Project Title & Subtitle:

Wildlife Conservation Database System for Palawan Pangolin (Balintong): Preserving Palawan's Pangolin Species

Supporting Conservation Efforts for Palawan's Pangolins

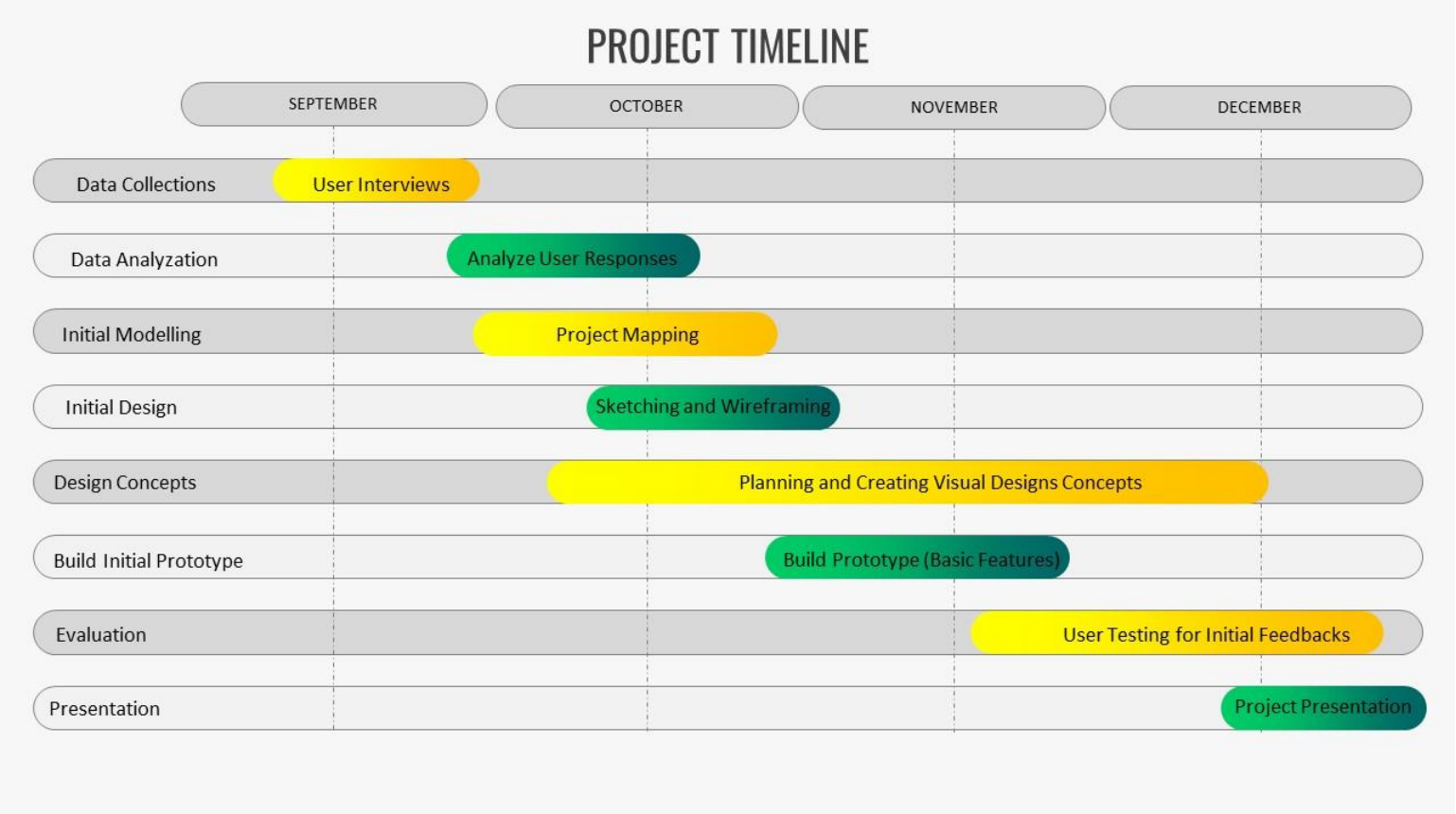
The "Wildlife Conservation Database System for Palawan Pangolin (Balintong)" is an initiative dedicated to the preservation and protection of the unique Pangolin and Binturong species in the Palawan region.

Client/Company/Project type

This comprehensive database system can be utilized by the Guardians of the Palawan Pangolin Guild to gather and manage vital data related to these endangered animals, including population monitoring, rehabilitation progress, and habitat conservation. By facilitating research, data analysis, and collaboration with stakeholders, this project aims to safeguard the future of Palawan's remarkable binturongs, contributing to the broader field of wildlife conservation in the region.

Project date

This project was started on September 24, 2023, and will be developed until Late December 2023. To further illustrate, below is a Gantt chart that shows the project's expected timeline.



The first phase, Data Collection involves the gathering of essential information and resources through user interviews. Following this, the Data Analysis phase where the collected data is interpreted, extracting valuable insights. Project Mapping is then conducted to set the direction and scope, creating a structured plan for the project. The next phase, Sketching and Wireframing, visualizing the project's design using sketches and high-definition wireframes. The Design Concepts phase is where the visual design is planned and later, created. After this, we Build an Initial Prototype which translates the design concept into a model. User Evaluation is conducted to ensure that users share their feedback about the project's prototype. The final phase Project Presentation, culminates the project, encompassing design, functionality, and findings from the evaluation phase.

Exer 2

Your role:

As lead of the project, I was responsible for the overall project planning as well as making sure that the project progresses over time. Furthermore, coordinated communication with the members of the Guardians of the Palawan Pangolin Guild. In addition, I would also contribute to the frontend and backend development of the system as it progresses through time.

Project Summary/About this Project:

The Wildlife Conservation Database System for Palawan Pangolin (Balintong) project focuses on safeguarding the endangered Pangolin and Binturong species native to Palawan. This initiative delivers a tailored database system that efficiently collects, manages, and analyzes vital wildlife data, bolstering conservation efforts, research, and rehabilitation programs. Project outcomes include the development of a secure database, insightful data analysis, fruitful collaboration with stakeholders, the generation of key conservation insights, user-friendly data visualization tools, comprehensive training, and documentation. This effort embodies the collective commitment to preserve Palawan's extraordinary wildlife through evidence-based conservation strategies.

The idea for this research came from the members of the organization, since the gathered data from field works are tabulated manually it was very challenging to track various pangolin data in each field work. At first, the adviser suggested that the organization should have its own database for the pangolins they are currently monitoring, and as an IT student I saw this as an opportunity for a research idea for my capstone project, so I suggested that I will be taking charge in creating this database system, proposing it as my capstone project.

This project's essence lies in its ability to transform data into action, enabling timely responses to threats, informed conservation strategies, and a sustainable future for these elusive creatures. Together, we are poised to safeguard Palawan's precious Pangolins, guided by the power of data and the spirit of conservation.

Exer 3: The challenge

Problem Statement

The absence of a dedicated database system for recording Palawan pangolin data poses a significant challenge to effective pangolin conservation efforts. This problem statement highlights the need for a database system to address the specific challenges faced by the Guardians of Palawan Pangolin Guild in recording and utilizing pangolin data effectively. Moreover, the following questions help pinpoint specific aspects of the problem and provide a foundation for addressing the challenges and objectives of creating a Palawan pangolin database system:

- How can we address the challenge of managing pangolin catch and release data effectively?
- What strategies can be implemented to create a centralized and comprehensive database system for pangolin conservation data?
- How can we improve data accessibility for researchers, conservationists, and authorities working with pangolin populations?
- What tools and systems are needed to support informed decision-making in pangolin conservation efforts?
- What features and functionalities should be integrated into the database system to enhance collaboration among stakeholders involved in pangolin conservation?
- How can the implementation of a dedicated pangolin database system contribute to the preservation of these endangered species?

User Interviews

As part of a comprehensive research on enhancing Palawan Pangolin conservation efforts, we are eager to gather valuable insights and perspectives from members within the Guardians of the Palawan Pangolin Guild. Thus, the researcher has prepared a set of questions for the members of the Guardians of the Palawan Pangolin Guild to further understand the needs of the organization to have their own database system for Palawan Pangolins.

- What role do you play within the Guardians of the Palawan Pangolin Guild?
- How critical do you perceive the need for a dedicated database system for Palawan Pangolin conservation within the organization's objectives?
- What are the primary objectives or goals of the organization in terms of Palawan Pangolin conservation?
- What types of data and information do you believe are most valuable for the organization's efforts?
- Are there specific features or functionalities that you believe the database system should prioritize to align with the organization's goals?
- What challenges or obstacles do you anticipate in terms of implementing and maintaining the database system within the organization?

User Responses

Gab

Q1. President

Q2. I see it as a critical component in intensifying the conservation efforts for the Palawan Pangolin, as it will greatly alleviate the arduous task of compiling all the existing information and data gathered from previous studies. Whilst, incorporating newly acquired data from new assessments and expeditions.

Q3. Since, the Guardians of the Palawan Pangolin Guild is the very first species-specific organization in the university, we want to intensify the Information, Education, Communication drive among students and every stakeholder present within the academe. By doing so, we are greatly contributing in our own very ways to impart the necessary information and idea about the existence and ecological importance of the Palawan Pangolin as an endemic species to the province but also as a bio-indicator of how rich and diverse our forest's in Palawan.

Q4. Data such as geographical locations where the assessment and field study took place is a vital necessity as it will allow us to track the coverage of the Palawan Pangolin is, more so it will allow us to determine the specific areas of focus for conservation implementations. Moreover, the captured Palawan Pangolin assessment data will be of great significance as well as it will alleviate the need for storage of confidential and vital data to consider about the health of the specimen.

Q5. Aligned with our objective of intensifying the IEC drive for the Palawan Pangolin Conservation, we want a function that would allow the organization to promote and advocate the study of the species, it's habitat, the type of environment it resides in, the food it eats, it's ecological importance, as well as debunking myths about capturing, consumption, and "traditional medicine" connotation about the Palawan Pangolin.

Q6. First and foremost, it would be probably user adjustment and transition from manual database storage to a full digitalized system of database. Thus, another obstacle would probably be maintenance and tuning up to current input of new information as well as keeping up with the ever-changing digital concept.

