Waterfowl Travel: Team Iteration 0 Report

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Prepared by the students of CSC 4610 – Fall 2024

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Under the direction of

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Stories Identified:

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- [R] Defined concept with customer
    - After discussions with Dr. Cohen, the website should be a heatmap prediction for where waterfowl are projected to migrate to over a ten-day period. The map should be able to be zoomed in on, moved around, show where ducks are leaving, depict their expected landings, not reveal specific locations of waterfowl, and contain toggles for variables that impact migration (such as snow, precipitation, tailwinds, etc.) The website will feature no sign in page or saved user data and will also have an option to sign up for newsletters/updates.
- [D] Completed Team Charter
    - Overall, the team charter went well and was completed by all of us at once rather than delegating sections to specific individuals. When creating the charter, we started with the social contract and used that to build procedures for how to deal with conflict within the group; additionally, it helped to set a basis for how we would like to run the project as a whole. This structure included scheduling, communication, high level decisions within the project, and what to do in the event that one person falls short or is struggling with their workload. After we got the basics for the charter down, we started to designate more specific roles. We did fall short of our standard, however. We delegated roles to where everyone was responsible for a majority of tasks, with just a few being assigned a spot where they specialized. In retrospect, this specialization route would have been preferable over our generalized approach. We then transitioned into outlining our values for the team and finished with ways for us to keep up to date on everyone's task, along with figuring out exact meeting times throughout the week. Overall, the charter was successful with all of us coming to a common understanding of what we wanted out the project and expected of one another.
- [K] Defined Story Backlog
    - In order to determine what aspects of our app were necessary we created user stories that would detail exactly what features went into the app. This process started with the group coming up with ideas for what the project would look like and jotting down quick notes on each aspect of it. After getting broad strokes of the design, they were turned into specific statements by theoretical users on how they would use these features. Once those were written the team went around deciding how much time each of the tasks would take. Next, we presented these to our costumer Dr. Cohen to see what he agreed with and what we needed to change. Finally, after consulting with Dr. Cohen we whittled down the unnecessary user stories and had our complete list. Using this list, we were able to chart a release plan that would implement all the user stories in a structured manner so that they could build off on another.
- [R] Outlined variables influencing prediction algorithm

    - In order to predict estimations of migration paths and landings for waterfowl, an algorithm must be developed that accounts for any variable that can impact when a duck decides to migrate, how long its trip will be before landing, and where it will decide to land. Primary factors affecting migration include temperature, snowfall depth, snowfall duration, barometric pressure, tailwinds, headwinds, precipitation, metabolic costs, food availability, etc. These variables were defined based off research papers in a process defined below.
- [R] Caught up on research papers
    - Dr. Cohen provided approximately sixty pages of research on ducks and waterfowl so that we could be more informed on duck behavior to make more accurate estimates of migration. The research was subdivided to where each group member was responsible for taking notes and presenting roughly 10-13 pages of research. This presentation allowed for context on waterfowl behavior to be more digestible and manageable across the team.
- [R] Learned how to use Wix to create website mockup
    - Wix was selected to create the project's mockup website due to roughly familiarity across developers and ease of group access. The mockup was beneficial in finding common ground between developers and clients, visualizing the various demands and understanding how they can be properly incorporated. Although Wix is somewhat straight-forward, a spike was still necessary so that developers could become familiarized with the functionality of the application and transfer skills from their previous mockup applications.

Plan for next iteration:

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Contributors: Revel Etheridge, Drew Burkhalter, Jacob Sullivan, Kenny Adams, Breanna Woosley, Tania Perdomo Flores

Iteration 1 is the next iteration and now that we have a plan of what we want our app to look like we need to develop our skillsets to create it. Firstly, we were given a collection of research papers for the waterfowl and their migration patterns. This task was given a point value of 13 and split among all the members of the group with each member receiving one paper to read and tasked with explaining it to the other group members. Next was the task of learning to code in Java which was given to all group members to an extent. Some members of the group are less familiar with Java and therefore need to spend more time brushing up on it. For this reason, the point total was put at 13 to account for the members that will need to spend more time with it. Next, we aim to familiarize ourselves with the Movebank repository. This task falls to Jacob who will mainly be pulling the data and if any other member needs access he can instruct them or do it for them, this task was given a point value of 3. Next all the team members were given a spike to familiarize themselves with GitHub. The members of the team were already familiar with GitHub and this task was given a point total of 1. The final spike was an introduction to UI crafting with the hope we can understand how to create a workable UI for the app. This will hopefully allow the members to understand how to make a gui which will use the java code. This is assumed to take a point total of 13.

