



Way Finder Requirement Documentation 2025-2026

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Overview

Motivation and General Design Notes

The Wayfinder team was founded in 2024 when Dr. Kris Schindler, the co-director of the Undergraduate Studies at UB's Computer Science and Engineering (CSE) department, became involved with Erin Rowley, the Head of the Science and Engineering Library Services of Lockwood Library. The 2024-2025 team had developed a device that allows the user to locate their live location in Lockwood Library via Bluetooth signals that are emitted from chips that are placed across the library. The following document describes the continued design of the device developed by the 2025-2026 team, where we will describe the outline of the device that is tailored for individuals who first came to Lockwood Library and have a need to navigate to certain spaces in the library.

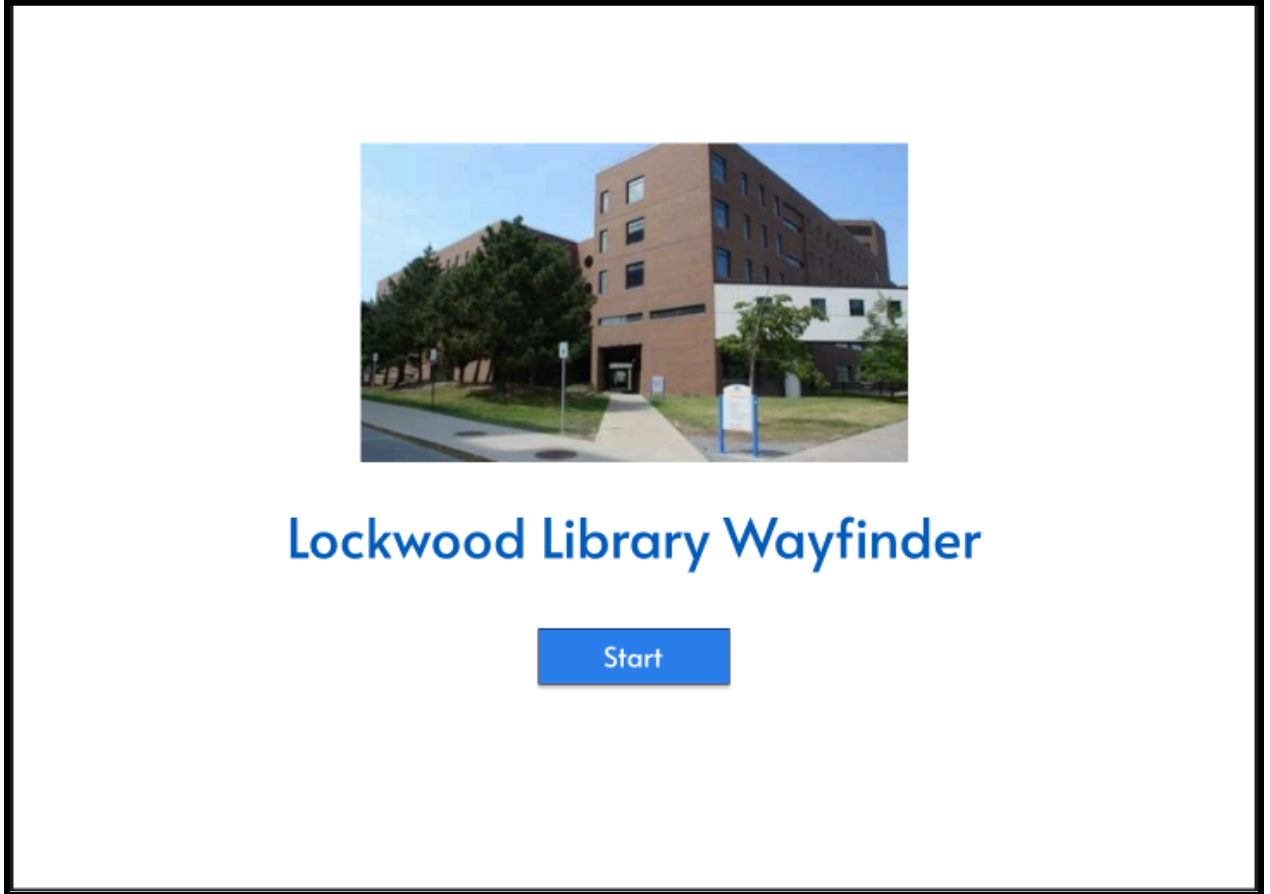
General Design Considerations

The Wayfinder project is addressing the issue of navigating around UB's Lockwood Memorial Library. For many first time visitors, the general layout of the library tends to be confusing and they may have issues with getting to their intended destination. So our solution will mainly be to help guide them. As per the client's request, we will be building a web application to help with navigation.

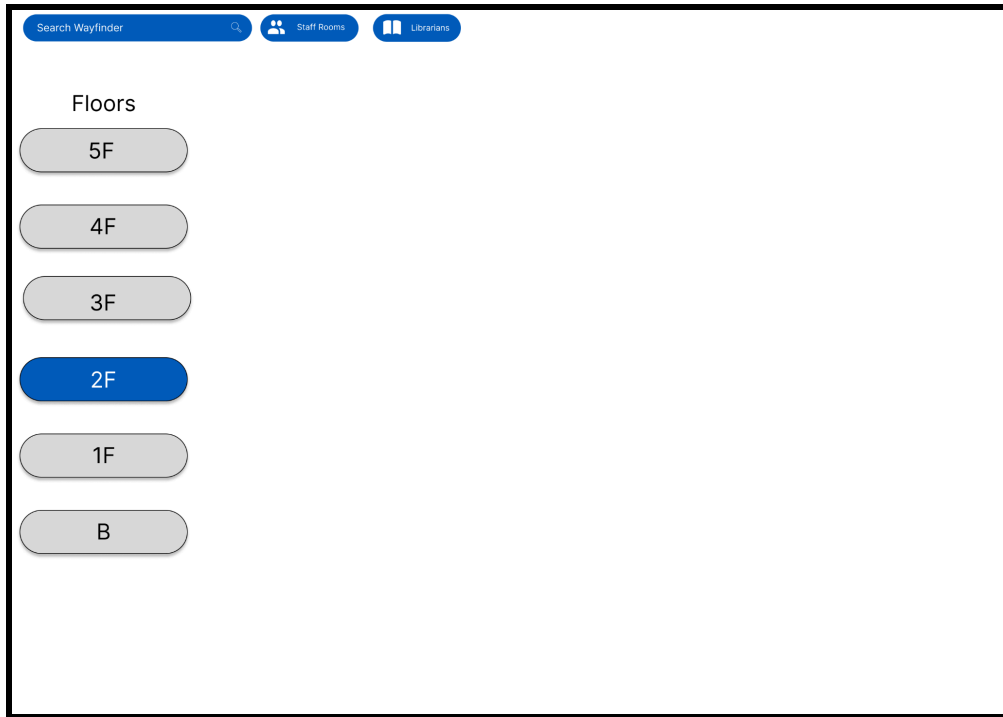
In each floor we will have stations that are interactive. At each station, it will show the user where they currently are in the library on a map. The map will be interactive and there will be buttons on the left hand side of the page that can be pressed on to view other floors in the library. The station by default should be set to the current floor. To get to where they want to go, they can search up the room number, or look up a librarian, and the screen will then show directions to get to the destination. A QR Code will also appear on screen that the user can scan to view the directions on their phone.

