INFORMATICS INSTITUTE OF TECHNOLOGY

Foundation Certificate in Higher Education

Module Code: DOC 330 – Designing innovative solution

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Group ID: MD7

Title: SLF compass application

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Abstract.

This project addresses the challenges faced by small-scale fishery fishermen by developing a mobile application, "Sri Lanka's Fishermen Compass," using the Spiral model software development life cycle (SDLC). The current state of technology highlights the deficiencies in information access, market inefficiencies, and environmental uncertainties affecting fishermen. The Spiral model is chosen for its iterative nature, allowing continuous refinement and adaptation to changing requirements. The evaluation involves prototyping, user feedback, and rigorous testing at each iteration. Preliminary results demonstrate improved usability and functionality, aligning closely with stakeholders' expectations. This approach promises a comprehensive solution to enhance the economic sustainability and well-being of small-scale fishermen, ensuring a positive impact on the fishing industry and coastal communities.

Acknowledgement.

For the successful outcome of this report and the proceeding IFD, the team at MD7 extends its sincere thanks to our DOC330 module leader and tutorial lecturer Ms Jananie Mayooresan, for her exceptional guidance and support throughout the semester. Her insightful lectures and dedication to our learning were invaluable. We would also like to express our appreciation for her dedication and efforts in providing a supportive and engaging tutorial experience, not only showcasing how to build a report but also teaching how to do research on topics, how to put all the information together, and how to present it and concise information within the report, while their contributions have greatly enhanced our learning, also guiding the team on how to conduct a proper report.

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1.0 Introduction

1.1 Introduction to Industry

Sri Lanka's fishing industry has been an integral part of the nation's identity, contributing not only to sustenance but also playing a vital role in its rich historical tapestry. The industry has been a linchpin in the economic activities of the country, serving as the backbone for coastal communities and providing livelihoods to millions. As of 2018, it supports around 2.6 million people through both direct and indirect employment opportunities, illustrating its crucial role in the economic landscape (Kamal Edirisinghe1, 2018).

1.2 Background of the problem

Small-scale fisheries play a crucial role in supporting the livelihoods of thousands of people island wide, particularly in coastal communities. However, these fishermen face numerous challenges that impact their ability to sustain their operations and contribute to local economies. The problems encountered in small-scale fisheries are multifaceted, involving environmental, economic, and social dimensions.

Climate Change and Unpredictable Weather Patterns: Climate change has introduced new uncertainties into small-scale fisheries. Fishermen must contend with unpredictable weather patterns, rising sea levels, and changing ocean temperatures, all of which affect the distribution and abundance of fish, making it challenging to plan and execute fishing activities effectively.

Lack of Access to Technology and Information: Many small-scale fishermen lack access to modern technology and information that could enhance their fishing practices. This includes tools for navigation, weather forecasting, and real-time market information. The absence of such resources hampers their ability to optimize their catch and make informed decisions about when and where to fish.

Limited Market Access and Unfair Trading Practices: Small-scale fishermen often face barriers to accessing wider markets. Additionally, they may be subjected to unfair trading practices,

limiting their ability to receive fair compensation for their catch. This economic vulnerability further exacerbates the challenges faced by these fishermen.

1.3 Problem Statement

The challenges confronting small-scale fisheries present a multifaceted threat to the livelihoods of individual fishermen and the economic vitality of coastal communities. Overfishing and the depletion of fish stocks directly translate into reduced catch, compromising the income of fishermen and rendering their operations financially unsustainable. The influence of climate change introduces unpredictability into fishing conditions, disrupting schedules and posing safety risks. The lack of access to modern technology and information leads to inefficient fishing practices, exacerbating overfishing and hindering catch optimization. Inadequate infrastructure, including storage and processing facilities, results in post-harvest losses, further straining the economic viability of operations. Rising operating costs, outdated equipment, and market access challenges contribute to the economic burden on fishermen. Addressing these challenges is imperative for economic sustainability, environmental conservation, community well-being, and global food security. Without intervention, the long-term health of marine ecosystems, the cultural identity of coastal communities, and the availability of fish as a vital food source are at risk. A comprehensive solution is necessary to promote sustainable fishing practices, provide access to essential resources and technology, and create a fair and supportive market environment for small-scale fishermen. (Ibrahim, 2020)

The below table shows the decrease in fish production in Sri Lanka over the years.

Fishing subsector	2014	2015	2016	2017	2018 (Jan–March)	Percentage share (2018)
Offshore/deep sea	180,450	183,870	182,830	189,720	53,380	40.3
Coastal	278,850	269,020	274,160	259,720	61,420	46.3
Total marine	459,300	452,890	456,990	449,440	114,800	86.7
Inland capture	68,820	57,060	58,410	68,500	13,850	10.5
Inland culture	1,780	3,150	9,490	870	1,280	1.0
Shrimp farming	5,150	7,090	6,030	4,630	2,550	1.9

Table 1Fish production in Sri Lanka, 2014-2018 (metric tons) (Ibrahim, 2020)

1.4 Gap Analysis

NO	Features	Local apps			International apps			SLF compass
		Nara	Meteo	SL fisheries department	Fishbrain(canada)	Fishing point(U.S)	Fishbuoy(Australia)	
1	Adding GPS	×	×	✓	✓	✓	✓	✓
2	Sonar indicator	×	×	×	×	×	×	✓
3	Fishing forecast	✓	✓	×	×	×	×	✓
4	Weather forecast	×	✓	✓	✓	✓	✓	✓
5	Solar energy	×	×	×	×	×	×	✓
6	Adding SOS system	×	×	×	×	×	×	✓
7	Showing fishes and their details	✓	×	×	×	×	×	✓
8	Community space for fishermen	×	×	×	×	×	×	✓
9	Multi language support	✓	×	✓	×	×	×	✓
10	Live fishing map	×	×	×	✓	×	✓	✓
11	Equipment recommendation	×	×	×	✓	✓	✓	✓
12	Offline access	×	×	×	×	×	×	✓
13	free of use	✓	✓	✓	×	×	×	✓
14	Fishing regulations/help center	×	×	✓	✓	×	×	✓
15	Dedicated market place	×	×	×	×	×	×	✓

Table 2 Gap Analysis

Available features	✓
Unavailable features	×
Innovative features	

Innovative Features this app offer:

- **Dedicated market place** - For buying and selling catch, fostering a thriving online fisherman's market.
- **Alert SOS system** - For immediate assistance in emergencies, ensuring the safety of fishermen at sea
- **Community space** - For fishermen to connect, share insights, and build a strong, supportive network.
- **Offline access** - For essential information and tools, even in remote fishing locations.

- **Sonar indicator** - For advanced fish tracking, enhancing catch efficiency and yields.
- **Solar Energy** – suggesting solar system and giving them a proper idea how to use it.

2.0 Methodology

The development of the "Sri Lanka's Fishermen Compass" app for fishing employed the Spiral model as the chosen software development life cycle (SDLC) model because it blended aspects of the waterfall and iterative development approaches. According to (Boehm, 1988.), this model provided versatility in responding to evolving needs while upholding an organized methodology. Through iterative cycles, it allowed for constant development and refinement, guaranteeing that "SLFC" successfully satisfied consumers.

(Boehm, 1988.) research provided evidence in favor of the spiral model's use, showing how well it manages risks and takes user feedback into account, making it a perfect fit for creating cutting-edge applications. Furthermore, the adaptability of the model enables developers to adjust to new technologies and user requirements, which is essential for preserving its efficacy and relevance (Larman & Basili, 2003).

This approach allows for continuous refinement based on feedback from stakeholders and evolving insights, crucial for adapting to the dynamic requirements of a mobile application for fishermen. The model's emphasis on risk management aligns with the uncertainties in the Sri Lankan fishing industry, enabling systematic identification and mitigation of challenges throughout each iteration. Additionally, the Spiral model provides flexibility to accommodate changing requirements, responding to user testing feedback and practical challenges faced by fishermen. The encouragement of prototyping at each stage ensures early visualization and user feedback, essential for creating a user-friendly and effective application tailored to the specific needs of Sri Lankan fishermen.

In conclusion, the success of "Sri Lanka's Fishermen Compass" attests to the Spiral model's efficiency in navigating the complexities of software development, laying the foundation for future advancements in response to evolving technology and user requirements.

3.0 Solution Outline

1**. GPS (Global Positioning System) Integration:**

Purpose: Provides accurate navigation and tracking of fishing routes, enhancing safety and efficiency.

Details: The app's Precise Navigation feature employs GPS technology to ensure accurate tracking of the user's location. It provides real-time location information, enabling continuous monitoring within the app. Additionally, the feature includes Route Tracking functionality, allowing fishermen to record and review their historical fishing routes. The integration of Offline Maps further guarantees uninterrupted navigation, especially in areas with limited connectivity. Altogether, this feature enhances safety at sea, promotes operational efficiency, and offers a user-friendly navigation experience, addressing the diverse needs of fishermen during their fishing activities.

2. Sonar Indicator:

Purpose: Facilitates advanced fish tracking, optimizing catch efficiency and yields.

Details: The Fish Tracking feature in the fishing app employs advanced sonar technology to identify and track the movements of fish in real-time. By utilizing sonar, this feature significantly enhances the ability of fishermen to locate and catch fish effectively, offering valuable insights into fish presence and behavior. Ultimately, the Fish Tracking feature contributes to improving fishing success rates by providing fishermen with accurate and up-to-date information about the underwater activities of the fish they are targeting.

3. Fishing Forecast:

Purpose: Offers predictions and insights into optimal fishing conditions.

Details: The Weather Conditions feature in the fishing app takes into account various weather patterns and conditions to offer accurate fishing predictions. It includes information on the best times to fish, allowing fishermen to plan their trips based on the most favorable conditions. This feature serves as a valuable tool for enhancing fishing planning and optimizing the overall fishing experience by providing insights into weather-related factors that impact fishing success.

4. Weather Forecast:

Purpose: Delivers live weather updates for fishing locations.

Details: The Real-time Weather Updates feature in the fishing app integrates weather APIs to deliver up-to-date information, including details on sea conditions and tides. It further enhances safety by issuing alerts for changing weather conditions that may impact fishing activities. This feature ensures that fishermen stay well-informed about the current weather status, enabling them to make informed decisions and prioritize safety while out at sea.

5. Solar Energy:

Purpose: Suggests solar system usage for sustainable energy on fishing trips.

Details: The Solar System Recommendations feature in the fishing app provides guidance on the utilization of solar energy for power needs. By advising fishermen on the benefits of solar energy and promoting its usage for energy efficiency, this feature encourages eco-friendly practices. It contributes to sustainable fishing by advocating the adoption of renewable energy sources, aligning with environmental conservation efforts within the fishing community.

6. SOS System (Emergency Assistance):

Purpose: Provides immediate assistance in emergencies, ensuring fishermen's safety.

Details: The Emergency Communication Channel feature in the fishing app establishes a dedicated channel for distress situations, ensuring a quick and efficient response to emergencies at sea. This feature provides fishermen with a direct communication link, enhancing safety by facilitating swift assistance during critical moments.

7. Showing Fishes and Their Details:

Purpose: Offers information about various fish species.

Details: The Comprehensive Database feature in the fishing app encompasses a wealth of information on various fish species, facilitating easy identification through visual aids such as images. This feature empowers fishermen with valuable insights into local fish species, contributing to informed decision-making during fishing activities.

8. Community Space for Fishermen:

Purpose: Creates a platform for fishermen to connect, share insights, and build a supportive network.

