

Study Spot Finder for ASU libraries

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★ The problem

- ★ The Arizona State University Tempe campus has nearly 60k students enrolled (Fall 2023) and only two libraries (Hayden and Noble)
- ★ Students struggle to find a study spot that meets their needs such as access to an outlet, noise level, or number of chairs
- ★ Students spend more time looking for a study spot or moving buildings rather than actually studying
- ★ **This problem is interesting to me because I am a college student at ASU who likes to study in the campus libraries. I'm always looking for ways to increase efficiency in my life so I can spend my time doing the things I love like hobbies instead of school work.**

History and current solution

- ★ Hayden library
 - Built in 1966
 - ASU's oldest and biggest library
- ★ Noble library
 - Built in 1983
 - ASU's science and engineering library
 - Open 24 hours Monday-Thursday
- ★ Current software solution
 - Reserving study and music rooms online up to 7 days in advance



<https://tours.asu.edu/tempe/noble-science-and-engineering-library>

Future Potential and Applications

★ Future potential

- Creating a software that allows students to know exactly which study spots are available without physically searching for them

★ Real-world applications

- Students can maximize time by minimizing the time spent searching for an open table
- Prevents overcrowding in libraries. Students can avoid unnecessary trips to the library. Moreover, all students inside the library will have a table to sit at
- Decreases some carbon emissions as students won't make unnecessary trips to the library via car

Solution Design Proposal



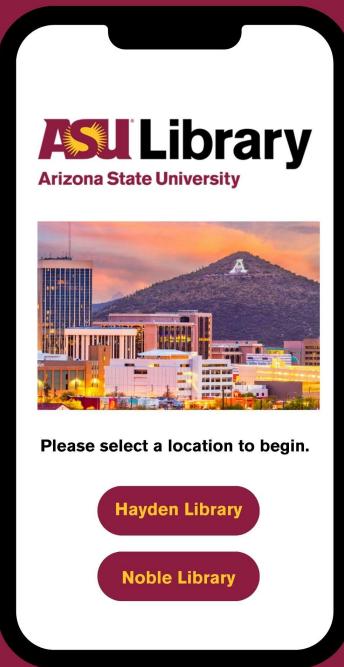
- ★ Mobile app design. Could be integrated into the ASU app
- ★ Features:
 - Scans QR code on a table to check in
 - Users can report how many seats are being used and if other people can sit at the table
 - Scans a QR code on a table to check out
 - Allows students to enter attributes of their preferred study spot
 - Attributes: noise level, number of seats, access to outlet, temperature (inside or outside), location (Noble or Hayden)

Design Approach

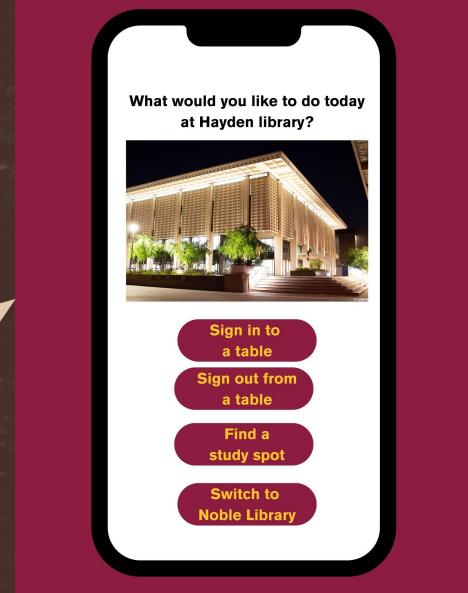
- ★ Mobile app design to be easily accessible
- ★ Key features were turned into design choices
 - User friendly
 - Quick process to log in/out and to find a table

Key Feature	Design Choices
User friendly	Limited text, back buttons, Intuitive wording, standard texts/fonts/colors
Quick interface	QR codes, limited amount of Screens, dropdowns, buttons

