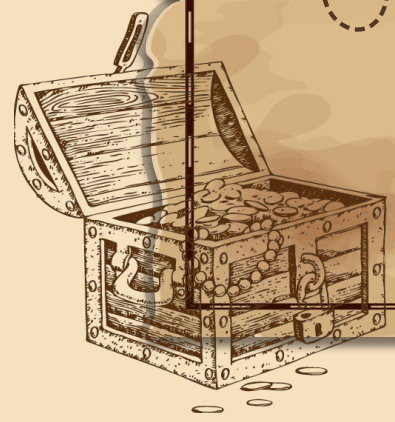


Follow the Clues!

Hannah Thiry's 2026
Spring Capstone



Formal Definition and Requirements:



Overview:

Follow the Clues is a versatile application that will enable a user to follow a sequence of clues, guided by GPS and beacons (a device that emits BLE). Follow the Clues also has an admin application where an admin can create and set up different games for a user to play on the main application.

Requirements Summary:

1. I had to make two applications: Main and Admin
2. The two applications should connect together
3. I had to use GPS and Bluetooth in both applications
4. The user must follow a clue using GPS and Bluetooth and should know when they have found it
5. The game could be played indoors or outdoors





Solutions, Methods, & Limitations:

What is my application made of?

- Bare React Native
- Node.js
- JavaScript

What were my methods?

- Lots of writing and diagramming thoughts on paper
- Research by using Google, Copilot, W3Schools, StackOverflow, GeeksForGeeks
- Lots of conversations with Dr. McVey

Any limitations?

- Yes! GPS and Bluetooth aren't very precise
- GPS, especially in highly cemented buildings is slow
- Design in React Native is quite difficult



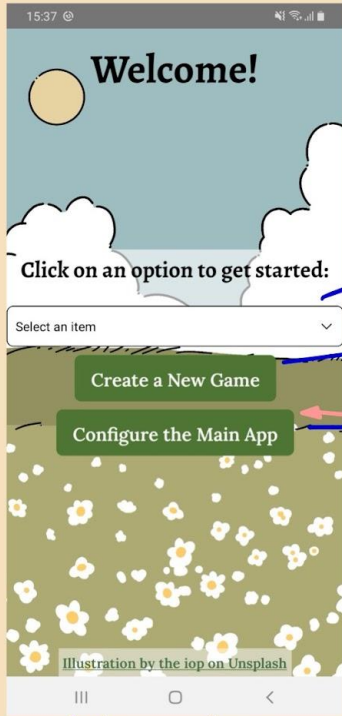
Learning and Development Process

Best Strategies:

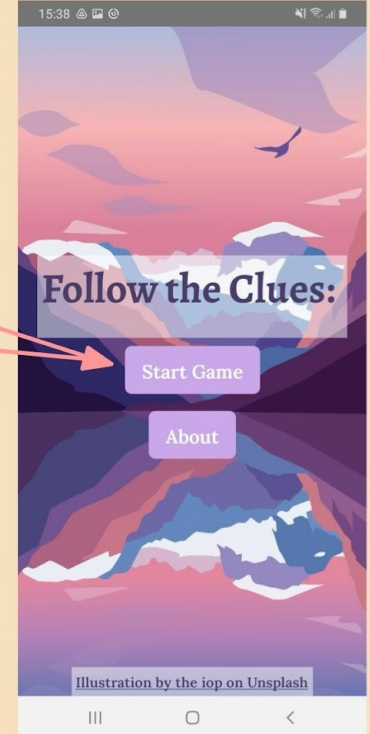
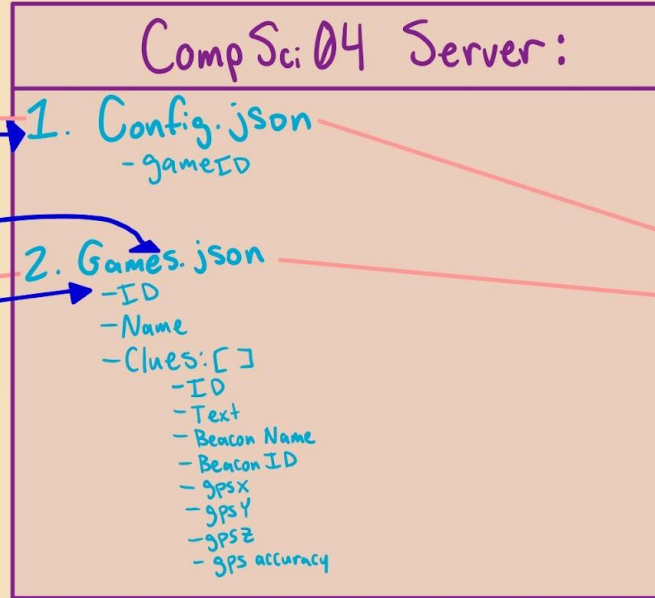
- Researching before doing:
 - Language
 - Process
 - Environment
 - Data Storage
- Breaking the project down into small steps that are manageable
 - Scanning and connecting to one beacon
 - Going from one clue to the next
 - Calculate distance to beacon from where user is
 - Re-design the app
 - Calculate distance using weighted average instead of straight average to revise the time it takes to update.
 - Get user's current GPS location
 - Calculate the distance from a clue using GPS
- Focus on one application and work on the next when needed