Francine

Q1. Vice-President

Q2. The need for a dedicated database system for Palawan Pangolin conservation within the organization's objectives is critical. A dedicated database system will enable efficient data management, analysis, and reporting, which are essential for effective conservation efforts. It will allow the organization to track population trends, monitor habitat status, record individual pangolin data, and identify conservation priorities. Additionally, a database system will facilitate collaboration and information sharing among researchers, conservationists, stakeholders, and above all, students like us, leading to better-informed decision-making for conservation efforts and improved conservation outcomes.

Q3. The objectives of the Guardians of the Palawan Pangolin Guild are: To raise awareness about the existence, biology, and ecology of the Palawan pangolin and other endemic fauna in Palawan province. To conduct collaborative research and other environmental activities focused on the Palawan pangolin and other endemic fauna of the province. To serve as guardians of the Palawan pangolin. By implementing a dedicated database system, the organization aims to achieve these objectives more effectively and contribute to the conservation of the Palawan pangolin.

Q4. For the organization's efforts, the following types of data and information I believed to be most valuable are the Population trends, habitat status, individual data of recorded pangolin, and the conservation priorities. Additionally, the GPPG may also find value in data and information related to the distribution and abundance of prey species, the impacts of human activities on pangolin populations, and the effectiveness of conservation interventions.

Q5. Mapping to track population trend as well as to monitor the Palawan Pangolin habitat status.

Q6. First would be the technical expertise since it would be hard to find someone with skills in database design, data management, data analysis, and system administration. Another challenge would be data privacy and security, as well as Data quality and standardization since ensuring the quality and standardization of data can be a challenge, especially when multiple contributors are involved. It requires establishing clear data collection protocols, training personnel, and implementing data validation processes.

Cris

Q1. Field Worker/Member

Q2. It is essential for efficient data management, analysis and reporting, with this we are able to make informed decisions as well as track conservation progress.

Q3. To inform, and educate students of university about the existence and importance of the Palawan Pangolin.

Q4. Geographical locations to track the habitat of Palawan Pangolin as well as assessment data of the Palawan Pangolins.

Q5. For it to be user-friendly and for it to allow us to share these data among other stakeholders to further promote these endemic species as well as emphasize its importance to our biodiversity here in Palawan.

Q6. User familiarity since the transition from manual tabulation to a database system can be quite challenging for some of the members of the organization.

Pain Points

Upon conducting user interviews, the researcher was able to identify the following pain points:

Data Compilation Challenges

Compiling existing information and data from previous studies is described as an arduous task. Incorporating newly acquired data adds to the complexity. This suggests that the process of gathering and organizing data for Palawan Pangolin conservation is currently challenging and time-consuming.

Information Sharing Needs

The need to intensify Information, Education, Communication (IEC) drives among students and stakeholders is highlighted. This indicates a desire to share information effectively, but there may be challenges in achieving this, such as reaching the target audience or ensuring the information is accessible and engaging.

Transition to Digital Database

The transition from manual database storage to a fully digitalized system is anticipated as a challenge. User adjustment and adaptation to the new digital system may pose obstacles, including training and technical support needs.

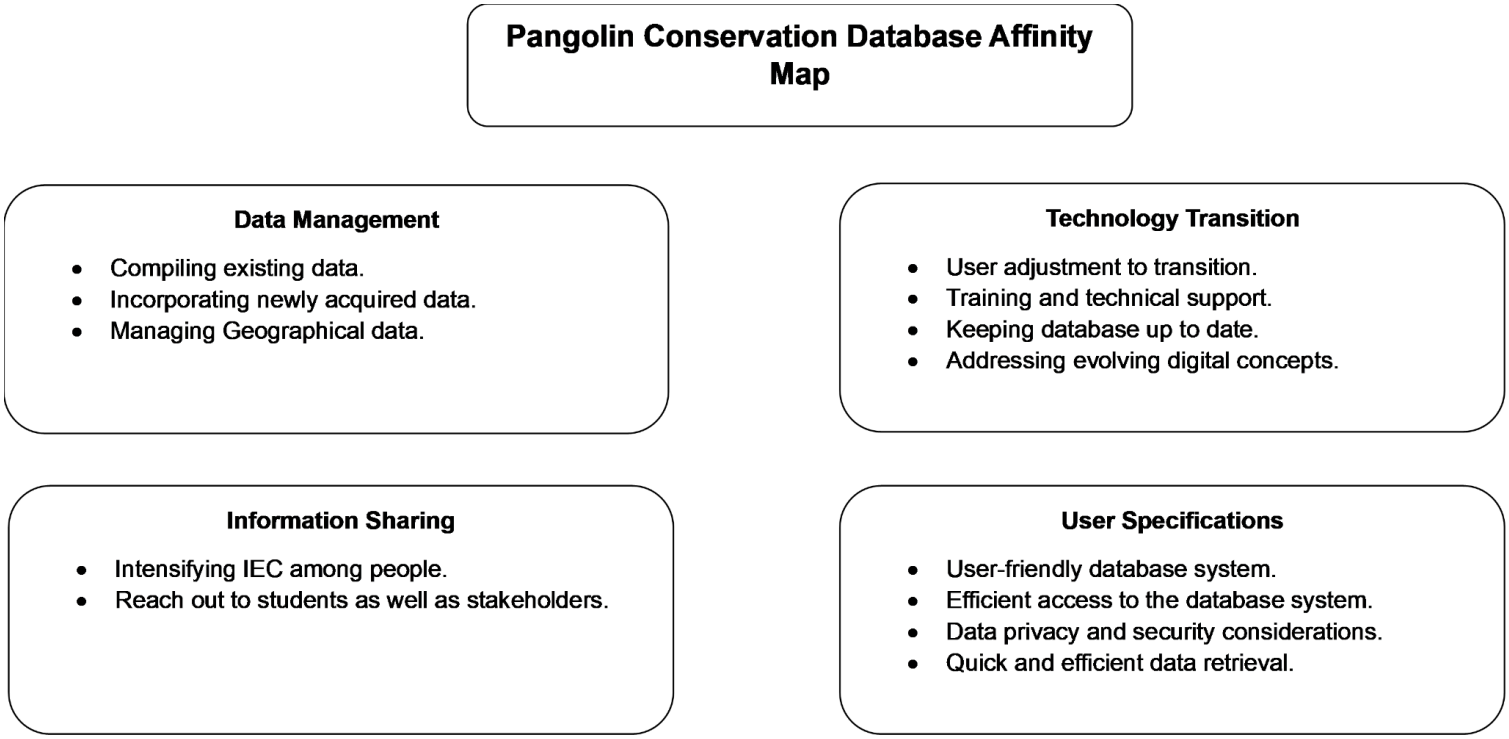
Maintenance and Updates

Keeping the database system up to date with new information and staying current with evolving digital concepts is mentioned. This points to the ongoing effort required for system maintenance, updates, and potential technical challenges.

Data Quality and Security

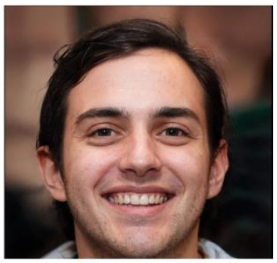
Ensuring the security of sensitive conservation data is considered one of the challenges to be faced in this project. In addition, maintaining the quality of data can be another challenge with multiple collaborations, ensuring that the data gathered is accurate can be a resource intensive task.

Affinity Mapping



The affinity map presented above serves as a visual representation of the primary challenges and pain points encountered during the implementation of a dedicated database system for Palawan Pangolin conservation. The map categorizes these challenges into four key areas, providing a structured and comprehensive view of the obstacles faced by the project. Each category represents a distinct aspect of the project's complexity, ensuring that critical issues related to data management, communication, technology adoption, and user needs are systematically addressed. This affinity map aids in understanding, prioritizing, and strategizing solutions to enhance the success of the conservation initiative.

Personas



Organization President - Gab

Demographics

Age: 21

Occupation: Student

Hometown: Puerto Princesa City

Description

Gab is a college junior in his early 20s, majoring in Medical Biology, and serves as the President of the Palawan Pangolin Guild. He plays a leadership role in the organization, focusing on coordinating conservation efforts, raising awareness, and ensuring the smooth operation of the guild.

User Scenario

Gab dedicates his days to the preservation of the endangered Palawan Pangolin. Leading a team of conservation enthusiasts, he diligently compiles and manages crucial data. His commitment extends to education and advocacy efforts, where he dispels misconceptions about the species, raises awareness among students, and coordinates expeditions to gather geographical data on pangolin distribution. Gab needs a user-friendly digital database system for efficiently managing pangolin-related data and educational resources to support awareness campaigns. Additionally, effective communication tools and strategies are essential for coordinating with guild members and refining conservation strategies.

Attributes

- Committed
- Disciplined
- Organized

Goals

- He aims to promote and advocate for the study of the Palawan Pangolin.
- To support and lead conservation initiatives for the Palawan Pangolin.

Field Worker - Cris

Demographics

Age: 20

Occupation: Student

Hometown: Puerto Princesa City

Description

Cris is a college sophomore in her early 20s, majoring in Medical Biology, and actively participates in field research related to pangolins and their habitats. Cris' role is crucial in collecting field data, studying pangolin behaviors, and contributing to the organization's research efforts.

User Scenario

Cris is responsible for reviewing field assessment data, ensuring its accuracy. During field expeditions into the pangolin's habitat, she records critical geographical data. She engages in strategic planning sessions with fellow leaders, where they outline goals for educational outreach, and pangolin protection initiatives. Cris requires an efficient data management tools, educational resources, and field research equipment to support her conservation efforts for the Palawan Pangolin. Additionally, she seeks a user-friendly database system and support for members during the transition to new technology to streamline data management and enhance collaboration within the organization.

Attributes

- Detail-Oriented
- Active in Organization Field Works
- Considerate

Goals

- She aims to implement efficient data management practices within the organization.
- To gather and track geographical data to monitor the habitat and distribution of the Palawan Pangolin.

Organization Vice President - Francine

Demographics

Age: 22

Occupation: Student

Hometown: Puerto Princesa City

Description

Francine is a college senior in her early 20s, majoring in Medical Biology, and serves as the Vice President of the Palawan Pangolin Guild. She is deeply passionate about wildlife conservation, and lays a pivotal part in coordinating the organization's conservation efforts, ensuring smooth operations within the guild.