Device Instruction

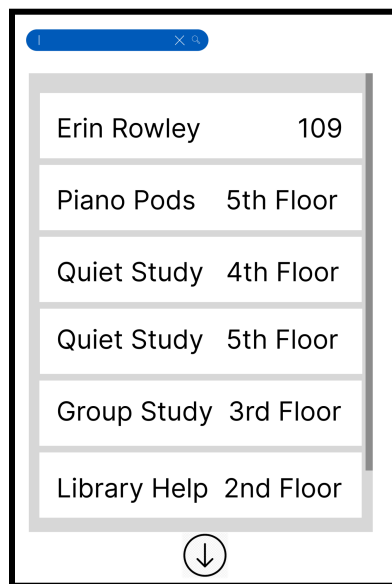
1. At the home page, the user should see the following screen:



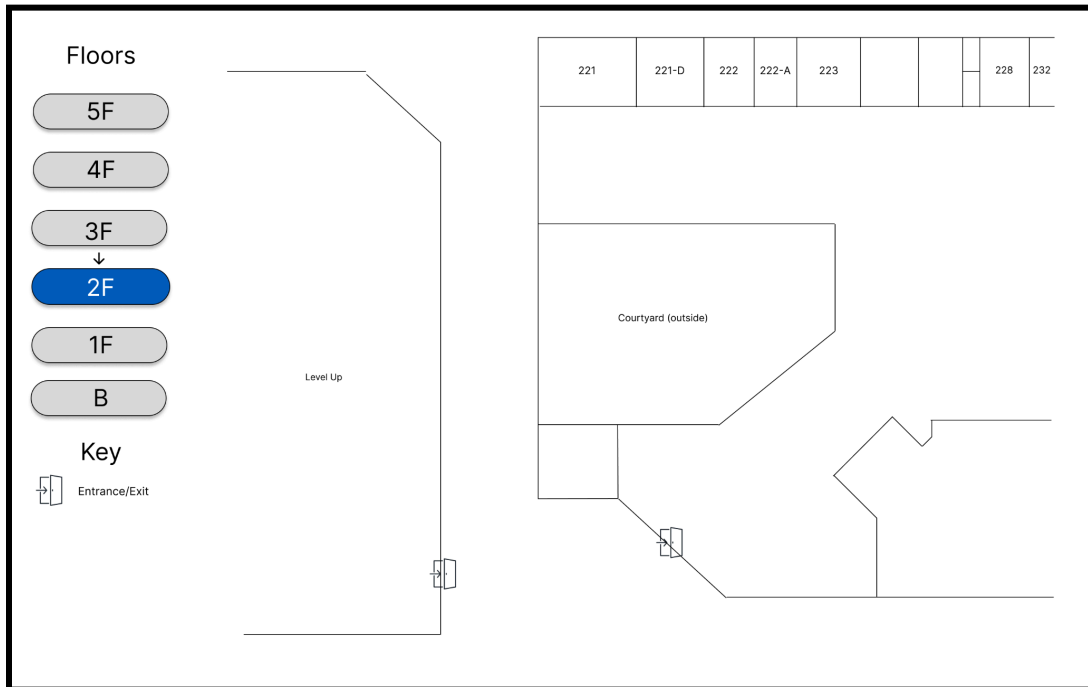
2. Click on "Start" to go to the Navigation Page:



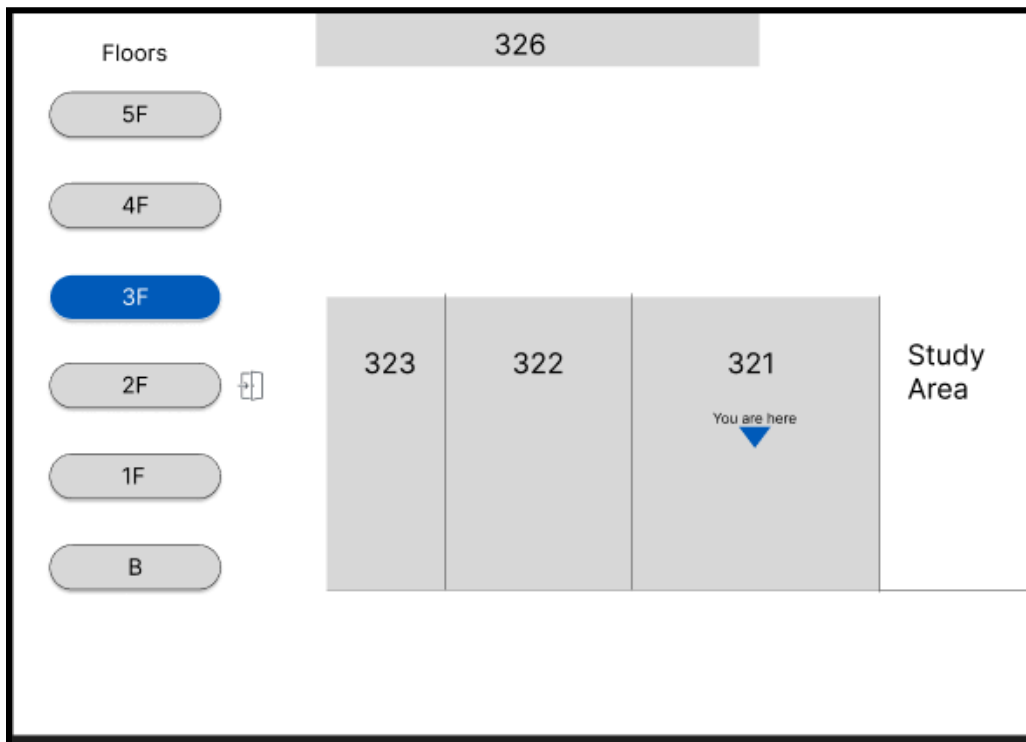
2a) To search for specific rooms in the library, click on the search bar that is located on the top left corner of the screen, which should show you the following autofill options:



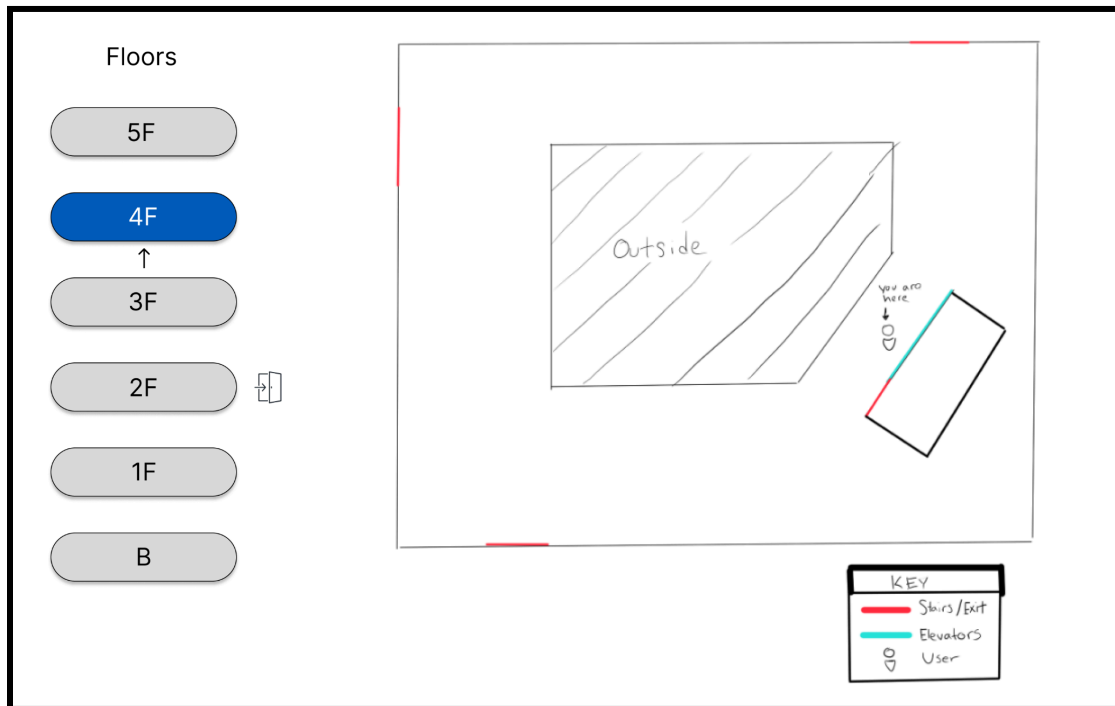
2b) If the user wishes to see the layout of the second floor, click on the button that says: “2F” on the left side of the screen. It will show the following map:



2c) If the user wishes to see the layout of the third floor, click on the button that says: “3F” on the left side of the screen. It will show the following map:



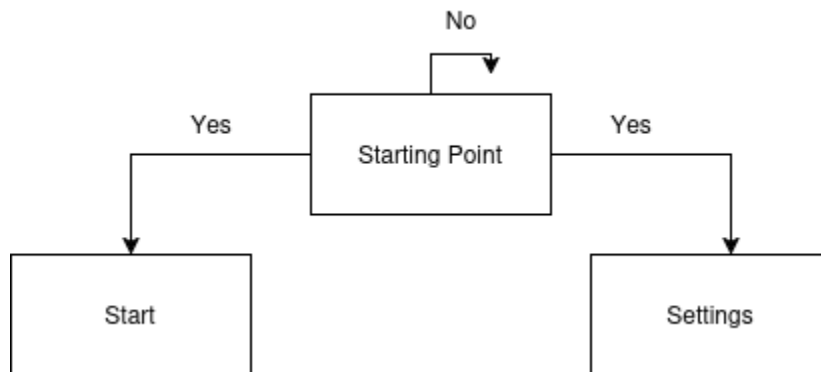
2d) If the user wishes to see the layout of the fourth floor, click on the button that says: “4F” on the left side of the screen. It will show the following map:



UI High-Level Overview

Home Page

The Starting point of the station, press start to navigate to the navigation page and settings will be for the staff.



Navigation Page

The Navigation page serves as the starting point for our user, they can search for the destination they want to go to in the library. Search rooms and filter by librarians or people who work in the library.