Retrospective Summary:

Author: Breanna Woosley
Contributors: Revel Etheridge, Drew Burkhalter, Jacob Sullivan, Kenny Adams, Breanna Woosley, Tania Perdomo Flores

What has gone well?
Communication: Between teammates and between team and the client. Communication in terms of being on the same page as a team and scheduling meeting times with the client. Another thing that is going well is the meetings with the client. We are able to have productive meetings and we, as a team, are always learning new things and understanding our clients better with each meeting.
Researching: Waterfowl and climate changes to better understand the needs of the client and the intentions of the project. We feel the research the client provided has been of huge help to us in understanding the features needed and the work that we will need to do to excel in this project.
Understanding Customer Needs: The team demonstrated a strong understanding of the customer's vision for the application, which helped guide our initial planning.
Vision for the Application: We were able to collectively create a clear vision of the app's purpose and goals, aligning our efforts with project value.
Positive Collaboration: Team members collaborated effectively, openly sharing ideas and supporting each other's work.
Feature Development: Brainstorming sessions resulted in creative and valuable feature ideas, enhancing the application's potential.
Project Value Recognition: The team appreciated the project's impact, motivating us to ensure that the application would meet customer expectations.

What could be improved?
Task Delegation: We identified a need for clearer task assignments to ensure each team member has specific responsibilities and avoids overlapping efforts.
Background Knowledge Prioritization: While brainstorming was productive, we realized that dedicating time to study background knowledge on waterfowl migration could improve the accuracy and relevance of our feature ideas.

What questions do you have about the project or process?
Integration of Components: We are still uncertain how all the smaller components of the application will work together as a cohesive system.
Machine Learning Algorithm Selection: The team has questions about which machine learning algorithm will best suit our data and project needs.
Database Size and Structure: We have yet to determine the size and structure of the database required to support this project effectively.
Domain Knowledge Gaps: The team acknowledged that we don't fully understand the specifics of duck migration patterns and are aware of the potential need for external guidance.

What action items (with the responsible party) need to be addressed?
We feel that we need more clarification pertaining to the covariances that the customer has mentioned about the data about the waterfowl. We will need more information on the data file from Movebank in terms of what

each column means specifically, so that we can clean up the data in preparation for the building of the software.

Team Temperature:

Author: Tania Perdomo Flores
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Spider chart along with a description and summary of our team's temperature.

Summary:

After the first iteration of this project, our spider diagram illustrates high scores in most categories. The categories where it was not a high score are Project Progress and Workload. In terms of those, we feel that we have been somewhat slow in comparison to where we feel we should be. Some of us feel that our progress in the project should be further along. However, we do understand that this is simply our first iteration, and there are many things that we are still figuring out, learning about, and working through. In that, we are trying to make good use of our "slow" time and being proactive in ensuring that we do the research necessary and making sure that the small things do not fall through the cracks before we get too busy. On the other hand, Team Communication, Team Collaboration, and Stakeholder Engagement have high scores all around. Our communication and collaboration with each other have been really good in terms of scheduling, assignments, and understanding, especially for this being our first iteration as a team. We are still learning how to work with each other efficiently and be a good team. Our main stakeholder, the client, has been good about communicating and meeting with us once a week. This has helped us in refining our features for this project and ensuring that we are all on the same page in terms of features and user stories. The client has also provided great resources for us to learn through that we feel is making an impact on the excellence that we strive for in this project.

Appendix:

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- Kanban Board and GitHub
  - https://github.com/users/JakeSul1023/projects/1/views/1 (Kanban Board GitHub)
  - https://github.com/JakeSul1023/Team-7_Waterfowl (Repository GitHub)