Details: The Discussion Forums feature in the fishing app serves as a platform for fishermen to engage in meaningful discussions, fostering knowledge sharing and the exchange of fishing tips and experiences. This collaborative space enhances a sense of community among fishermen, promoting a supportive environment for sharing insights and expertise

9. Multi-language Support:

Purpose: Ensures accessibility for users from diverse linguistic backgrounds.

Details: The Language Options feature in the fishing app enhances user accessibility by offering a variety of language choices for the app interface. Through localization, the app ensures that information is available in multiple languages, contributing to increased usability and inclusivity, catering to a diverse user base.

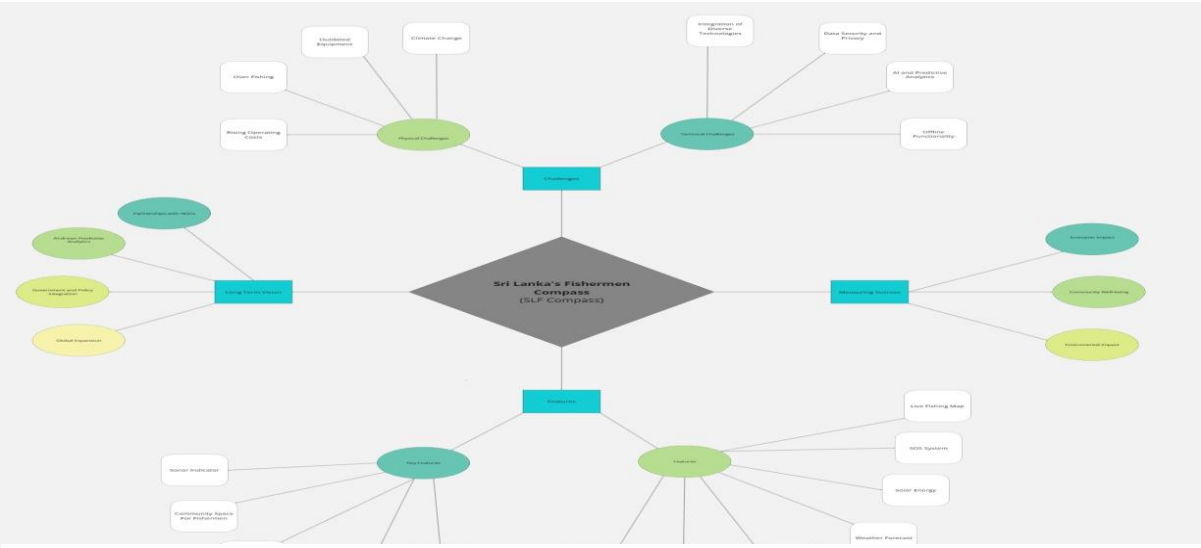

Figure 1Mind Map

4.0 Innovative features incorporated in the project

4.1 Dedicated market place

A dedicated marketplace facilitates the online buying and selling of freshly caught fish, creating a dynamic virtual hub for fishermen. This platform serves as a centralized space where fishermen can showcase their catch and interested buyers can browse and purchase a variety of seafood. By fostering this online fisherman's market, the platform not only enhances accessibility for buyers but also provides fishermen with a broader market reach, promoting a thriving and interconnected seafood trading community.

4.2 Alert SOS system

An Alert SOS system is a critical emergency response tool designed to ensure the immediate safety of fishermen at sea. In the event of an emergency, such as a distress signal or threat to life, the system allows fishermen to send out a distress call using the universally recognized SOS signal. This rapid communication ensures prompt assistance, enhancing the overall safety and security of individuals facing urgent situations while at sea.

4.3 Community Space

A community space dedicated to fishermen, fostering connection and knowledge exchange. Here, fishermen can come together to share insights, experiences, and tips, creating a robust and supportive network. The platform serves as a hub for discussions on fishing techniques, equipment recommendations, and local fishing spots. Through this space, members can build relationships, enhance their skills, and contribute to a collaborative environment that benefits the entire fishing community.

4.4 Offline Access

Offline access ensures crucial information and tools remain available in remote fishing areas without internet connectivity. This capability allows fishermen to access essential data and tools necessary for their work, such as navigation charts, weather forecasts, and communication tools, even when operating in locations with limited or no online connectivity.

4.5 Sonar Indicator

A sonar indicator is a sophisticated tool designed to improve fish tracking, helping fishermen enhance their catch efficiency and overall yields. This device uses sonar technology, which sends out sound waves underwater and detects their reflections to create detailed images of the underwater environment. By analyzing these images, fishermen can identify schools of fish, their size, and their movements. This advanced information enables them to make more informed decisions about where to fish, increasing the likelihood of a successful and productive catch.

4.6 Solar Energy

Utilizing solar energy involves setting up a solar power system. For fishermen, this means installing solar panels on boats or near fishing facilities. These panels capture sunlight and convert it into electricity, providing a sustainable and eco-friendly power source. Fishermen can use this energy to run essential equipment like navigation systems, lights, and refrigeration, improving efficiency and reducing reliance on traditional fuel sources. Embracing solar technology not only benefits the environment but also enhances the overall effectiveness of fishing operations.

5.0 Requirement and analysis

5.1Requirement gathering process.

The chosen requirements elicitation process for the "Sri Lanka's Fishermen Compass" (SLFC) app employed a diverse set of techniques to comprehensively understand the needs and preferences of both fishermen and stakeholders in the fishing industry. The objective was to ensure the development of a user-centric application tailored to the specific challenges and requirements of the fishing community.

To initiate the process, stakeholder interviews were conducted with key individuals such as fishermen, fishing community leaders, and industry experts. These interviews delved into the nuances of existing fishing practices, challenges faced, and the desired features for a new fishing app. Open-ended question facilitated in-depth discussions, providing valuable insights into stakeholder needs.

Following this, focus groups were organized to foster collaborative discussions among potential users, exploring features and design aspects of the proposed SLFC app. The interactive nature of focus groups allowed for diverse perspectives and the identification of common themes and requirements that could enhance the app's functionality for fishermen.

In addition, questionnaires were distributed among a broader sample of the fishing community to gather quantitative data on preferences, expectations, and satisfaction with existing tools and practices in the industry. The use of questionnaires ensured a more extensive and representative collection of user needs and preferences.

Finally, a comprehensive review of existing literature, industry standards, and best practices in fishing app development was conducted. This literature review aimed to identify relevant requirements, incorporating the latest guidelines and regulations to inform the development process and ensure that the SLFC app aligns with the current landscape of fishing technology and practices.

5.2 Survey and Questionnaires.

Refer Appendix

5.3 Detailed and specific requirements of the project.

5.3.1 Functional requirements

I. **User Authentication:** The User Authentication module in the "Sri Lanka's Fishermen Compass" app prioritizes security and personalization. It features a robust login system with enhanced security measures, safeguarding fishermen's access. Additionally, users can conveniently manage their profiles, updating personal information for a seamless and user-friendly experience. This ensures both enhanced security and user control within the personalized environment of the application.

II. **Real-time Information:** The Real-time Information module in the "Sri Lanka's Fishermen Compass" app incorporates dynamic features for enhanced situational awareness. It seamlessly integrates weather APIs to deliver live updates on weather conditions specific to fishing locations. This includes real-time information on sea conditions, tides, and relevant alerts crucial for fishing activities. By providing instantaneous and accurate data, this module empowers fishermen with timely insights, ensuring a safer and more informed decision-making process while out at sea.

III. **Navigation Assistance:** The application must enhance navigational capabilities by integrating GPS technology for precise route tracking. It provides real-time location information, and the inclusion of offline maps ensures uninterrupted access in areas with limited connectivity. This feature set empowers fishermen with reliable navigation support, promoting safer and more efficient operations even in remote or connectivity-challenged environments.

IV. **Resource Directory:** The application must establish a valuable repository for fishermen. It comprises a comprehensive database offering detailed information on various fish species. Additionally, the module provides insights into effective fishing techniques, essential equipment, and best practices. This consolidated resource hub equips fishermen

with essential knowledge, serving as a go-to reference for optimizing their fishing endeavors through informed decision-making and improved practices.

V. **Communication Features**: The Communication Features module in the "Sri Lanka's Fishermen Compass" app enables efficient communication among fishermen. It includes in-app messaging for information sharing and a dedicated emergency channel for prompt response to distress situations. This feature set promotes collaboration, ensuring a swift and supportive fishing community through effective communication tools.

5.3.2Non-Functional requirements

I. **Usability:** The application must be user-friendly, with an intuitive interface and easy-to-navigate features that cater to users with varying levels of technical proficiency.

II. **Scalability:** The application must be designed to accommodate future growth in terms of user base, features, and functionalities. This may involve modular architecture, cloud-based infrastructure, and the ability to integrate with third-party services.

III. **Reliability:** The application must be stable, with minimal downtime and prompt resolution of any technical issues. Regular updates and maintenance should be performed to ensure optimal performance and user satisfaction.

