Lydia Clarke

Thesis Outline

McMurry Housing System

Introduction

Over my past three years at McMurry, I have lived in on campus housing each year. Each year, I have gone through the process to sign up for housing. I have noticed that pertinent information and the forms to apply are sent campus-wide through email. When I need to submit a form, I either hand deliver it or print it out then scan it to my computer to email it back. When I need to put in a maintenance request, I send an email. When I have questions regarding housing, I send an email. When I want to read about the steps to apply for housing, I dig through my inbox to find in it an email. While this process may get the job done, I feel like there could be a more efficient way of doing so. What if McMurry students could access all forms, submit maintenance requests, ask questions, and find info about housing all in one place? On campus housing is a big deal for some students, and the housing staff work hard to meet students' needs the best they can. Don't they deserve their own software specifically dedicated to them?

Purpose

I will use the practices of design thinking, and my programming knowledge to create a software intended for students living on campus, and the housing staff. I want to show how design thinking can be integrated into computer science in order to create effective technological solutions.

Process

I wanted to approach the beginning of this project from a design thinking standpoint. The design thinking process is made up of 5 stages, each stage being essential in understanding the users of my design. Over my summer internship, IBM went in depth and had my fellow interns and I practice the techniques that go into the 5 stages. These 5 stages are:

1. Empathize

   - This stage is focused on emphasizing with the user and putting oneself in their shoes to understand the needs of the user from their perspective.

2. Define

   - In this stage, a designer would focus on their definition of the user and start to draft what is called "problem statements" to specify a user's main problem. Personas can also be created in this stage to keep the user's needs in a human perspective.

3. Ideate

   - The ideation stage is mainly focused on brainstorming potential solutions formed around the problem statements.

4. Prototype

   - The prototyping stage is focused on creating inexpensive mockups of what the product could look like and exploring if the features are effective or not.

5. Test

   - In the testing stage, the prototypes are tested by a user group. With the feedback given, the prototype is either updated, or the designer returns to the previous stages to conduct more research or reexamine different solutions.

Goals

Before going into the 5 stages of design thinking. I set some goals for myself that I wish to achieve through this project.

Project Goals:

- Sign up process is more organized and efficient
- Staff can have forms automatically organized for them

- Students can find roommates with similar interests or habits

- Students have a clear understanding of forms

Personal Goals

- Learn the aspects of creating an application

- Learn more about managing databases

- Understand the role of design thinking and how that will strengthen my skills as a programmer

- Learn coding techniques for creating a database

Stage 1-Empathize

Starting off this project, I needed to understand my intended users and put myself in their perspective. The first thing I did, was create an assumptions and questions board. The purpose of this was to have a clear picture of my understanding of the problem space and to identify any unanswered questions I had about the project. I came up with the following:

Assumptions:

- Forms through email or on paper are not as efficient

- Students find the current system confusing

- Forms get lost or misplaced

- Database management would help organize student information and allow for an easier sign up process

- An online application would benefit students and staff

- Staff would be able to access student information quickly

Questions:

- How do students feel about the current sign up process?

- How does staff feel about the current sign up process?

- What forms are required every year to sign up?

- What could make signing up and filling out forms easier?

- Would an online application system improve the overall housing experience?

- When do students receive their ID number?

- When do students receive their student email?

- Would students be interested in an application that matched them with potential roommates?

Potential Features

To begin my user research, I drafted a list of potential features to implement into my application. These consist of:

- Login – students use their McMurry credentials to login similar to moodle,email,mymcm,etc.

- Online housing forms displaying what is required for the student to sign up for housing and verifying what McMurry has received or not received from them

- Ability to submit maintenance requests

- FAQs – covering what students ask the most about living on campus

- Rulebook – easy access to housing rules and what is expected of students

- Direct access to phone numbers (staff,RA on call or campus security)

- Learning modules – students are required to complete a short course about the housing rules at the beginning of each school year

- Updates – housing can send updates through the software and students have the option to have updates texted or emailed to them if desired

- Check-out- students can sign up online for holiday/end of the year checkout

Research Plan

Looking at my goals, potential features, and my assumptions and questions, I drafted a research plan to roughly follow throughout the fall semester. The purpose of creating a research plan was to layout what needs to be done before I begin coding the application. I included my main purpose, objectives of the project, my user screening criteria, and my proposed timeline.