User Scenario

Francine facilitates educational outreach preparations. Her essential needs encompass a dedicated database system, educational materials, field equipment, and technical expertise, all of which are vital in her quest to protect the Palawan Pangolin effectively. Through the database system, she seeks to make data-informed decisions as well as support data analysis, reporting, and tracking of the Palawan Pangolin population and its habitat. Moreover, Francine values the sharing of information among students, researchers, and stakeholders, highlighting her goal of fostering collaboration in conservation efforts.

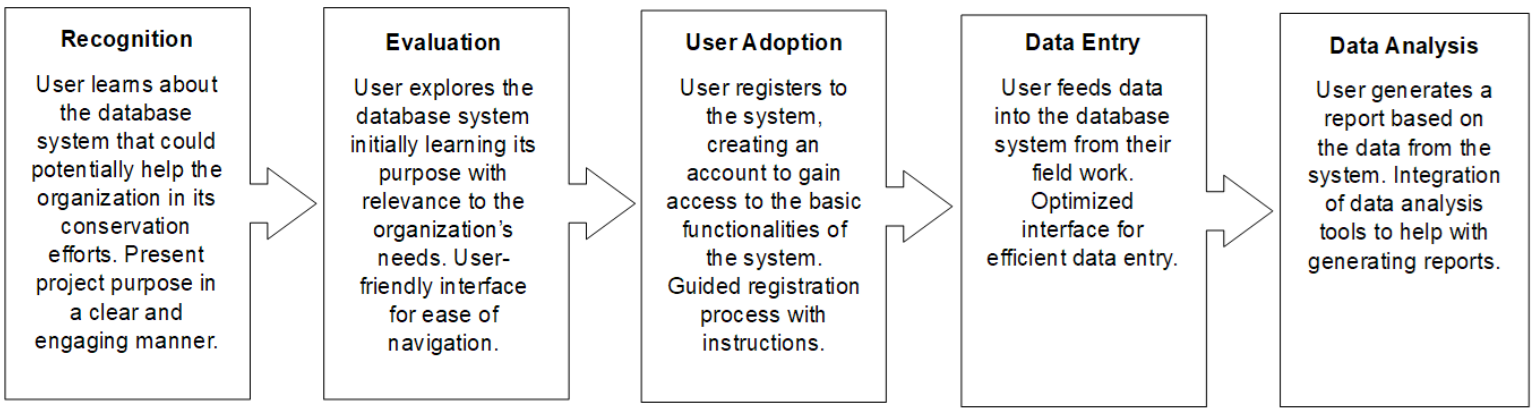
Attributes

- Reliable
- Strong Communication Skills
- Active Listener

Goals

- To conduct collaborative research and environmental activities focused on the Palawan Pangolin and other endemic fauna in Palawan.
- To make data-informed decisions to contribute effectively to pangolin conservation.

Customer Journey Map



In this customer journey map, we follow the experience of the users as they engage with the 'Wildlife Conservation Database System for Palawan Pangolins (Binturong).' The map illustrates the various phases of user interaction with the system, from initial awareness of the project to becoming an active user. Design considerations are integrated into each phase, highlighting the importance of user-friendly design and functionality to enhance user experience.

Exer 4: Solution

Design Solutions

Based on the identified pain points, the following design solutions were developed to address the specific challenges. These design solutions aim to mitigate the identified pain points, making the dedicated database system more user-friendly, efficient, and effective in supporting Palawan Pangolin conservation efforts.

Streamlined Data Compilation

To alleviate the challenge of compiling and organizing data, the design solution includes an intuitive data entry interface. This interface simplifies the process of inputting new data and seamlessly integrates with existing information.

User-Friendly Transition

Addressing the transition challenge, the design focuses on user-friendliness. User training and support resources will be readily available. The system's interface will be intuitive, mimicking familiar manual processes as closely as possible to ease the transition.

Maintenance and Updates

To ensure the system remains current and relevant, a well-defined maintenance plan is included in the design. This plan covers regular updates, security patches, and system enhancements. Additionally, the system can notify users about the availability of new features or data updates, ensuring it stays up to date with evolving digital concepts.

Data Quality Assurance

The system will incorporate data validation and quality assurance mechanisms. It will require data contributors to adhere to established data collection protocols, and automated checks will ensure data quality and standardization. Users will be notified of any data discrepancies or errors, allowing for prompt corrections.

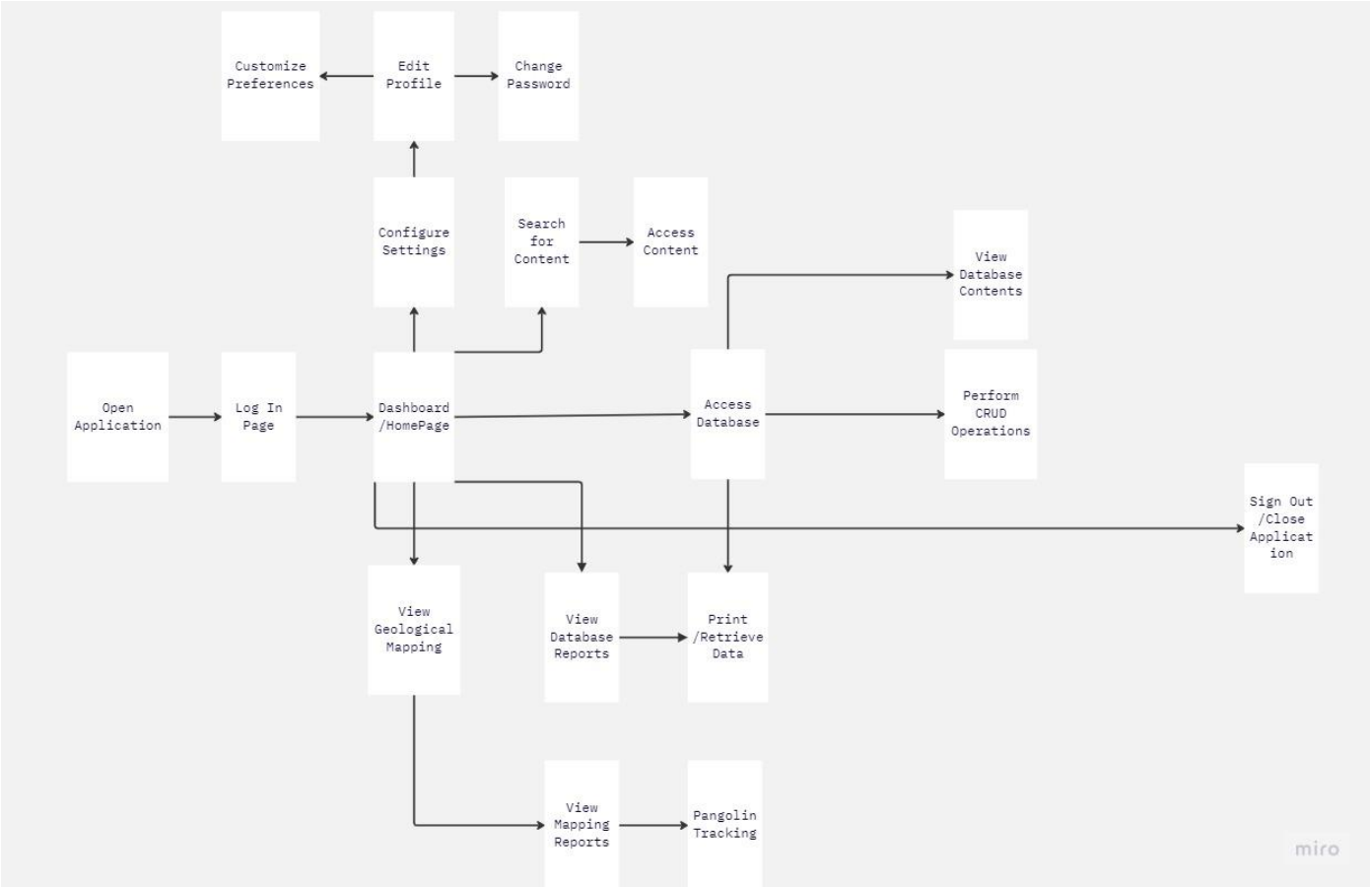
Enhanced Data Collaboration

To facilitate collaboration and information sharing, the design emphasizes features such as document sharing, and discussion forums. These functionalities will promote effective collaboration among students, researchers, and conservationists, ensuring that valuable insights are easily shared and discussed within the system.

User-Centered Interface

To align with user needs and preferences, a user-centered interface is of utmost importance. The goal is to design an interface that places user experience as a top priority. This means creating an interface that is not only intuitive and responsive but also adaptable to individual preferences, ensuring users can effortlessly engage with the database.

User Flow



The user flow shows the expected tasks the user will complete when using the database system. At first, the user opens the system, then they log in to verify their credentials, after that they are sent to the homepage of the system where they can interact with the dashboard which also allows them to navigate within the system. Users can access the search functionality of the system for ease of navigation. Users can also access the database where they can perform CRUD (Create, Retrieve, Update, Delete) operations as well as view different data. Users can also view reports regarding the data within the database. In addition, users can also use the Geographical Map to see the habitat data of the recorded pangolins. Moreover, users can also customize the system by configuring the user settings, where they can also change their passwords when necessary. Once users they have completed their tasks, they can sign out and close the system from the homepage.

Storyboards

Story Board

Wildlife Conservation Database System
for Palawan Pangolin (Balintong)

Gab and other users logs in with their personal account to the system. they are met with a user-friendly interface to ease up the log in process.

Gab is sent to the homepage of the database system, which is personalized to the needs of the organization.

Gab and other users are able to view pangolin data through the database of the system, but only Gab and higher members have authority to manipulate the data within the system.

