

EKOTA - A SOCIAL COLLABORATION APP

BY

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This Report Presented in Partial Fulfillment of the Requirements for the Degree of
Bachelor of Science in Computer Science and Engineering

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APPROVAL

This Project titled “**EKOTA - A SOCIAL COLLABORATION APP**”, submitted by **Md Mohaimin** to the Department of Computer Science and Engineering, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on **16 July 2024**.

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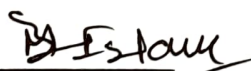
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I would like to thank my entire course mate in Daffodil International University, who took part in this discussion while completing the course work.

Finally, I must acknowledge with due respect the constant support and patience of our parents.

ABSTRACT

The ever-growing dominance of screen time has fostered concerns about the decline of genuine human interaction and the negative impact on physical and mental health. **EKOTA - A Social Collaboration App**, aims to address this pressing issue by fostering a healthy balance between digital and physical activities. EKOTA facilitates community creation for various self-development activities, ranging from outdoor exercise groups to meditation circles. This fosters a sense of community and belonging among users who share similar interests in personal growth. The app leverages location-based services to suggest nearby communities and social work opportunities, promoting a sense of safety and convenience for users. User engagement is driven through a reputation system based on in-app ratings. Contributions to communities and social work translate into points, which act as a measure of social contribution and are displayed on area-wise leaderboards. This gamification element fosters a sense of healthy competition and community spirit, motivating users to participate actively. Additionally, the app allows communities to post temporary volunteer jobs with point-based rewards, further strengthening social connections and promoting positive social impact. This feature caters to users who may have limited time for traditional volunteering but still wish to contribute to their communities. The development of EKOTA will encompass various computer science concepts, including user interface (UI) and user experience (UX) design, app development, database management, location-based services integration, and potentially, social network analysis. The project will demonstrate the application of these concepts to create a functional and user-friendly mobile application that addresses a critical need in today's society.

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CHAPTER 1

INTRODUCTION

1.1 Overview

In the digital age, where screens consume a significant portion of our daily lives, genuine human connection can feel increasingly scarce. This project addresses this growing disconnection by introducing EKOTA, a social collaboration mobile application. EKOTA aims to bridge the digital and physical realms, fostering a healthier balance between technology use and real-world interaction.

1.2 Motivation

The ubiquitous presence of digital technologies has undeniably transformed our lives. From communication to entertainment, screens have become central to our daily routines. Studies have shown that the average person spends upwards of six hours per day glued to their smartphones, tablets, and computers. While these technologies offer undeniable benefits in terms of connectivity, information access, and entertainment, an overreliance on them can have detrimental effects. Research suggests a correlation between excessive screen time and increased risks of depression, anxiety, sleep disturbances, and even certain physical health problems, such as obesity and musculoskeletal disorders.

There's a growing need to promote a healthy balance between our digital and physical worlds. Engaging in physical activities, fostering genuine social connections, and spending time in nature are all crucial for maintaining a healthy lifestyle. Studies have shown that regular physical activity can improve cardiovascular health, reduce stress levels, and boost cognitive function, and even enhance creativity and problem-solving skills. Social connection is another essential element of well-being, providing us with a sense of belonging, purpose, and support. It can contribute to a stronger immune system, improved mental health, and a reduced risk of chronic diseases. Spending time in nature has also been linked to numerous benefits, including reduced stress, improved mood, and a greater sense of connection to the world around us.

Existing social media platforms often prioritize passive consumption of content and online interactions that can be fleeting or superficial. While some fitness apps can be helpful for tracking individual goals and monitoring progress, they might lack a strong social component or focus solely on individual achievements, failing to encourage a sense of community or collective purpose.

EKOTA emerges as a solution to bridge this gap. It's a social collaboration app designed to encourage users to step away from their screens and engage in real-world activities with a focus on self-development and social good. By fostering communities based on shared interests and facilitating meaningful social interactions, EKOTA aims to promote a healthier, more connected lifestyle while leveraging the power of technology to connect people and create a more positive impact on the world.

1.3 Objectives

The primary objective of the EKOTA is to develop a comprehensive social collaboration app that fosters a harmonious balance between digital and physical interactions. By leveraging modern technology, this innovative application aims to encourage individuals to engage in self-development activities, participate in community-driven initiatives, and establish genuine connections with like-minded individuals.

The project seeks to address the growing concern of excessive screen time and its detrimental effects on cognitive, behavioral, and physiological well-being. By promoting physical activities, outdoor exploration, and social engagement, EKOTA strives to create a holistic experience that nurtures personal growth, mental well-being, and a sense of community.

1. Facilitate the creation and discovery of communities centered around self-development activities, such as fitness, mindfulness, and personal growth.
2. Encourage participation in local community service initiatives, including tree planting, assisting individuals with disabilities, area cleanup efforts, and traffic control, among others.

3. Implement a robust rating and reward system that incentivizes active participation, positive behavior, and meaningful contributions within the platform's communities and social initiatives.
4. Foster a sense of accomplishment and recognition by displaying leaderboards that showcase individuals' contributions and societal impact based on their earned points.
5. Provide a dedicated section for users and communities to post memories with pictures enabling users to engage and feel achievements of union.
6. Develop a user-friendly and intuitive interface that seamlessly integrates digital and physical experiences, ensuring a seamless and engaging user journey.

By achieving these objectives, the EKOTA aims to create a transformative platform that empowers individuals to embrace a balanced lifestyle, cultivate meaningful connections, and contribute positively to their local communities. Ultimately, the project envisions a world where technology harmoniously coexists with physical interactions, unlocking the full potential of human growth and fostering a society that values personal well-being, social responsibility, and genuine human connections.

1.4 Project Scope

The project scope defines the features, deliverables and constraints of EKOTA, emphasizing its commitment to promoting genuine human connections, community engagement, and social impact. By aligning with user needs and expectations, EKOTA seeks to empower individuals to make meaningful contributions to society while fostering a sense of belonging and camaraderie within their communities.

Core Features:

- **User Registration and Authentication:** Enable users to create accounts securely and authenticate their identity.
- **Community Creation and Joining:** Allow users to create and join communities based on shared interests and geographical proximity.
- **Community Engagement:** Engage in community activities through platform.

- **Social Work Initiatives:** Request, Aggregate and promote social work initiatives for users to volunteer and contribute to.
- **Rating and Reward System:** Implement a system for users to rate each other's contributions and earn rewards based on their participation.

Additional Features:

- **Location-based Recommendations:** Provide personalized recommendations for communities and social work initiatives based on user location.
- **Community Feed:** Facilitate interactions within communities through dedicated post functionalities.
- **Event Management:** Allow users and communities to organize and manage events related to self-development activities or social causes.
- **Leaderboards:** Display rankings of users based on their contributions to communities and social work initiatives.

Deliverables

- Fully functional mobile applications compatible with popular platforms (iOS, Android).
- Backend infrastructure to support user management, community creation, social work initiatives, rating and reward system, and job posting functionalities.
- Intuitive user interfaces designed for seamless navigation and interaction.
- Comprehensive documentation including system requirements, architecture, design, and user manuals.
- Quality assurance processes to ensure the reliability, security, and performance of the app.

Constraints and Assumptions

- The project assumes access to necessary technology stacks, frameworks, and APIs for development.
- Regulatory compliance with data protection laws and privacy regulations.
- Availability of resources including human capital, infrastructure, and funding.
- The app may initially focus on specific geographic regions before expanding globally.
- Integration with third-party services (e.g., maps) may be required for certain functionalities.

1.5 Project Outcome

The project outcome for EKOTA reflects its success in realizing its vision of fostering genuine human connections, promoting community engagement, and facilitating altruistic endeavors. By empowering users to lead fulfilling lives and make positive contributions to society, EKOTA has emerged as a beacon of change, bridging the gap between the digital and physical realms while inspiring a culture of collaboration, compassion, and social impact.

Community Building:

EKOTA fosters the creation of vibrant communities centered around physical activities, self-development, and social causes. By facilitating connections between like-minded individuals, the app cultivates a sense of belonging and shared purpose, enriching users' social experiences and networks.

Promotion of Physical Activity:

Through its emphasis on group activities and community engagement, EKOTA promotes physical well-being by encouraging users to participate in outdoor pursuits, exercise routines, and volunteer initiatives. By integrating physical activities into social interactions, the app inspires users to lead active lifestyles and prioritize their health.

Increased Social Interaction:

EKOTA facilitates meaningful social interactions by providing a platform for users to connect, communicate, and collaborate in both digital and physical spaces. By organizing group events, fostering discussions, and enabling real-world meetups, the app enhances social cohesion and interpersonal relationships among its users.