Research plan	McMurry Housing System
Researcher	Lydia Clarke
Date	October 2020

Research plan purpose:
Provide McMurry University students and staff manage campus housing online in an efficient and easy to understand way

Research Objectives	
Objective	Research Method(s)
Ease of use	Student interviews
Organization of forms	Retrieve current forms for student housing from housing staff
Access to FAQs	Interview staff and/or check housing info online
Linked to database of student info	Personal research of coding and database techniques

Screening Criteria	
User Description	Students and Staff at McMurry University
Number of users per group	N/A
Additional criteria	Students living on campus

Timeline		
Phase	Work to be done	Dates
Background research of design thinking	Research how design thinking plays a role in designing applications	October 2020
Interviews	Reach out to the targeted group of users	October/November
Maps ,storyboarding, and personas	Create user stories, hills and needs	November
Wireframe/prototype	Basic layout of prototype	November
Prototype testing	User feedback of prototype	November
Begin coding	Begin coding prototype	December

<u>User Interviews</u>

My intention was to interview my user group (staff and students) early on in the semester, but I needed

to fill out an IRB Form before I can do so. I am still in the process of making sure I am allowed to conduct

interviews, and the questions I am asking have the right approval. However, I have drafted interview

outlines for staff and students. I hope to conduct the interviews soon in order to update my research

and prototypes as needed.

<u>Student Interview Outline</u>

Background Questions

- State your name and your major
- How long have you gone to McMurry?
- How long have you lived in on campus housing?
- What housing buildings have you lived in?
- Why do you live on campus?
- What things are beneficial about living on campus?

Experience

- How would you describe your initial experience signing up for housing?
- What kinds of things were required to get the housing you needed?
- How would you describe the process you went through?
- How did you pick your roommates?

Closing Questions

- If housing had its own system for signing up how do you feel that would affect the experiences you have had so far when signing up?
- If you could change one thing about the sign up/housing process what would it be?
- In what way could an online system make housing related things easier?
- Would an application with everything in one ease the process of living on campus?

<u>Staff Interview Outline</u>

Background:

- What is your role here at McMurry and how long have you worked here?
- What are your basic duties?

General:

- What is the current system for students signing up for housing or filling out forms?
- How do you feel about this current system?
- What sort of forms are students required to fill out?
- How are forms organized?
- Do you help those signing up for housing alone find a roommate?

Closing:

- Do you feel like an online portal for housing would improve the sign-up process?
- If you could change one thing about the process what would it be?
- Would an application that sorts student info automatically benefit managing housing on campus?

The following outlines would be the basic structure of the initial interviews I would like to conduct. These questions should help validate or invalidate my assumptions and determine if my potential features would be beneficial to staff and students. Because I still need to finish initial interviews, I have started the other stages based on my experiences as a student living in housing at McMurry. Once I can finish conducting interviews, I will update what I have to reflect those findings.

Stage 2 - Define

Based on what I have from stage 1, I drafted a problem statement that my project centers around

Problem Statement:

"How might we help McMurry University students and staff manage campus housing online in an efficient and easy to understand way?"

Once I complete initial interviews, I will include personas and user stories in order to highlight the current process and how the user experience can be improved. I also plan to create illustrations in adobe XD for these.

Stage 3 – Ideate

Before I began prototyping, I took my potential features and created a workflow analysis of how they would be implemented.

<u>Workflow Summaries – Student End</u>

Maintenance Request Page

- Selects Building and Room Number
- Selects urgency of request
- Selects request type
- Enters in any additional details of requests
- Clicks submit and request is sent to maintenance email
- Shows when request has been completed

Forms/Sign Up

- List sign up options for student based on classification or hours
- Shows forms needed to be completed
- Shows forms that have been received by housing
- Form search for any additional submissions (i.e. accommodations or esa papers)
- Students can search school database for roommate names
- Students can submit pictures for room conditions

FAQs/Rulebook

- List frequently asked questions about housing
- Allows a student to submit any questions they may have
- Attached housing rulebook

Contact Info

- Campus security number
- RD and RA numbers/emails
- Office locations/hours of staff

My Account Info

- Shows basic student info
- Allows for changes/updates of info

Updates & Announcements

- Shows any announcements about housing posted by staff
- Students can see any upcoming events hosted by residence life