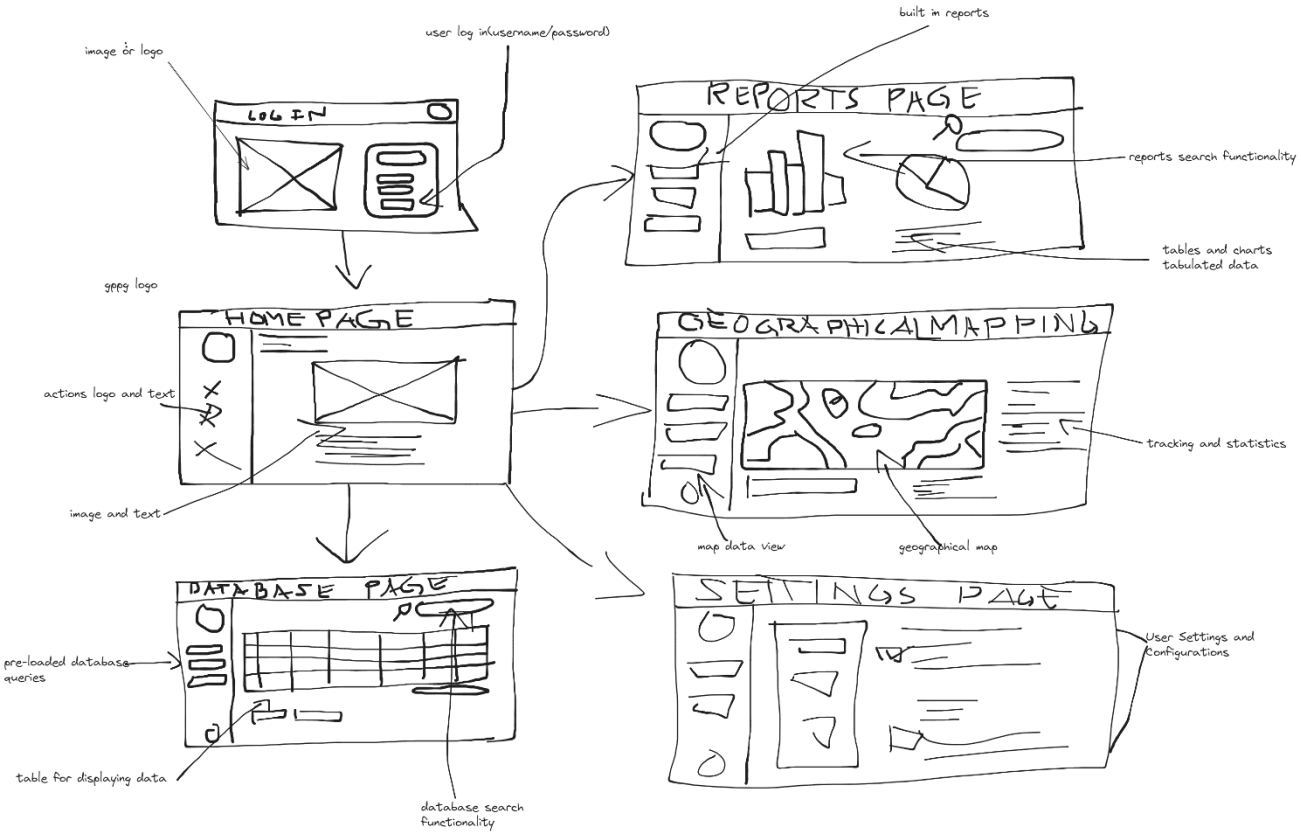
The pangolin data from the system are generated into reports which members of the organization can use to help them in their conservation efforts.

Users are able to map and track pangolin habitat through the use of Geographical maps in the system which provides valuable data on the habitat of pangolins as well as statistics based on the set configurations.

Satisfied with the experience, Gab signs out of the application, waiting on the next moment, he and other members can use the system again.

The storyboard visually narrates the user experience of members within the database system. It highlights key steps in their interaction with the platform, focusing on user-friendliness, data entry, and access vital pangolin data. This storyboard brings to life the seamless and holistic journey members take to contribute to the Palawan Pangolin conservation mission while ensuring data security and personalized experiences.

Sketches



The figures above represent the conceptual sketches for the database system, offering an initial visual exploration of the platform's interface and functionality.