Balanced Digital Usage:

Recognizing the importance of striking a balance between online and offline activities, EKOTA promotes mindful digital consumption by encouraging users to engage in real-world interactions and activities. By offering alternatives to screen time and promoting face-to-face communication, the app helps users develop healthier digital habits and reduce dependency on technology.

Environmental Impact:

EKOTA contributes to environmental sustainability by facilitating community-led initiatives such as tree planting, clean-up drives, and conservation efforts. By mobilizing users to take action on environmental issues, the app raises awareness and promotes collective responsibility for protecting the planet.

Personal Growth:

Through participation in self-development activities, volunteer work, and community engagement, EKOTA fosters personal growth and empowerment among its users. By providing opportunities for learning, skill development, and self-discovery, the app empowers individuals to realize their full potential and pursue their passions.

Sense of Contribution:

By enabling users to contribute to their communities and engage in social causes, EKOTA cultivates a sense of purpose and fulfillment. Through volunteer opportunities, collaborative projects, and acts of kindness, the app empowers users to make meaningful contributions to society and effect positive change.

Social Empowerment:

EKOTA empowers users to effect positive change in their communities and society at large by providing a platform for collective action and collaboration. By amplifying voices, mobilizing resources, and fostering solidarity, the app enables users to address social issues, advocate for causes, and drive meaningful impact.

Positive Online Environment:

Through its community-driven approach and emphasis on positive interactions, EKOTA fosters a supportive and inclusive online environment. By promoting respectful communication, empathy, and mutual support, the app creates a digital space where users feel valued, empowered, and connected.

Increased Awareness:

EKOTA raises awareness about social issues, environmental challenges, and opportunities for community engagement through its platform. By providing information, resources, and opportunities for action, the app educates users and inspires them to become informed, active participants in their communities and society.

1.6 Report Layout

CHAPTER 1 – Introduction

The introduction section will provide an overview of the Ekota project, highlighting the motivation, objectives, scopes and significance of the project's outcomes.

CHAPTER 2 - Background

Background will explore existing applications, services related to the features and ideas of EKOTA. It will analyze the terminologies, perform comparative analysis.

CHAPTER 3 - Requirement Specification

This section will perform analysis of requirements of Ekota. It will outline the essential modeling to achieve the project's objectives, such as use case modeling and workflow model and feature definition.

CHAPTER 4 - Design Specification

The design specification will outline the architectural components, user interface designs of the Ekota. It will detail the system's overall architecture, including the client-side (mobile app or web application) and server-side components.

CHAPTER 5 - Implementation and Testing

This section will document the implementation process, including the technologies and frameworks used, coding practices, and development methodologies employed. It will also describe the testing strategies, to ensure the app's functionality, reliability, and usability.

CHAPTER 6 - Impact and Sustainability

The impact and sustainability section will analyze the potential societal and environmental impacts of Ekota.

CHAPTER 7 - Conclusion and Future Scope

The conclusion will summarize the project's achievements, highlighting the key features and functionalities implemented. It will also reflect on the lessons learned throughout the development process. Furthermore, this section will explore the future scope of the Ekota app, including potential enhancements, integrations with emerging technologies, and expansion to new domains or markets.

CHAPTER 2

BACKGROUND

2.1 Terminologies

The terminologies can be used to compare and contrast the Ekota with other similar services, applications, or initiatives. Additionally, we can explore how these concepts are implemented or addressed in different contexts, and identify unique features or approaches that set the Ekota project apart by doing comparative analysis on the next section.

1. Social Collaboration Platform: A digital platform that facilitates social interactions, collaboration, and community-building among users with shared interests or goals.
2. Self-Development Activities: Practices or pursuits aimed at personal growth, self-improvement, and enhancing physical, mental, or emotional well-being.
3. Community Engagement: The active involvement and participation of individuals in activities or initiatives within their local communities.
4. Gamification: The integration of game-like elements, such as points, leaderboards, and rewards, into non-game contexts to encourage user engagement and motivation.
5. Peer-to-Peer Evaluation: A system where users can provide feedback, ratings, or assessments of each other's contributions, behavior, or performance.
6. Location-Based Services: Functionality that leverages users' geographical locations to provide relevant information, recommendations, or opportunities in their vicinity.
7. Activity Tracking: The ability to monitor, record, and analyze user participation and progress in various activities or initiatives.
8. Incentive Mechanisms: Strategies or systems designed to motivate and reward desired user behaviors, such as contributing to communities or participating in social initiatives.

10. User-Generated Content: Content created and shared by users within the platform, including community descriptions, activity updates, or user profiles, post memories.

11. Digital Well-being: The promotion of balanced and healthy digital habits, addressing issues such as excessive screen time, digital addiction, and the integration of physical and digital experiences.

12. Social Impact: The positive influence or effect that the platform aims to have on individuals, communities, and society as a whole.

2.2 Related Works

Ekota differentiates itself by targeting people of every generation. Self-development activities across various domains, while fostering a strong connection to social impact through gamified community service. Only to be maintained and organized by motivated and interested people. This focus on holistic well-being and social responsibility through a location-based lens positions Ekota as a unique offering within the Bangladeshi market along in Asia as whole. Furthermore, Ekota's versatility extends beyond features that promote deeper community bonds and a wider range of self-development interests, making it a well-rounded platform for a tech-savvy or non-tech-savvy generation seeking meaningful connections and personal growth along social contribution leading to a wonderful environment and heartwarming connections.

Although it is a compelling idea. There are some related services around the world that share aspects of similar vision:

Social Collaboration for Activities:

- **Meetup:** Focuses on organizing online groups that meet offline for shared interests, including hobbies, fitness activities, and book clubs.
- **Strava:** Primarily a fitness app, but it fosters social connection through challenges, group activities, and segment leaderboards.

Community Engagement and Volunteerism:

- **VolunteerMatch:** Connects volunteers with suitable opportunities based on location, skills, and interests.
- **Nextdoor:** Hyperlocal social network for neighborhoods, promoting community events, volunteering, and mutual support.

Gamification for Good:

- **Charity Miles:** Tracks fitness activities and converts them into donations for chosen charities.
- **Habitica:** Uses gamification to create a supportive community for habit building and goal achievement.

Location-Based Social Activities:

- **Geocaching:** Treasure hunt game that combines outdoor exploration with social discovery through hidden caches.
- **Zombies, Run:** Fitness app that uses a narrative game format to motivate users to run or walk outdoors.

2.3 Comparative Analysis

Ekota's vision of fostering real-world connections and well-being through a social collaboration platform aligns with several existing services. Here's a comparative analysis highlighting Ekota's potential strengths and areas for differentiation:

Table 2.3: Comparative Analysis with similar platform

Service	Focus	Strengths	Potential Differentiation for Ekota

Meetup	General interest groups & activities	Online and Offline meetups for diverse interests	Focus on self-development activities & social services through community. Peer rating and contribution. And Offline based.
Strava	Fitness activities & motivation	Gamification elements like challenges & leaderboards promote engagement.	Broader range of self-development activities beyond fitness & integrate social impact through social works.
VolunteerMatch	Volunteer opportunity matching	Connects volunteers with causes based on skills & interests.	Location-based integration to find volunteering opportunities within established Ekota communities and interest.
Nextdoor	Hyperlocal community engagement	Strengthens local communities through events & mutual support.	Focus on self-development activities & gamified social impact to make volunteering within neighborhoods more engaging.

Charity Miles	Fitness app with charitable giving	Converts physical activity into donations for charities.	Wider range of self-development activities & focus on social impact beyond just donations.
Habitica	Gamified habit building & goal achievement	Supportive community & gamification elements motivate users.	Focus on self-development activities that extend beyond habits & integrate social interaction within the app's communities.
Geocaching	Outdoor exploration & gamified discovery	Combines outdoor activity with a treasure hunt game.	Ekota can incorporate location-based activities centered around outdoor themes, but with a focus on social interaction and community building.
Zombies, Run!	Fitness app with narrative game format	Motivates users to run/walk through an immersive story.	Cater to a wider range of self-development activities & integrate social aspects where users can achieve goals together within the narrative.

By analyzing these concepts, Ekota has the ability to combine all these services along with many others in one app. Bridging the people with multitude of activity where no other services failed to do. By using Ekota, users and contributors has the freedom to establish innovative ideas into the lives.

CHAPTER 3

REQUIREMENT SPECIFICATION

3.1 Requirement Analysis

The Ekota project aims to develop a social collaboration platform that encourages individuals to engage in self-development activities, participate in community-driven initiatives, and establish genuine connections with like-minded individuals. The requirement analysis phase involved conducting interviews with a diverse range of people, from children to elderly individuals, across Bangladesh. These interviews provided valuable insights into the current challenges and pain points faced by various demographic groups.

