Initial Design

Motivation

Brief Description:
Eat, Meet, MIT is a web application designed to allow students on campus to meet other students through MIT's dining halls. Students fill out a request form indicating which dining halls they'd be willing to eat at, and what time. Our server then matches students together according to their request.

Key Purposes and Problems Solved:

- Students want to eat at new dining halls, but don't know anyone there. Our app addresses this by allowing students to list which dining halls they'd be willing to eat at.

- It can be hard to plan to eat with company. Our app addresses this by matching students with one another for a set time and place.

- Making new friends becomes harder as the years progress. Our app addresses this by including a Beaver Network that lets them maintain friendships with others they've met through our app.

Deficiencies of Existing Solutions:
Facebook is too broad of a platform, and it isn't designed to meet new friendships (but rather maintain old ones). Alternative is to just go to new dining hall and introduce yourself to someone new, but social norms inhibit this type of behavior (e.g., people tend to be shy).

Concepts

Request

- Purpose - Enables users to fill out dining preferences and availability for system to match.

- Operational Principle - If you want to get matched with someone for dinner at a dining hall, you fill out a request form with your preferences and availability.

Status

- Purpose - Allows user to manage their current request.
- Operational Principle - After you send a request, the status on your home page will update (originally set as “No Request Sent”). If you’ve gotten a match, it will show “Matched” and also show you the user you are matched with; from here, you can then choose to either cancel or confirm. Otherwise, it will say “Pending.”

Network

- Purpose - Allows users to keep track of other users they’ve connected with through our app.
- Operational Principle - After dinner you will be prompted if you want to add the other person to your Network (as will they). If both of you accept, you will be connected.

Conversation

- Purpose - To communicate with a person you’re connected to.
- Operational Principle - If you want to communicate with someone in your Network, you can send each other messages through your conversation.

Misfit(s)

- What if a user wants to change/cancel their request after they’ve filled out a form?
    - We allow users to cancel or change a request after submission and before a match.

Data Model

Textual Constraints:

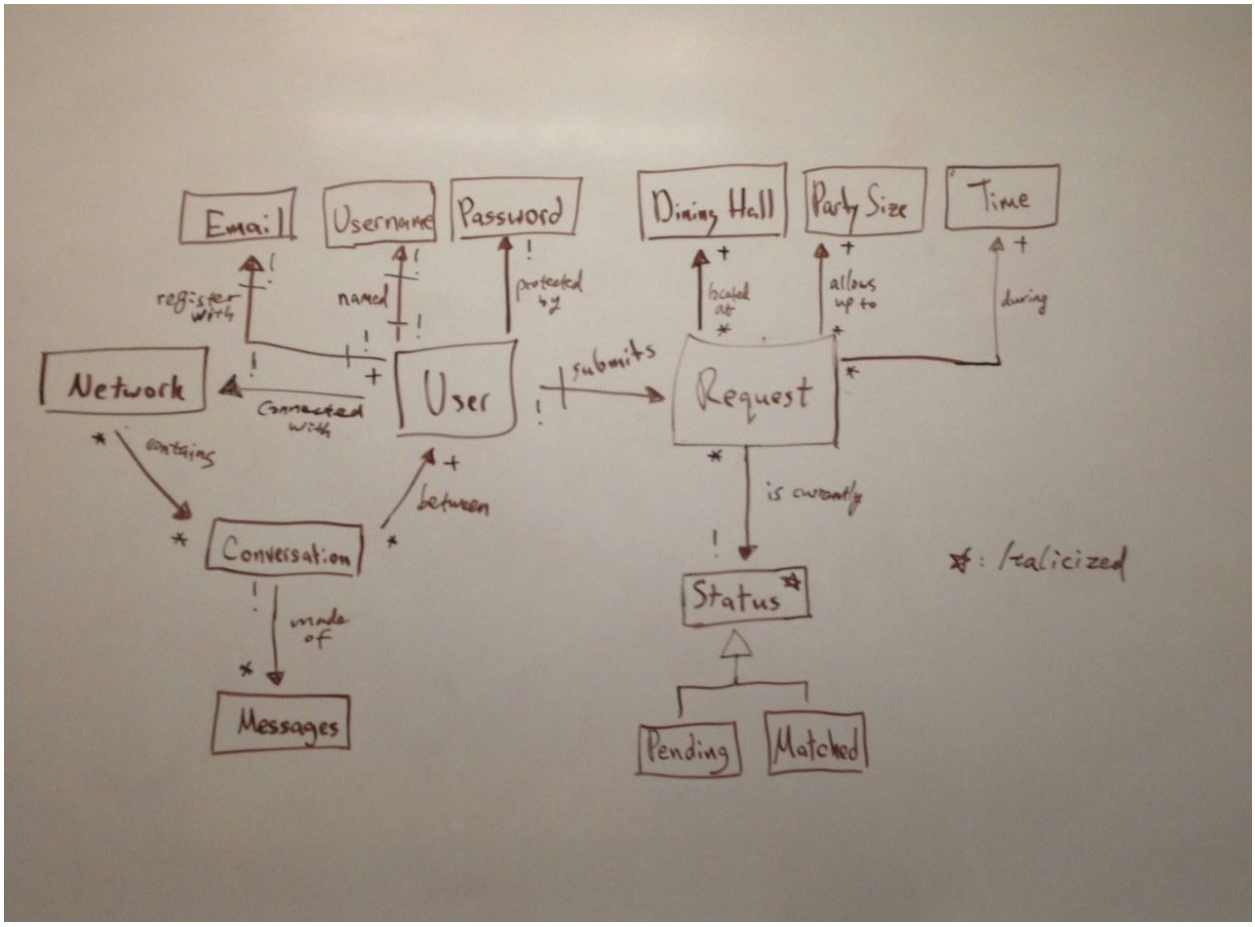
- A conversation has exactly two users.
- A user can only submit one request per day.