Due Dates

- Calendar of sign up dates
- Form due dates
- Move in dates
- Move out dates

Check Out Sign Up

- Students select their hall/room number
- Select time to check out

Housing Options

- Summaries of different residence halls
- Pricing of housing on campus
- Pictures of resident hall facilities

Roommate Finder

- Allows a student to specify they are looking for a roommate
- Posts in forum where other students in the same residence hall can see who else is looking for a roommate
- Post student email so students can get in touch with other students looking for a roommate

Workflow Summaries-Staff

Forms

- Automatically assigns lottery numbers based on student info in database and organizes them in order
- Attaches forms based on roommate selection
- Notifies staff of students who may be missing housing forms
- Notifies staff of forms that need to be double checked, reviewed, or approved
- Can request lists of students in different halls
- Can show what halls are full or still have available rooms and what types of rooms

Updates

- Staff can post updates for students to view in the housing portal
- Staff can set due dates for different types of forms
- Can advertise for upcoming events

FAQs

- Staff can post FAQs or directly respond to student inquiries

Maintenance

- Staff can review completed or pending maintenance requests

Fines/Warning

- Staff can post any fines owed by a student
- Notify a student of any warnings (i.e broken rules or possible fines)
- Can keep track of student warnings or offenses

Stage 4-Prototype

When I started the prototyping stage, I made a user flow diagram in adobe XD to give me an idea of how the screens might flow together for each feature.

<u>User Flow-Student</u>
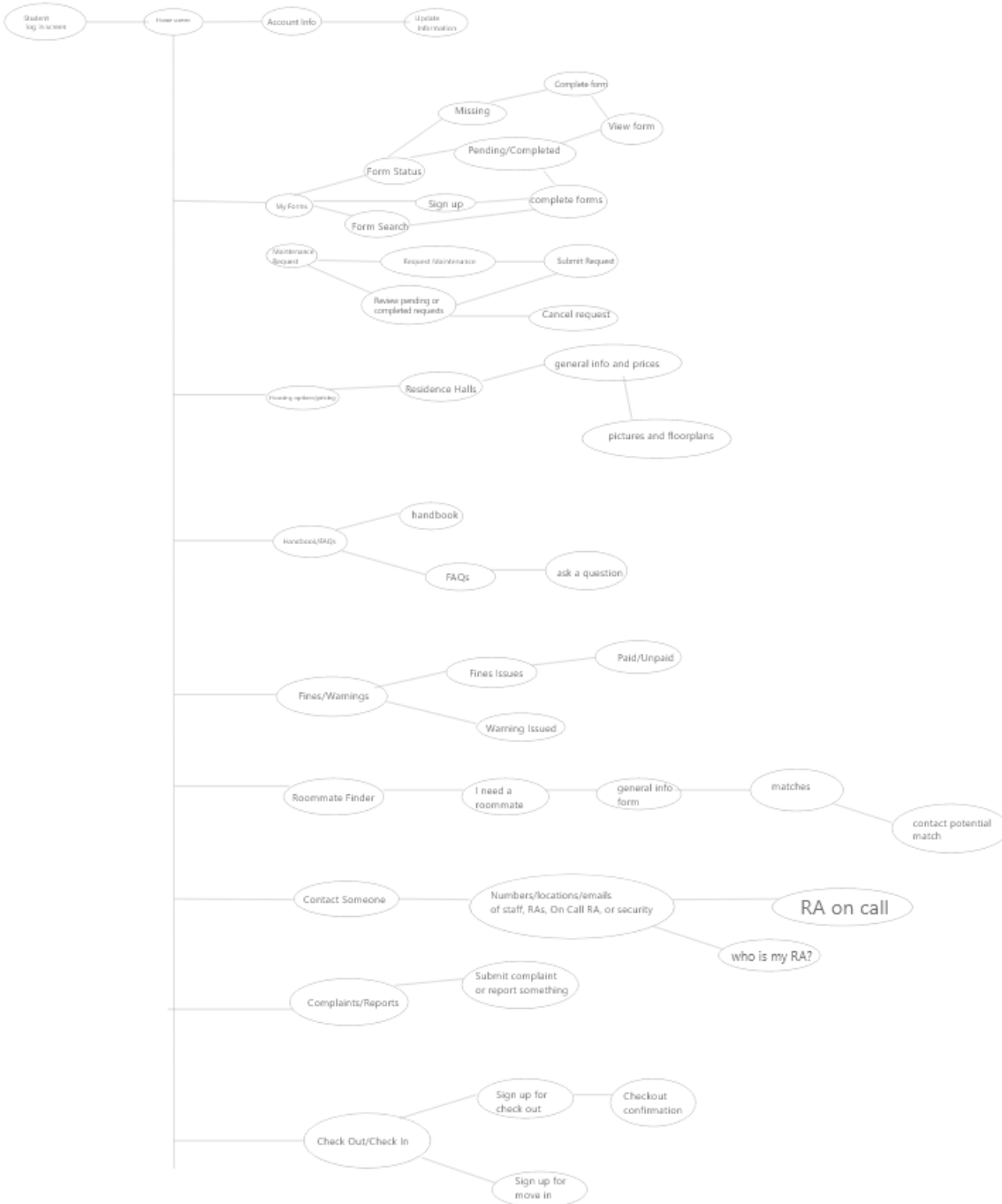
Low Fidelity Prototype