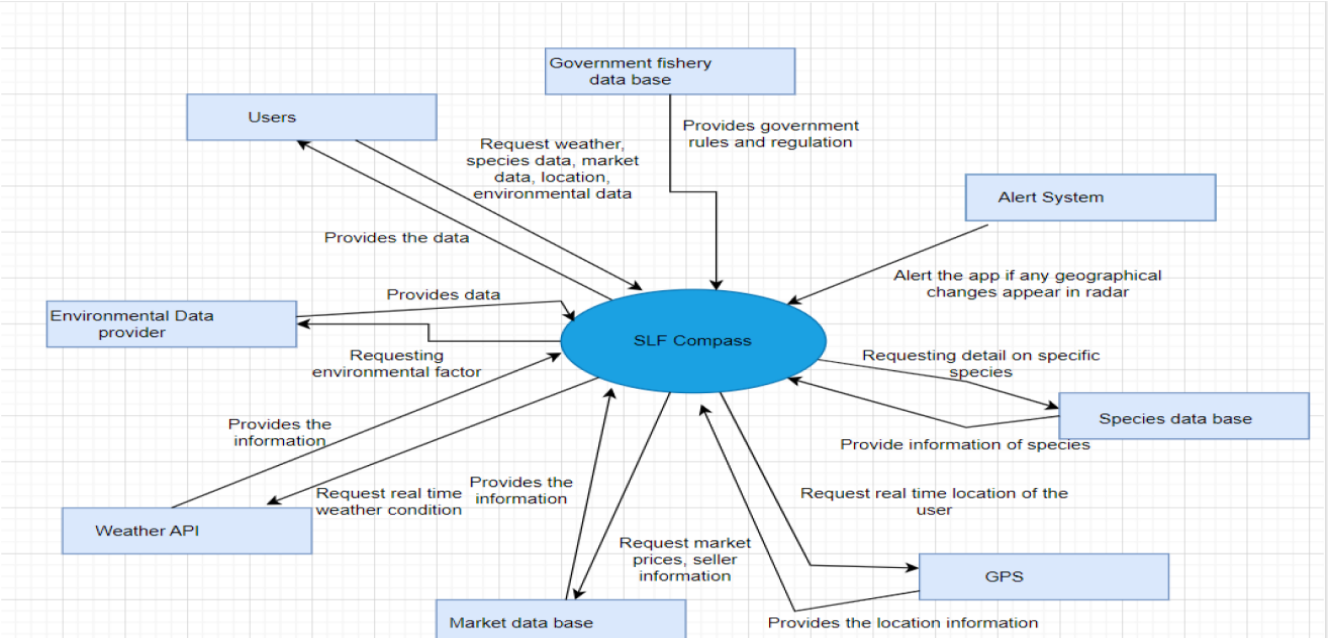

Figure 2 Context Diagram

6.0 Screenshots of the Prototype

Figure 3 SLFC Language Selection

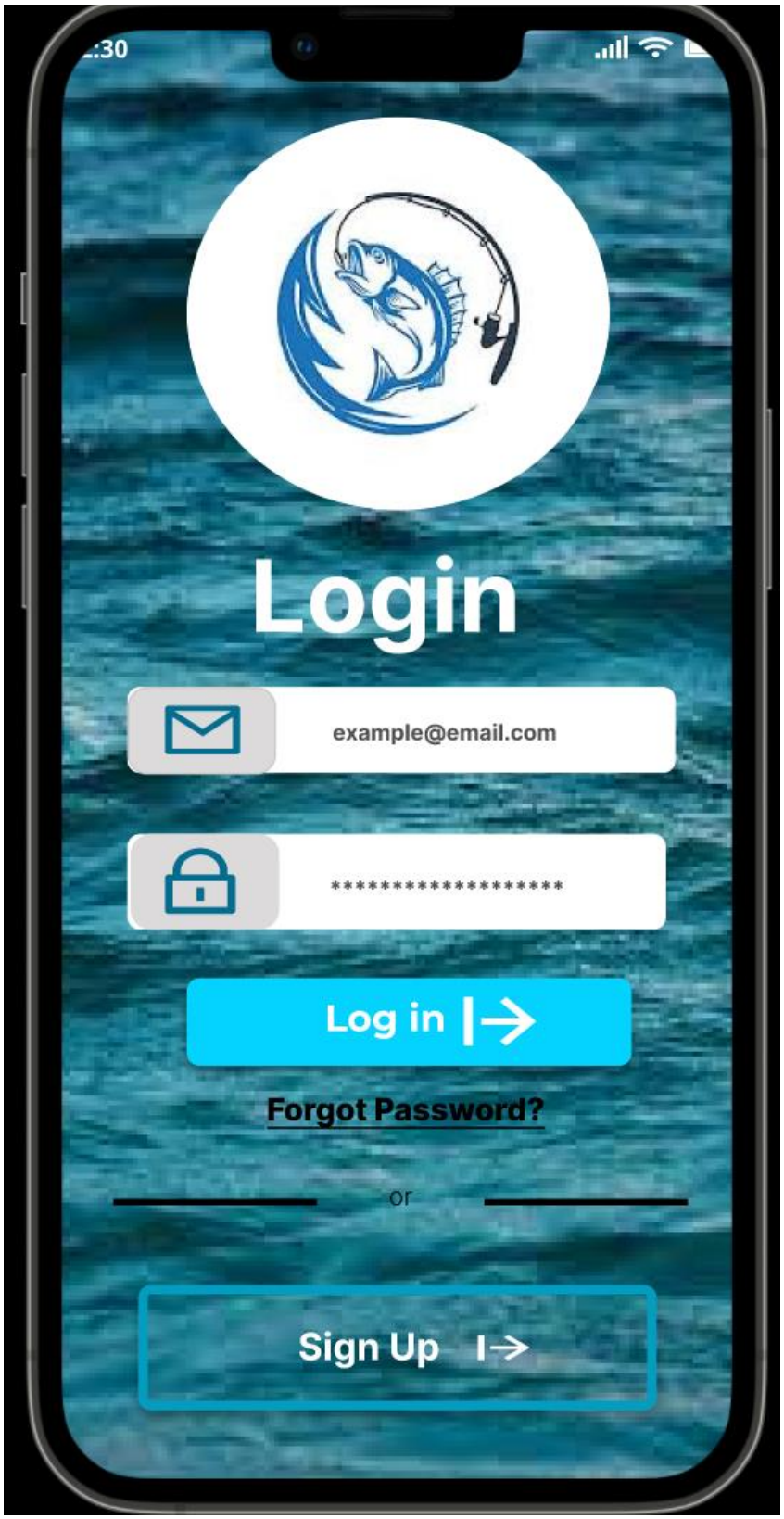

Figure 4 SLFC's Log in screen

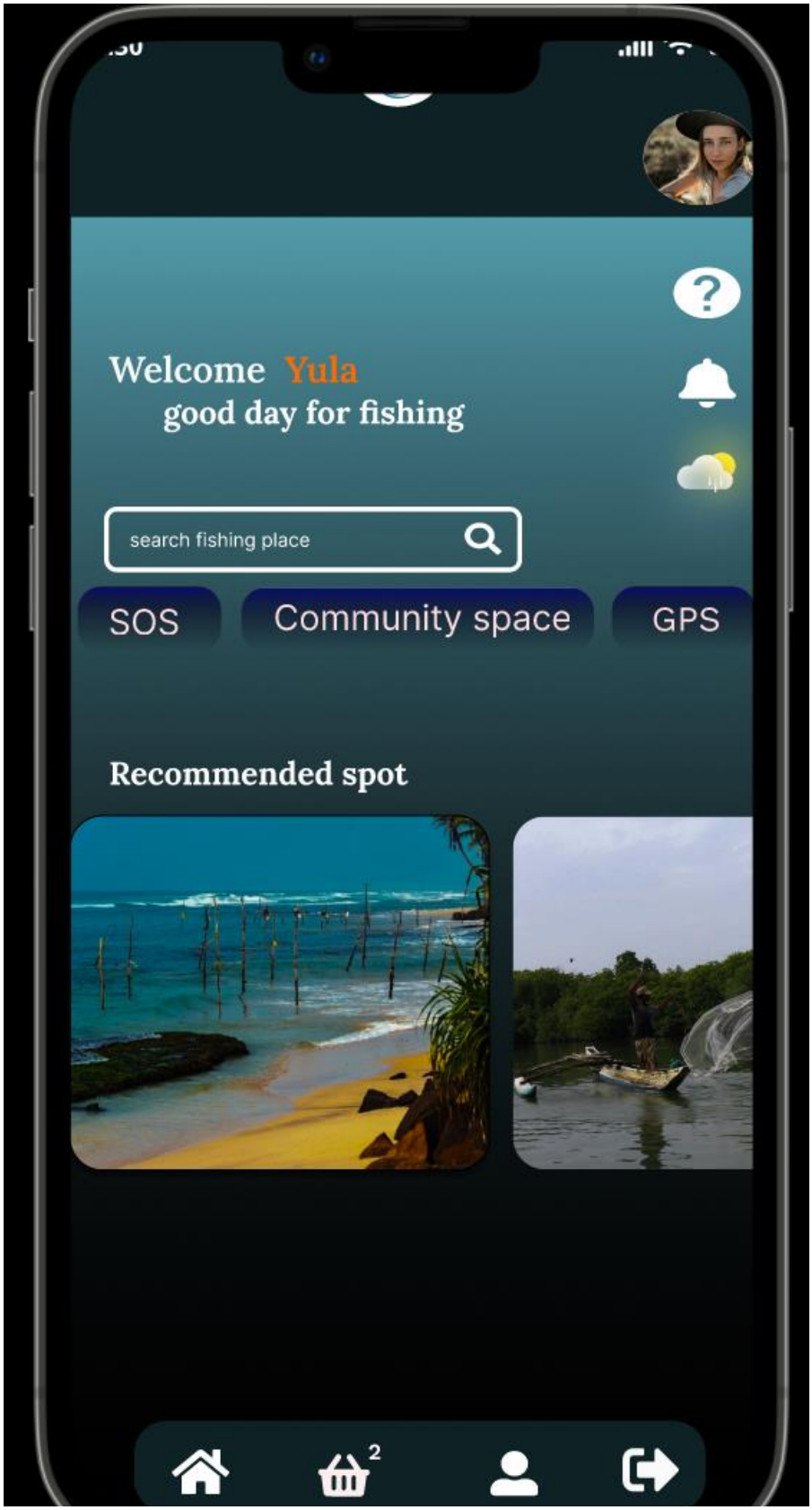

Figure 5 SLFC's Home Screen

Figure 6 weather forecast screen

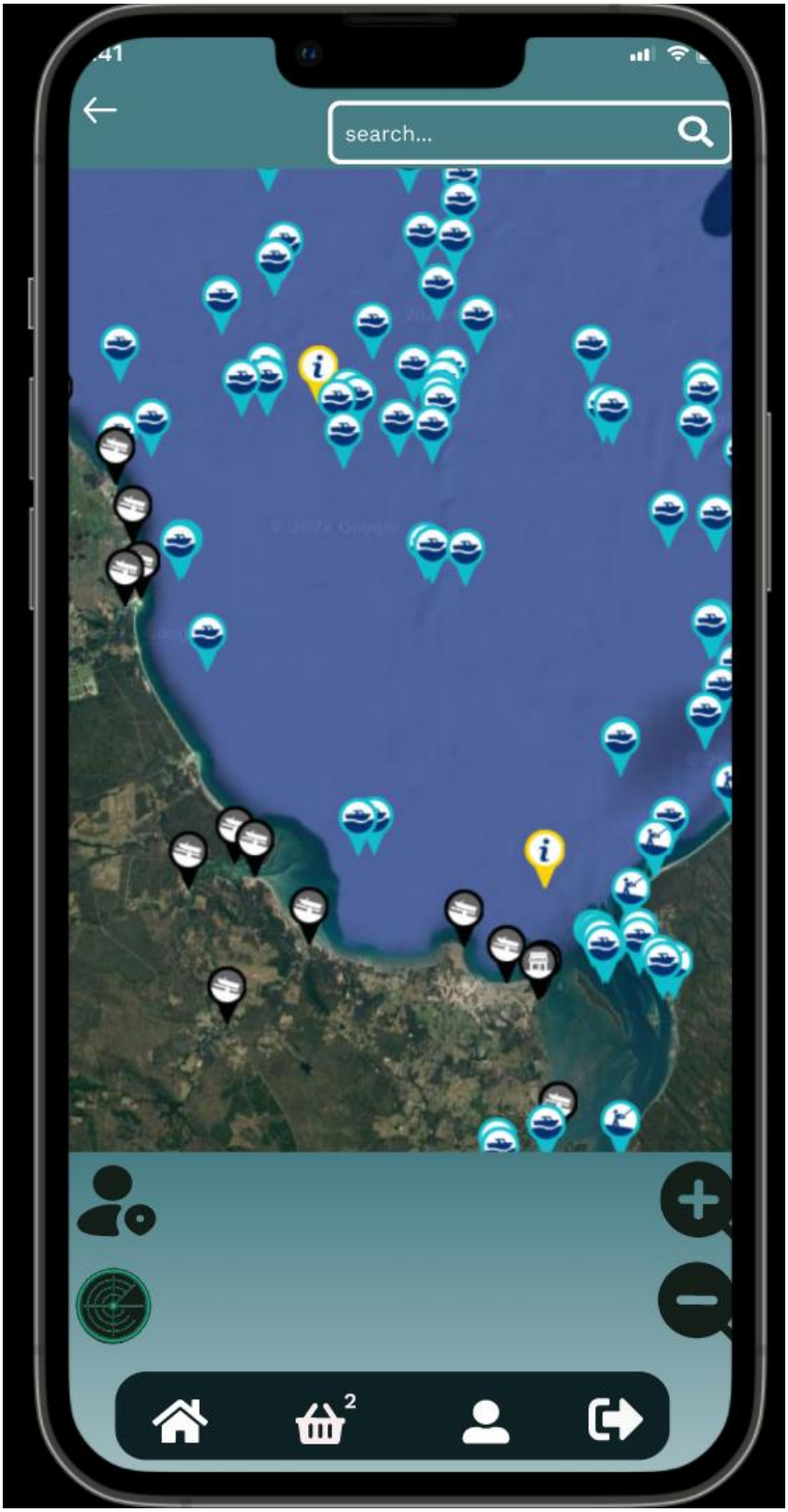

Figure 7 GPS and Fishing spot finder

Figure 8 Community space

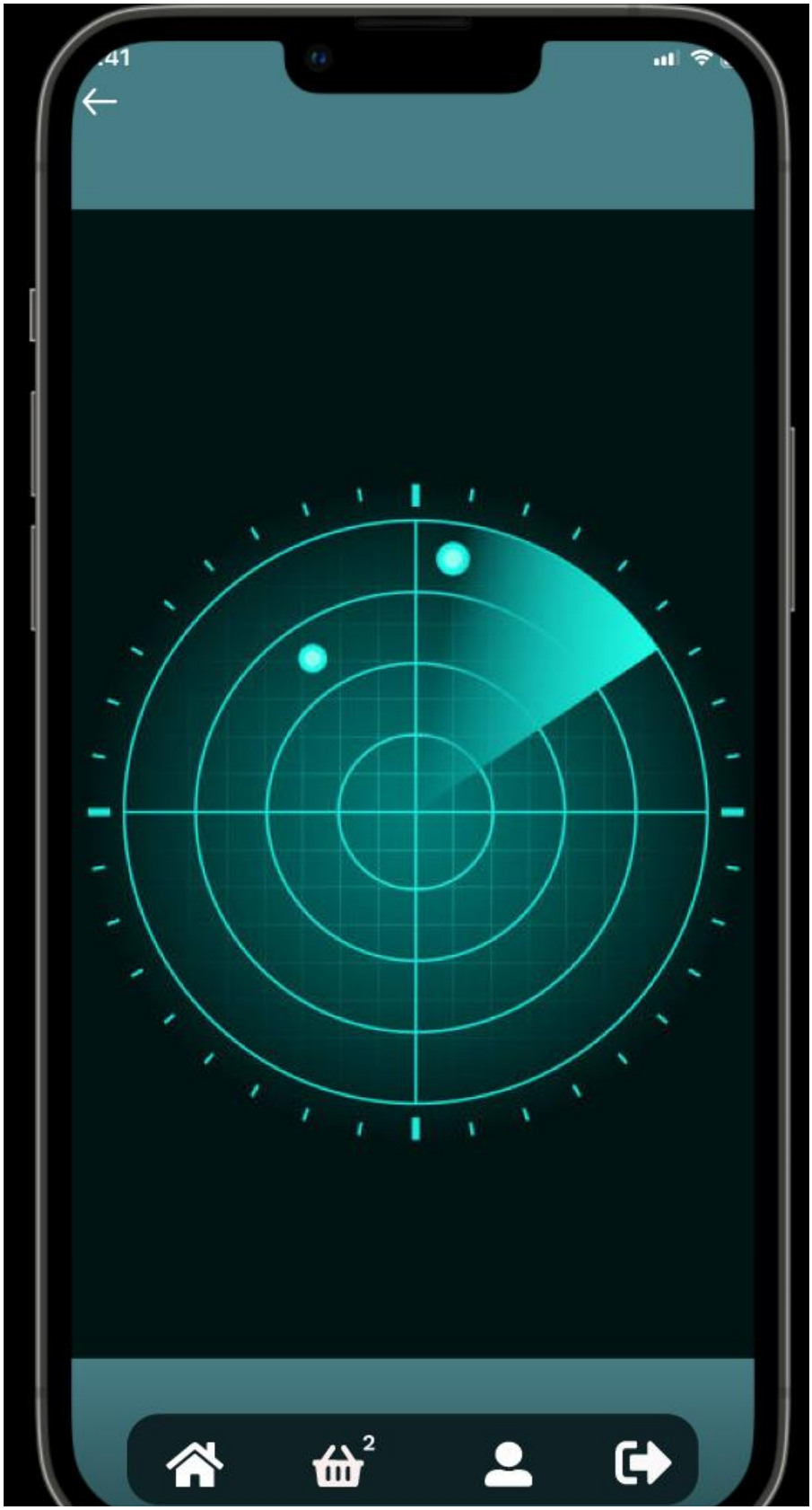

Figure 9 Sonar

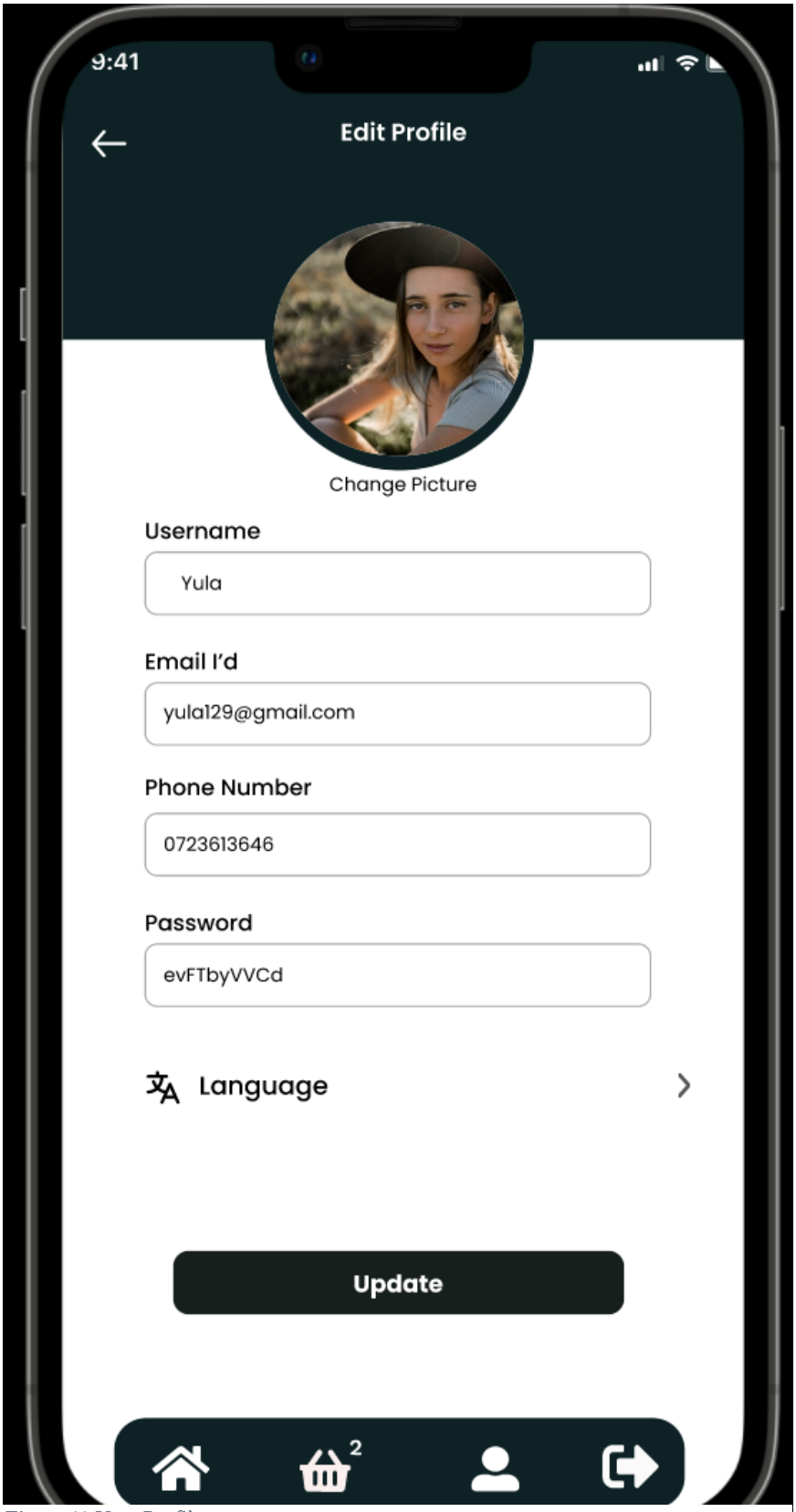

Figure 11 User Profile

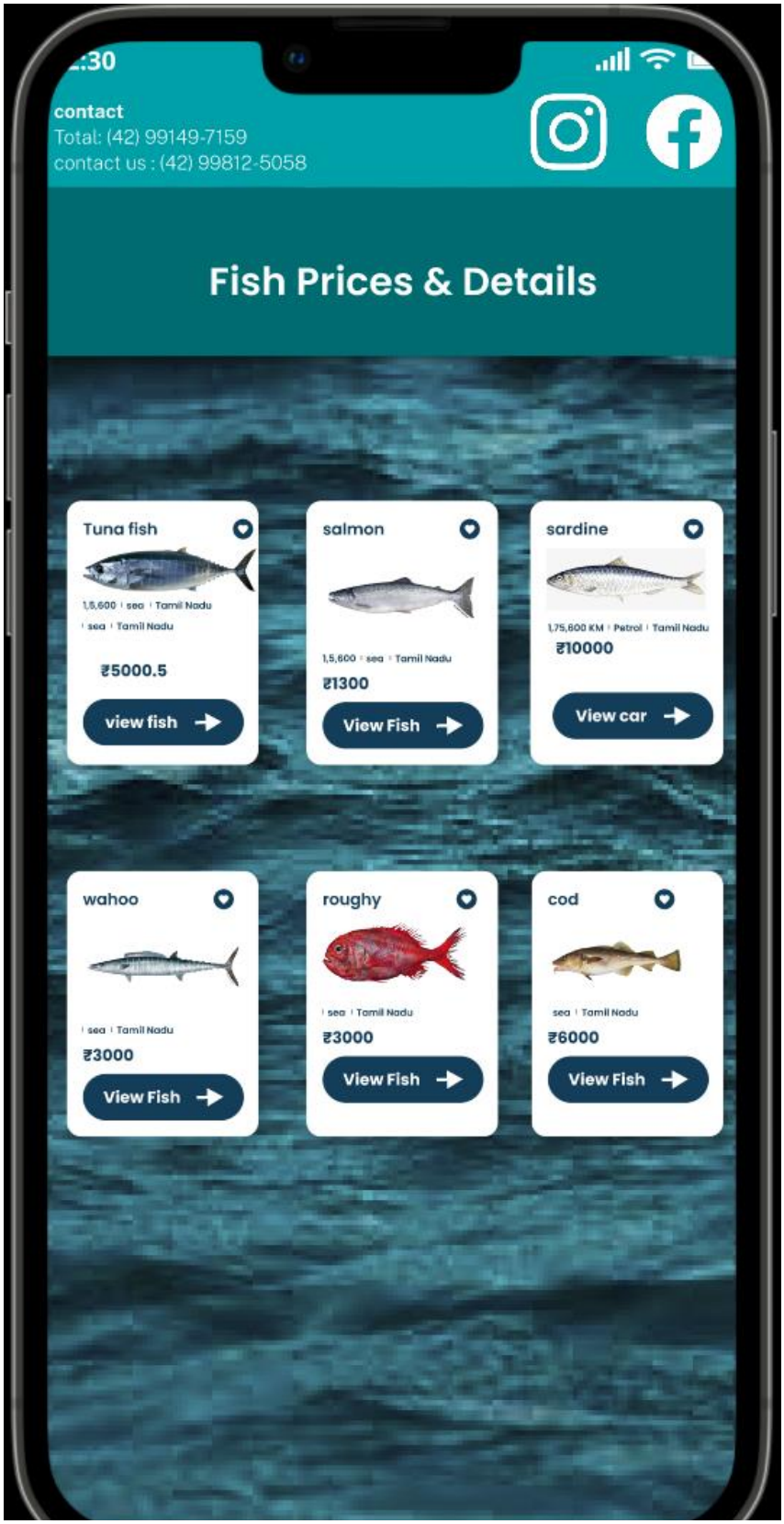

Figure 12 Market Place

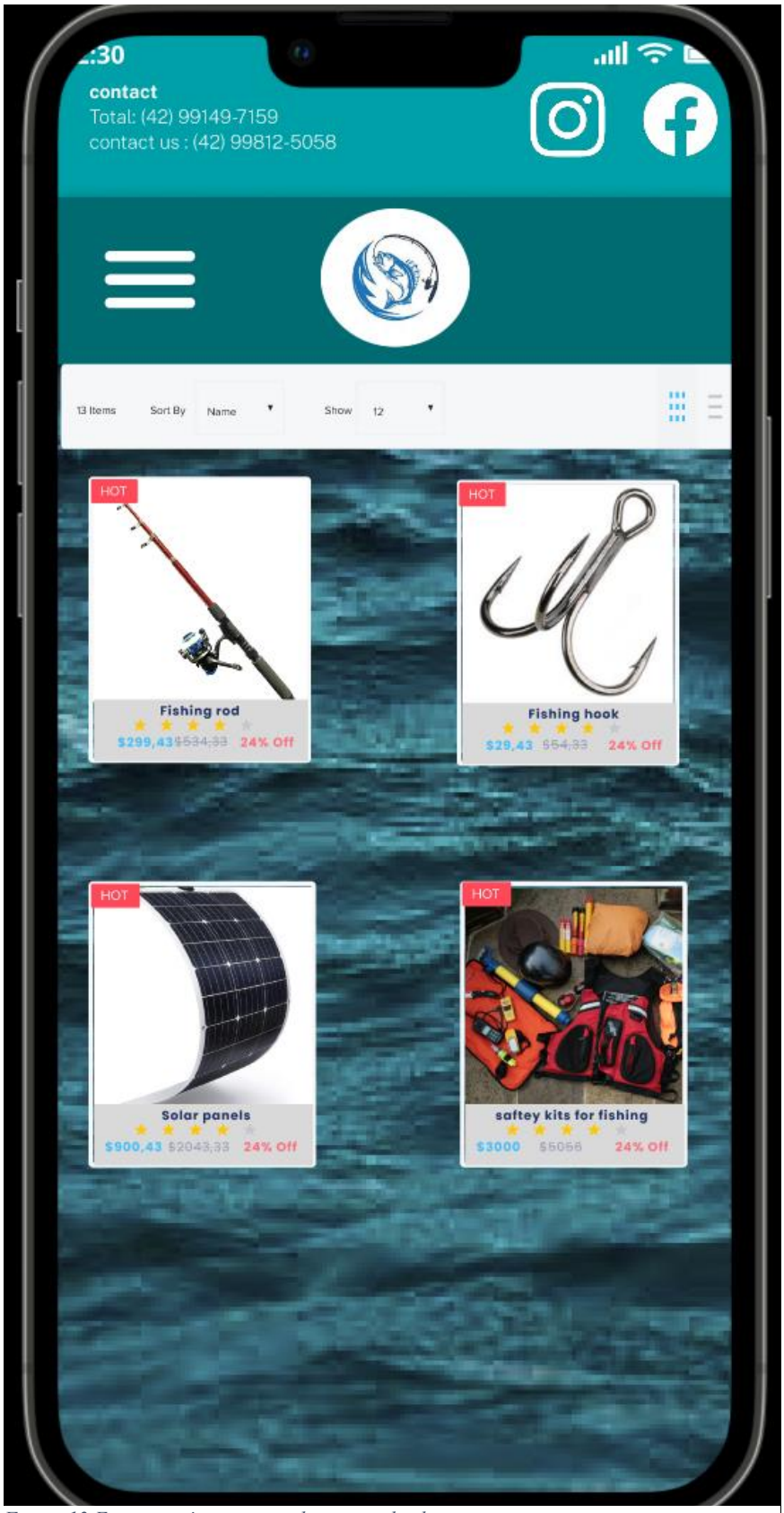

Figure 13 Equipment's recommendations and sales

7.0 Evaluation.

7.1 Detailed Analysis of the Solution.

The fishing application "SLFC" was evaluated using a multi-pronged method that included user input, external testing, and internal testing. This thorough assessment offered a thorough study of the quality and efficacy of the remedy. (Bertolino, 2007)

Test cases created to verify the system's functional and non-functional criteria were used in internal testing. Test cases are a well-known method for evaluating the quality of software since they let developers find mistakes, discrepancies, and areas for improvement (Jorgensen, 2002)The test cases evaluated the application's usability, scalability, security, and reliability in addition to its capabilities for navigation aid, real-time information, resource directories, user registration, and communication.

External testing involved live demonstrations of the application to stakeholders, including fishermen, fishing community leaders, and industry experts, followed by the administration of questionnaires to gather user feedback (Juristo, 2001). The insights gained from this process informed refinements and improvements to the application, ensuring alignment with user expectations

It was possible to fully comprehend "SLFC's" advantages and disadvantages thanks to the combination of user input, external and internal testing, and evaluation. According to (Jorgensen, 2002) this method highlighted how crucial it is to have a thorough and exacting assessment process in order to guarantee the solution's efficacy and quality. Incorporating user feedback into the development process is essential to producing an application that effectively satisfies user wants and expectations, as the assessment clearly shown (Juristo, 2001).

7.2 Lessons Learned.

The project team learned several valuable insights from the "SLFC" evaluation process. First, it was emphasized how important it is to have a thorough and rigorous testing approach since it allows problems to be found and fixed before they are deployed (Bertolino, 2007). Second, it became clear how important it was to include user feedback into the development process in order to create a solution that successfully satisfied the needs and expectations of the users (Juristo, 2001)Furthermore, the amalgamation of both internal and external testing, in conjunction with user feedback, underscored the need of embracing a multifaceted methodology to assess software quality and performance. All of these lessons underscored the necessity of ongoing improvement and user-centered development to produce a healthcare application that complies with industry norms and user expectations.