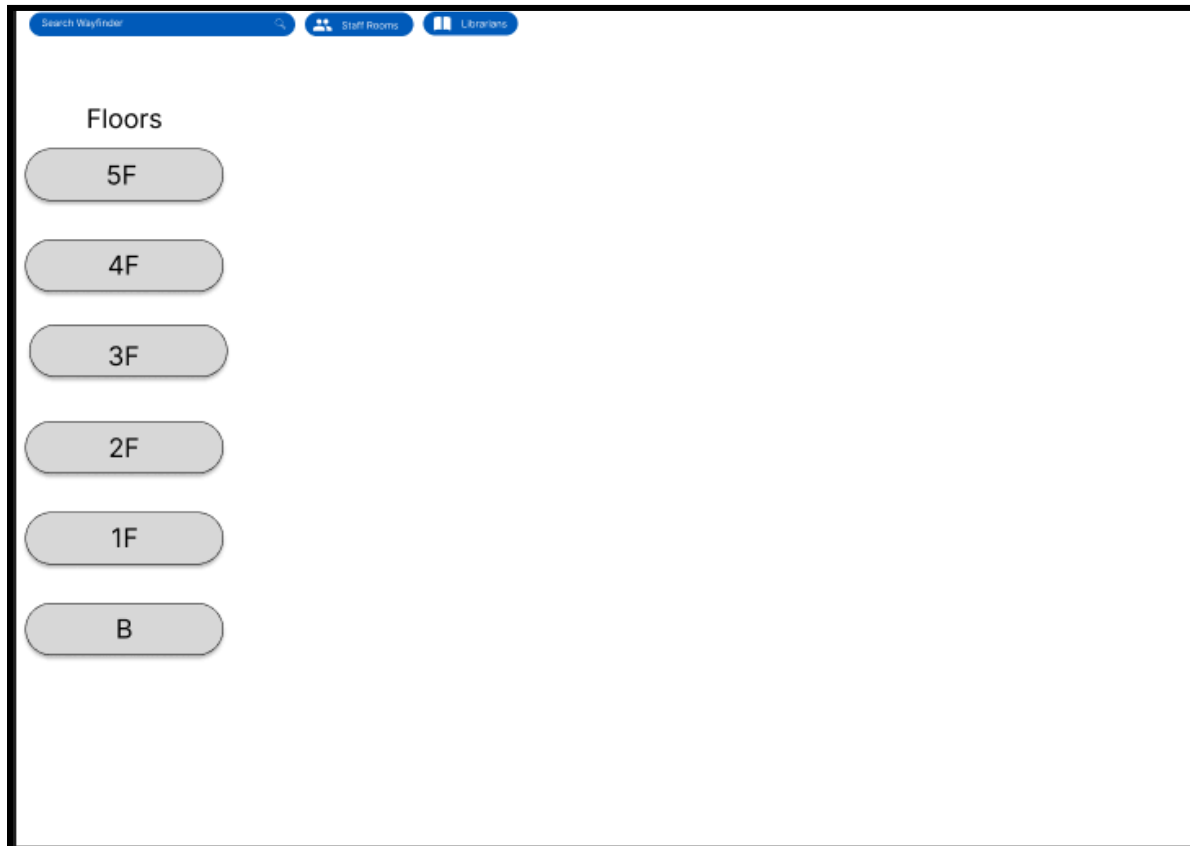


Figure 3: Navigation Page Example

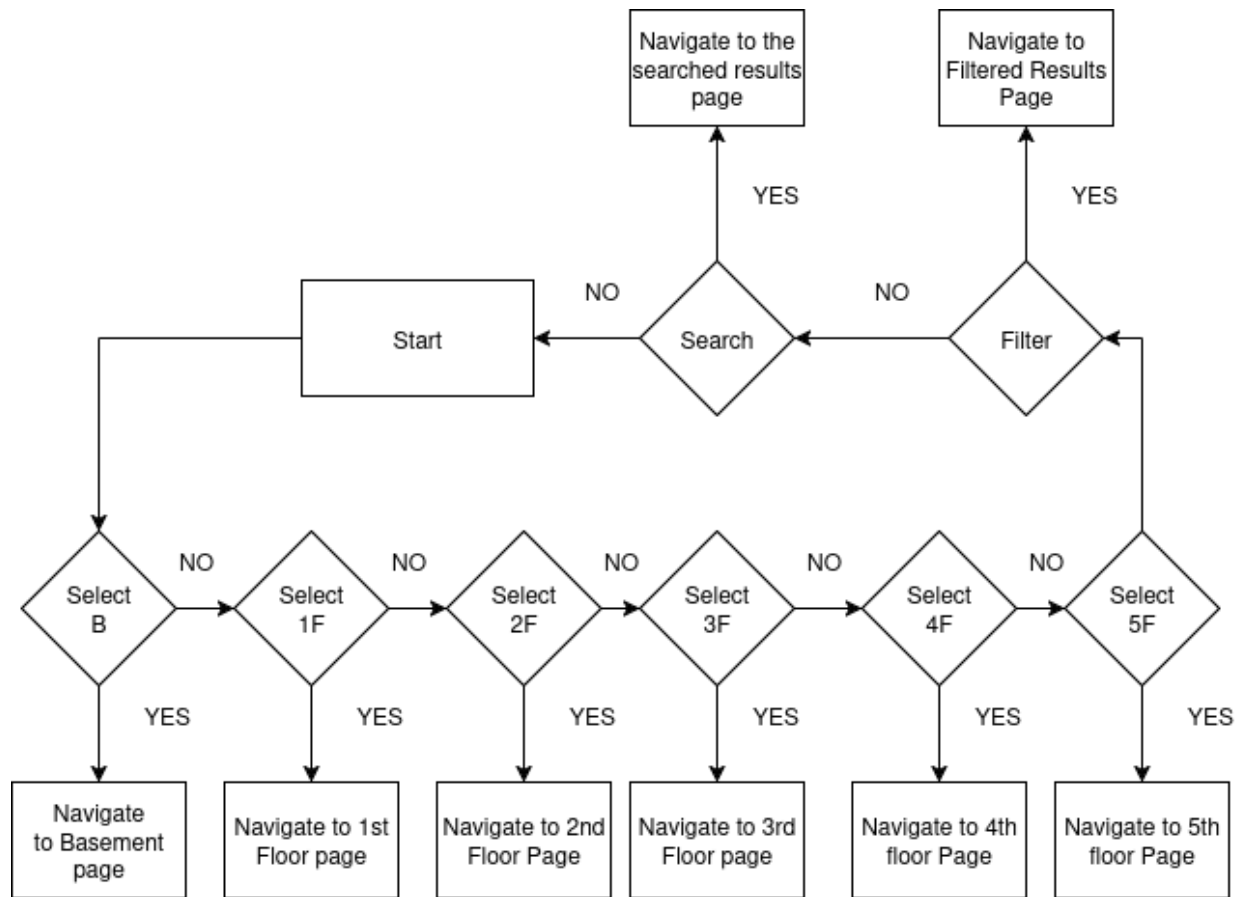
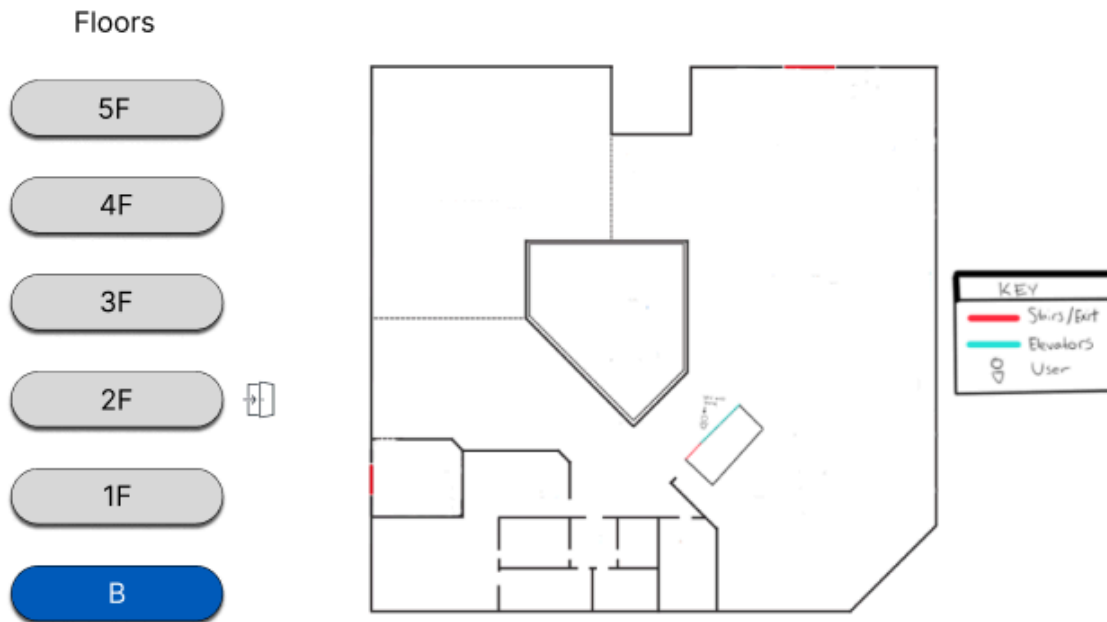


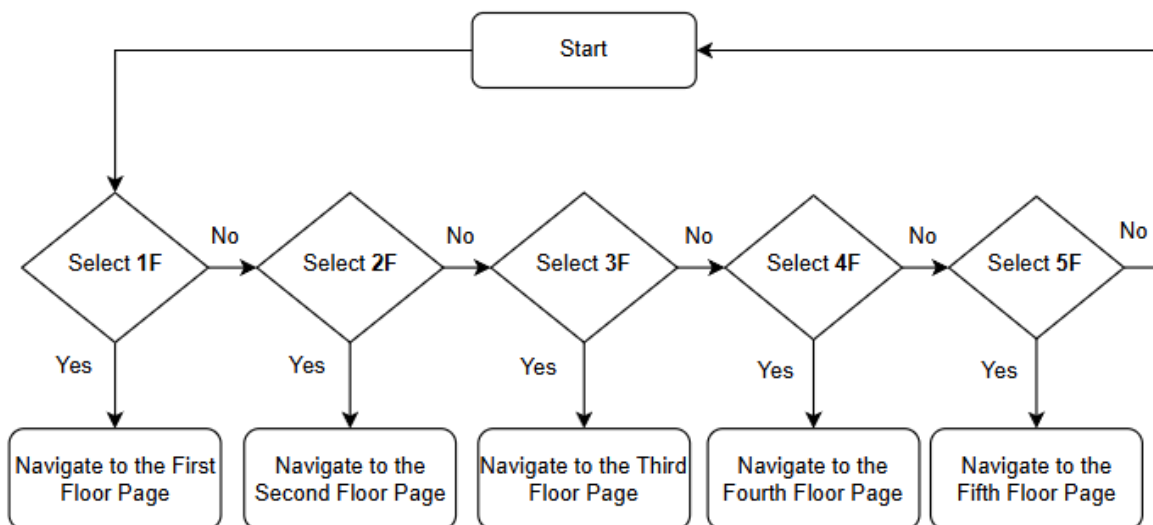
Figure 4: Navigation Page flowsheet

Basement Floor Page

The basement floor page serves as a study area.. The floor is labeled blue to let users know they are on the basement floor. The figure below shows an example map that shows the accessible part of the basement floor.