One of the primary concerns identified during the interviews was the excessive reliance on social media, digital entertainment, and virtual environments, leading to a lack of physical activity and meaningful social interactions. Children and teenagers expressed difficulties in finding safe and accessible spaces to engage in outdoor activities, as well as a shortage of peers to play with in local areas. Similarly, adults and elderly individuals expressed a need for community spaces and suitable locations to pursue their interests and activities.

3.2 Agile Development Methodology

The application is developed using Agile methodology to ensure adaptability to changing requirements and continuous improvement throughout the development.

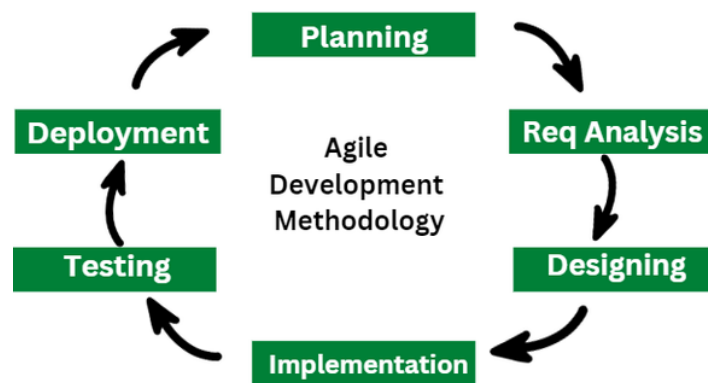


Figure 3.1: Agile Methodology

3.3 Use Case Model

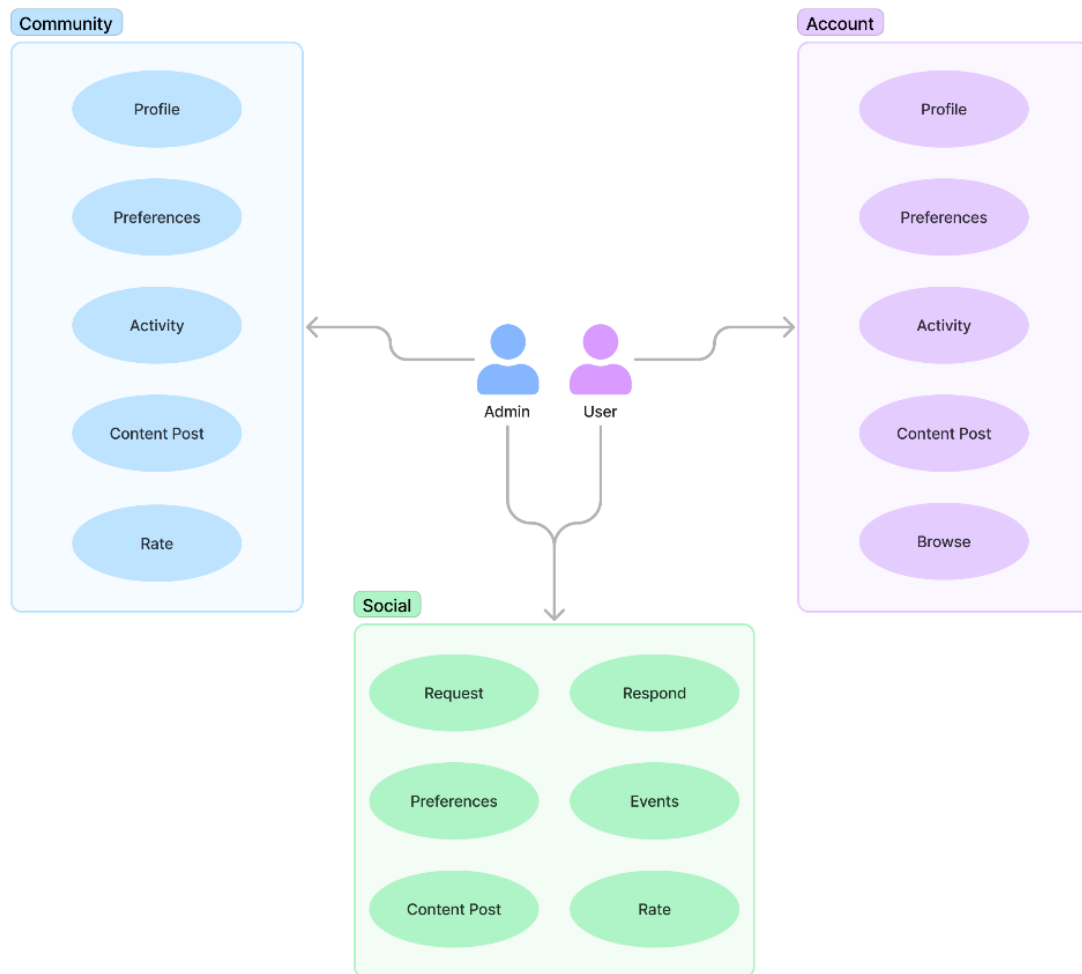


Figure 3.2: Use Case Model

3.4 Workflow Diagram

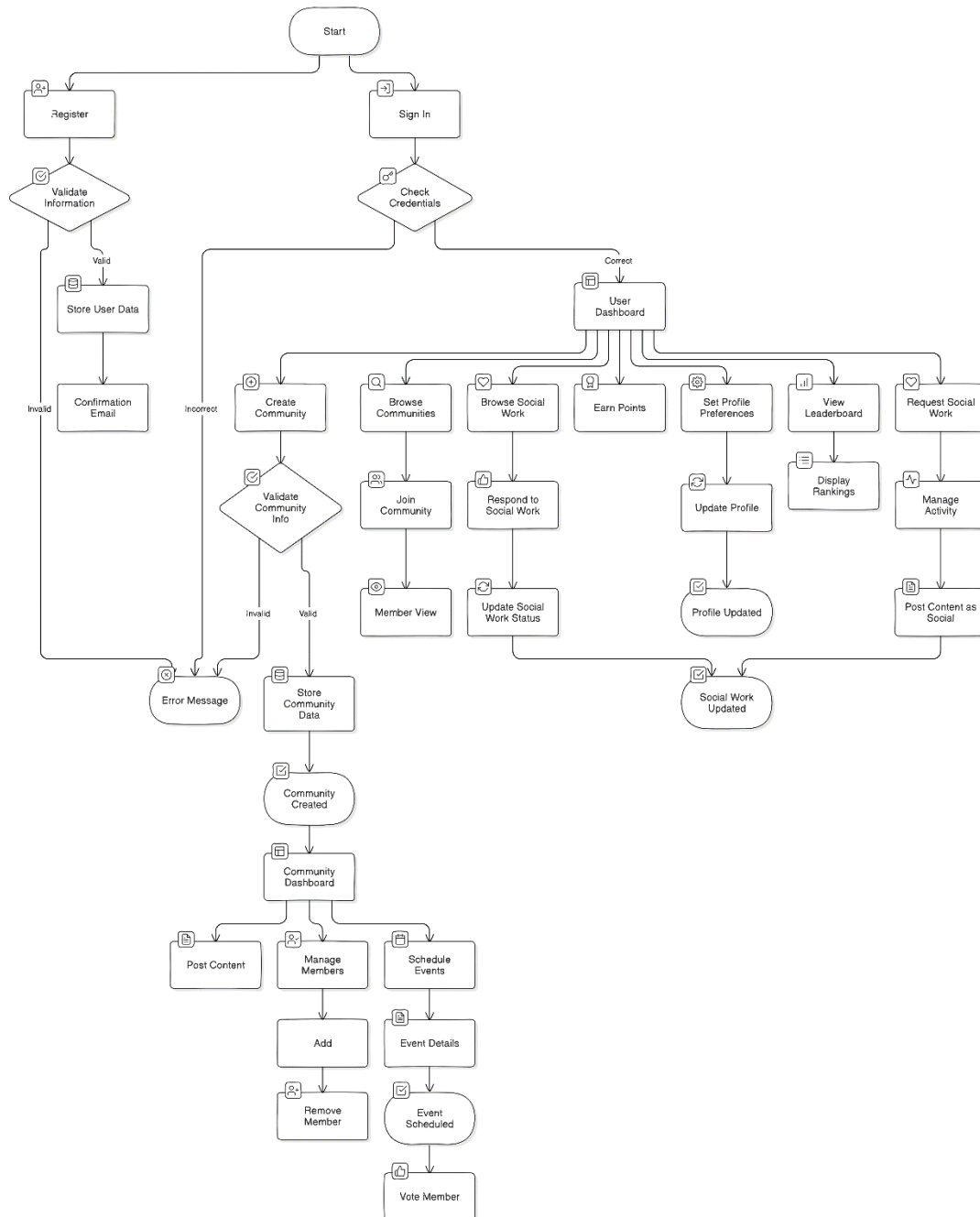


Figure 3.3: Workflow Diagram

3.5 Feature Definition

Based on these findings, the Ekota aims to address the following key features:

User Features:

1. Authentication:

- Register a user account with basic information
- Sign in with email

2. Profile Preferences:

- Set/edit profile information and picture
- Set/edit Location

3. Profile feed:

- Gallery Feed to show posted content.
- User can post text, photo

4. Community Page:

- User can browse nearby communities based on his/her set location
- User can join communities
- View members and their profile of joined communities
- User gets points by attending community activity
- User can create community

5. Social Page:

- User can browse nearby social work based on his/her set location

- User can respond to social work
- User can request for social work
- User gets more points by requesting for social works
- User gets most point by doing social work

6. Leaderboard:

- User can be part of an area wise leaderboard by being most points collector
- User can view leaderboard and his/her position at the area

7. Discover:

- User can browse nearby communities based on his/her set location
- User can browse nearby social work based on his/her set location
- User can navigate from this page to the community or social location
- User can get more information before joining

Community Features:

1. Profile and Preferences:

- User who creates a community, becomes admin and act as the community
- Community can ban members for misconduct or rule violations

2. Profile feed:

- Gallery Feed to show posted content.
- Community can post text, photo

- Community can take activity attendance by making activity post.

3. Rating:

- Community can rate members by voting them after each activity.
- Community can bring points to the member by actively maintaining itself

Social Features:

1. Profile and Preferences:

- User who requests for a social work, becomes admin and act as the social
- Social can ban participants for misconduct or rule violations

2. Profile feed:

- Gallery Feed to show posted content.
- Social can post text, photo
- Social can take activity attendance by making activity post.

3. Rating:

- Social can rate members by voting them after each activity.
- Social can bring points to the member by actively maintaining itself

This comprehensive feature definition provides a clear understanding of the roles, responsibilities, and interactions among the different components of the system. Ekota also differentiates itself by excluding many elaborative or automated features a typical social media app can have, because it tries to connect people encouraging to interact with each other, make their own decisions and be skilled in leadership. Ekota's sole purpose to enable people to lead a healthy life by reducing virtual footprint.