7.3 Suggestion for Future Works.

As technology evolves and user needs change, SLFC remains adaptable. Future enhancements may include additional features, improved data analytics, and integration with emerging technologies. Collaboration with stakeholders will continue to be a cornerstone for ongoing improvements.

Drawing insights from the evaluation and lessons learned, several recommendations are proposed for enhancing the "Sri Lanka's Fishermen Compass" (SLFC) application. Firstly, the integration of advanced features like real-time collaboration and knowledge-sharing among fishermen could foster a more connected and supportive fishing community. This could include features such as a collaborative mapping for sharing fishing insights and experiences.

Secondly, continuous evaluation and refinement of SLFC, guided by ongoing user feedback and emerging technologies, are essential for its sustained effectiveness. Regular updates to incorporate new features, improve user experience, and address evolving challenges in the fishing industry will contribute to the long-term success and relevance of the SLFC application.

By implementing these future work recommendations, the SLFC project team can further enhance the application's functionality, accessibility, and overall impact on the livelihoods of fishermen and the sustainability of small-scale fisheries.

8.0 Conclusion.

In conclusion, the "SLF Compass Application" stands as a commendable achievement in tackling the complex challenges faced by the fishing industry through the integration of innovative technological solutions. The project set out to provide a holistic and user-friendly platform catering to the diverse needs of fishermen, fostering collaboration among community members and addressing critical issues in the sector. Throughout its development, the project team rigorously tested the application, incorporated valuable user feedback, and remained adaptable to emerging technologies, ensuring the app's effectiveness in meeting its objectives and aligning with user expectations.

The successful realization of the project's objectives is evident in the final product, which boasts a plethora of features such as precise navigation with GPS integration, advanced fish tracking through sonar indicators, real-time weather updates, and a comprehensive database on various fish species. The application's commitment to user-centric design and continuous improvement reflects a solution finely tuned to the specific requirements of the fishing community.

However, as with any innovative project, there are identified areas for further enhancement. Future iterations of the "SLF Compass Application" could explore the integration of features such as collaborative mapping for real-time knowledge sharing among fishermen and an expanded marketplace for trading fish products. Additionally, considering the dynamic nature of the fishing environment, ongoing evaluation and refinement will be essential. This could involve incorporating new technologies, enhancing existing features, and remaining responsive to user feedback to ensure that the application remains a valuable asset for the fishing community.