Wireframes

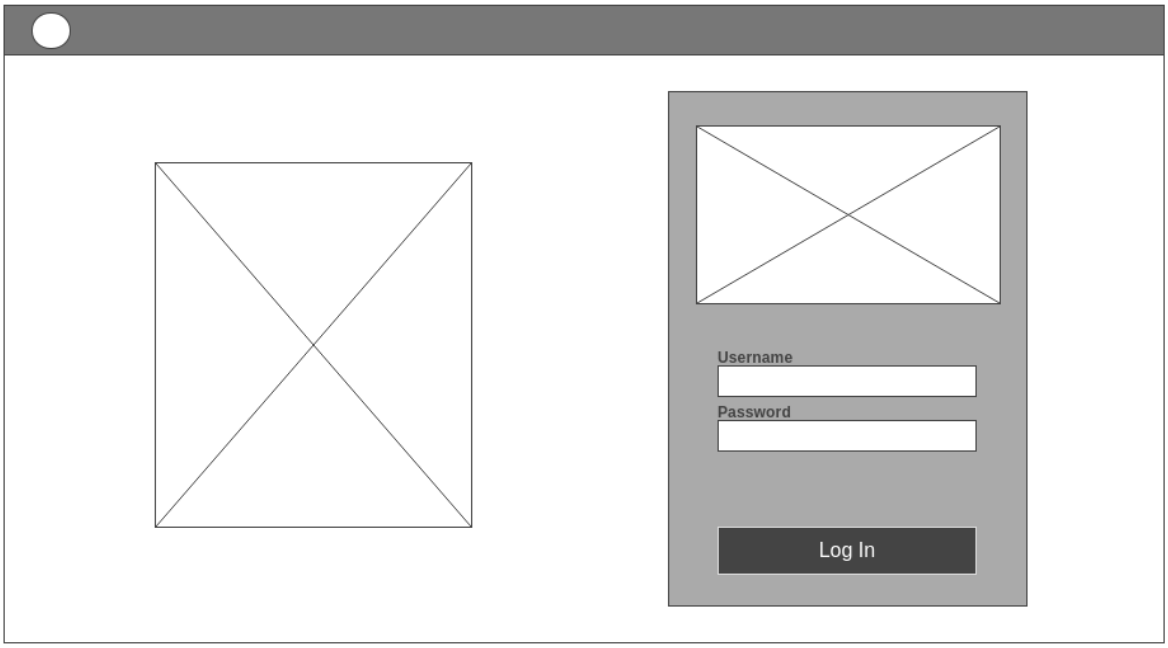


Figure 1a. Log In Page

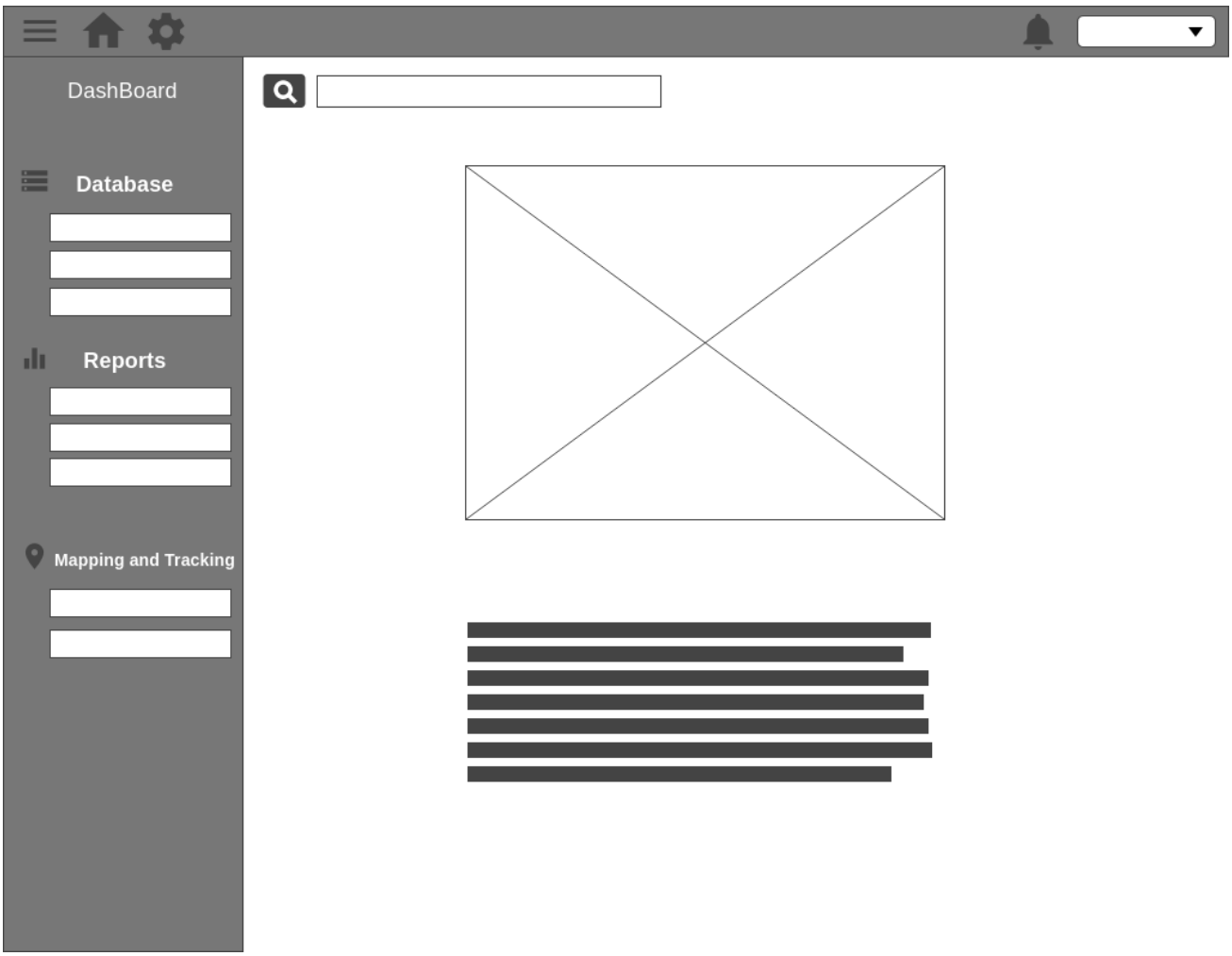


Figure 1b. Homepage

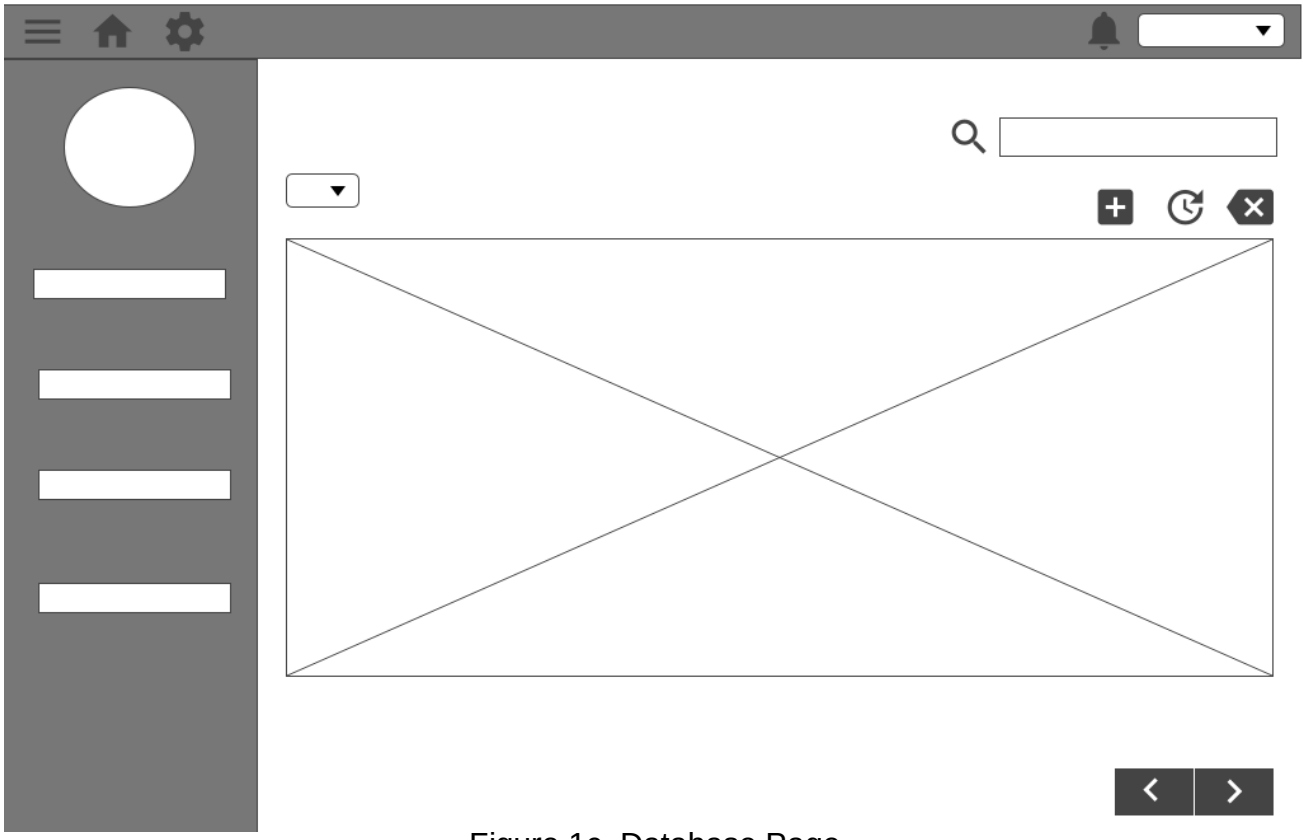


Figure 1c. Database Page

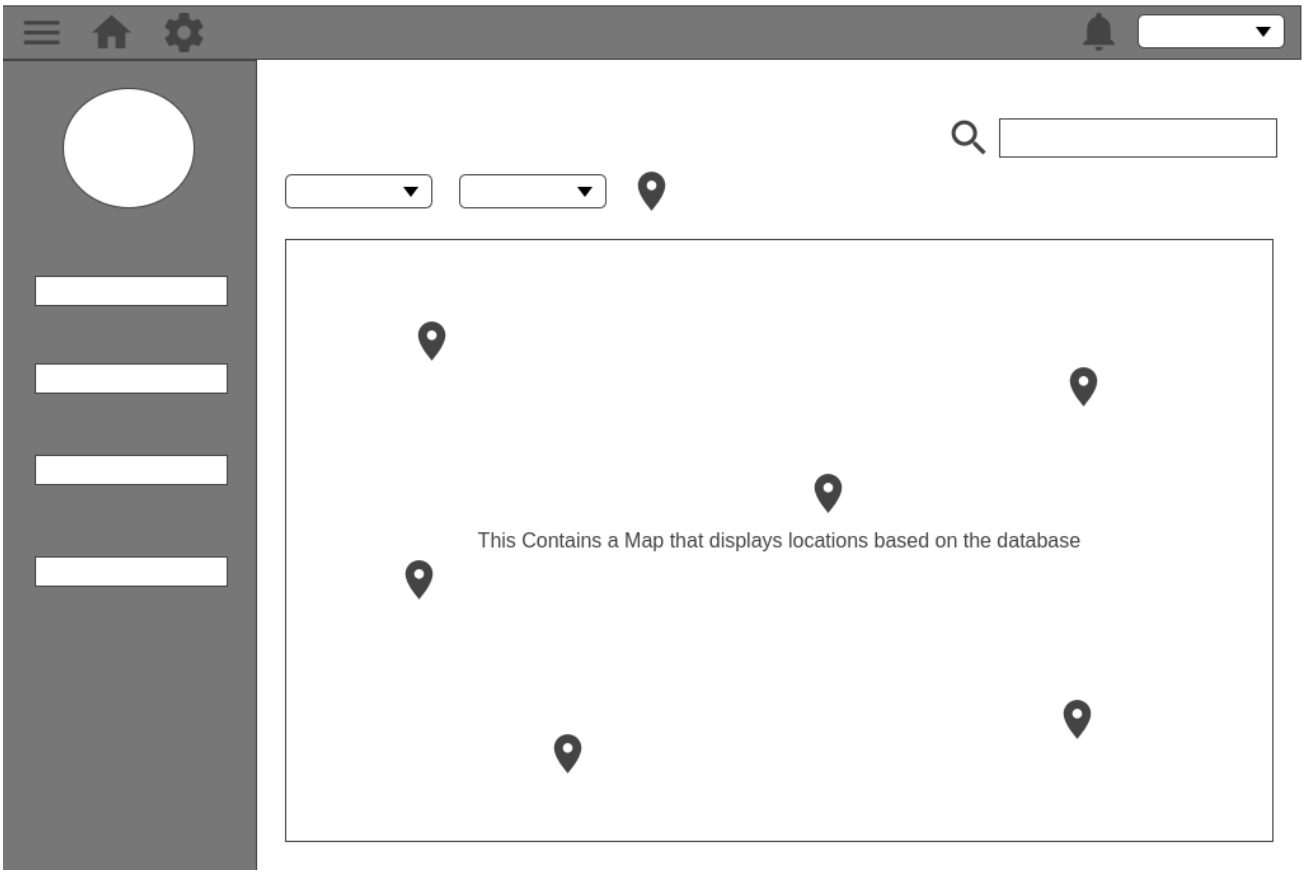


Figure 1d. Geographical Maps Page

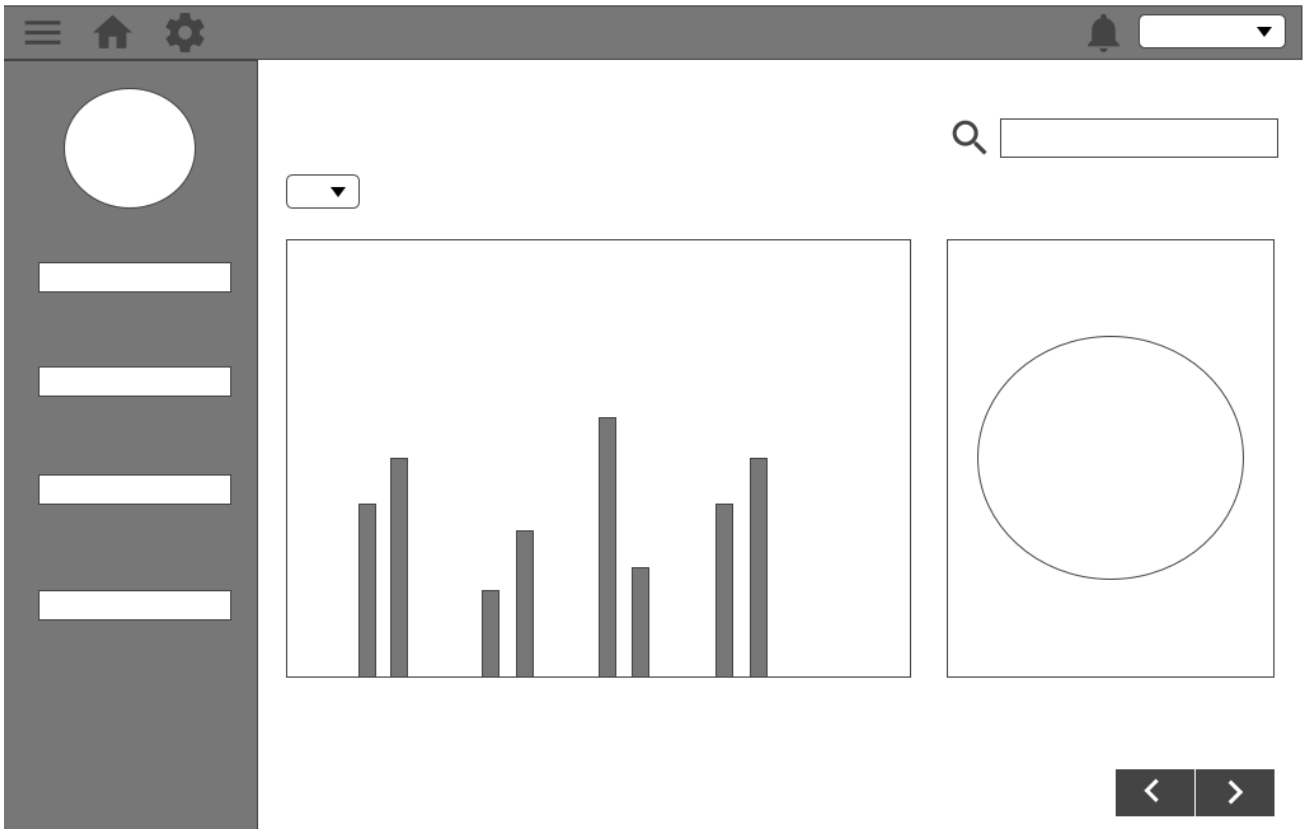


Figure 1e. Reports Page

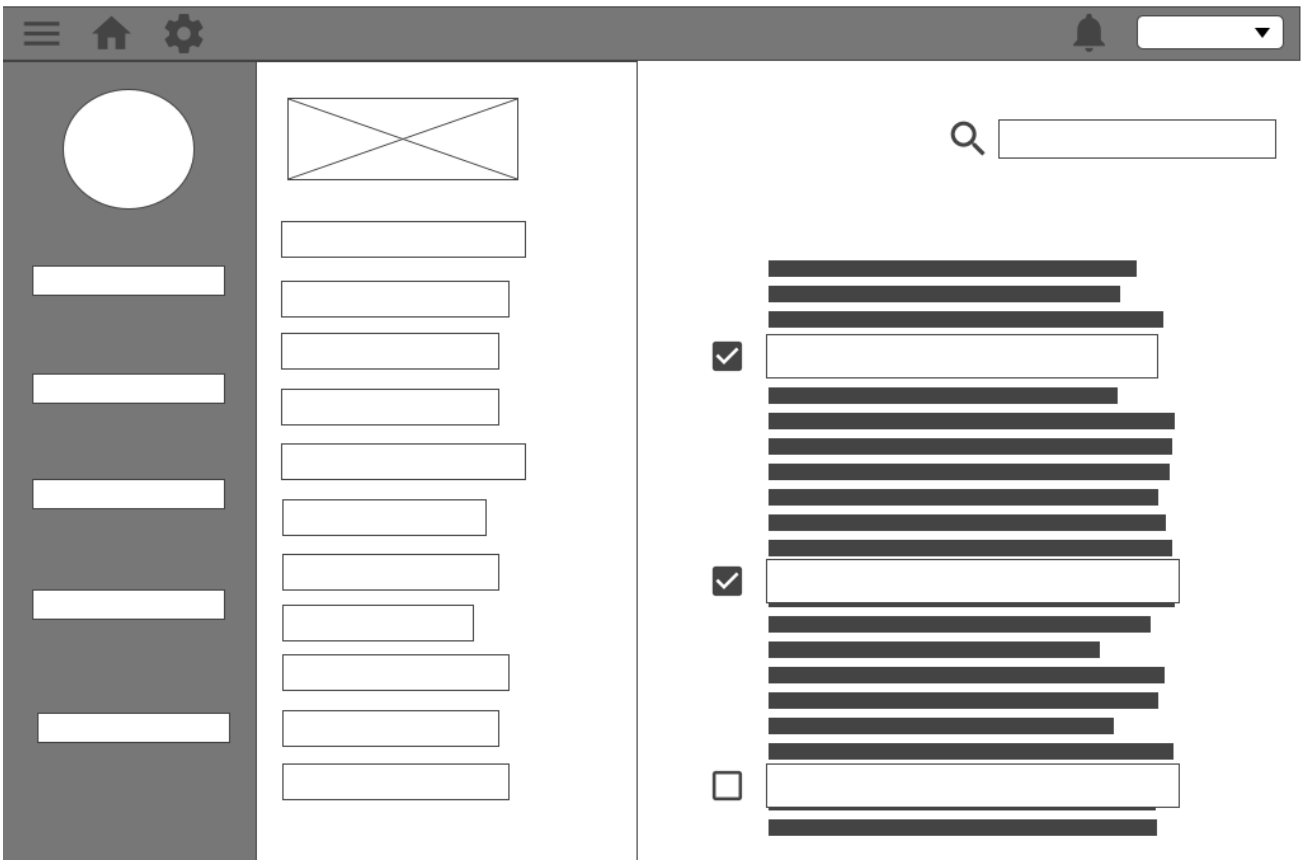
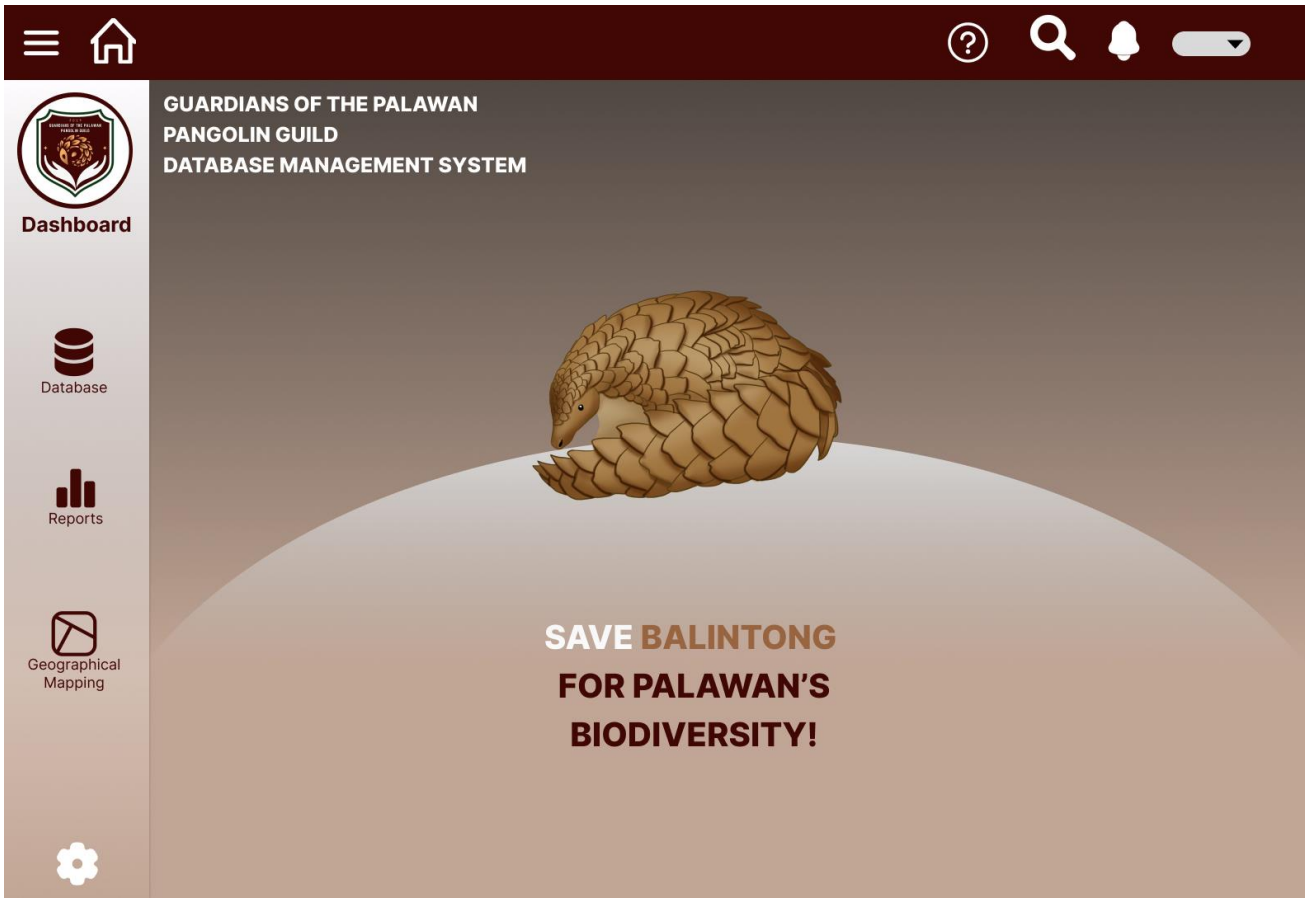


Figure 1f. Settings Page

Visual UI Design

The Visual UI Design section provides an explanation of the design choices made in creating the