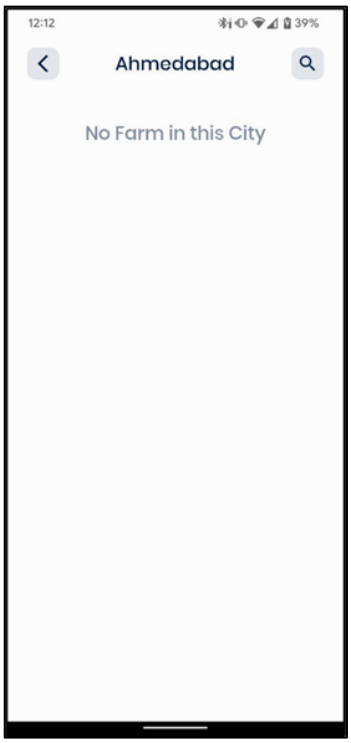

Fig. 6.6 No Farm

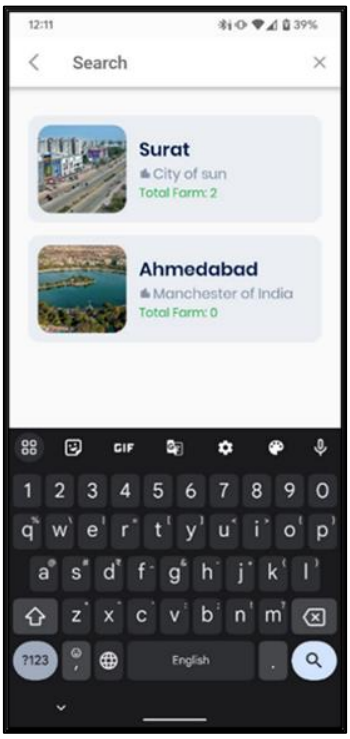

Fig. 6.7 Farm Search

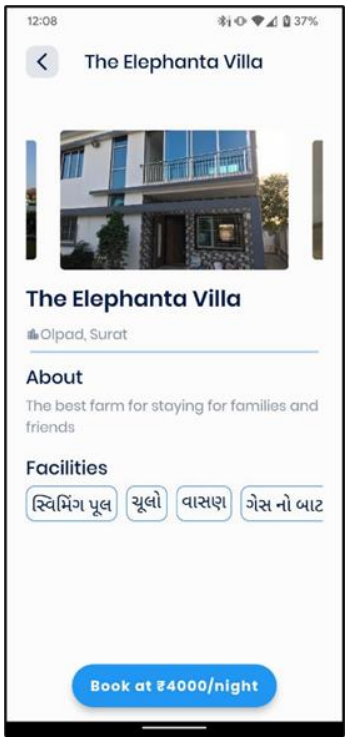

Fig. 6.8 Farm Detail

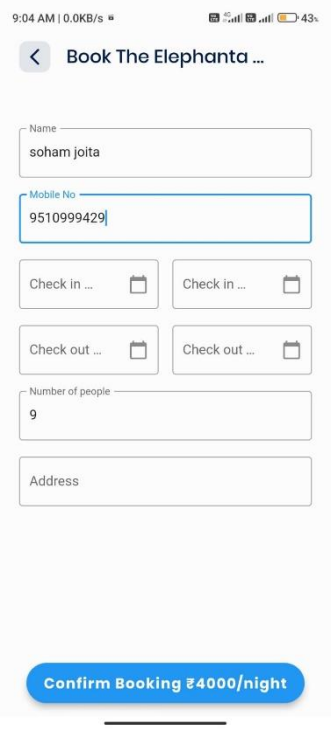

Fig. 6.9 Booking Screen

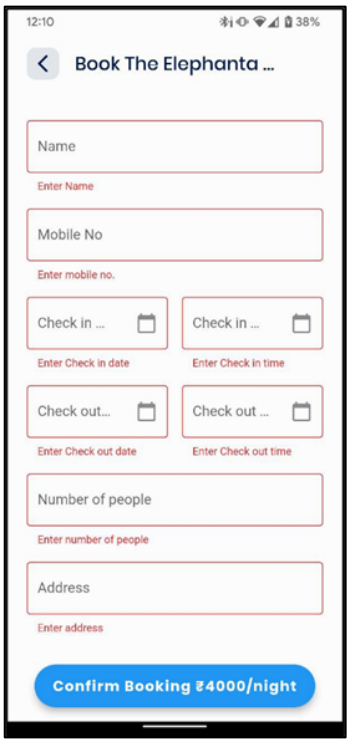

Fig. 6.10 Farm Validation

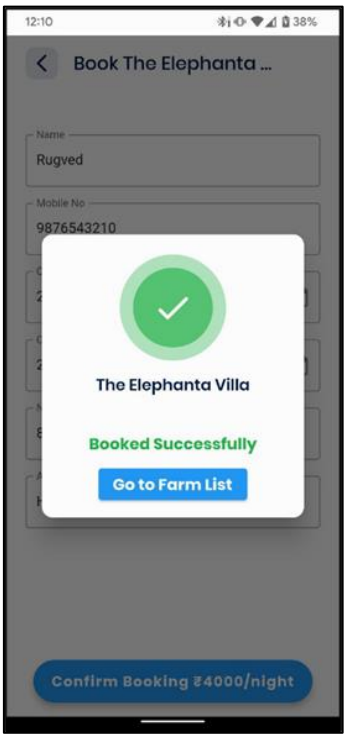

Fig. 6.11 Booking Success

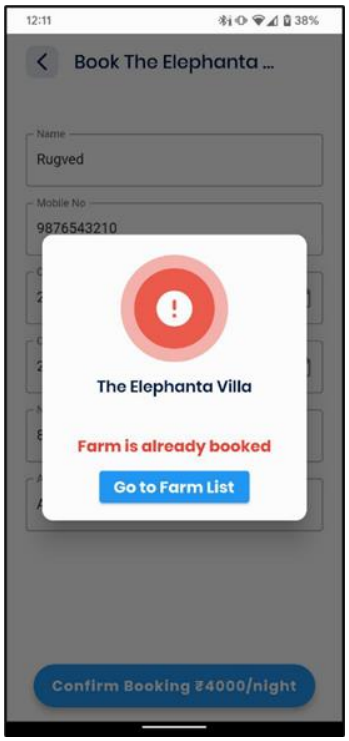

Fig. 6.12 Booking Conflict

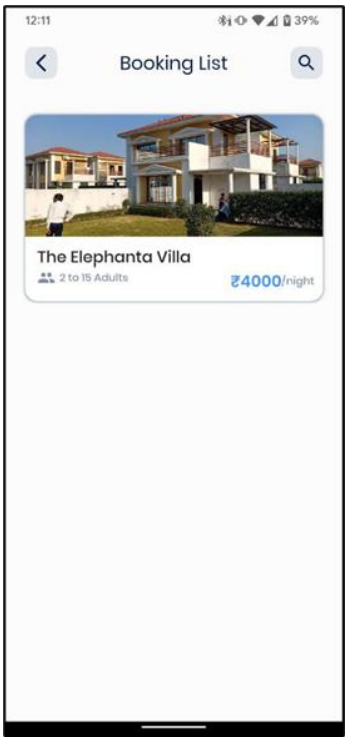

Fig. 6.13 Booking List

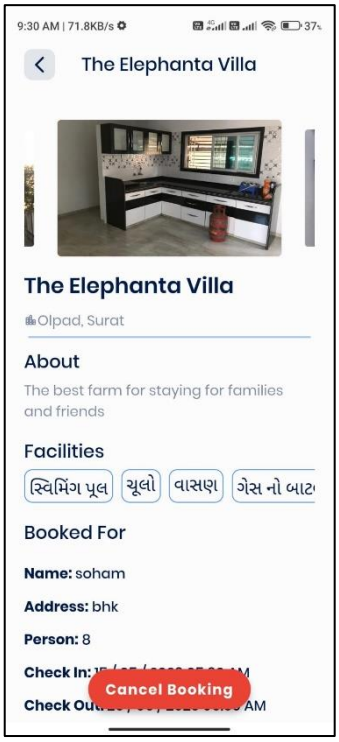

Fig. 6.14 Booking Screen Detail

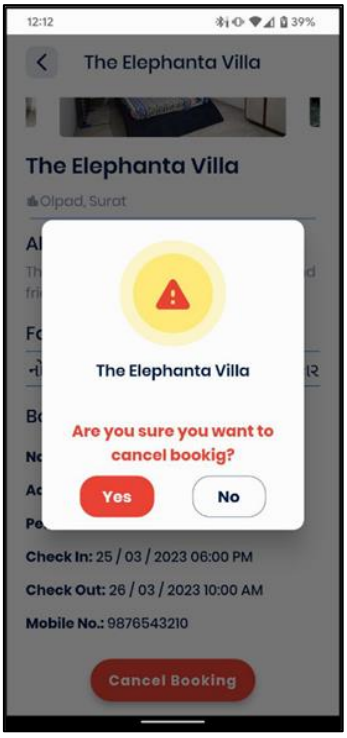

Fig. 6.15 Booking Cancellation

CHAPTER 7: TESTING

7.1 TESTING PLAN AND STRATEGY

7.1.1 Testing Plan

The objective of the system testing is to ensure that all individual programs are working as expected, that the programs link together to meet the requirements specified and ensure that the computer system and the associated clerical and other procedures work together. Systems are not designed as entire systems but they are tested as single systems. The analyst must perform both unit and system testing.

Different types of testing methods are available. We have tested our system for different aspects like Does the application meet the goals for which it has been designed? This was a very important question that stood before us as the application was designed to be implemented on such a large network.

To fulfil its goal of being able to run on different systems we went through a series of tests at different places where this is supposed to be used the most. As we need to make our system efficient enough, we need to test it thoroughly.

Finally, we tested the system with real-time data, for which it is actually designed. We are successful in satisfying our needs as it was designed according to client's requirements. But it is very necessary to maintain this application and so our work is not still over.