In summary, the "SLF Compass Application" is a testament to the potential of technology in addressing the unique challenges of the fishing industry. Its success lies not only in its current capabilities but also in its potential for continuous growth and adaptation, ensuring sustained relevance and positive impact on the livelihoods of fishermen and the overall sustainability of small-scale fisheries.

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10.0 Appendices.

10.1 Workload Matrix

Table 3 Workload Matrix

Task/Members	S.Niththilan	P.K.Heshan Shalinda	F.R.W.Ahmed	F.R.S.Mohammed	D.P.M.I.Dilwan	H.D.T.Anuhas Karunarathna
Researching on the topic	☑	☑	☑	☑	☑	☑
Editing and formatting the report	☑	☑	☑		☑	☑
Proof reading	☑	☑	☑	☑	☑	☑
Abstract and acknowledgement		☑		☑		
Introduction and description of the project	☑		☑			
Gap Analysis	☑	☑	☑		☑	
Methodology	☑		☑			
Solution Outline			☑	☑		
Innovative features		☑				☑
Evaluation			☑		☑	
Conclusion			☑	☑		
Prototype	☑		☑	☑		☑

10.2. Meeting Agenda

1st Coursework Meeting

1. Call the meeting.
2. Brief discussion between the team members.
3. Appoint a team leader.
4. Discuss the proceeding of the coursework.
5. Plan the coursework.
6. Agree on a date and time for the next meeting.

2nd Coursework Meeting

1. Call the meeting.
2. Minutes of the last meeting.
3. Allocation of tasks
4. Matters arising.
5. Implementation of a plan for the report.
6. Set a date and time for the next meeting.

3rd Coursework Meeting

1. Call the meeting.
2. Minutes of the last meeting.
3. Share the report with the team.
4. Matters arising.
5. Discuss the proceedings of the PowerPoint Presentation.
6. Agree on a date and time for the next meeting.

4th Coursework Meeting

1. Call the meeting to order.
2. Minutes of the last meeting.
3. Brief discussion about the PowerPoint Presentation.
4. Join a meeting with some specialist in Healthcare Industry.

5. Enter more facts and share the report with the group members.
6. Agree on a date and time for the next meeting.

5th Coursework Meeting

1. Call the meeting to order.
2. Minutes of the last meeting.
3. Brief discussion about the Prototype.
4. Discussing About Product Pitching.
5. Enter more facts and share the report with the group members.
6. Agree on a date and time for the next meeting.

6th Coursework Meeting

1. Call the meeting.
2. Minutes of the previous presentation.
3. Finalize the report.
4. Finalize the Presentation.
5. Set a deadline for rehearsal.
6. Fix a time for the submission.

10.3. Meeting Minutes

1st Coursework Meeting

Minutes of 20th of November 2023

Attended by:

20230056	**S. Niththilan**
20230591	P.K. Heshan Shalimda
20230086	F.R.W. Ahamed
20230119	F.R.S. Mohammed
20221937	D.P.M. I.Dilwan
20230862	H. D. T. A. Karunarathna

Table 4 Course work meeting 1

Apologies	All the members were present
Minutes of the previous meeting	This was the first meeting
Matters arising	Have to create the IFD. Divided workload among all the members.
Allocation of tasks	Tasks were divided according to the workload matrix, and each were asked to prepare a document.

Agree the date, time, and venue for the next meeting.	Next meeting will be held on 24th of November 2023 at 8.00pm via Zoom meeting.