CHAPTER 4

DESIGN SPECIFICATION

4.1 App Frontend Design

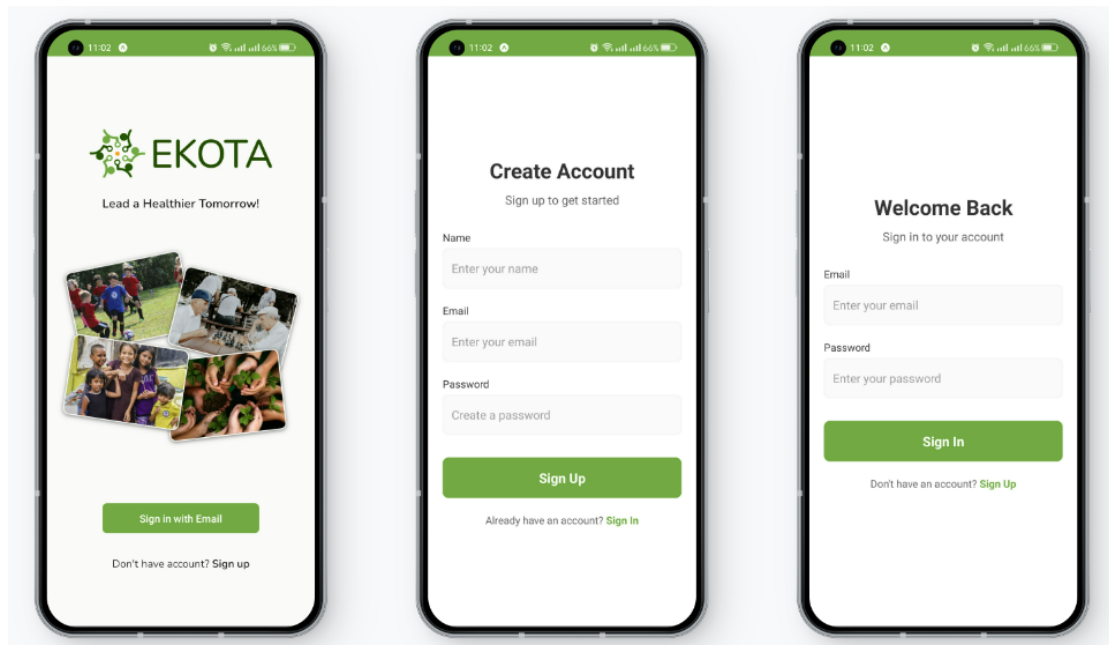


Figure 4.1: App starting page, Registration page, Login page

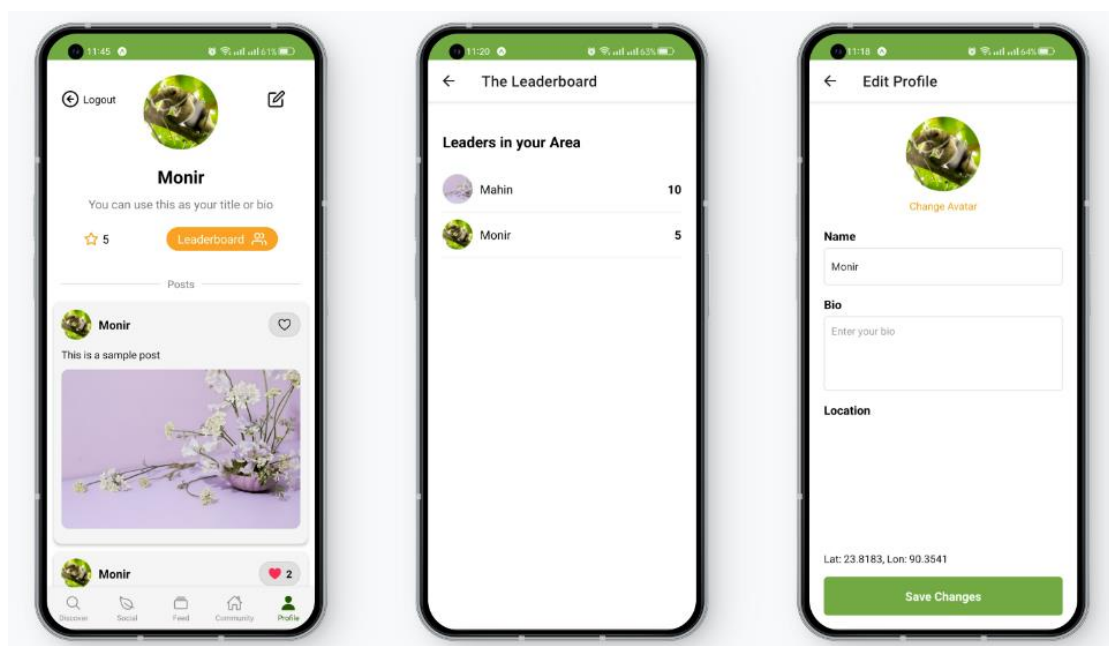


Figure 4.2: User profile page, Leaderboard page, Edit profile page

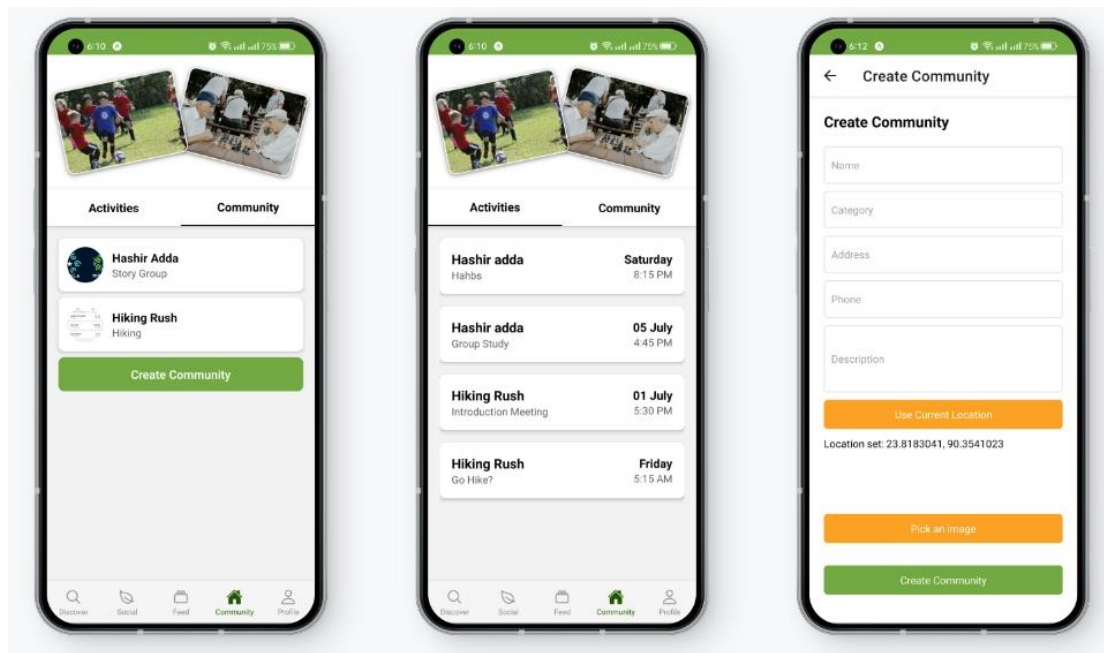


Figure 4.3: Community page, Activity page, Create community page

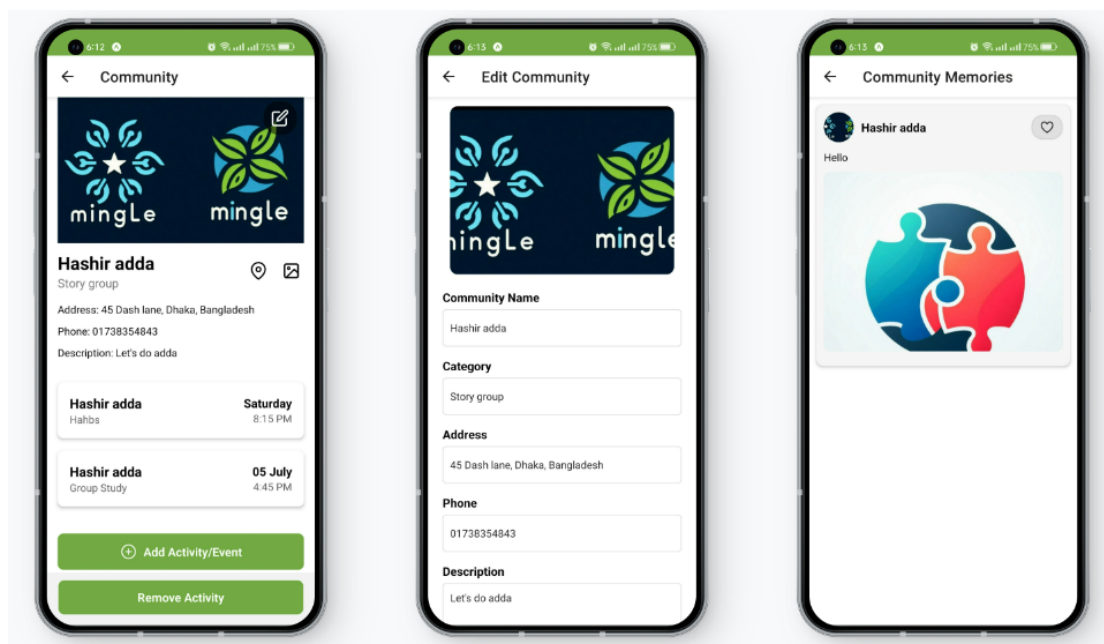


Figure 4.4: Community details page, Edit community page, Community post page

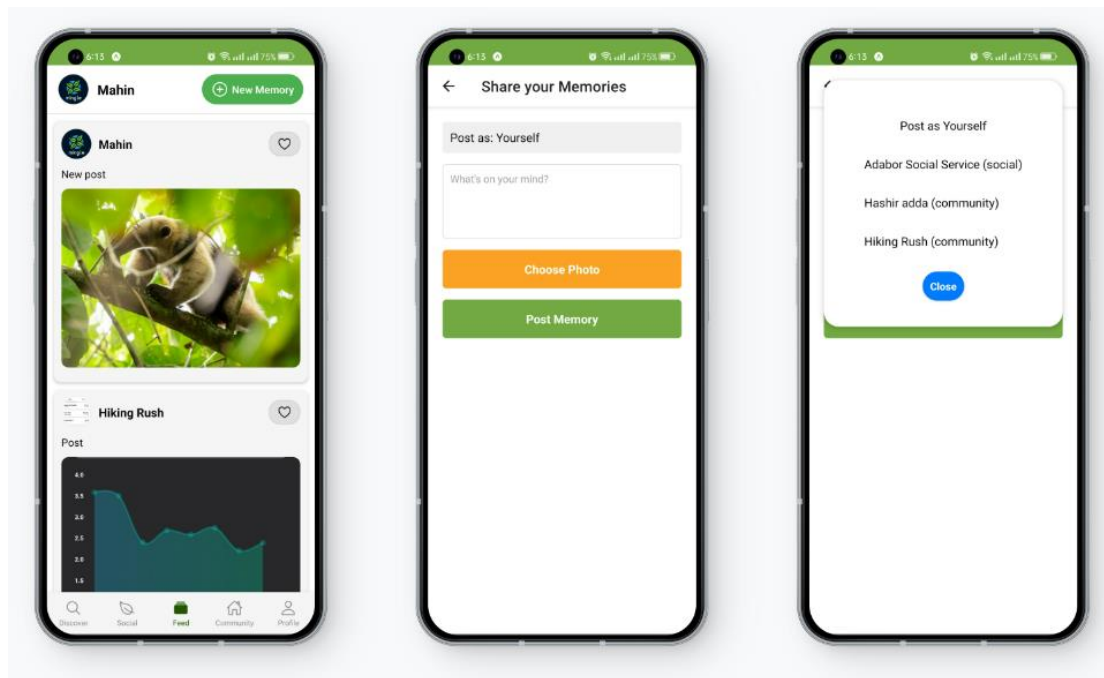


Figure 4.5: Post feed page, New post page, Dynamic post alias option

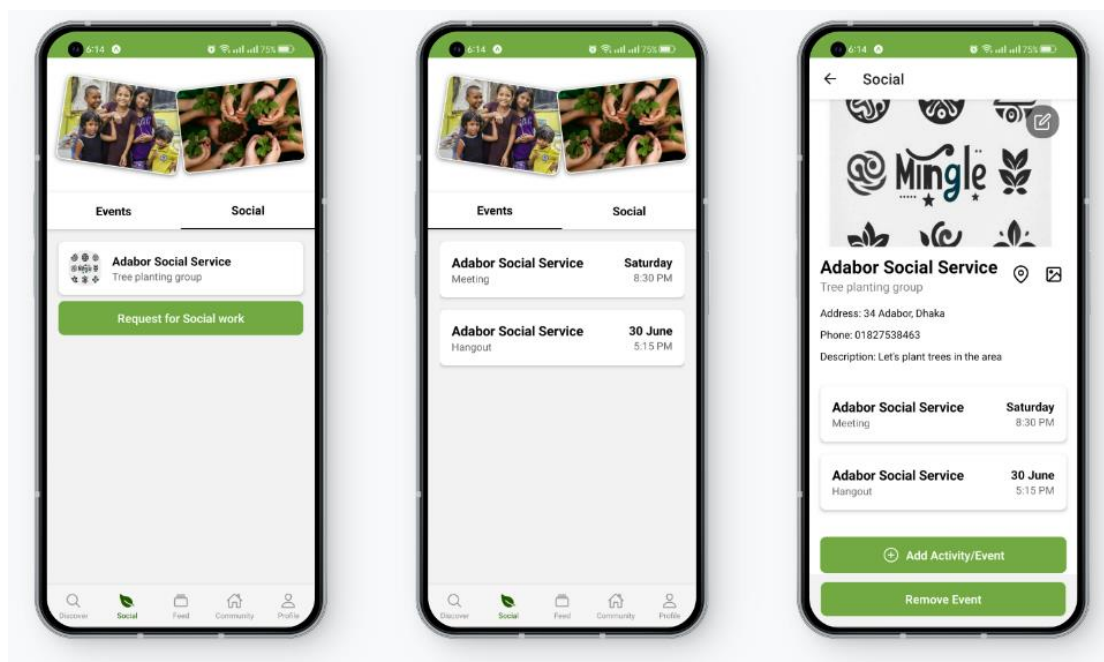


Figure 4.6: Social page, Event page, Social details page

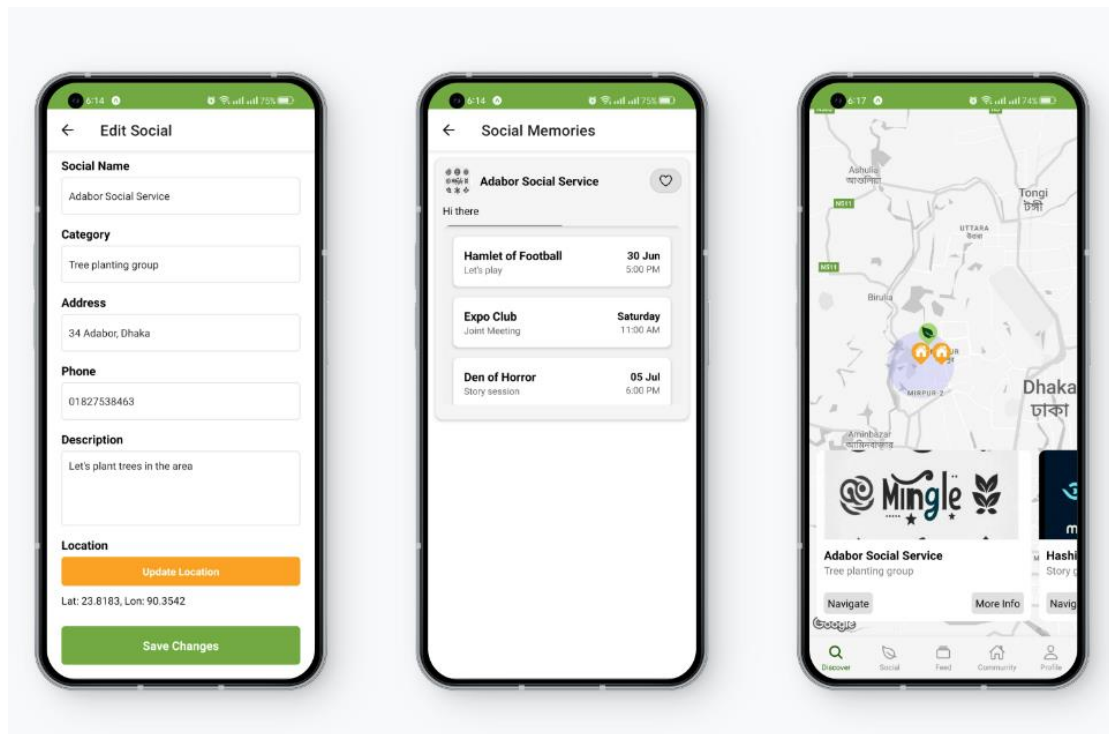


Figure 4.7: Edit social information page, Social post page, Discover page

4.2 Backend Design

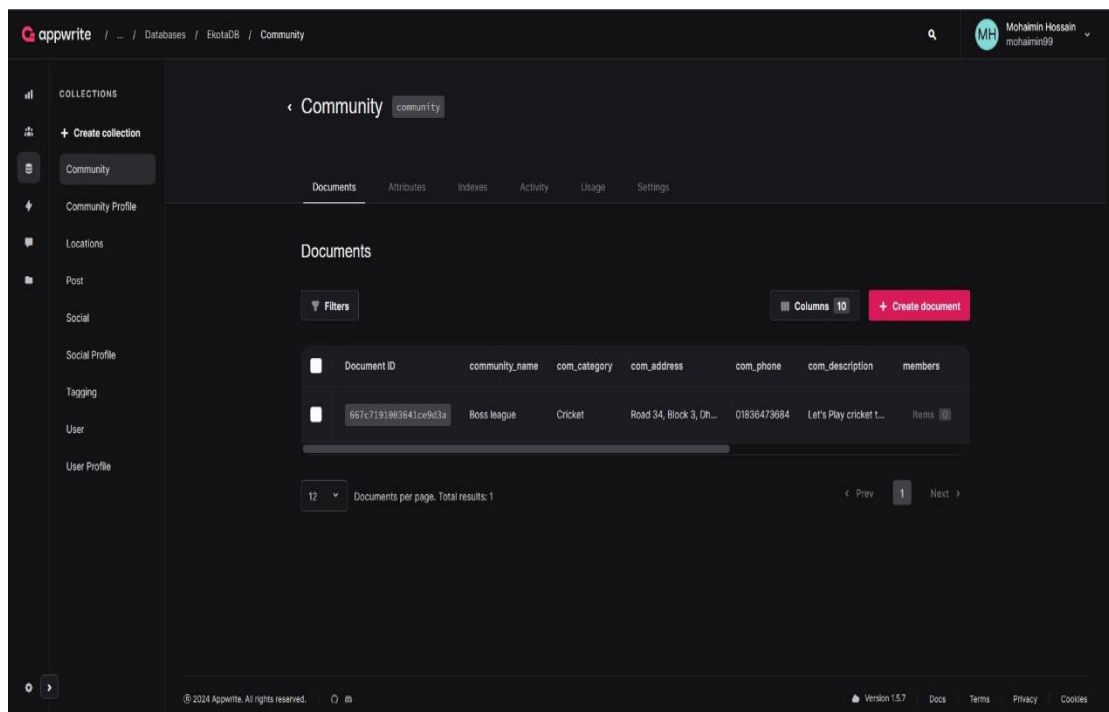