Before making a prototype that looks fancy and put together, I started with a low fidelity prototype also

called a wireframe. So I wasn't focused on the looks, I mainly wanted to establish the layout and flow

before I did anything else. I made my wireframe in adobe XD, and I will include a few screenshots of
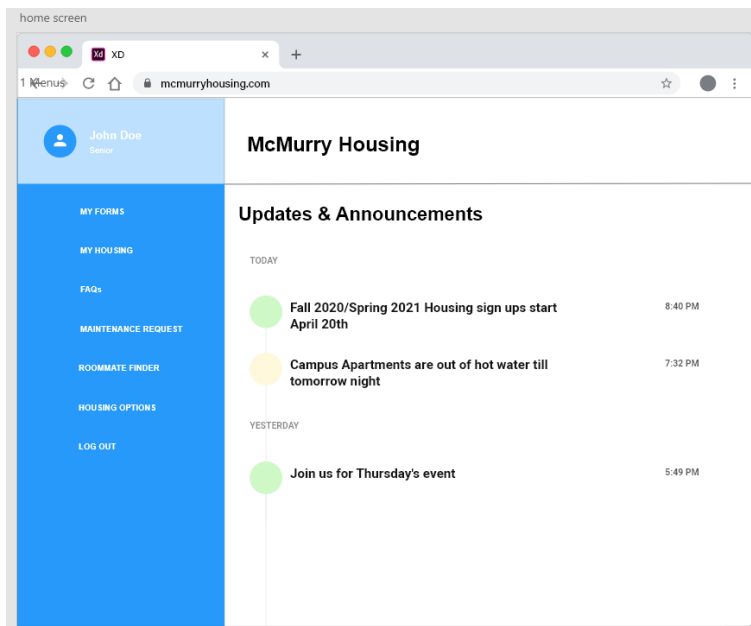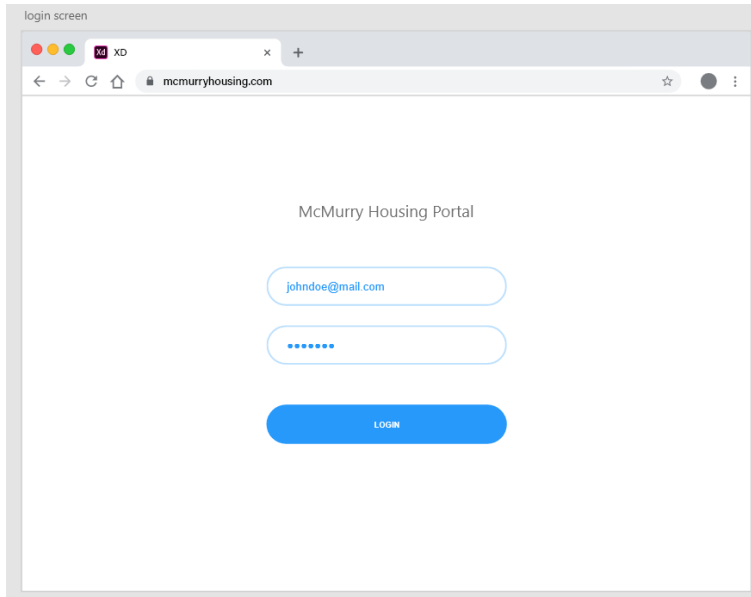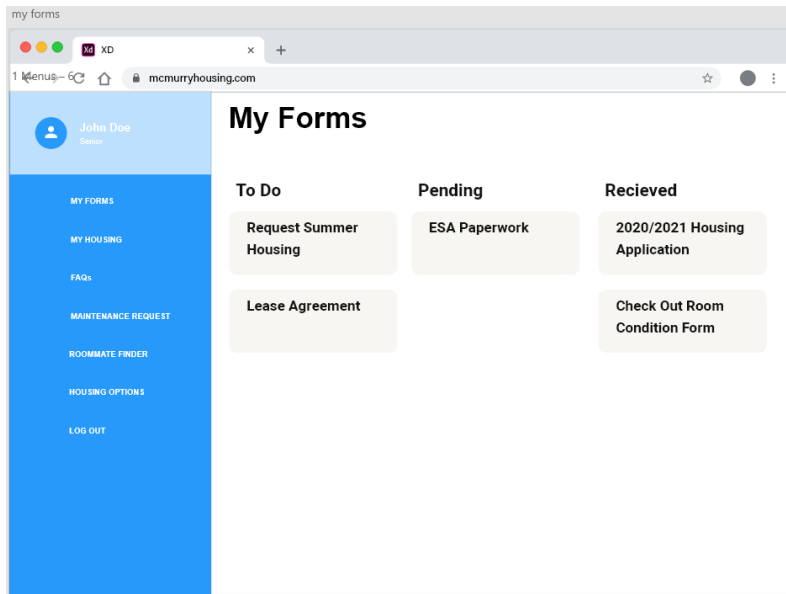
what those look like.