user interface of the Palawan Pangolin Conservation Database. It highlights selection of colors, styles, and other design elements.

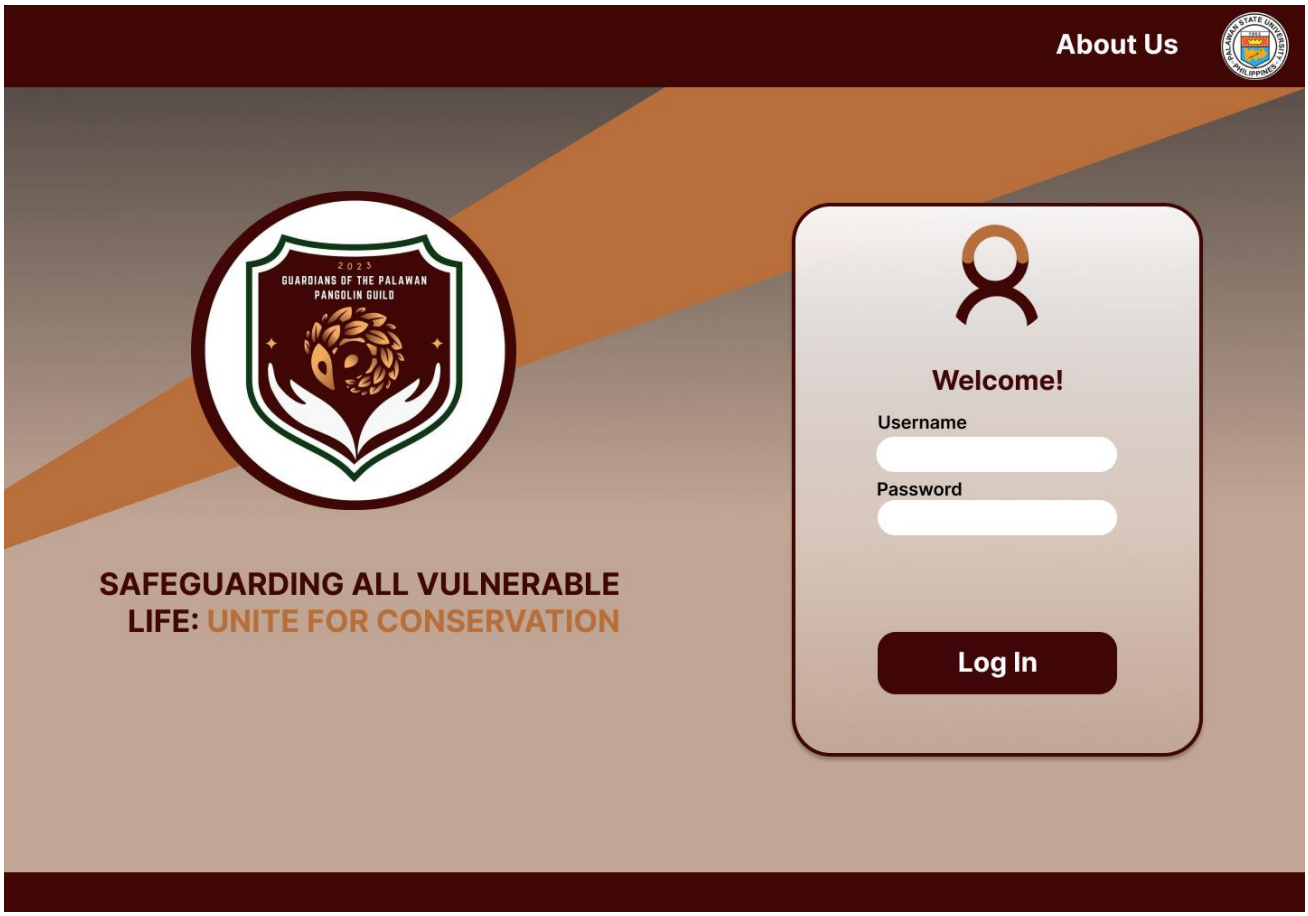


Above is the initial UI design for the homepage of the system. The selection of color palettes for this page were influenced by the logo of the Guardians of the Palawan Pangolin Guild which can be seen at the dashboard of the page. Using these colors, I was able to create a homepage having colors that blends well with each other, in addition I also used these colors to the text and icons in the page.