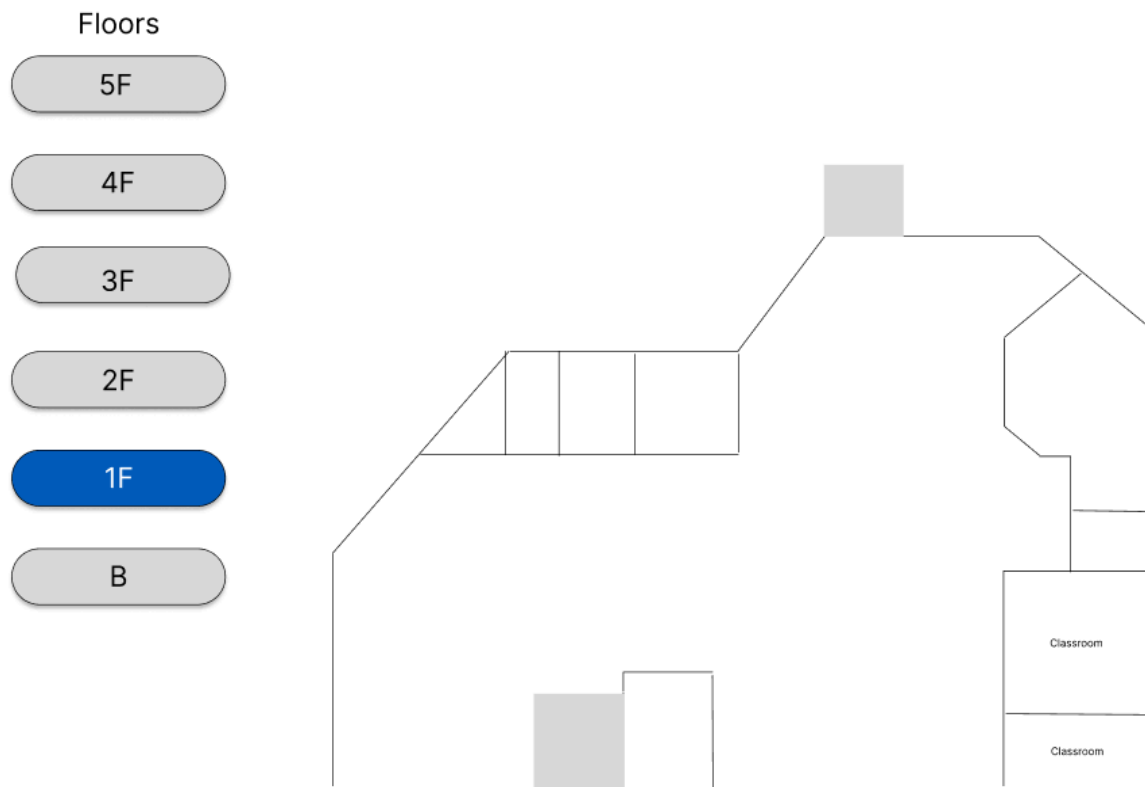


Basement Floor Page Flowchart

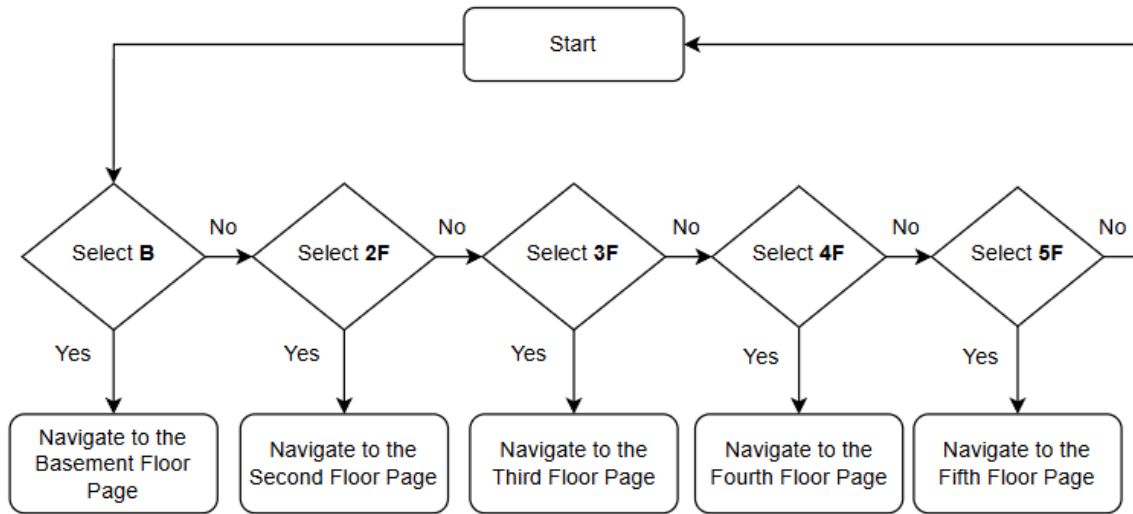


First Floor Page

The first floor page serves as a study area as well as some office rooms for the librarians. The floor is labeled blue to let users know they are on the first floor. The figure below shows an example map that shows the accessible part of the first floor because most of it is inaccessible to the public.



1st Floor Page Flowchart



Second Floor Page

The second floor page serves as the entry point to the library. The floor is labeled blue to let users know they are on the second floor. There is also an exit symbol next to it to mark that this floor is where the entrance/exit is located. Figure 5 below shows an example map with symbols that show key locations such as the stairs and exit.