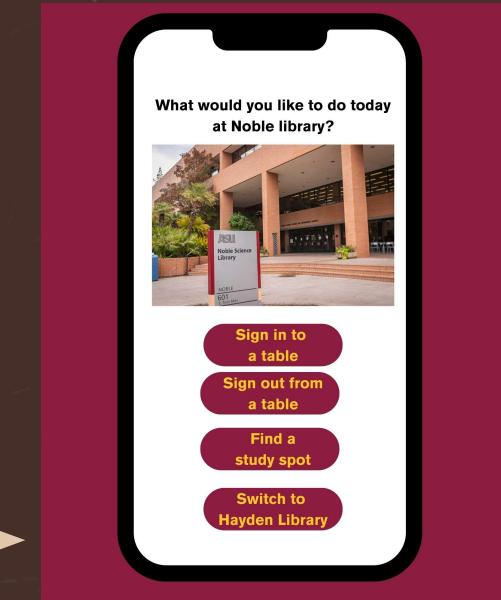
Mock-ups: Menus



Main menu of app

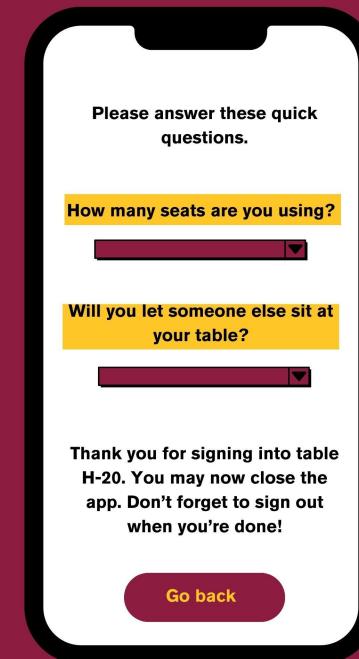
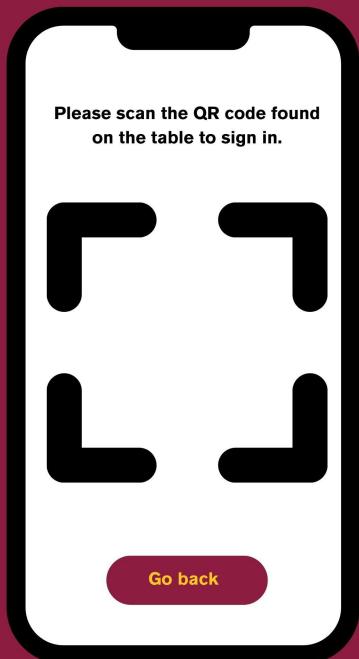


Hayden Library
main selection

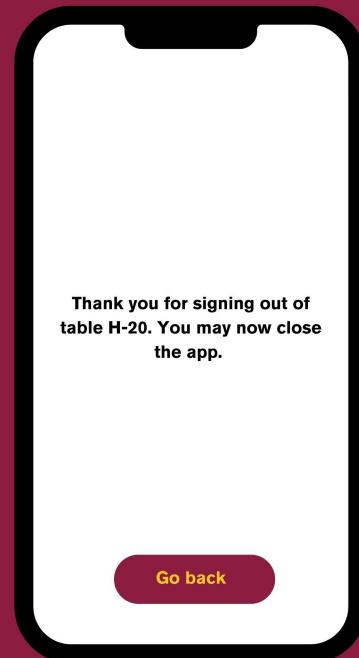
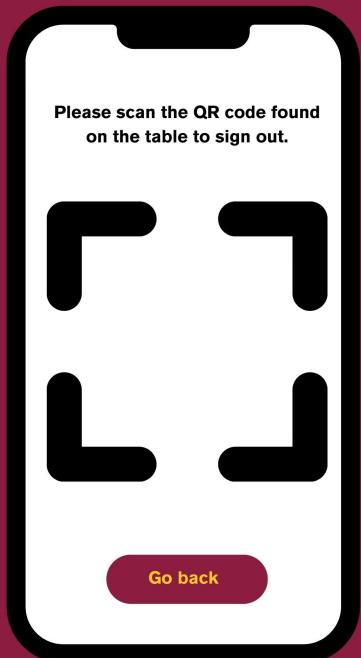


Noble Library main
selection

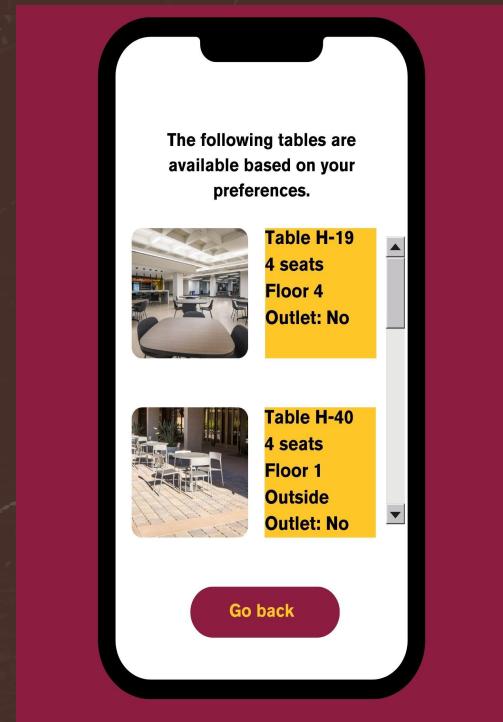
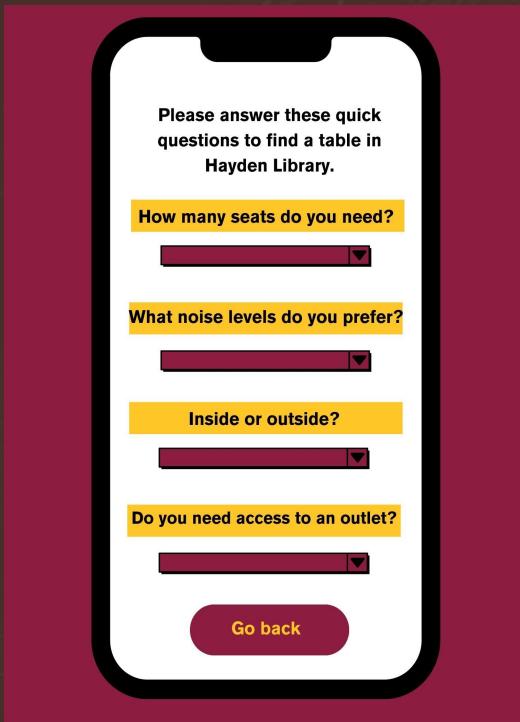
Mock-ups: Signing In