Figure 4.8: Backend database implementation on Appwrite

4.3 Database Design

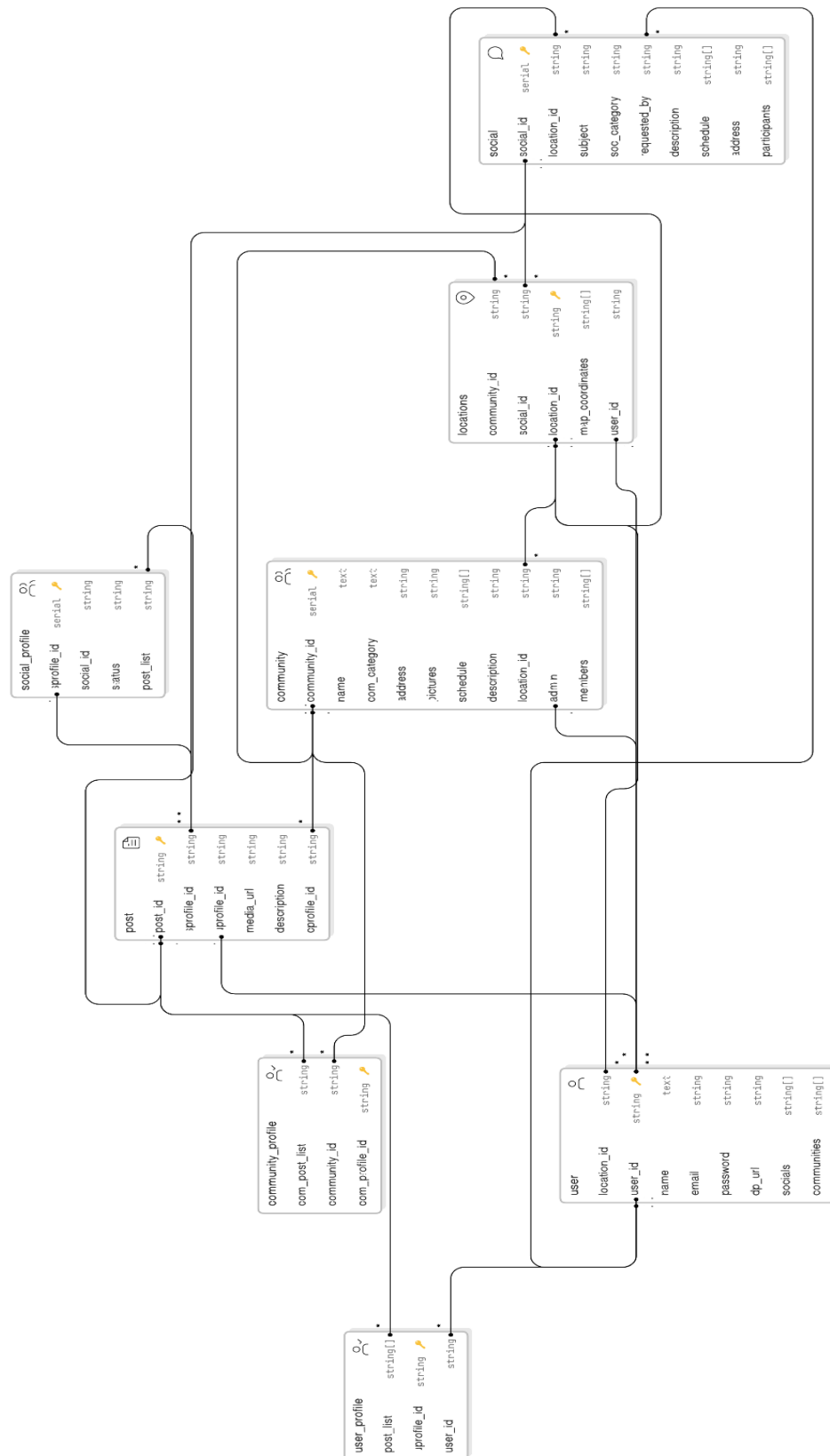


Figure 4.9: ER Diagram

CHAPTER 5

IMPLEMENTATION AND TESTING

5.1 Technology Specification

1. Front-end:

- React Native: The core framework for building the user interface and handling the app logic.
- Expo: A toolchain built around React Native, providing a set of tools and services for developing, building, and deploying React Native apps.
- Expo Router: A popular library for implementing navigation in React Native apps, providing a robust and customizable navigation experience.
- React Native Maps: A library that provides an API for rendering maps and enabling location-based services, which can be used for displaying community locations and social work opportunities.
- Expo Image Picker: A library for selecting images or videos from the device's gallery, providing an alternative to the camera for uploading content.

