Open Waters Design Document

Project Name: Open Waters

TNPG: Gone Fishing

Roster: Jady Lei, Ankita Saha, Linda Zheng, Michelle Zhu

TARGET SHIP DATE: 1/17/2024

Program Overview:

Our game will be an ocean themed "choose your own adventure," Oregon-Trail-inspired game. It'll function on a turn-based system where a user must make decisions at different checkpoints within the journey. They will be faced with tasks during in-game days, in which resources (coins, food, etc.) must be managed. There will be a save/load and account mechanic. Games could be loaded based on variables stored under a user in a database table. A maritime weather API will allow for a more unpredictable and interesting twist to the game. The game can be educational too. We plan on using a recipe API to generate related recipes to fish (to make it more entertaining) at the end of the game; which is whenever the player makes it to the TBD end wins the game. If the resources are poorly managed, the ship sinks into the ocean and the player loses.

Program Components:

- Homepage
  - Load Saves or New Game (users can play as many times)
  - Login to access saved games and save games
- Login
  - Needed for users to login so they can access their game, etc.
  - Takes in username and password (sessions)
    - Hash password to the database (SQLite)
    - Requires certain parameters (check user's input for pass w/ if/else statements to verify) to create a password (length, characters, etc.)
    - If the user is not logged in, they should not be able to view anything; the user must be registered first
  - Usernames have to be unique
- Game
  - Using a marine weather api, flavor text(text that does not contribute to gameplay but contributes to the narrative or experience of the game.) is generated for the player who then makes (a) choice(s), increasing the day until the voyage is over and the game is done.
    - For example, if the waves are against them, no progress is made.
  - **Resource Management:** Create functions to track resources (coins, food, crew morale) and update them after player actions or events.

    - **Decision Making:** Implement a system where users can choose from multiple options at checkpoints, and update the game state based on their choices.
    - **Random Events:** Use JavaScript to introduce randomness, such as weather changes or encounters during the journey.
- Map
    - If we can get one to work, an updating map of the ship on its course would be cool. Worst case scenario it can just be a progress bar.
        - Updates when a user saves their progress (goes up to place user was last at)
        - If progress bar, uses locations of the courses to rack progress (if user gets up to a certain location on the map that is closer to the finish, progress bar goes up)
- Leaderboard
    - Ranks voyages by the length user has taken OR time taken for user to get across
        - Ex: The voyage is the same for all users, but if one user took a longer route than others, they are lower on the leaderboard.

APIS:

- Marine Weather API: returns wave height and wave direction to create a more realistic and random weather cycle in the game.
    - Need to make a card for this api. Free daily rate of 10,000 calls.
- Spoonacular: will hopefully be able to return fish related recipes to be shown throughout the game.
- Joke API: We can show a joke that contains relevant words such as ocean or fish at loading points, in the menu, or during a task.
- Fact API: If we dont show a joke, we'll show an education fact related to the location, obstacle, or anything else in the user's journey
- Google Font: Monospace pixel font used for the website.

FEF:

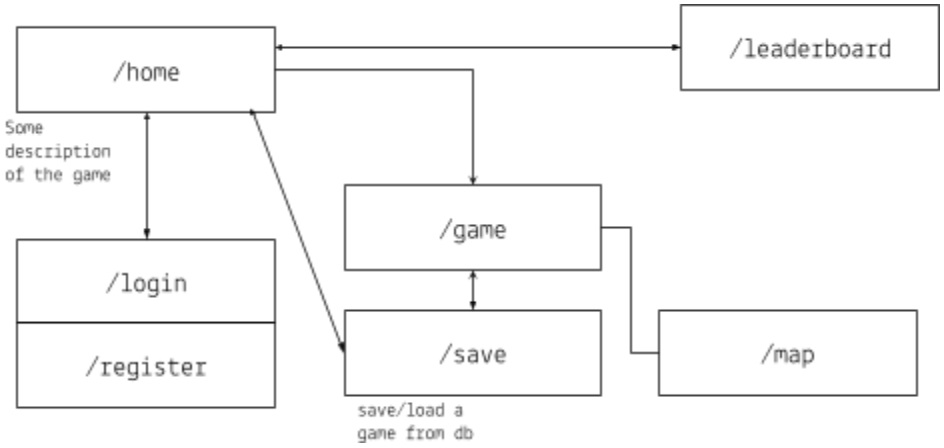
Bootstrap: We decided to use this because it will fit best for our project components, especially those that require specific stylistic changes (color, border, layout, etc.), and is easily understandable.