Lydia Clarke

My Housing

Jane Doe

Senior

Apartment W200

My account

My Forms

Announcements

Maintenance Request

FAQs

Options & pricing

Contact Us

Let Us Know How We Are Doing!

Contact Us:

Name:
Position:
Number:
Office:
Email:

Name:
Position:
Number:
Office:
Email:

Name:
Position:
Number:
Office:
Email:

Name:
Position:
Number:
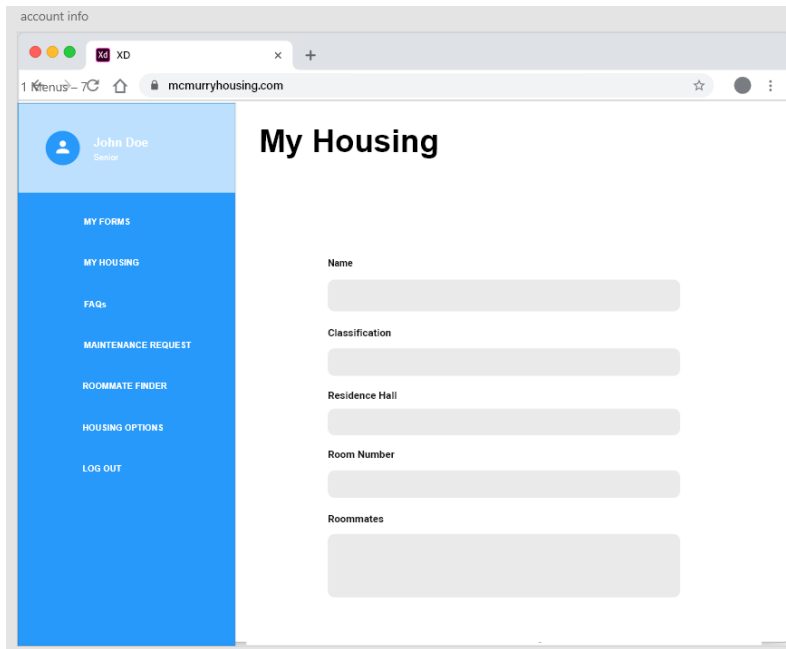Office:
Email:

Maintenance Requests

My Housing

Jane Doe
Senior
Apartment W200

My account

My Forms
Announcements

Maintenance Request

FAQs

Options & pricing

Contact Us

Let Us Know How We Are Doing!