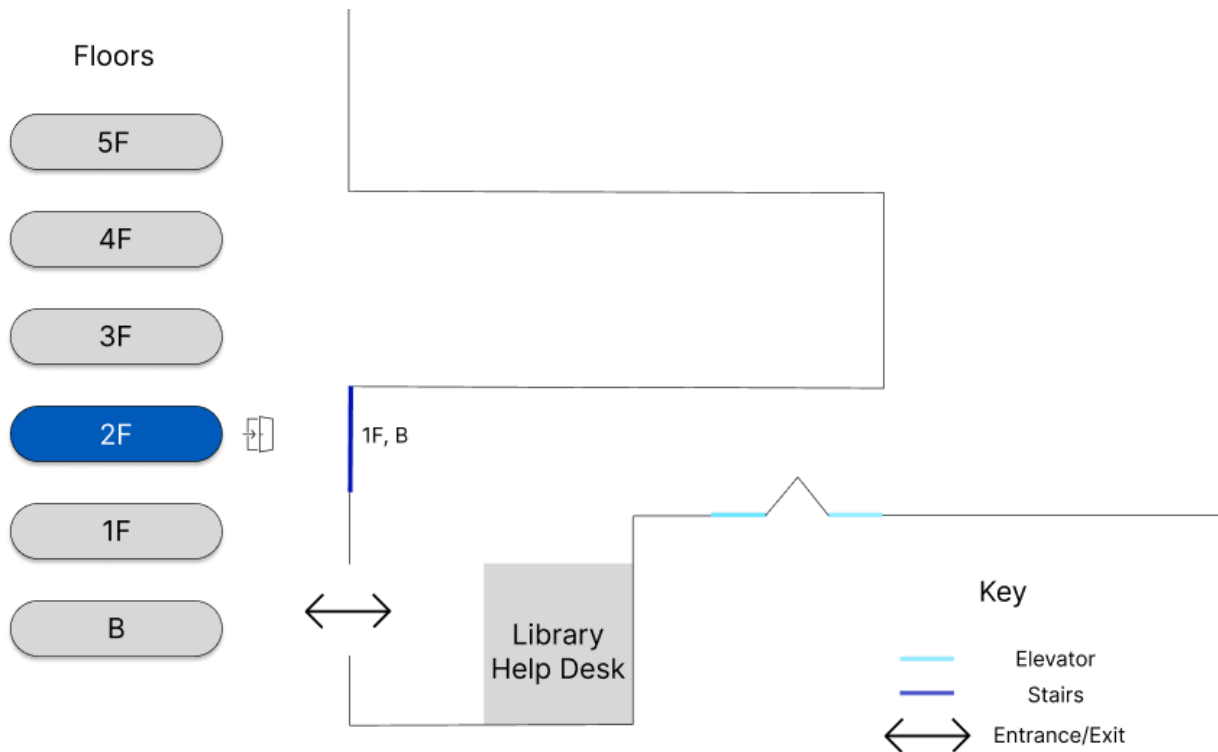


Figure 5: Second Floor Page Example Map

2nd Floor Page Flowchart

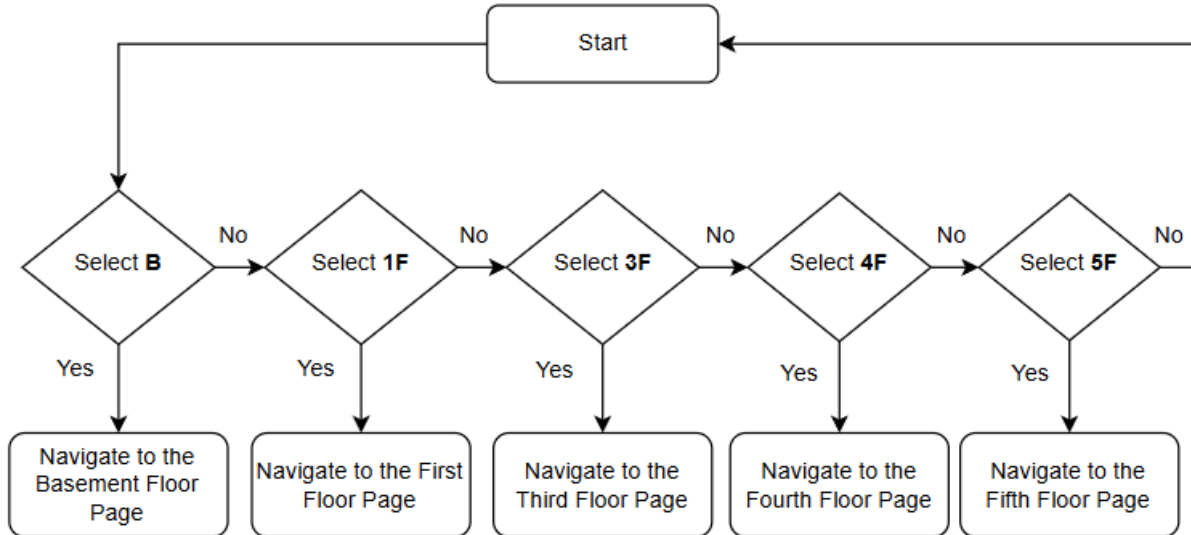


Figure 6: Second Floor Page Flowchart

Third Floor Page

The third floor page serves as a study area as well as a few classrooms and offices. The floor is labeled blue to let users know they are on the third floor. Figure 7 below shows an example map with classroom numbers located.