Database Organization:

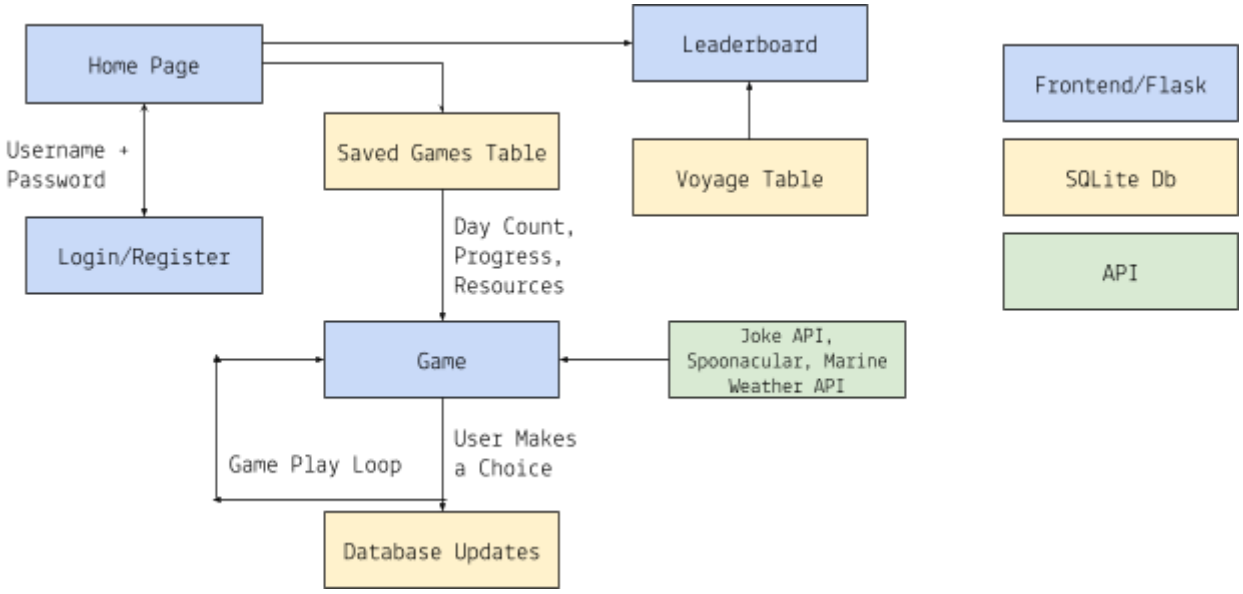
- Users
    - Username - text
    - Password - text
    - Games - int
- Game Saves
    - Username - text
    - Day - int
    - Food - text

    - Money - int
    - Progress - int
    - Crew Mood - text
- CompletedJourneys/Leaderboard
    - Username - text
    - VoyageLength (length of the path user took) - int
    - Time(time user took to travel journey)- int

Site Map:



Component Map:



Task Breakdown:

- Jady - Project Manager & Flask
    - Oversee progress on each component and sets the pace for each component(communicate readily about deadlines, ensure each function, page, etc. is being done in orderly and timely manner)
    - Provides any additional help to any component that requires it.
    - Set up Flask routes and Game loop
- Linda - FEF & API
    - Create functions to access API and save data from API into the databases.
    - Work on incorporating API into frontend, including displaying information from each API into corresponding elements of the game.
- Michelle - FEF & API
    - Create functions to access API and save data from API into the databases.
    - Work on incorporating joke API and fact API into frontend, including displaying information from each API into corresponding elements of the game.
- Ankita - JS & DB
    - Functions for the flask app to access/update the database
        - User Database: helper functions for inputting and accessing usernames and passwords.
        - Game Saves: store game components as user progresses (updateGame())
        - Completed Journeys → lengths complete, leaderboard, updateScore
    - Work on JS animations
        - Interactive elements -> allows user to click options and update game accordingly
        - Progress bar
        - Save/load system