2. Back-end:

- Appwrite: A popular back-end as a service for building the server-side application.
- Appwrite DB: A scalable and flexible database for storing user data, community information, and social work requests.

3. Authentication and User Management:

- Appwrite Authentication: A comprehensive authentication solution provided, allowing users to sign in with various providers (email/password, etc.).
- Appwrite Storage: A flexible and scalable cloud store, which can be used to store and sync user data in real-time.

4. Third-Party APIs and Services:

- Google Maps API: For integrating maps and location-based services into the app, such as displaying community locations and enabling navigation.

5. Utility Libraries:

- React Native Reusables: A popular UI toolkit for React Native, providing reusable and customizable components for building beautiful and consistent user interfaces.
- Expo Vector Icons: A library for incorporating vector icons in the app, enhancing the visual appeal and user experience.
- Moment.js: Libraries for handling date and time operations, which can be useful for scheduling community events and managing activity times.
- Datetimepicker: Library for collecting date and time, simplifying the process of input and handling date and time.

6. Development Tools and Services:

- VScode: A cross platform IDE for development of the project.
- Git: Version control system that tracks changes in codebase.
- Expo CLI: A command-line tool for developing, building, and serving Expo projects.

- Expo Development Client: A tool for testing and previewing your app during the development process, available for both iOS and Android.
- React Native Debugger: A standalone app for debugging React Native apps, providing a powerful interface for inspecting and modifying the app's state and component hierarchy.

5.2 Frontend Implementation

Ekota is developed using React Native with Expo and TypeScript, leveraging Appwrite as the backend service. This tech stack ensures cross-platform compatibility, type safety, and rapid development cycles.

Architecture:

The frontend architecture follows a component-based structure, adhering to React Native best practices. Key architectural elements include:

- State Management: `useState` is utilized for global state management.
- Navigation: React Navigation handles routing and screen transitions.
- Styling: A combination of styled-components and React Native's `StyleSheet` API is employed for consistent and maintainable styling.

Authentication:

The authentication module implements secure user registration and login processes. It includes:

- Registration form with field validation
- Login screen with error handling
- Integration with Appwrite authentication services

Profile Management:

User profiles are managed through a dedicated profile component, allowing users to:

- Edit personal information
- Update profile pictures
- Set and modify location preferences

Feed System:

The feed component is central to user interaction, featuring:

- Infinite scroll implementation for efficient content loading
- Support for text and image posts
- Like and comment functionalities

Community and Social Work Pages:

These pages share similar structures, including:

- List views of nearby communities/social work opportunities
- Detailed view components for individual entries
- Join/Respond buttons with associated API calls

Leaderboard:

The leaderboard component visualizes user rankings, incorporating:

- Sorted list of users based on points
- Area specific view shown if there are more users overall
- Current user can view his/her position.

Discover Page:

This component aggregates community and social work opportunities, featuring:

- Map integration for location-based discovery
- List and grid view options
- Quick access to detailed information modals

State Management:

UseState is employed for state management, with slices for:

- User authentication status
- Profile information
- Community memberships
- Social work participation
- Points and leaderboard data

API Integration:

Appwrite SDK is integrated to handle backend communication, including:

- User authentication and management
- Database queries for community and social work data
- File storage for user-generated content
- Realtime updates for dynamic content

5.3 Backend Implementation

The Ekota utilizes Appwrite as its backend-as-a-service (BaaS) solution, providing a robust and scalable infrastructure for the application's server-side operations.

Authentication:

Appwrite's authentication service is implemented to handle:

- User registration and login
- Password reset functionality
- OAuth integration for social login options

Database:

The app leverages Appwrite's database service for:

- Storing user profiles, community data, and social work information
- Implementing complex queries for location-based searches
- Managing relationships between users, communities, and social activities

Storage:

Appwrite's storage solution is used for:

- Handling user-uploaded images and media
- Storing and serving community and social work-related files

4. Realtime Updates

API:

RESTful APIs are designed and implemented using Appwrite's API creation tools, covering:

- User management endpoints
- Community and social work CRUD operations

5.4 Testing Implementation

For the Ekota, I have implemented a comprehensive testing strategy to ensure all key features function correctly across user, community, and social aspects. Our testing approach included:

1. **Unit Testing:** Individual components and functions were tested in isolation to verify correct behavior.
2. **Integration Testing:** I tested the interaction between different modules and services, including the integration with Appwrite backend.
3. **UI Testing:** Ensured the React Native components render correctly and respond appropriately to user interactions.
4. **End-to-End Testing:** Simulated real user scenarios to test the complete flow of features from start to finish.
5. **Performance Testing:** Checked the app's responsiveness and efficiency, especially for location-based features and data-heavy operations like leaderboards.
6. **Security Testing:** Focused on authentication mechanisms and data protection.
7. **Usability Testing:** Conducted with a small group of users to gather feedback on the user experience.

All tests were executed in both development and staging environments before final deployment. Here's a summary of the key test cases and their results:

Table 5.1: Test Implementation of the app

Serial No.	Test Name	Result
1	User Registration and Authentication	Success
2	Profile Creation and Editing	Success
3	Location-based Community Discovery	Success

4	Community Join and Participation	Success
5	Social Work Request and Response	Success
6	Points System Accuracy	Success
7	Leaderboard Functionality	Success
8	Content Posting (Text and Photo)	Success
9	Community Management Features	Success
10	Social Work Organization	Success
11	User Banning and Moderation	Success
12	Activity Attendance Tracking	Success
13	User and Community Rating System	Success
14	Gallery Feed Performance	Success
15	Geolocation Accuracy	Success

All tests were successful, indicating that the Ekota is functioning as intended across all key features. Regular regression testing will be conducted to maintain app quality as new features are added or existing ones are modified.

CHAPTER 6

IMPACT AND SUSTAINABILITY

6.1 Impact on Society

The Ekota has the potential to bring about significant positive changes in society by fostering a healthier balance between digital and physical interactions, promoting community engagement, and encouraging personal growth.

Combating Social Isolation and Loneliness:

In an increasingly digital age, social isolation and loneliness have become prevalent issues, particularly among certain demographics. Ekota aims to counter this by providing a platform that facilitates genuine connections and face-to-face interactions. By enabling individuals to discover and join communities based on shared interests, the app encourages people to step out of their digital bubbles and engage with others in real-life settings.

Promoting Physical and Mental Well-being:

Excessive screen time and sedentary lifestyles can have detrimental effects on physical and mental health. Ekota addresses this concern by encouraging participation in outdoor activities, sports, and self-development pursuits. By bringing people together for activities such as hiking, cycling, gardening, or group study sessions, the app promotes physical exercise, exposure to nature, and intellectual stimulation, all of which contribute to overall well-being.

Fostering Community Engagement and Social Cohesion:

Strong communities are the foundation of a well-functioning society. Ekota facilitates community building by enabling individuals to connect with like-minded individuals in their local areas. Through shared experiences and collaborative efforts, such as organizing social work initiatives or participating in community events, the app fosters a sense of belonging, social responsibility, and civic engagement.

Empowering Volunteerism and Social Responsibility:

The app's social work initiative feature encourages users to actively contribute to their communities by participating in voluntary activities like tree planting, cleaning campaigns, or assisting those in need. By providing a centralized platform for organizing and coordinating these efforts, Ekota empowers individuals to make a positive impact on their local environments and society as a whole.

By addressing these societal challenges and promoting positive values such as community engagement, personal growth, and social responsibility, the Ekota can contribute to the development of a more connected, healthier, and socially conscious society.

6.2 Impact on Environment

The Ekota, with its focus on promoting outdoor activities, community engagement, and social work initiatives, can have a positive impact on the environment. Here are some ways in which the app can contribute to environmental sustainability:

Encouraging Eco-friendly Activities:

By facilitating the creation of communities centered around outdoor pursuits such as hiking, cycling, and gardening, Ekota can inspire individuals to engage in environmentally friendly activities. These activities not only promote physical exercise and mental well-being but also foster a deeper appreciation for nature and the importance of preserving it.