Mock-ups: Signing Out



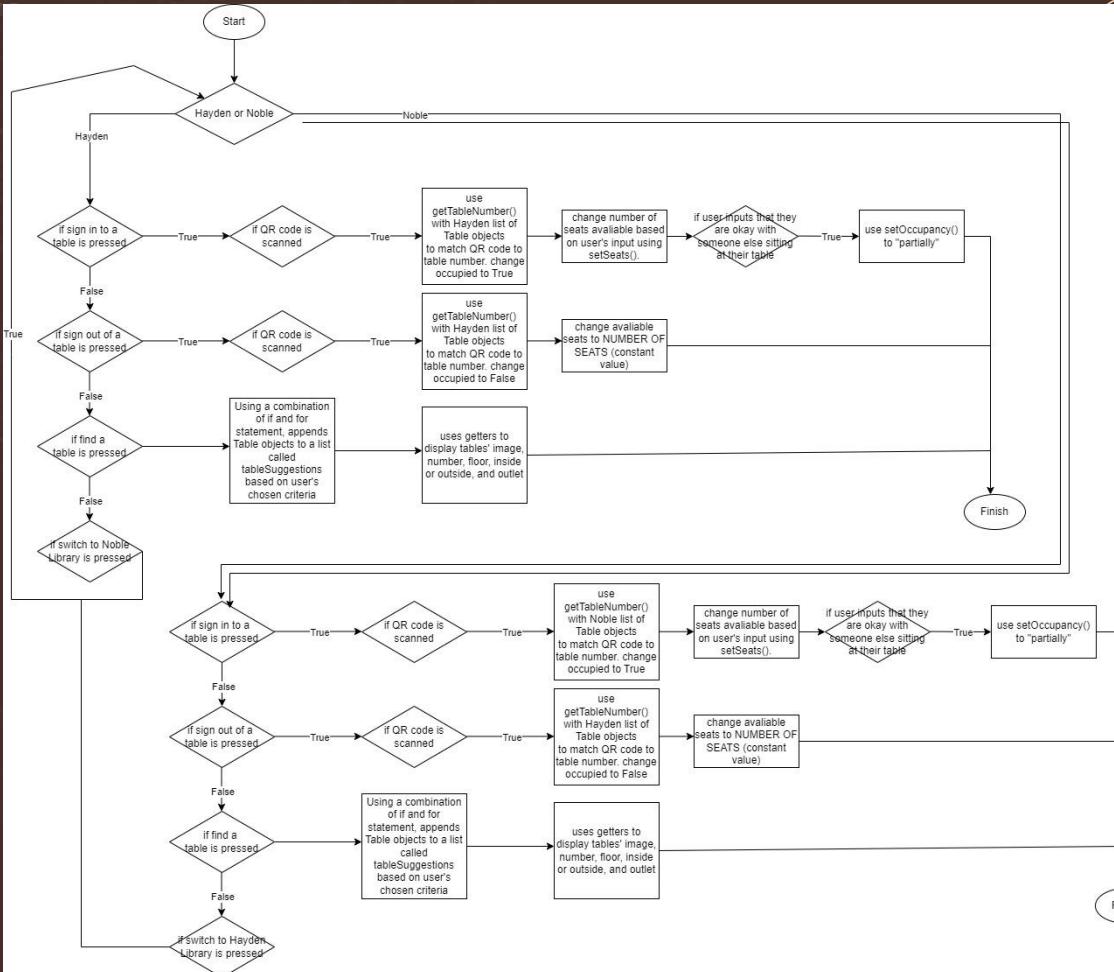
Mock-ups: Finding a Table



Pseudocode

- ★ Create a Table class
- ★ Use init to create attributes for a Table object:
 - Occupied (yes or no or partially)
 - Table number
 - NUMBER OF SEATS (constant)
 - Number of seats available
 - Noise level (Silent, quiet, or talking)
 - Location (inside or outside)
 - Access to an outlet (yes or no)
 - Location (Noble or Hayden)
 - Image URL
- ★ Create a table object for each table in both libraries
- ★ Create two lists of objects: one for Noble, one for Hayden
- ★ Creates a new list for all available table options

Flow Chart



Open Questions

- ★ Question 1: Will students interact with a program like this?
- ★ Question 2: How much would it cost to create a program like this?
- ★ What surprised me? I was surprised that ASU did not already have a solution to this problem because it has a very large student population.
- ★ What do I want to know more about? What is the process for software development for a large public university?

Citations

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