Maintenance Requests

Name: [   ]

Building: [   ]

Room Number: [   ]

Request Type: [   ]

Request
Description:
[   ]

Urgency of Request: [   ]

[Submit Request]

Previous Requests   Status

[Clogged Sink]   Completed

[Lightbulb Replace]   Completed

[Broken A/C]   Pending

[View Details]

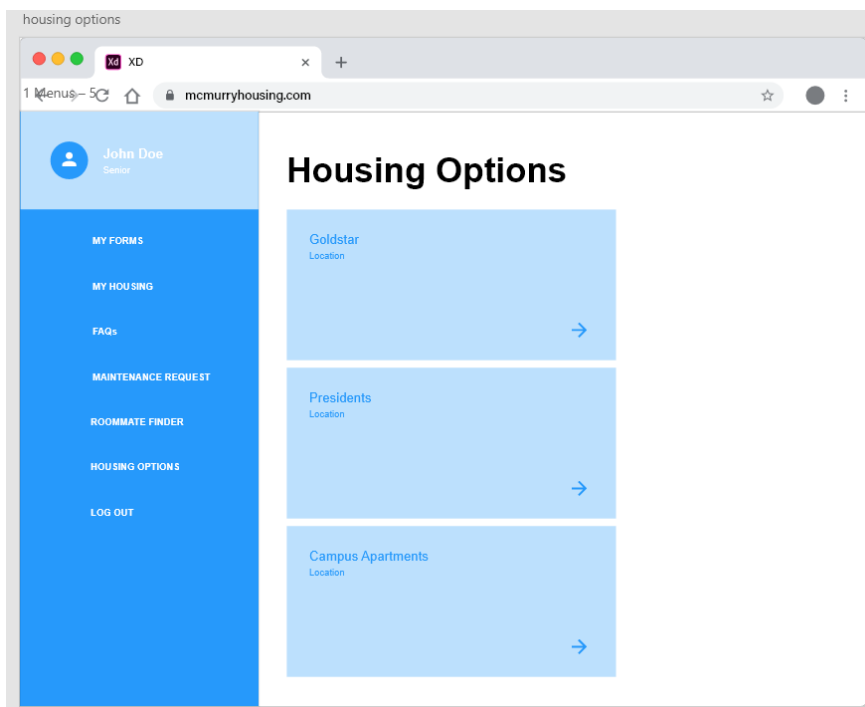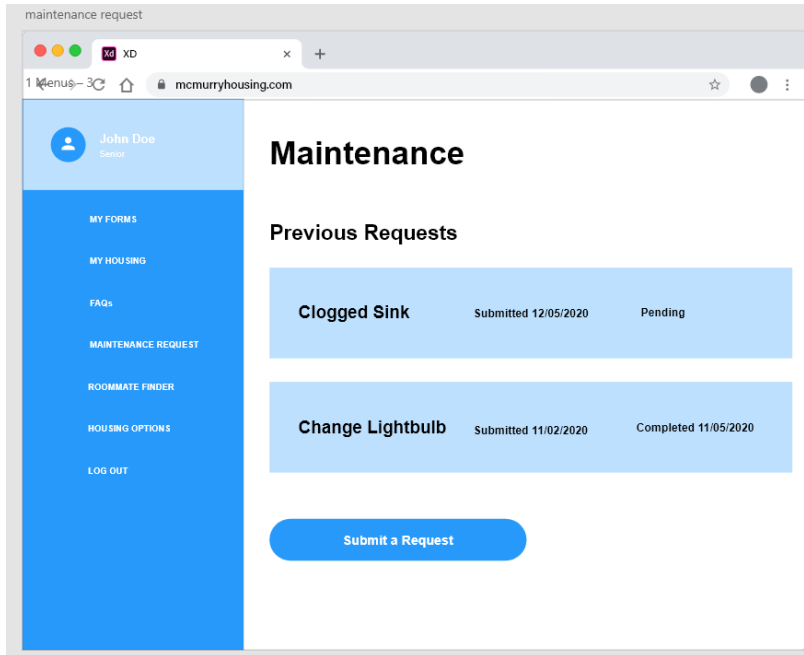Artboard – 1

My Housing

Jane Doe
Senior
Apartment W200

My account

My Forms
Announcements

Maintenance Request

FAQs

Options & pricing

Contact Us

Let Us Know How We Are Doing!

Previous Requests

Request Date: Status

[Clogged Sink]   08/24/2020   Completed on 08/25/2020
Description:
[Bathroom sink clogged and overflowing.]

[Lightbulb Replace]   09/18/2020   Completed on 09/19/2020
Description:
[Hallway Light went out.]

[Broken A/C]   10/26/2020   Pending
Description:
[A/C stopped running]

<u>Second Iteration</u>

I took my basic wireframe and started to make it a little bit more high fidelity. I updated the look of screens along the way.