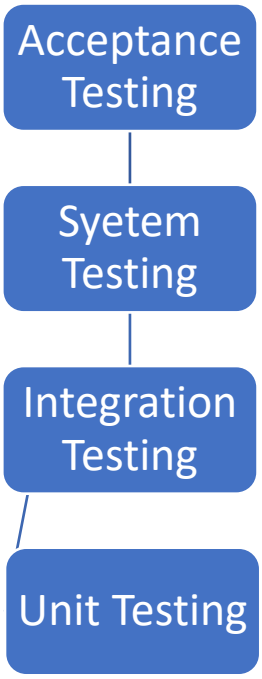

Fig. 7.1 Testing Plan

7.1.2 Testing Strategy

Once source code has been generated, the software must be tested to uncover as many errors as possible before delivery to the customer. Our goal is to design a series of test cases that have a high likelihood of finding errors. Software testing techniques provide systematic guidance for designing tests that (1) Exercise the internal logic of software components (2) Exercise the inputs and outputs domains of the program to uncover errors in program function, behaviour and performance.

During the early stages of testing, a software engineer performs all tests. However, as the testing process progresses, testing specialists may become involved. Reviews and other activities can and do uncover errors, but they are not sufficient. Every time the program is executed, the customer tests it! Therefore, you have to execute the program before it gets to the customer with the specific intent of finding and removing all errors. In order to find the highest possible number of errors, tests must be conducted systematically and test cases must be designed using disciplined techniques.

7.1.3 Testing Objectives

- Testing is a process of executing a program with the intention of finding an error.
- A good test case is one that has a high probability of finding an as-yet undiscovered error.
- A successful test is one that uncovers an as-yet undiscovered error.

7.1.4 Unit Testing

Unit testing is a software development process in which the smallest testable part of an application, called units, are individually scrutinized for proper operation. Unit testing is often automated but it can also be done manually. This testing mode is a component of Extreme Programming (XP), a pragmatic method of software development that takes a meticulous approach to building a product by means of continual testing and revision.

Unit testing involves only those characteristics that are vital to the performance of the unit under test.

This encourages developers to modify the source code without immediate concerns about how such changes might affect the functioning of the units or the program as a whole. Once all of the units in a program have been found to be working in the most efficient and

free manner possible, larger components of the program can be evaluated by means of integration testing.

7.1.5 System Testing

At present, the entire system is undergoing comprehensive testing to ensure its reliability and functionality. During testing, we have identified some cosmetic and minor bugs, which have been promptly addressed and resolved. In order to ensure seamless system operation, we have worked diligently to address and resolve any errors and exceptions encountered during testing. Through meticulous attention to detail and the use of programming solutions, we have successfully resolved or effectively handled the vast majority of issues identified during testing.

7.1.6 Recovery Testing

The system test in question is designed to stress the software to the point of failure, in order to verify that the recovery process is executed properly and successfully. By exposing the software to a variety of failure scenarios, we can ensure that it is able to respond and recover appropriately, thereby guaranteeing its reliability and robustness. Through this rigorous testing process, we are able to identify and address any weaknesses or vulnerabilities in the software, ultimately ensuring its ability to perform optimally and meet user requirements.