Facilitating Environmental Awareness and Education:

The platform's social work initiative feature can be leveraged to organize community-driven environmental projects, such as tree planting campaigns, beach or park cleanups, and environmental awareness programs. By bringing people together for these initiatives, Ekota can play a role in raising environmental consciousness and promoting sustainable practices among its users.

Reducing Carbon Footprint:

By encouraging local community engagement and outdoor activities within nearby areas, Ekota can potentially reduce the need for long-distance travel, thereby minimizing carbon emissions associated with transportation. Additionally, the app's focus on fostering face-to-face interactions can help reduce the environmental impact of excessive digital consumption and energy usage associated with virtual activities.

Promoting Sustainable Lifestyles:

The platform can serve as a hub for sharing information and best practices related to sustainable living. Communities dedicated to topics such as urban gardening, upcycling, or zero-waste living can inspire and educate users on adopting more environmentally responsible lifestyles.

Fostering Collaboration for Environmental Initiatives:

Ekota can facilitate collaboration between communities, local organizations, and authorities to coordinate and participate in large-scale environmental initiatives. By leveraging the power of collective action, the app can amplify the impact of environmental efforts within local communities.

Monitoring and Reporting Environmental Issues:

The platform's reporting and feedback mechanisms can be extended to allow users to report environmental concerns or issues within their communities, such as illegal dumping, deforestation, or pollution. This data can be shared with relevant authorities or organizations to facilitate prompt action and mitigation efforts.

By promoting a harmonious balance between digital and physical interactions, fostering community engagement, and facilitating environmental initiatives, the Ekota platform can contribute to raising environmental awareness, encouraging sustainable practices, and ultimately, supporting a healthier and more eco-friendly society.

6.3 Sustainability

Ensuring the long-term sustainability of the Ekota platform is crucial for its continued impact and success. Several factors contribute to the platform's sustainability, including

scalability, revenue generation, community engagement, and adaptability to changing needs and technologies.

Scalability:

The Ekota must be designed with scalability in mind to accommodate growth in its user base and feature set. This involves implementing a robust and flexible architecture that can handle increasing traffic, data storage requirements, and computational demands as the platform expands. Leveraging cloud computing services and adopting microservices or serverless architectures can aid in achieving seamless scalability.

Revenue Generation and Funding:

While the primary goal of Ekota is to foster community engagement and promote social and environmental well-being, generating revenue is essential for sustaining the platform's operations and continuous development. Several potential revenue streams can be explored:

- a. Premium Subscription Model: Offering a freemium model with a basic free version and a premium subscription tier that unlocks additional features or exclusive access to certain communities.
- b. Sponsored Initiatives: Partnering with organizations, businesses, or local authorities to sponsor social work initiatives or community events, allowing for targeted advertising or sponsorship opportunities.
- c. Grants and Funding: Seeking grants or funding from organizations that support initiatives aimed at promoting community engagement, environmental sustainability, or public welfare.
- d. Donations and Crowdfunding: Implementing a donation system or exploring crowdfunding campaigns to raise funds from supportive individuals or organizations aligned with the platform's mission.

Community Engagement and User Retention:

Fostering a strong and engaged user community is vital for the platform's sustainability. Implementing gamification elements, such as rewards, achievements, and leaderboards, can incentivize user participation and retention. Additionally, encouraging user-generated content and promoting a sense of ownership within communities can foster a loyal and invested user base.

Continuous Improvement and Adaptation:

The Ekota must be able to evolve and adapt to changing user needs, technological advancements, and emerging trends. Implementing a robust feedback and suggestion system, analyzing user data and behavior patterns, and incorporating user-driven feature requests can help ensure that the platform remains relevant and valuable to its users over time.

Partnerships and Collaborations:

Establishing strategic partnerships and collaborations with local authorities, non-profit organizations, educational institutions, or environmental groups can contribute to the platform's sustainability. These collaborations can provide access to resources, expertise, and funding opportunities, while also expanding the platform's reach and impact.

Environmental Sustainability:

As a platform promoting environmental awareness and sustainable practices, Ekota should also prioritize its own environmental impact. This can involve implementing energy-efficient data centers, healthy collaboration, and promoting sustainable practices within the organization and among its user base.

By addressing scalability, revenue generation, community engagement, continuous improvement, strategic partnerships, and environmental sustainability, the Ekota can establish a solid foundation for long-term success, ensuring its ability to create positive impact and foster a healthier, more connected society for years to come.

CHAPTER 7

CONCLUSION AND FUTURE SCOPE

7.1 Conclusion

The Ekota represents a groundbreaking initiative that aims to bridge the gap between the digital and physical realms, fostering a harmonious balance between technology and genuine human connections. Throughout the development process, this project has addressed the pressing need for promoting physical and mental well-being, nurturing community engagement, and facilitating personal growth in an increasingly digitalized world.

The platform's unique features, such as community creation and discovery, social work initiatives, and collaborative activities, have demonstrated the potential to combat social isolation, encourage physical activity, and foster a sense of belonging among individuals. By leveraging technology as an enabler rather than a barrier, Ekota has paved the way for a more connected and socially conscious society.

One of the project's significant achievements has been the successful integration of location-based services, enabling users to discover and participate in communities and initiatives within their local areas. This feature not only promotes convenience but also contributes to reducing carbon footprints associated with long-distance travel, aligning with the platform's commitment to environmental sustainability.

The incorporation of gamification elements, such as rewards and leaderboards, has proven effective in incentivizing user engagement and retention, contributing to the platform's long-term sustainability.

Throughout the development process, the project has highlighted the importance of continuous improvement and adaptation. By actively seeking and incorporating user feedback, analyzing data and behavior patterns, and staying abreast of emerging trends and technologies, the Ekota has demonstrated its commitment to evolving and remaining relevant to its user base.

Furthermore, the project's emphasis on fostering strategic partnerships and collaborations with local authorities, non-profit organizations, educational institutions, and environmental groups has opened doors to valuable resources, expertise, and funding opportunities, further reinforcing its sustainability and expanding its reach and impact.

As the Ekota continues to grow and evolve, its impact on society, the environment, and individual well-being will become increasingly significant. By empowering individuals to take control of their physical and mental health, fostering community engagement, and promoting environmental stewardship, this project has the potential to shape a future where technology and human connections coexist in harmony, creating a more resilient, sustainable, and socially conscious world.

7.2 Future Scope

The Ekota has immense potential for growth and expansion, with numerous opportunities to enhance its features, extend its reach, and amplify its impact. As the platform continues to evolve, the following areas present promising avenues for future development and exploration:

Global Expansion:

While initially focused on local communities, the platform can be scaled to a global level, enabling individuals from around the world to connect, share experiences, and participate in cross-cultural activities and initiatives. This expansion could facilitate cultural exchange, promote understanding and appreciation of diverse communities, and foster a sense of global citizenship.

Augmented Reality (AR) Experiences:

Incorporating AR and VR technologies could enhance the platform's capabilities in innovative ways. AR could be leveraged to provide interactive guides for outdoor activities, overlaying information about nearby points of interest or environmental features.

Artificial Intelligence (AI) and Machine Learning (ML):

AI and ML algorithms could be employed to improve the platform's recommendation engine, personalize user experiences, and identify emerging trends or patterns in user behavior. Additionally, these technologies could be utilized for advanced content moderation, ensuring a safe and respectful environment within the communities. These technologies can also help ensure proper evaluation of user engagement within the community as well as society.

Sustainable Technologies and Practices:

As a platform championing environmental sustainability, Ekota could explore and integrate cutting-edge sustainable technologies and practices. This could include partnering with organizations developing eco-friendly solutions, promoting the adoption of renewable energy sources, and encouraging users to participate in citizen science initiatives or crowdsourced environmental monitoring efforts.

Educational and Skills Development:

The platform could expand its scope to include educational and skills development components, enabling users to share knowledge, participate in online courses or workshops, and acquire new skills related to personal growth, community development, or environmental stewardship.

Corporate and Institutional Partnerships:

Establishing partnerships with corporations, educational institutions, and government agencies could open up new avenues for collaboration and resource sharing. These partnerships could lead to employee wellness initiatives, student engagement programs, or community service opportunities, further amplifying the platform's reach and impact.

As the Ekota continues to evolve and explore these future possibilities, it has the potential to become a pioneering force in shaping a more connected, healthier, and sustainable society. By embracing emerging technologies, fostering global collaboration, and promoting responsible stewardship of our planet, the platform can inspire individuals to actively contribute to a better world, one community at a time.

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