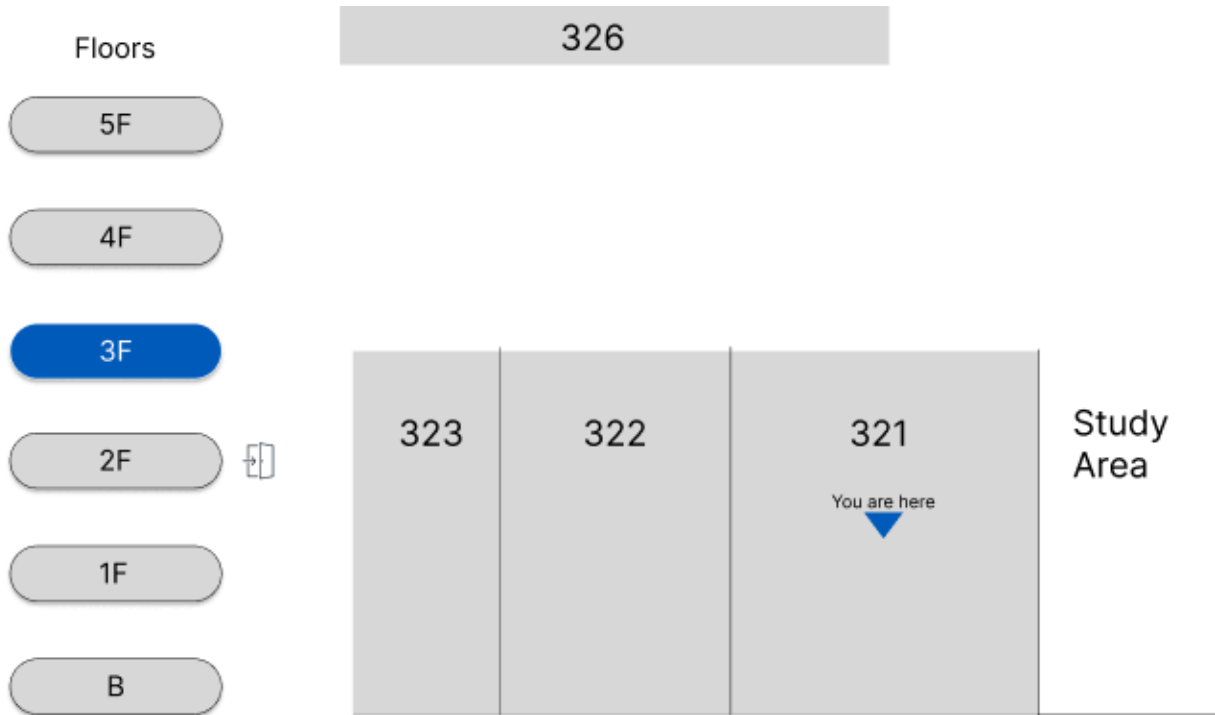


Figure 7: Third Floor Page Example Map

3rd Floor Page Flowchart

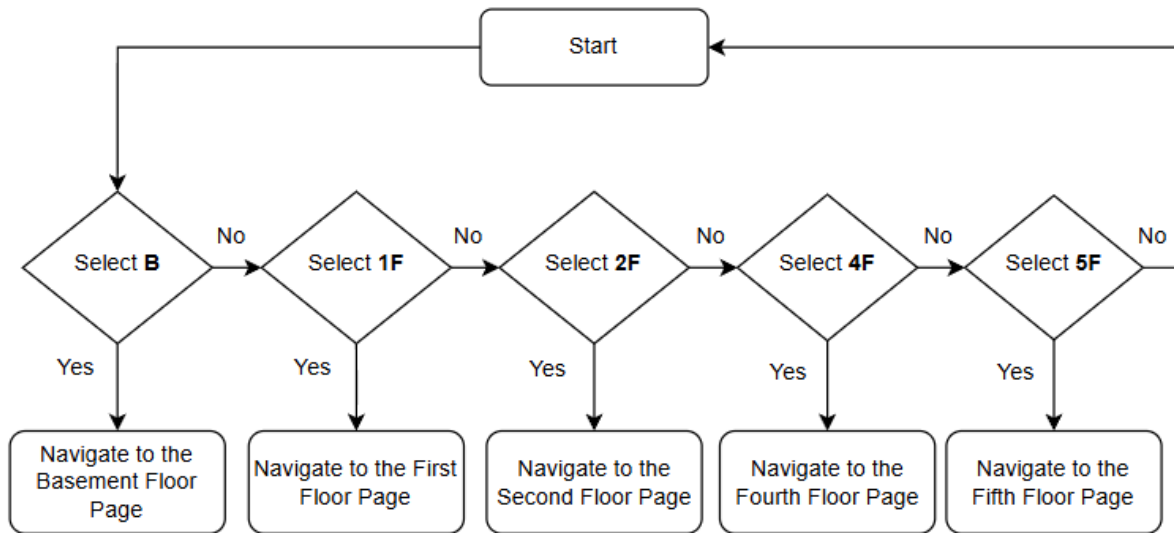


Figure 8: Third Floor Page Flowchart

Fourth Floor Page

The fourth floor page serves as a quiet study area as well as a few classrooms and offices. The floor is labeled blue to let users know they are on the fourth floor. Figure 9 below shows an example map showcasing the layout of the floor.