7.1.7 Performance Testing

Performance testing is a critical aspect of software testing that assesses the run-time performance of software within the context of an integrated system. This type of testing aims to identify potential bottlenecks, evaluate system scalability, and determine the stability of an application under varying loads. The performance testing process involves analysing and measuring key performance metrics such as response time, throughput, and resource utilization. It occurs throughout all steps in the testing process and is essential to ensuring that software systems perform efficiently and effectively in real-world scenarios. By conducting rigorous performance testing, organizations can identify and address performance issues before they impact end-users and cause business disruption.

7.2 TEST RESULT AND ANALYSIS

7.2.1 Test Cases

To minimize the number of errors in software, a rich variety of test design methods have evolved for software. These methods provide the developer with a systematic approach to testing. More importantly, methods provide a mechanism that can help to ensure the completeness of the test and provide the highest likelihood for uncovering errors in software.

An engineering product can be tested in one of the two ways:

- Knowing the specified function that product has been designed to perform, tests can be conducted that demonstrate each function is fully operational while at the same time searching for errors in each function.
- Knowing the internal workings of a product, tests can be conducted to ensure that "all gear mesh ", that is, internal oppression are performed according to specifications and all internal components have been adequately exercised. Here are the test cases that we had made for our application.

CHAPTER 8: CONCLUSION AND DISCUSSION

8.1 OVERALL ANALYSIS OF INTERNSHIP

Software Development Life cycle (SDLC) can never be completed without encountering bugs in the coding phase. The bugs thus surfaced are to be fixed faster and go ahead with development. Bug tracking needs necessary information to resolve bugs faster. Making of HRMS web app is gives to learn various feature how industry team works and also learn how frontend is connect with backend. I have learned lots functionality during this project.

8.2 PROBLEM ENCOUNTERED AND POSSIBLE SOLUTIONS

Problem: The current manual system for managing farm bookings is causing confusion and conflicts, leading to negative impacts on the client's ability to manage their farm and their public image.

Possible Solution: The client can implement a digital farm booking system to replace the manual system. This system would provide a centralized platform for managing bookings and ensuring that there are no conflicts between bookings. The digital system could also allow for real-time availability updates and automatic booking confirmations, making it easier for clients to manage their bookings and for customers to book and pay for farm experiences. Additionally, the system could include features for managing customer expectations, such as providing details on farm amenities and services, as well as a customer support system to quickly resolve any issues that arise. This would not only improve the overall experience for clients and customers but also enhance the client's public image by demonstrating their commitment to professionalism and customer satisfaction.

8.3 SUMMARY OF INTERNSHIP

During my internship at Codeflash Infotech, I had the opportunity to gain valuable experience in App Development using Flutter. Throughout my time with the company, I worked on a project called Farm Booking App, which provided me with an opportunity to put my skills into practice. The project was challenging with Flutter. As part of the project, it helped me develop a deeper understanding of the development process.

Working on the Farm Booking App project provided me with an opportunity to learn and grow as an App Developer. I was able to apply the concepts and skills that I had learned during my studies to develop a fully-functional app that met the client's requirements. I also gained experience in working as part of a team and collaborating with other developers and designers.

Throughout the internship, I received guidance and support from my mentors and peers, who helped me develop my skills and provided feedback on my work. I appreciated the opportunity to work in a professional environment where I could apply my knowledge and skills to real-world problems.

Overall, my internship experience at Codeflash Infotech was valuable and rewarding. It provided me with a platform to enhance my skills in App Development using Flutter, and I am confident that the knowledge and experience I gained will serve me well in my future endeavours.

8.4 LIMITATION AND FUTURE ENHANCEMENT

8.4.1 Limitation

- Some places have very poor network condition, where this app might can load for long time because of network issue.
- User must have knowledge of smart phone.

8.4.2 Future Enhancement

- In future the payment integration can be made for better experience.
- Can include more media like videos.

8.5 REFERENCES

- https://flutter.dev/
- https://docs.flutter.dev/reference/tutorials
- https://www.figma.com/file/Dxfo63IBrfnYkHlIMY51wO/Farm-Bookings?node-id=0%3A1&t=EAgfSRUPHo63wGvX-0