Lydia Clarke

login screen

McMurry Housing Portal

johndoe@mail.com

••••••

LOGIN

home screen

Menus

McMurry Housing

John Doe
Senior

MY FORMS

MY HOUSING

FAQs

MAINTENANCE REQUEST

ROOMMATE FINDER

HOUSING OPTIONS

LOG OUT

Updates & Announcements

TODAY

Fall 2020/Spring 2021 Housing sign ups start
April 20th   8:40 PM

Campus Apartments are out of hot water till   7:32 PM
tomorrow night

YESTERDAY

Join us for Thursday's event   5:49 PM

account info

XD   ×   +

1 Menus – 7 ⟳ ⌂   🔒 mcmurryhousing.com   ☆   ⬤   ⋮

John Doe
Senior

MY FORMS

MY HOUSING

FAQs

MAINTENANCE REQUEST

ROOMMATE FINDER

HOUSING OPTIONS

LOG OUT

My Housing

Name

Classification

Residence Hall

Room Number

Roommates

---

my forms

XD   ×   +

1 Menus – 6 ⟳ ⌂   🔒 mcmurryhousing.com   ☆   ⬤   ⋮

John Doe
Senior

MY FORMS

MY HOUSING

FAQs

MAINTENANCE REQUEST

ROOMMATE FINDER