2nd Coursework Meeting

Minutes of 24th of November 2023

Attended by:

20230056	**S. Niththilan**
20230591	P.K. Heshan Shalimda
20230086	F.R.W. Ahamed
20230119	F.R.S. Mohammed
20221937	D.P.M. I.Dilwan
20230862	H. D. T. A. Karunarathna

Apologies	All the members were present
Minutes of the previous meeting	Minutes of the previous meeting were read by Niththilan
Matters arising	Discussed about the confusing parts regarding topics.
Allocation of tasks	They were still doing their tasks.
Agree the date, time, and venue for the next meeting.	Next meeting will be held on 26th of November 2023 at 9.30am in IIT

Table 5 Course work meeting 2

3rdCoursework Meeting

Minutes of 26th of November 2023

Attended by:

20230056	**S. Niththilan**
20230591	P.K. Heshan Shalimda
20230086	F.R.W. Ahamed
20230119	F.R.S. Mohammed
20221937	D.P.M. I.Dilwan
20230862	H. D. T. A. Karunarathna

Apologies	All the members were present
Minutes of the previous meeting	Minutes of the previous meeting were read by Niththilan.
Matters arising	Discussed about the confusing parts regarding topics.
Allocation of tasks	They were still doing their tasks.
Agree the date, time, and venue for the next meeting.	Next meeting will be held on 28th of March 2023 at 9.30am in IIT

Table 6 Course work meeting 3

4th Coursework Meeting

Minutes of 28th of November 2023

Attended by:

20230056	**S. Niththilan**
20230591	P.K. Heshan Shalimda
20230086	F.R.W. Ahamed
20230119	F.R.S. Mohammed
20221937	D.P.M. I.Dilwan
20230862	H. D. T. A. Karunarathna

Apologies	All the members were present
Minutes of the previous meeting	Minutes of the previous meeting were read by Niththilan.
Matters arising	Discussed about the confusing parts regarding topics.
Allocation of tasks	They were still doing their tasks.
Agree the date, time, and venue for the next meeting.	Next meeting will be held on 29th of March 2023 at 9.30am in IIT

Table 7 Course work meeting 4

5thCoursework Meeting

Minutes of 29th of November 2023

Attended by:

20230056	**S. Niththilan**
20230591	P.K. Heshan Shalimda
20230086	F.R.W. Ahamed
20230119	F.R.S. Mohammed
20221937	D.P.M. I.Dilwan
20230862	H. D. T. A. Karunarathna

Minutes of the previous meeting.	Minutes of the previous meeting were read by Niththilan.
Matters arising.	No matters were there
Allocation of tasks.	Handed over their documents to the report compiler.
Agree the date, time, and venue for the next meeting.	Next meeting will be held on 30th of March 2023 at 10.00am at IIT

Table 8 Course work meeting 5

6th Coursework Meeting

Minutes of 29th of November 2023

Attended by:

20230056	**S. Niththilan**
20230591	P.K. Heshan Shalimda
20230086	F.R.W. Ahamed
20230119	F.R.S. Mohammed
20221937	D.P.M. I.Dilwan
20230862	H. D. T. A. Karunarathna

Apologies	All the members were present
Minutes of the previous meeting	Minutes of the previous meeting were read by Niththilan
Matters arising	No matters were their
Allocation of tasks	Discussed about the final report
Agree the date, time, and venue for the next meeting	This was the last meeting.

Table 9 Course work meeting 6

10.4 Idea validation survey questionnaire

Fishermen Questionnaire

Age

18-20

20-25

25-30

30-40

40+

Gender

Male

Female

Other:

Location (Region/City)

Your answer

Fishing Experience

How long you have been in the fishing industry?

1-2 Years

3-7 Years

8-10 Years

10+ Years

How often do you go fishing?

Rarely (once a year or less)

Occasionally (2-5 times a year)

Regularly (6-10 times a year)

Frequently (more than 10 times a year)

Do you prefer fishing during specific times of the day? If so, when?

Early morning

Late morning

Afternoon

Evening

Night

What type of fishing do you usually engage in?

Freshwater Fishing

Saltwater Fishing

How would you describe your level of fishing expertise

Beginner

Intermediate

Advanced

How often do you check weather conditions before planning a fishing trip?

Always
Sometimes

Never

Rarely

How do you currently determine the best time to go fishing?

Weather apps
Tide charts

Local knowledge

Trial and error

Other:

Which devices do you use while fishing?

Smartphone

GPS device

Option 3

Fishfinder

Other:

How far are you willing to travel for a good fishing spot?

Within 10 miles
10-25 miles

25-50 miles

More than 50 miles

Are you interested in sharing your own fishing spots or tips with other users?

Yes

No

Have you faced any challenges with your fishing equipment? If yes, please describe.

Your answer

Catch Success

On average, how satisfied are you with your fishing trips in terms of catch success?

Consistent Satisfaction

Mixed Results

Weather-Dependent Satisfaction

High Success Rate

App Related

How important is it for you to have a social community within the app for sharing fishing experiences?

Not important
Slightly important

Very important

Extremely important

Are you interested in tracking your past catches and logging them in the app?

Yes
No

Would you like the app to provide information about nearby fishing regulations and permits?

Yes
No

Do you prefer a simple, easy-to-use interface or are you comfortable with a more detailed, comprehensive app?

Simple and easy-to-use
Detailed and comprehensive

What additional features would you like to see in the app to enhance your fishing experience?

Catch logging

Social community

Live weather updates

Fish migration patterns

Other:

Would you be interested in participating in virtual or live fishing-related events through the app?

Yes

No

Maybe

Is there anything else you would like to share about your experiences as a fisherman or suggestions for improvement?