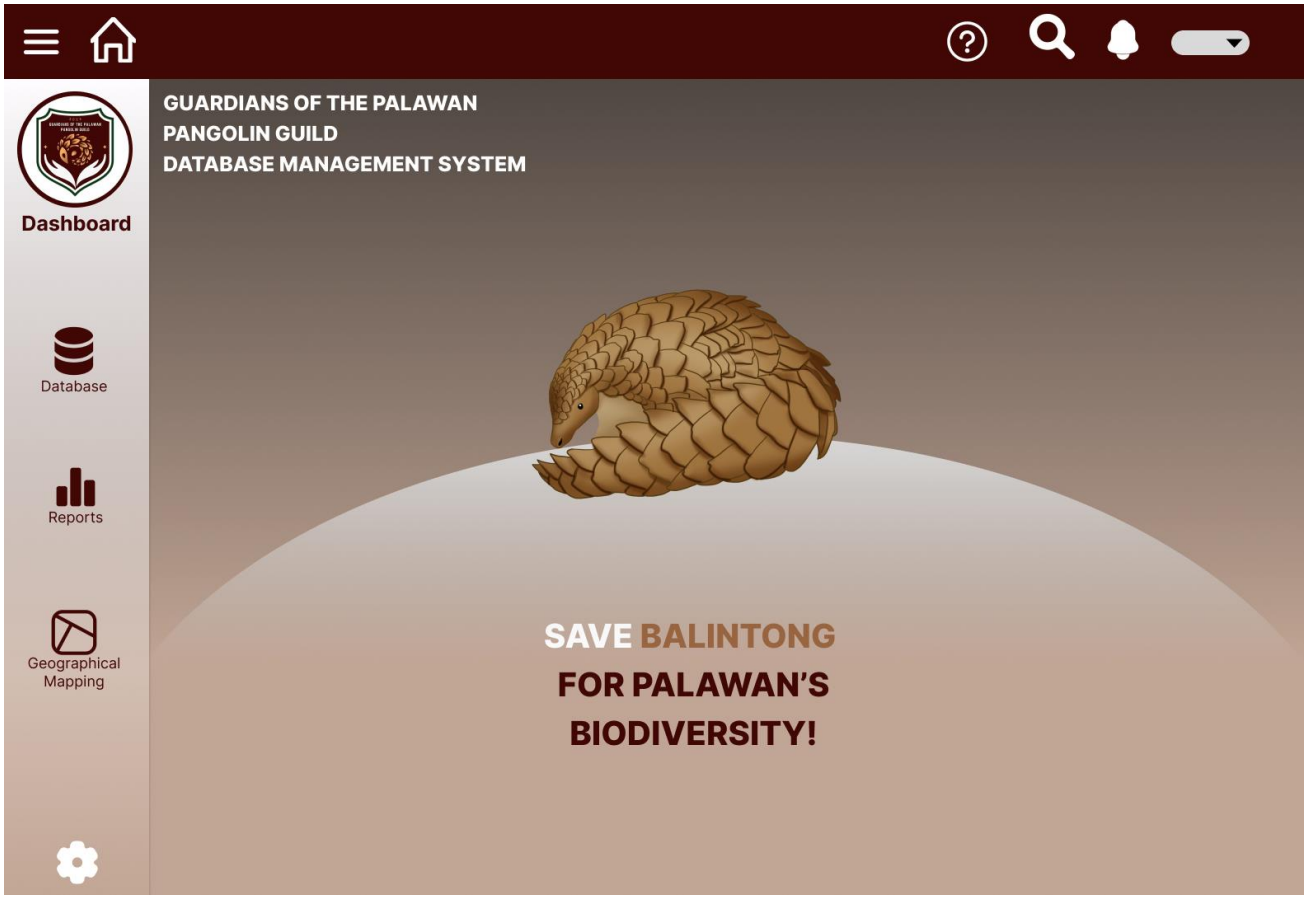
I also went for a minimalistic approach in designing the UI of the system, keeping elements at minimal so users will not be overwhelmed and be confused about the specific functionalities of the system. More functions will soon be added to the dashboard of the system, for now I only included the important features of the system which is also the requirements of the members of the organization.

Prototype

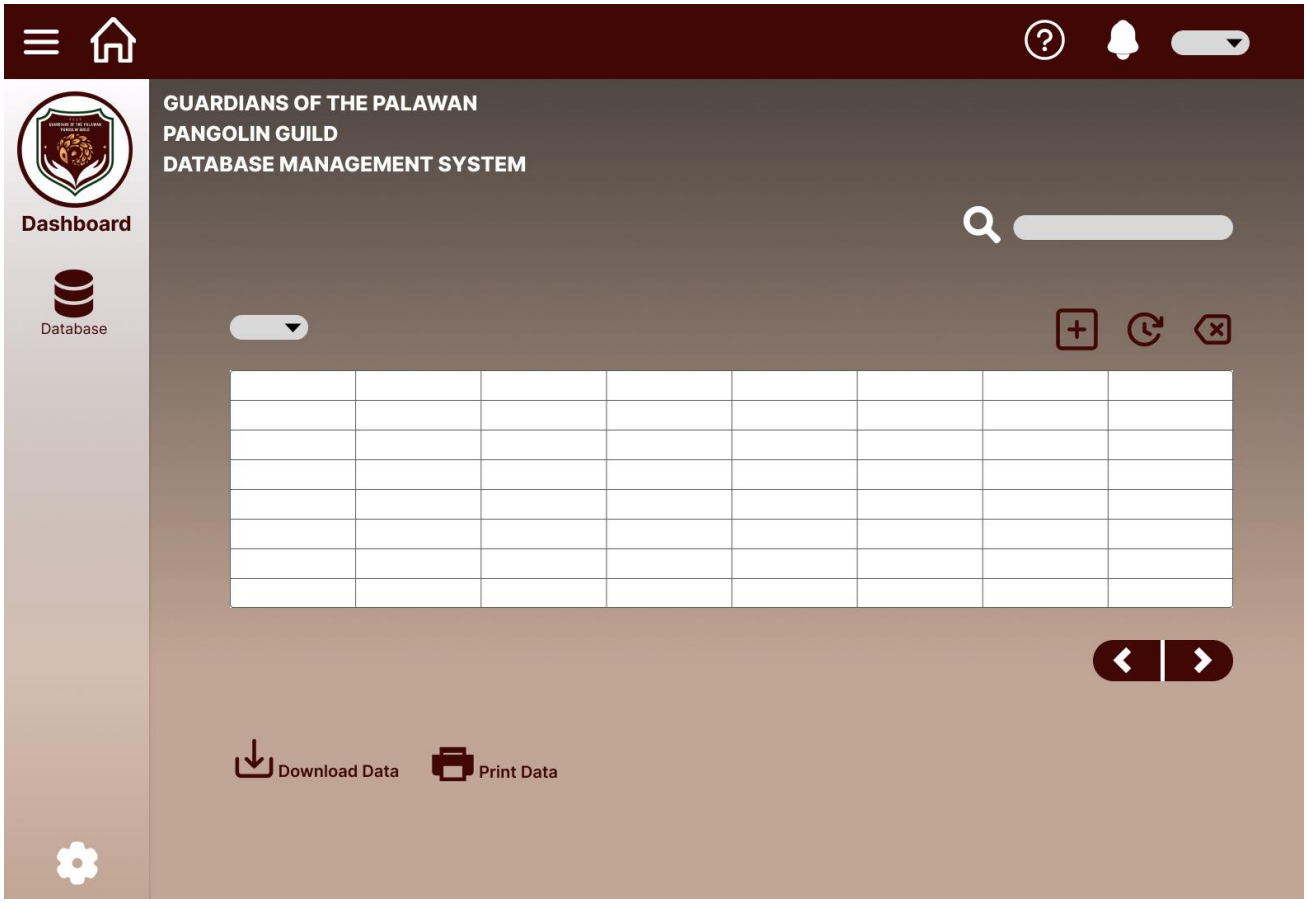
In this section, we explore the prototype model of the Palawan Pangolin Conservation Database. We will also explore essential features and interactions, emphasizing their practicality and accordance with user requirements.