HOUSING OPTIONS

LOG OUT

My Forms

To Do

Request Summer Housing

Lease Agreement

Pending

ESA Paperwork

Recieved

2020/2021 Housing Application
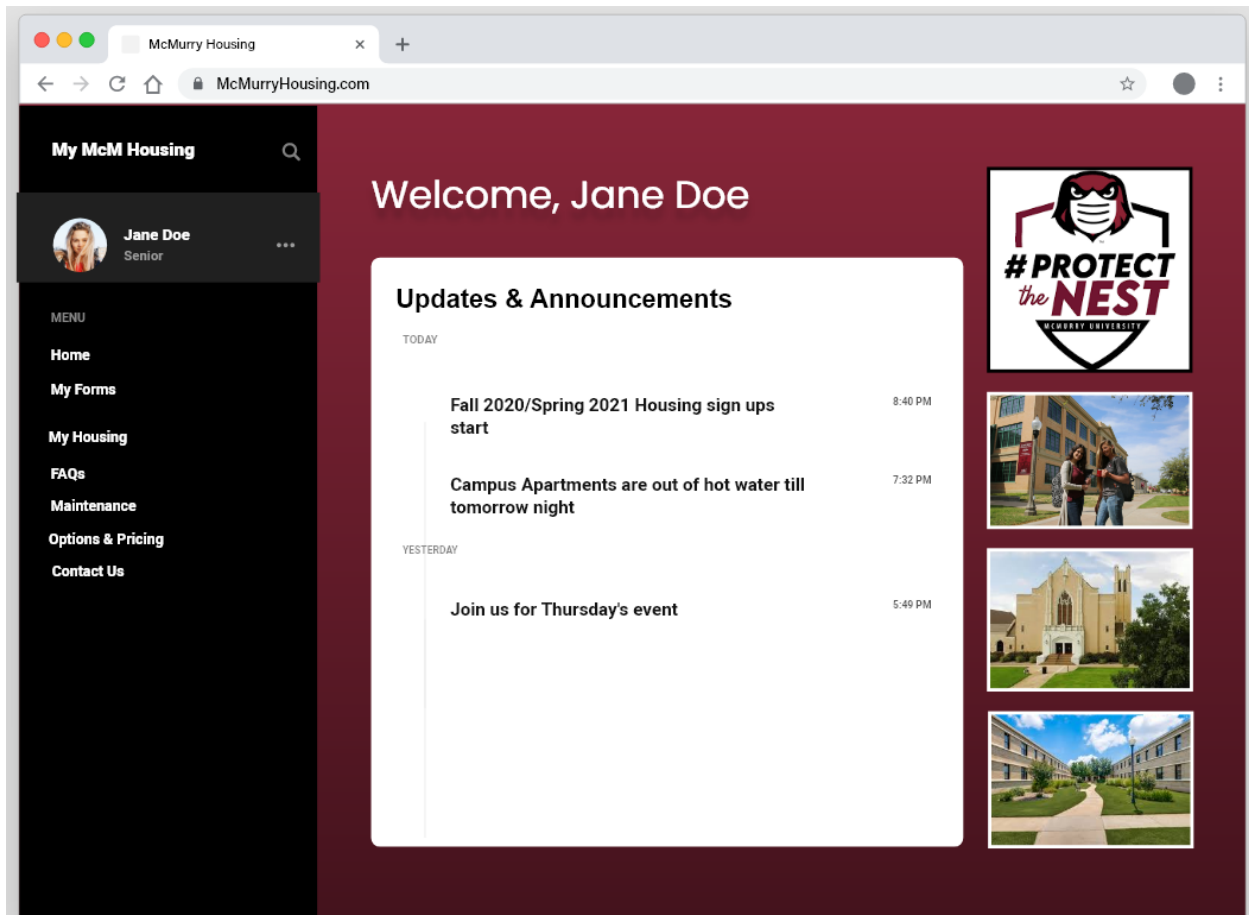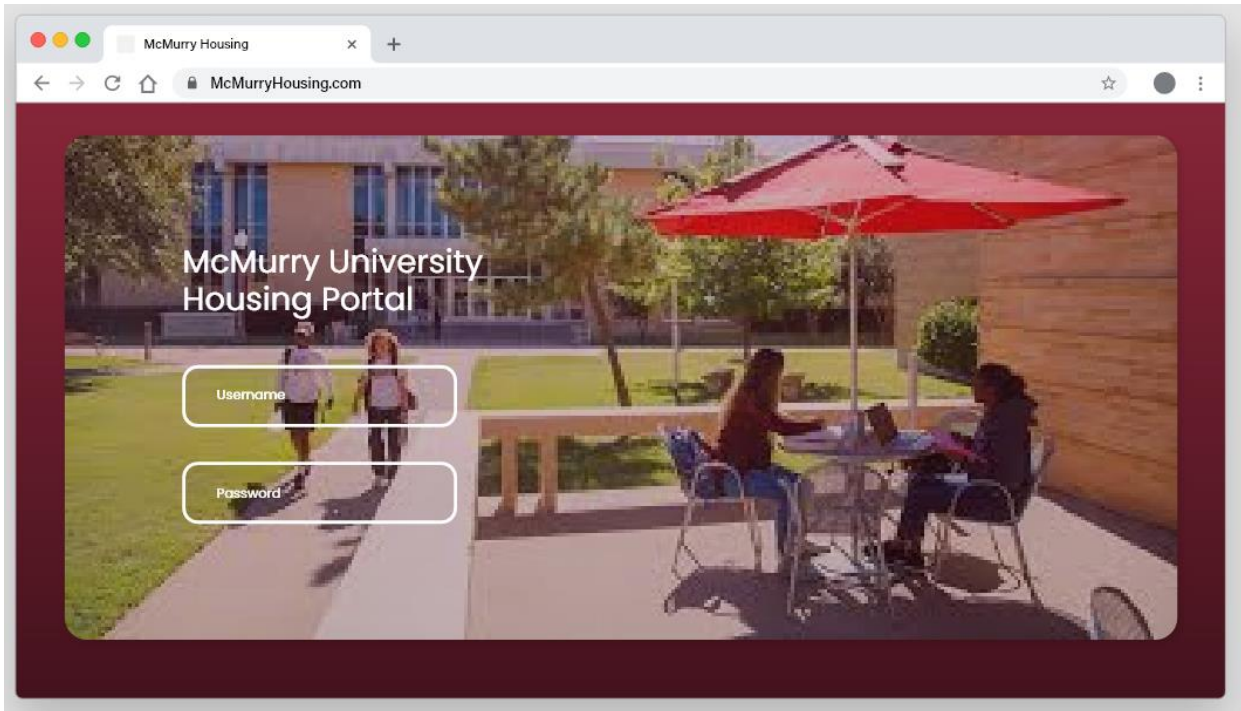
Check Out Room Condition Form

High Fidelity

The high-fidelity prototype would be one of my final steps. I first need to do interviews and prototype testing before I go too far into the high fidelity prototype, but I do have a few screens I have done to start it.

<u>Stage 5-Test</u>

This would be what I am currently working on. Once I can finish interviews and update my prototype, I can start to do prototype testing with my interviewees.

<u>What's Next?</u>

Once I have finished iterating through the five stages of design thinking, I can begin coding my application. I also plan on including more research into design thinking methods.