Your answer

10.5 Idea validation survey responses

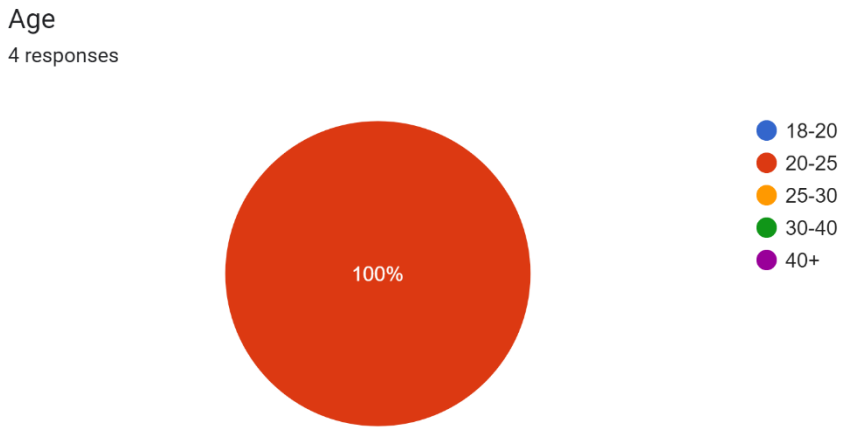

Figure 14 Google form response 01

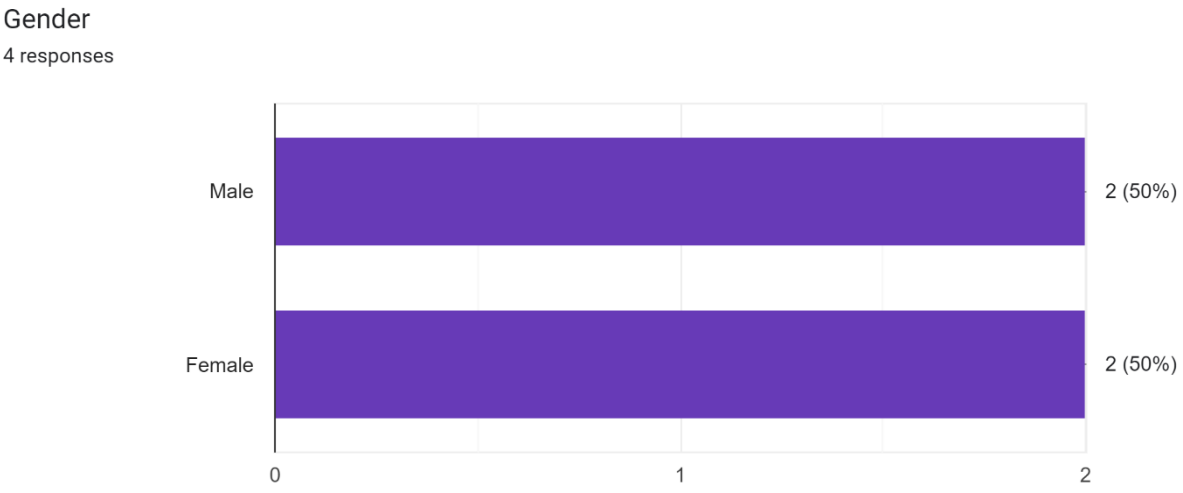

Figure 15 Google form response 02

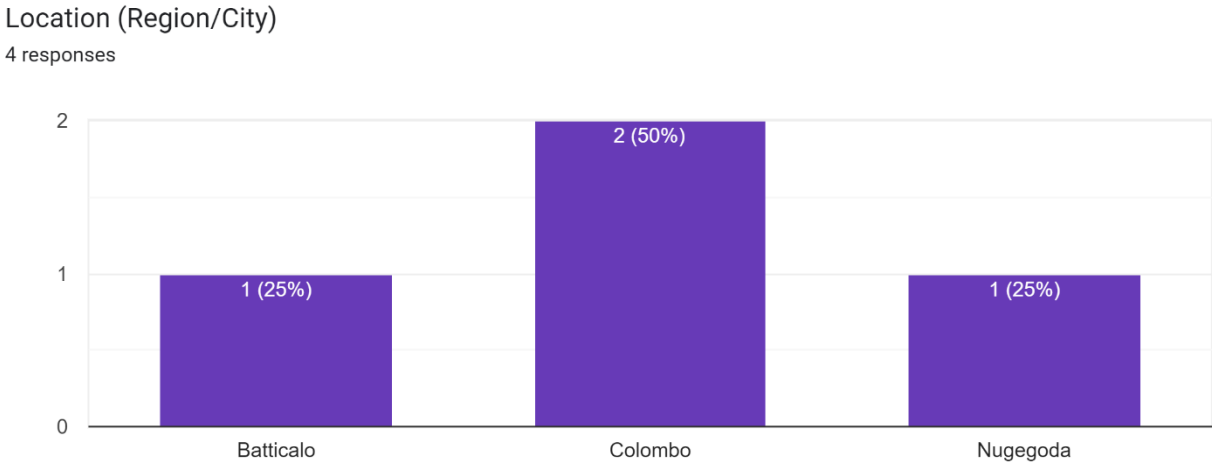

Figure 16 Google form response 03

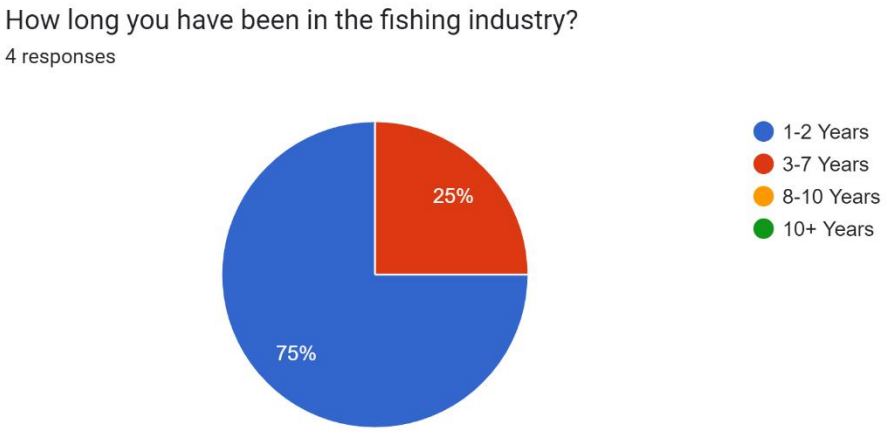

Figure 17 Google form response 04

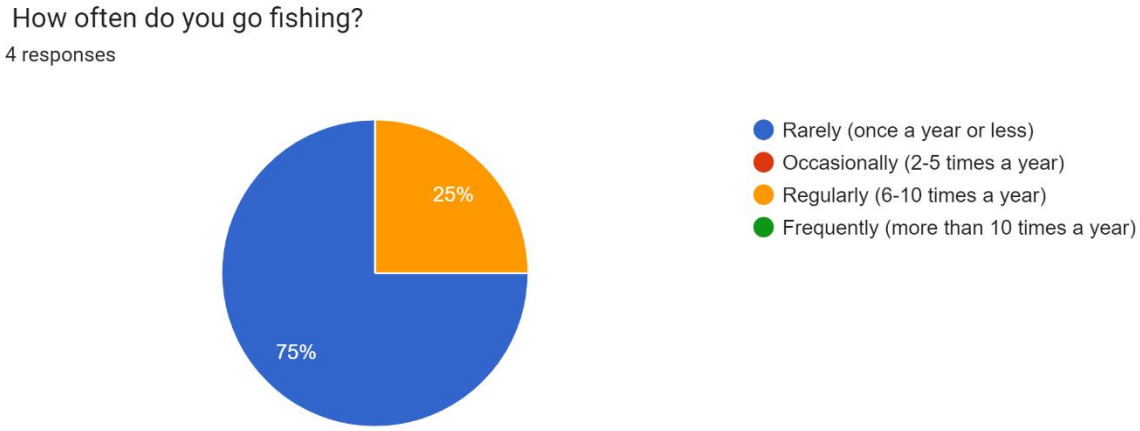

Figure 18 Google form response 05

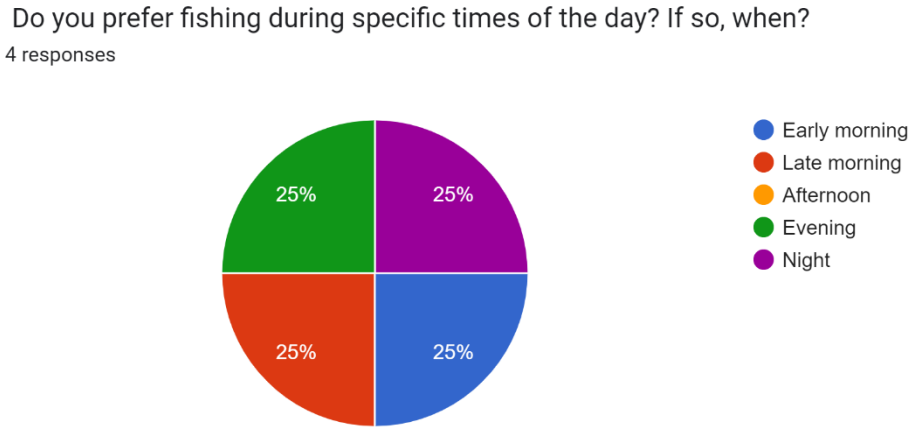

Figure 19 Google form response 06

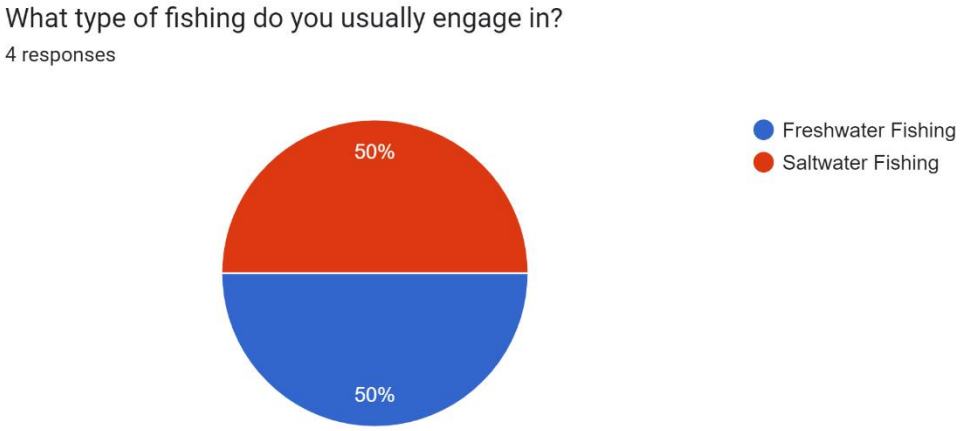

Figure 20 Google form response 07

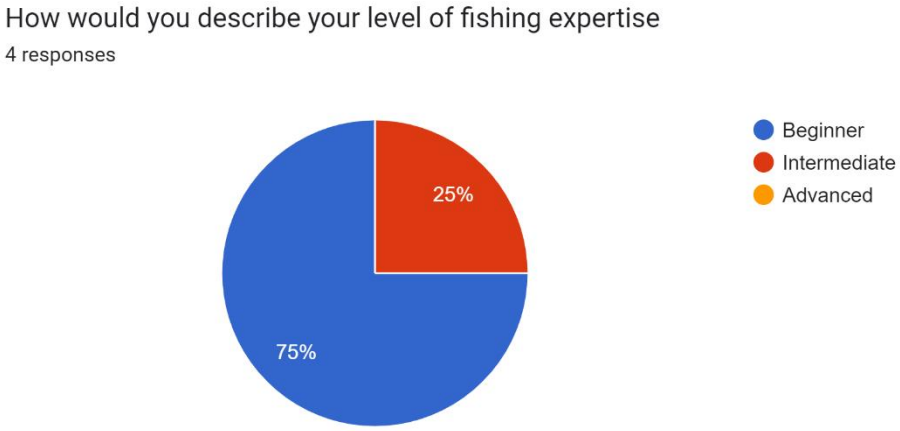

Figure 21 Google form response 08

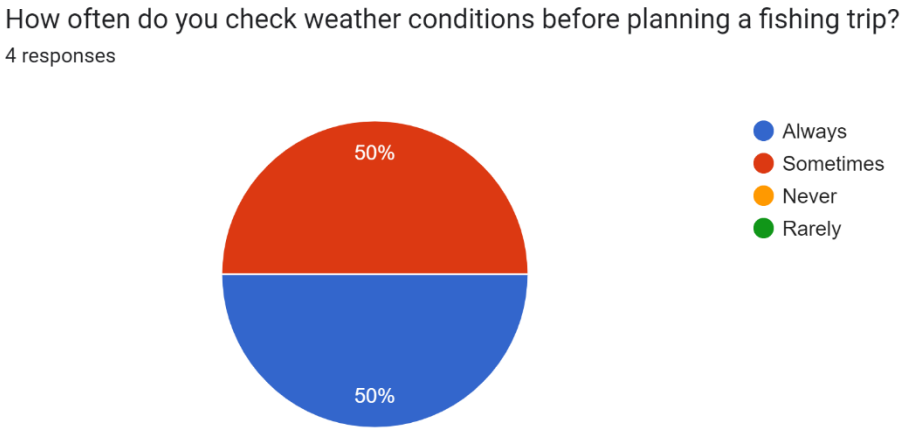

Figure 22 Google form response 09

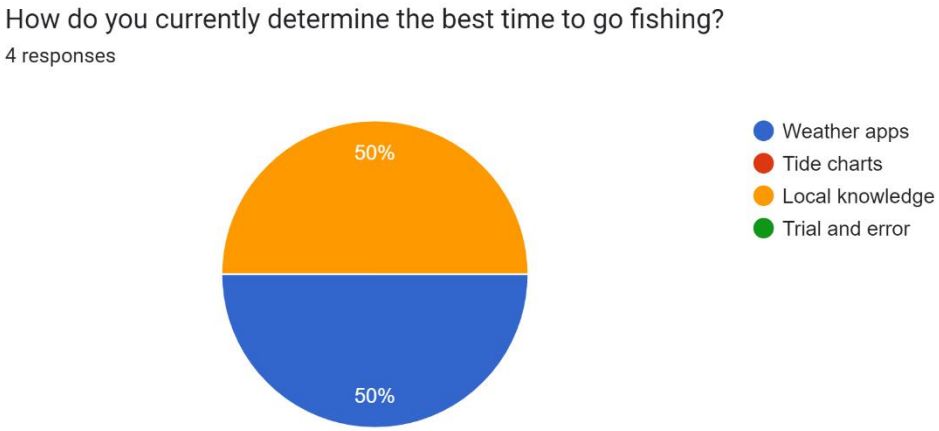

Figure 23 Google form response 10

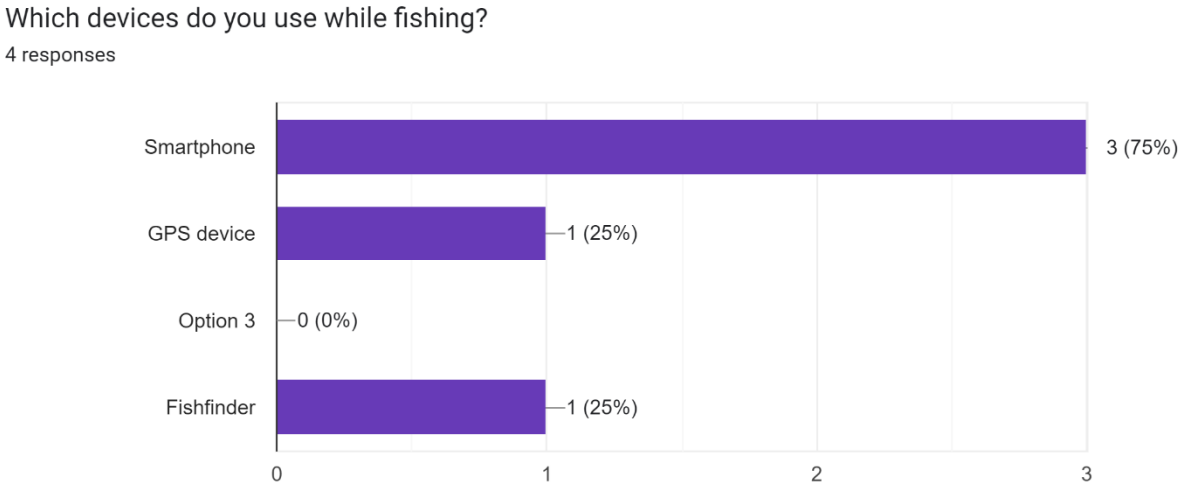

Figure 24 Google form response 11

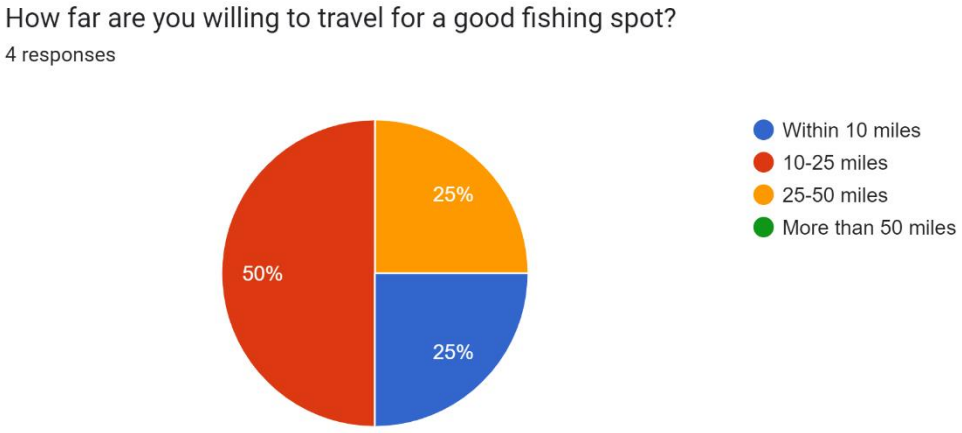

Figure 25 Google form response 12

Figure 26 Google form response 13

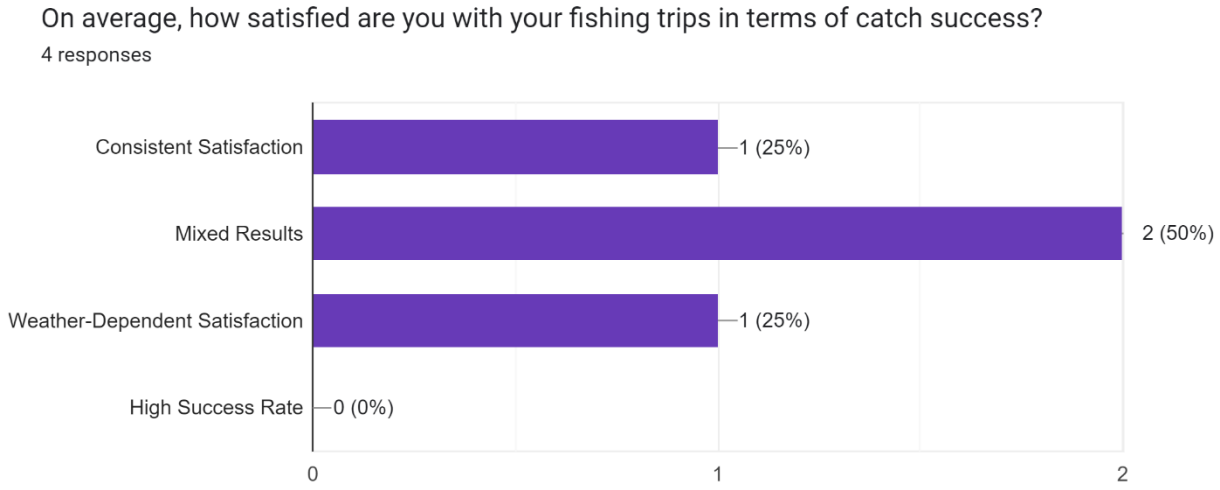

Figure 27 Google form response 14

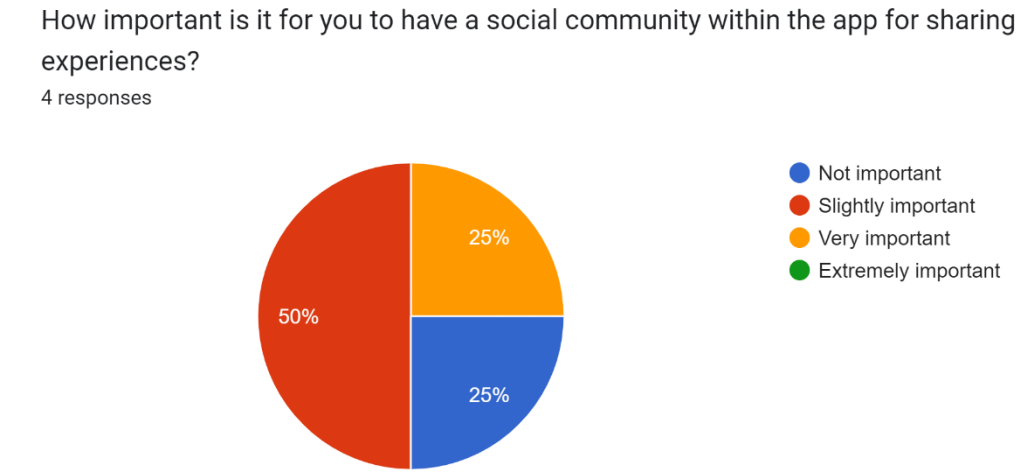

Figure 28 Google form response 15

Figure 29 Google form response 16

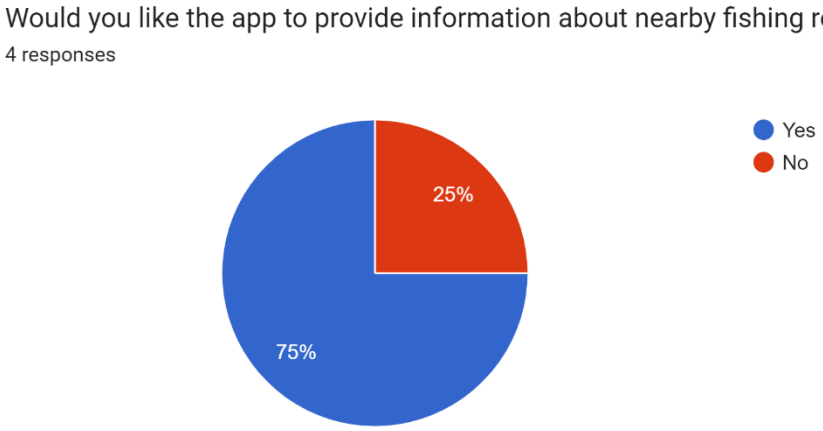