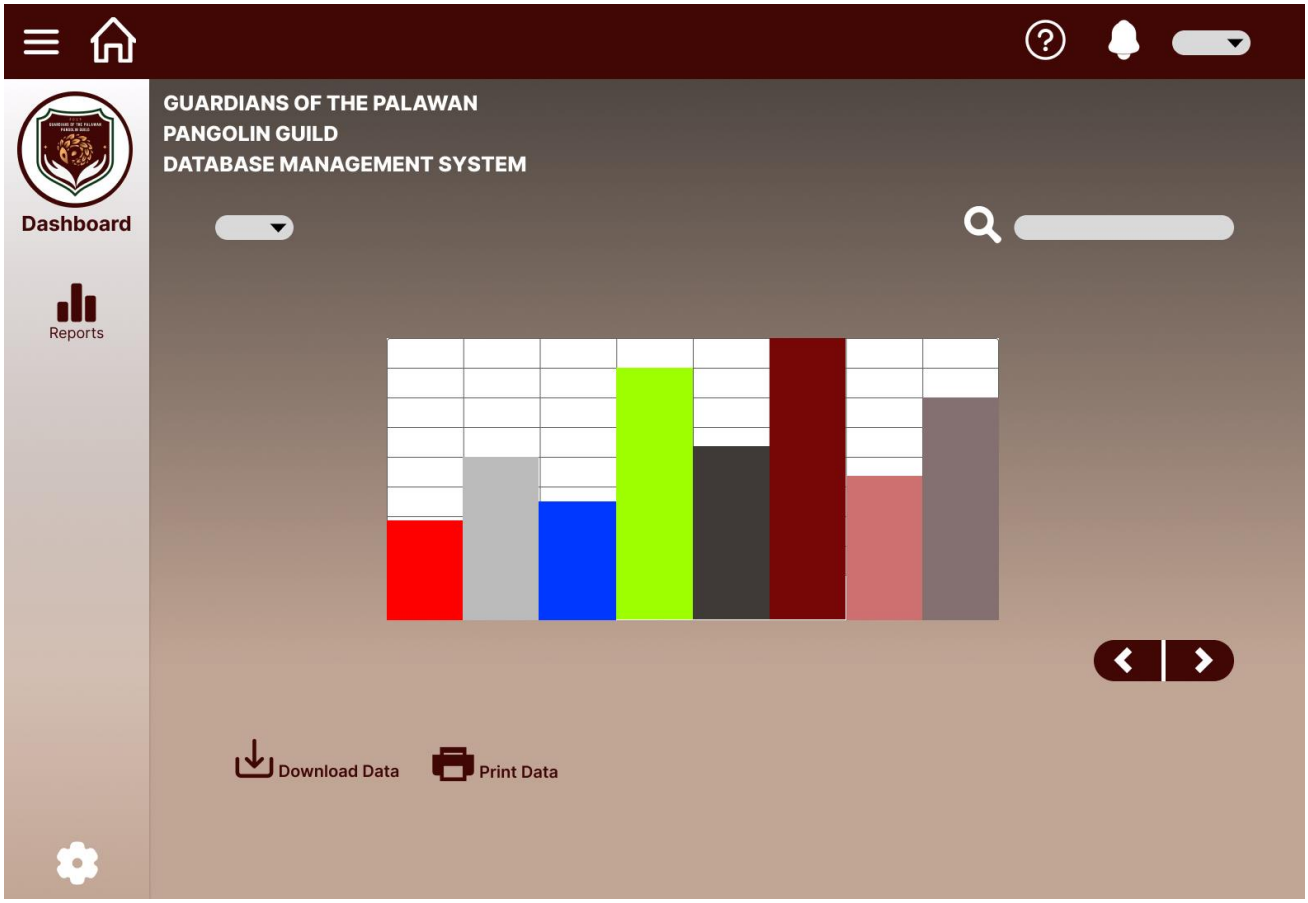
Initially, users will be required to log in to the database system, ensuring secure access to its comprehensive functionalities. This login mechanism safeguards sensitive data from unauthorized access.



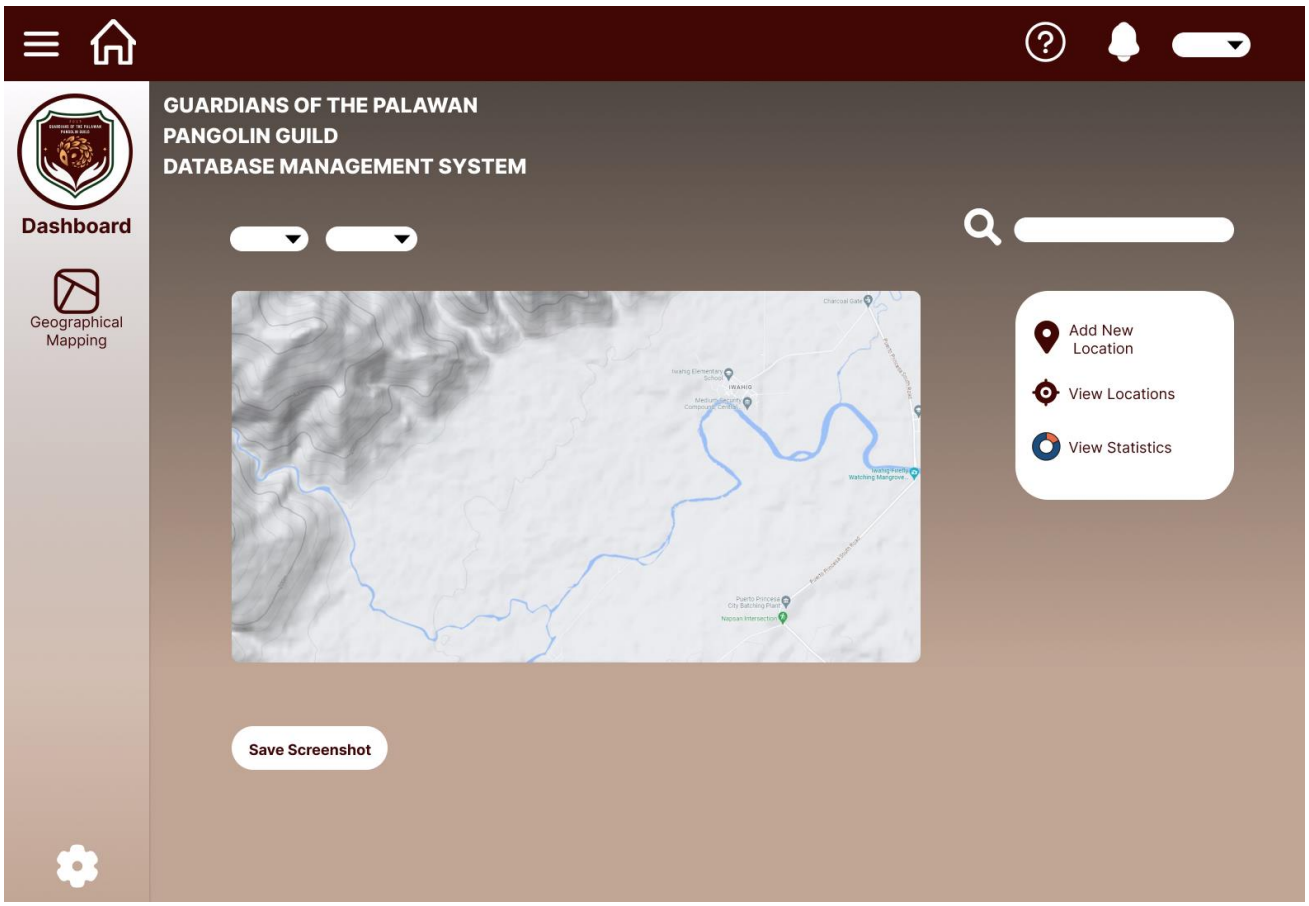
Upon log in, the user is sent to the homepage where they have access to different functionalities of the system. Mainly, the dashboard contains the essential tools for interaction within the system, through it, the users have access to the pangolin database, they can also view different reports based on pangolin data, and they can access the geographical map which allows them to view certain locations of the pangolin's habitat as well as view statistics based on pangolin habitat status. Furthermore, the navigation bar gives the quick access and navigation throughout the system, It also has the help icon which guides, giving them more context on how to navigate as well as use the different functionalities of the system, they can also view notifications where they can view the updates done to the system's data. The combo box can be used to sign out of the system.



Upon clicking the database icon in the dashboard, the user will be sent to the database page of the system, where they can access different queries relating to pangolin data. In addition, they can also filter out results with the combo box, as well as narrow down results using the search functionality of the database page, they can also navigate to a new spreadsheet if ever the results are in great quantities. Moreover, users can also add new records, update existing records, and delete redundant or insignificant data. Users can also download the data from the tables, this will be downloaded as a .csv file, and they can also choose to print the data from the table for reporting.



Upon clicking the reports icon in the dashboard, the user will be sent to the reports page of the system, where they have access different reports based on pangolin data from the database. Results and data can be filtered out using the combo box at the top of the charts, users can also customize how the data is displayed. Users can utilize the search functionality to look for specific results, they can also navigate to a chart or graph using the forward and backwards button. Moreover, users can also download the data from the tables, and they can also choose to print the data from the table.



Upon clicking the geographical mapping icon in the dashboard, the user will have access to the geographical mapping section of the system. In this section, they have access to different geographical data mostly relating to pangolin habitat. As evident to the previous functionalities, the information displayed can be filtered out using the combo box at the top of the map. Users can utilize the search functionality to look for specific regions or locations in map, they can also add new locations, view current locations, and view statistics with regards to pangolin habitat data. Moreover, users can also save a screenshot of the geographical map data for reporting purposes. Once users are done, they can sign out using the combo box at the top left of the page, they have access to this no matter what page they are currently in.

Part II

Comments/Suggestions

Upon reaching out to the members of the Guardians of Palawan Pangolin Guild about the initial design of the system, its functionalities, and interactive elements, they were quite satisfied with the outcome of the initial prototype, most especially the UI design and the color choices that were used in building the crucial functionalities ang pages of the database system. Although satisfied with the initial looks, they also look forward to seeing more improvements for the system both in the UI design as well as the functionalities of the database system, for the interaction and navigation they also suggest making it user-friendly, so that they could initiate a smooth transition to the database management system, allowing them to use the system efficiently.

Results/Conclusions

To sum up this case study we have illustrated the development of the Palawan Pangolin Conservation Database System. Our project aimed to create a user-friendly platform to enhance conservation efforts and raise awareness about the endangered Palawan Pangolin. The critical success metrics for this project were primarily based on user feedback and satisfaction. We ensure that the database system suited the needs of the user in terms of UI design, functionality, and ease of navigation. The feedback mechanisms were put in place to promote user engagement and continuous improvement of the database system. Our key learnings revolved around the importance of understanding the needs of our user personas, such as Gab, Cris, and Francine who played pivotal roles in guiding the system's development.

We also acknowledge the value of a collaborative, user-centered approach in designing solutions to real-world conservation challenges. The database system is more than a tool, it is a bridge between our members, field workers, and the pangolins they strive to protect. The next step for this project involves refining the prototype, ensuring that it fully aligns with our users' needs and requirements. Continuous testing, feedback mechanisms, and optimization is critical for the system's success. Ultimately, the goal of this project is to make a definite impact on Palawan Pangolin conservation, using technology to support efforts in the conservation of Palawan’s Biodiversity.

As a lesson, this project has reinforced the importance of a holistic approach to conservation, one that combines data collection, education, and community engagement. It is a journey that reminds us that technology, when harnessed for the greater good, can drive positive change and bring us closer to our objectives. The lessons learned in this project will undoubtedly shape our future initiatives and contribute to our career development in terms of creating technology-driven solutions.