Schematic of the Apps

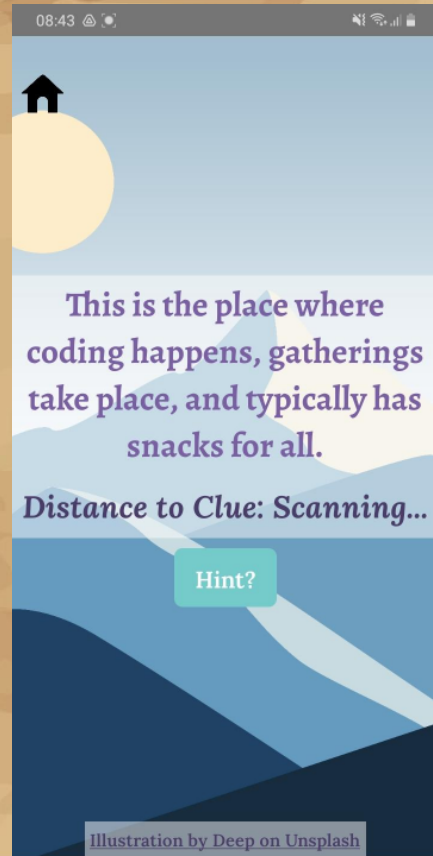
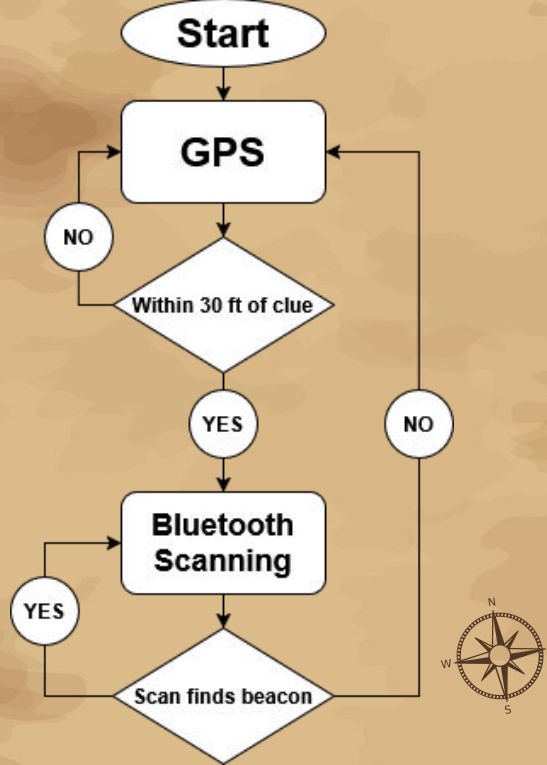


Admin App



Main App

Flow of App:



Enhancements:



What could be added or improved upon?

- A timer to make it more of a race against the clock type game
- Leaderboard for user's to compete against each other
- Adjustments to main app from admin app
 - Bluetooth measurements (outside vs inside, measured power of the BLE object)
 - How many feet does the user need to get within to go to the next clue?
 - How many feet to start scanning for BLE object?
- Adding a UI Map with pins using GPS coordinates from clues. Displays for an admin where the clue was placed.

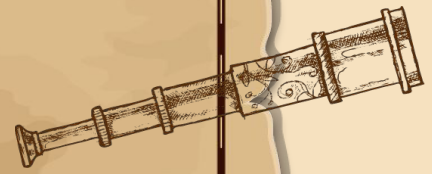




Demo

Let's test these applications out!

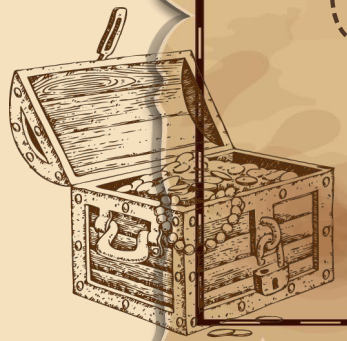


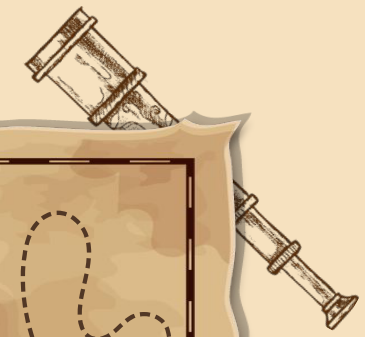


Thank you!

Especially to Dr. McVey!

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Questions?