Figure 30 Google form response 17

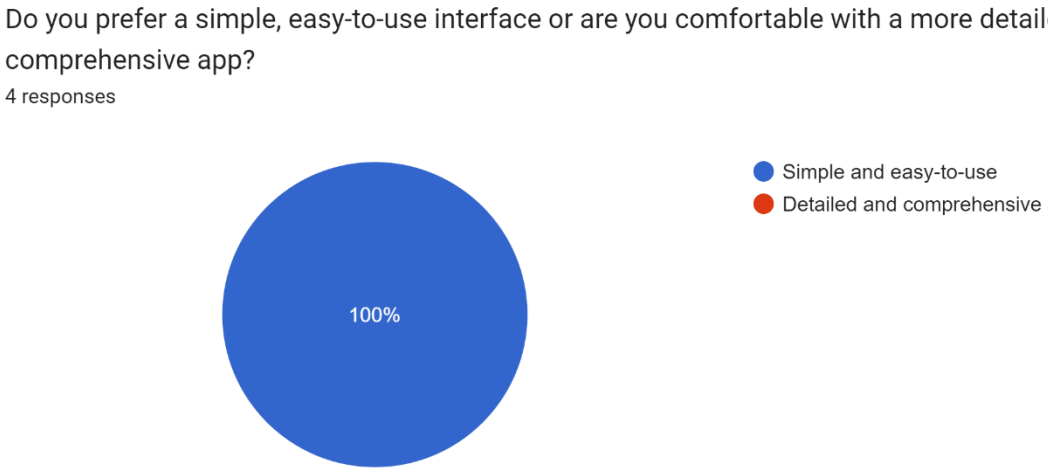

Figure 31 Google form response 18

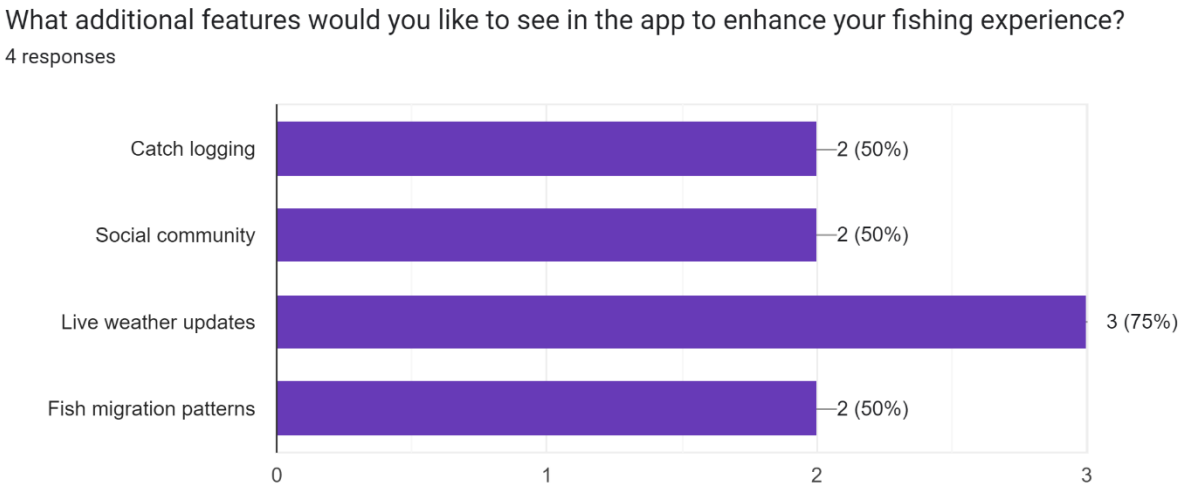

Figure 32 Google form response 19

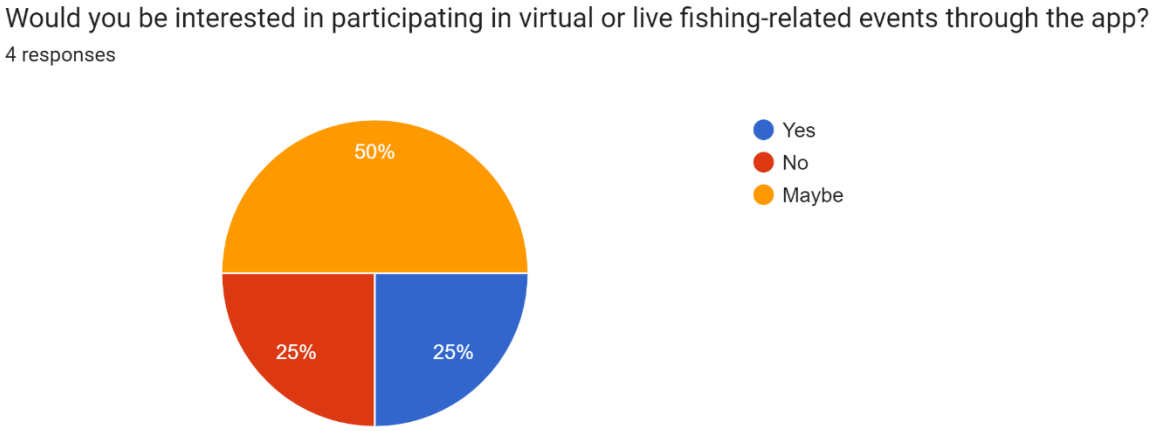

Figure 33 Google form response 20

10.6 Test Cases.

Test Case ID	Test scenario	Test Steps	Test Data	Expected Result	Actual Result	Pass/Fail
1	Select language	1. open the app 2. select language	language	Language selected	As expected	Pass
2	Register into SLF compass	1. open the app 2. Enter sign up 3. Enter number 4. Enter OTP 5. Enter Name and Email 6. Set your pin 7. Submit	Name, Email, Pin, Number	Successful registration	As expected	Pass
3	Forgot password	1. Open App 2. Enter Forget Password 3. Enter Email or Number 4. Enter Pin 5. New Password	Email, Number, Pin, Password	Password Reset	As expected	Pass
4	Sign in to the SLF compass	1. Open App 2. Enter Email Address 3. Enter Password	Email, Password	Signed in	As expected	Pass
5	Select Path	1. Open App 2. Enter Market or Map		Select path	As expected	Pass
6	Market path	1. open App 2. Select categories 3. start searching	Category select	Shopping and viewing seller detail	As expected	Pass
7						

Table 10 Test Cases