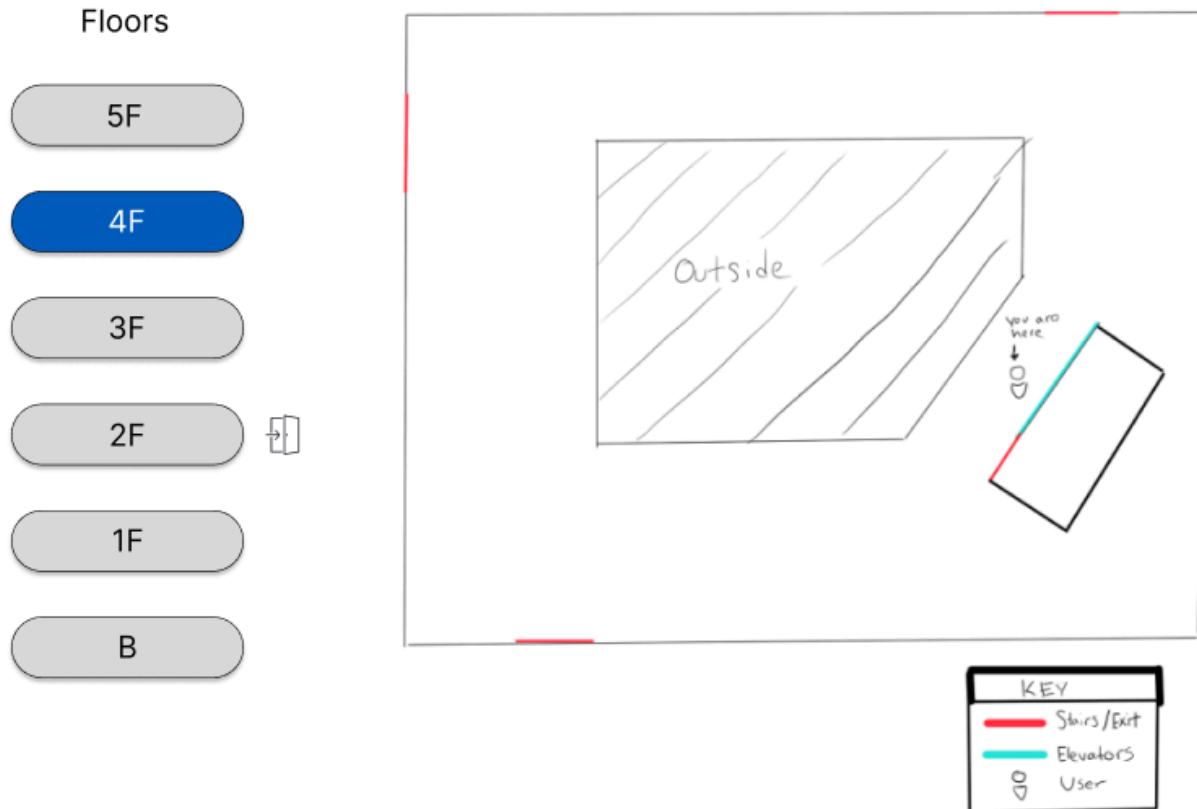


Figure 9: Fourth Floor Page Example Map

4th Floor Page Flowchart

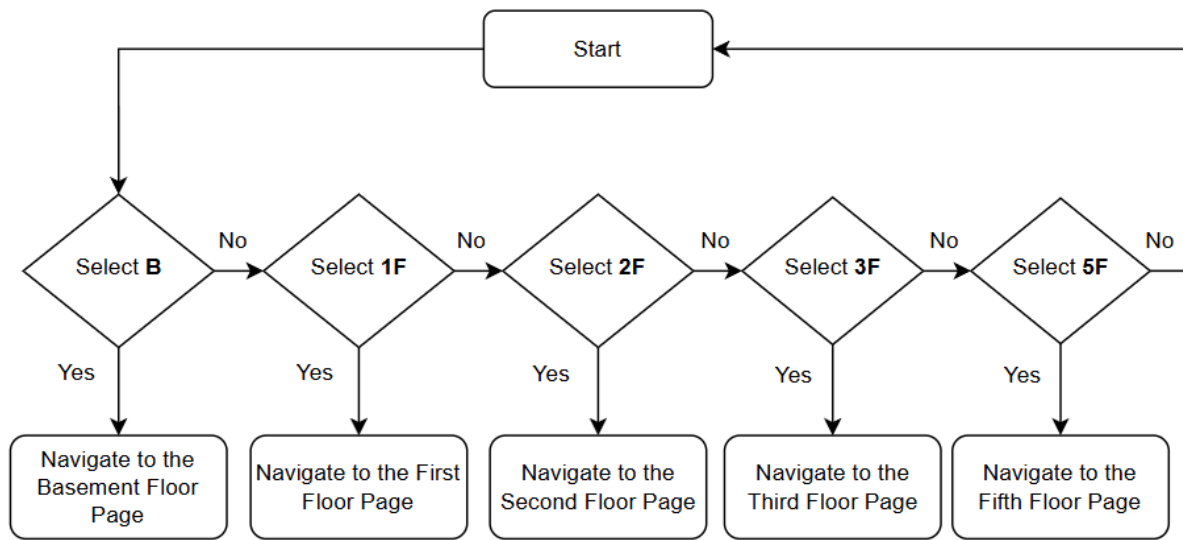
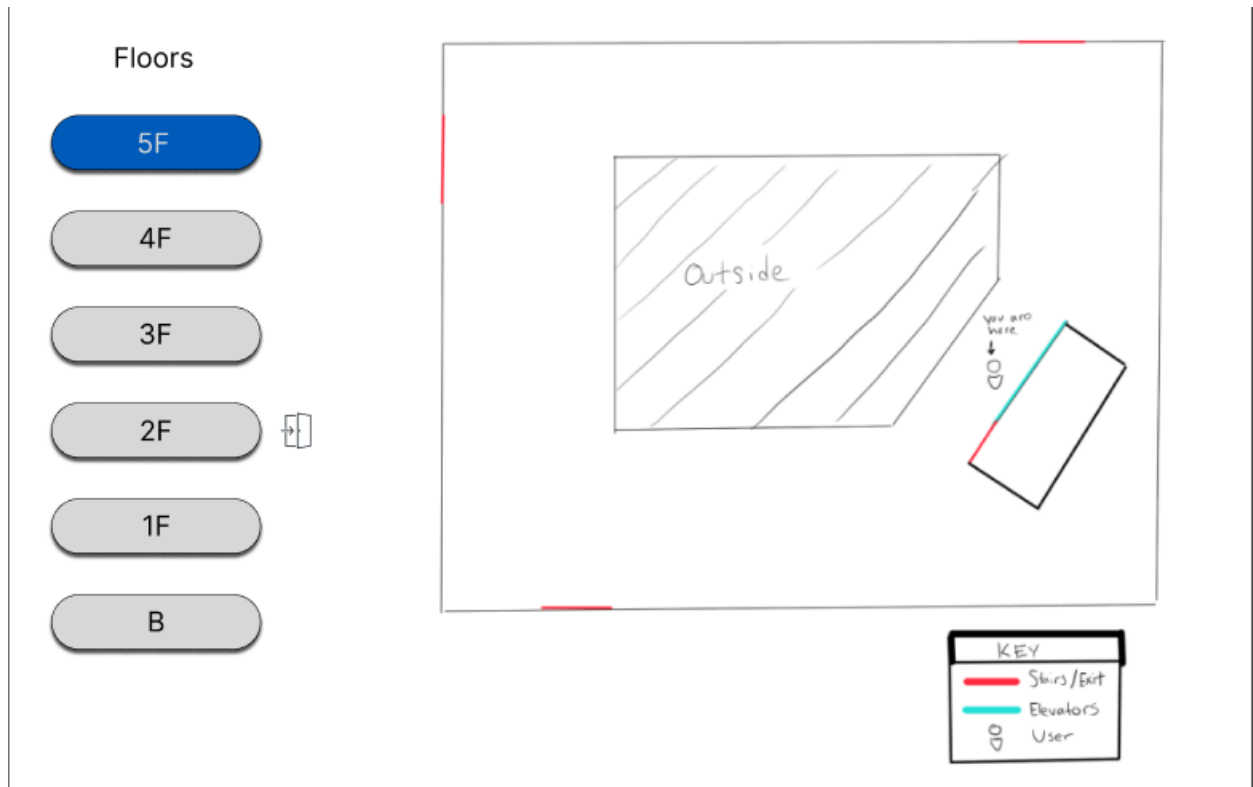


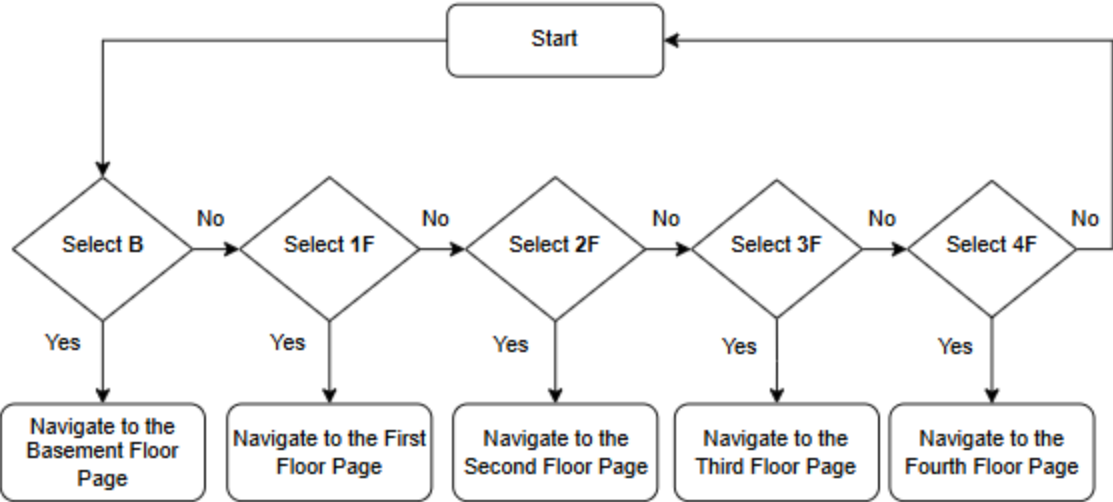
Figure 10: Fourth Floor Page Flowchart

Fifth Floor Page

The fifth floor page serves as a quiet study area as well as a few classrooms and offices. There are also a few piano pods for students that request them. The floor is labeled blue to let users know they are on the fifth floor. The figure below shows an example map showcasing the layout of the floor.



5th Floor Page Flowchart



Sketch of Podium

Construction

Bill of Materials

Item	Model	Purpose	Qty	Purchase Link	Status
Raspberry Pi	Raspberry pi 4 Model B	The hardware to run the stations	7	https://www.raspberrypi.com/products/raspberry-pi-4-model-b/	Pending
Touch Screen	10 inch ips lcd touch screen display panel 1024x600 Capacitive screen hdmi monitor for raspberry pi by Hoysond store	The touch screen display for the stations	7	https://tinyurl.com/2szwzepj	Pending

Raspberry pi power supply	65w USB-C Power Supply	Powering the Raspberry Pi	7	https://www.amazon.com/Charger-Thinkpad-Chromebook-Computer-Adapter/dp/B0C2CGBSZT?sr=8-14	Pending
HDMI to Micro HDMI Adapter		Allows raspberry PI to display to LCD touchscreen	7	https://tinyurl.com/3wmcrym3	Pending

Going Forward

Client's Expectations

The device is created for any user who is either new or unfamiliar with navigating Lockwood Library. The stationary tablet will be set by the Lockwood Library front desk, which any user can interact with and use the reception desk as a default starting point. These tablets will be available on every floor for users to use. Users are not expected to carry the stationary tablet to navigate the library, so a QR Code will be provided for the user to keep track of the list of directions that the user needs to get to.