Design Insights:

- We had to think about the different statuses that a request can have, and whether they can change, and how often. Thinking about this brought certain

risks to light, such as whether a user changes his mind after being matched with someone.

- We also had to think about the number of users a conversation can hold, and whether we want to limit that to binary relations or not.



Security Concerns

***Threat Model*:**
User without credentials can only access Registration/Login page. User with credentials can construct requests inside a conversation. Application doesn't hold any sensitive information, so highly unlikely we will be targeted by a skilled adversary.

***Mitigation Techniques**:*

- Brute force guessing at a user's password
    - Limit the number of tries a user gets
- Rainbow table attack
    - Store salt along with hash of password in credential database
- Cross Site Script attack in conversation
    - Sanitize user input

Design Challenges

- Sometimes dining halls aren't open (holidays, summer, etc.). We don't want people to sign up for a time when a dining hall is closed.
    - We will try to look at the schedules and anticipate the major times when this happens (i.e. summer and IAP), and we'll manually disable our service during these times.
- What if a user decides they want to use our app in the morning, sends a request, but then forgets about it?
    - We'll send then a reminder an hour before their scheduled meeting time.
- Some dining halls close and open earlier than others.
    - We'll use listeners and see which dining hall options the user has chosen. Depending on this we'll disable certain dinner times.
- Users sends a request but doesn't get matched with anyone.
    - If one hour before the chosen date the user is not matched with anyone, we'll send him suggestions of other times/dining halls that he could edit his request to that would match him with someone.

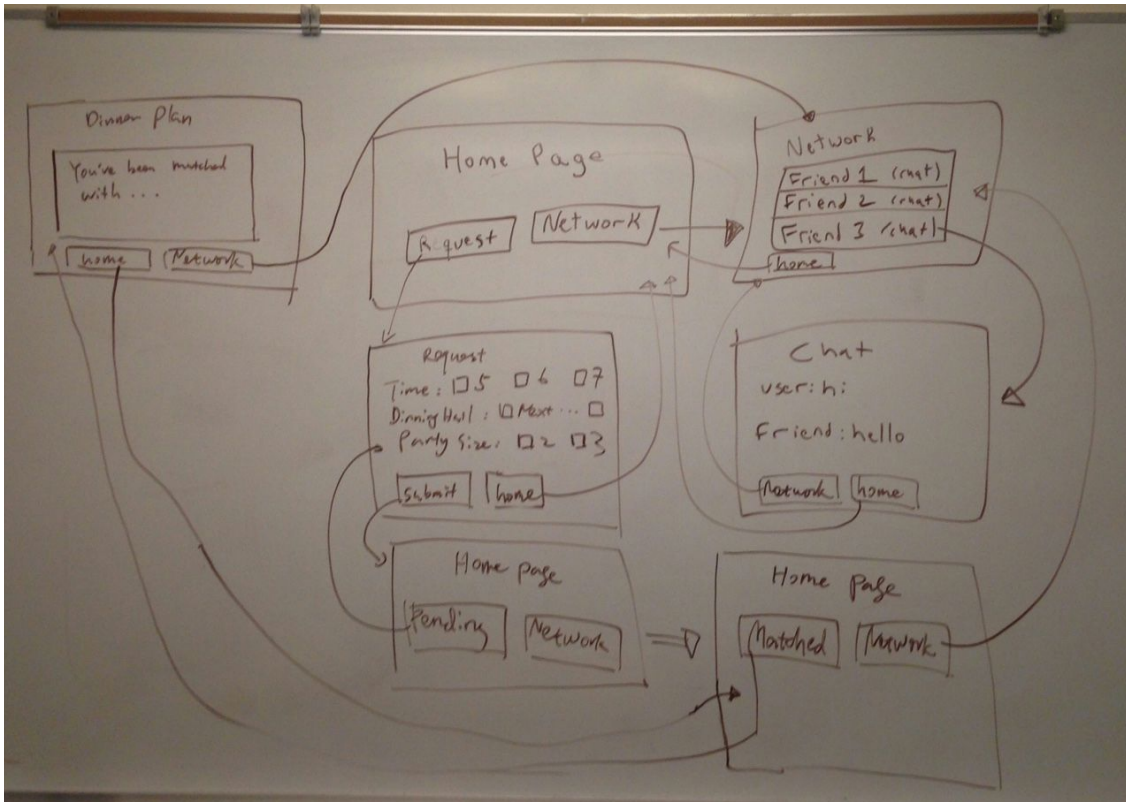
Design Choices:

- Originally we had both a page listing a user's "Network" as well as an "Inbox" with the user's conversations. After some thought we decided to get rid of the "Inbox"

feature since it would be too similar to the user's "Network" and just moved conversations to the user's "Network" instead.

- Originally we gave the users the option to look at requests that have already been chosen, and then see if they would like to pair up with any of them. Also our original implementation included profiles. We decided to move away from this and instead handle all the matchings on our end instead. We did this because we thought the other choice went against our original idea. We wanted users to be able to meet new people through our app, and letting users make choices might lead to them only meeting a certain kind of people, and not actually expanding their pool of friends.
- Another thing we had to think about was whether we wanted people to be able to keep track of who they connected with through our app. We decided to do this for a variety of reasons. First of all, this would allow users to enhance the connections they've made through our app, and actually develop friendships with these people. We also decided it would be better if we didn't match two people who already have been matched together before, so our implementation doesn't allow matches between people who have each other added in their "Network".

User Interface



Public Page

Eat, Meet, MIT

You must be signed in to continue

Sign in | Register

Register Page

Register

Back to Home

Username:

Email Address(@mit.edu):

Password:

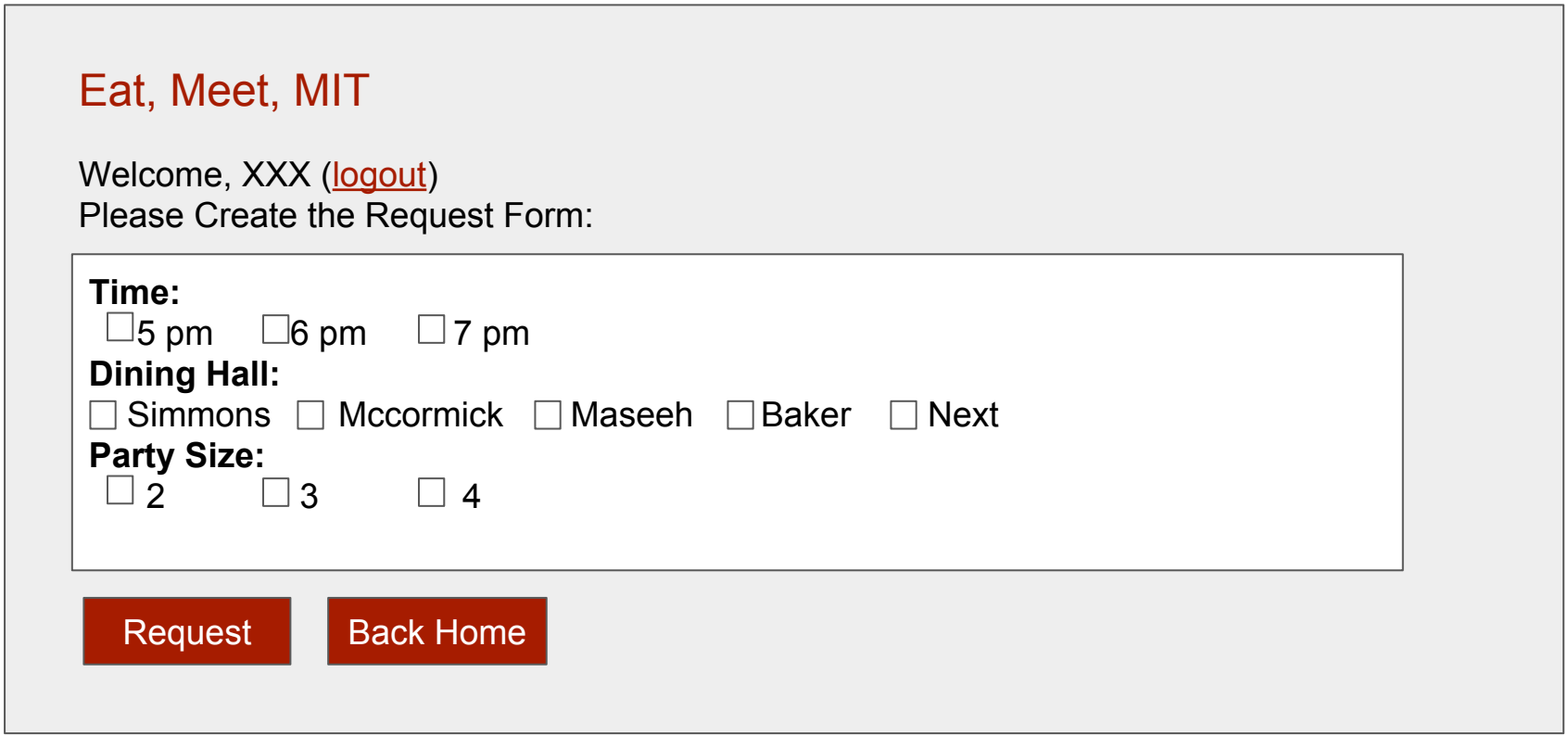
Confirm Password:

Submit

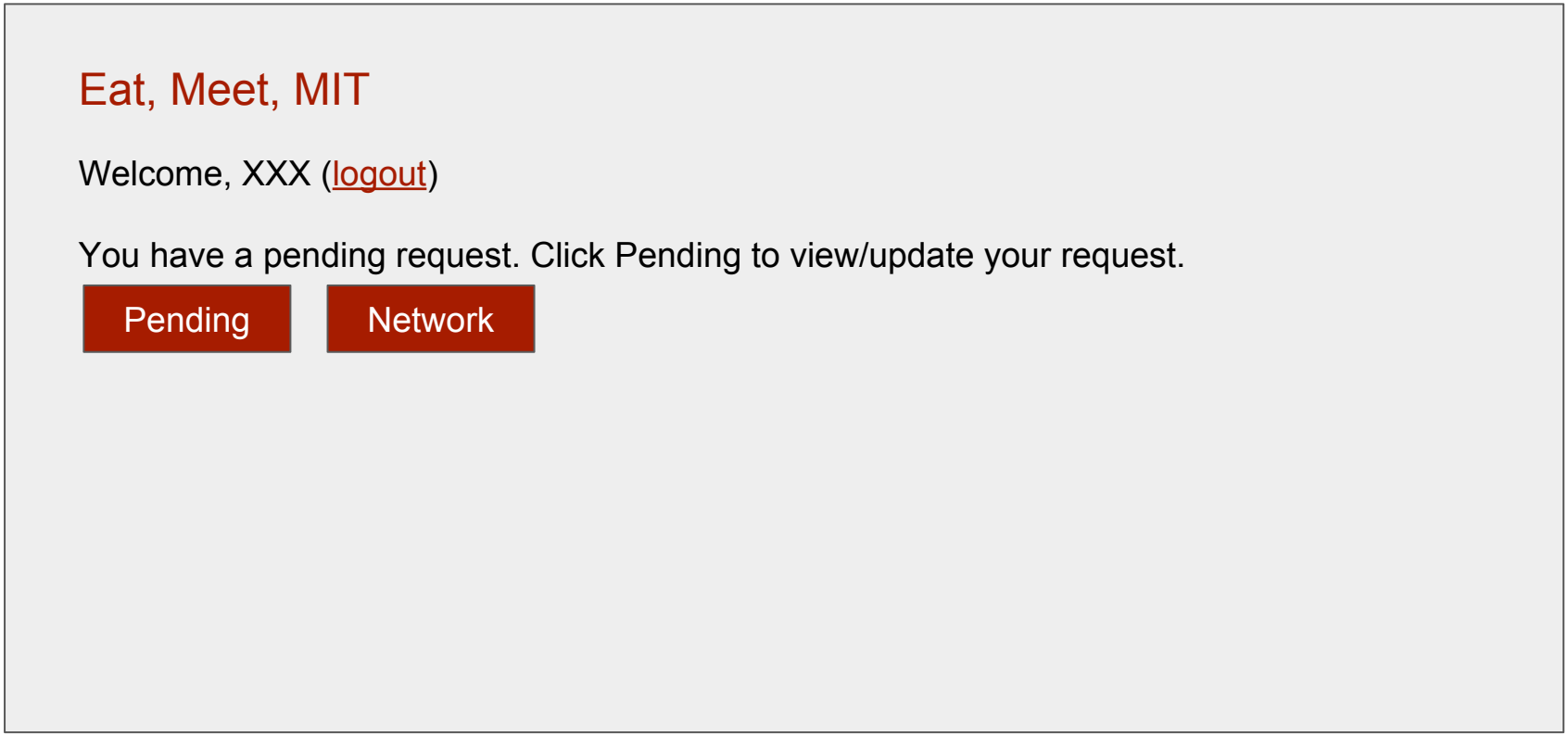
Sign in Page

Home Page (After User log in prior to send any Request)

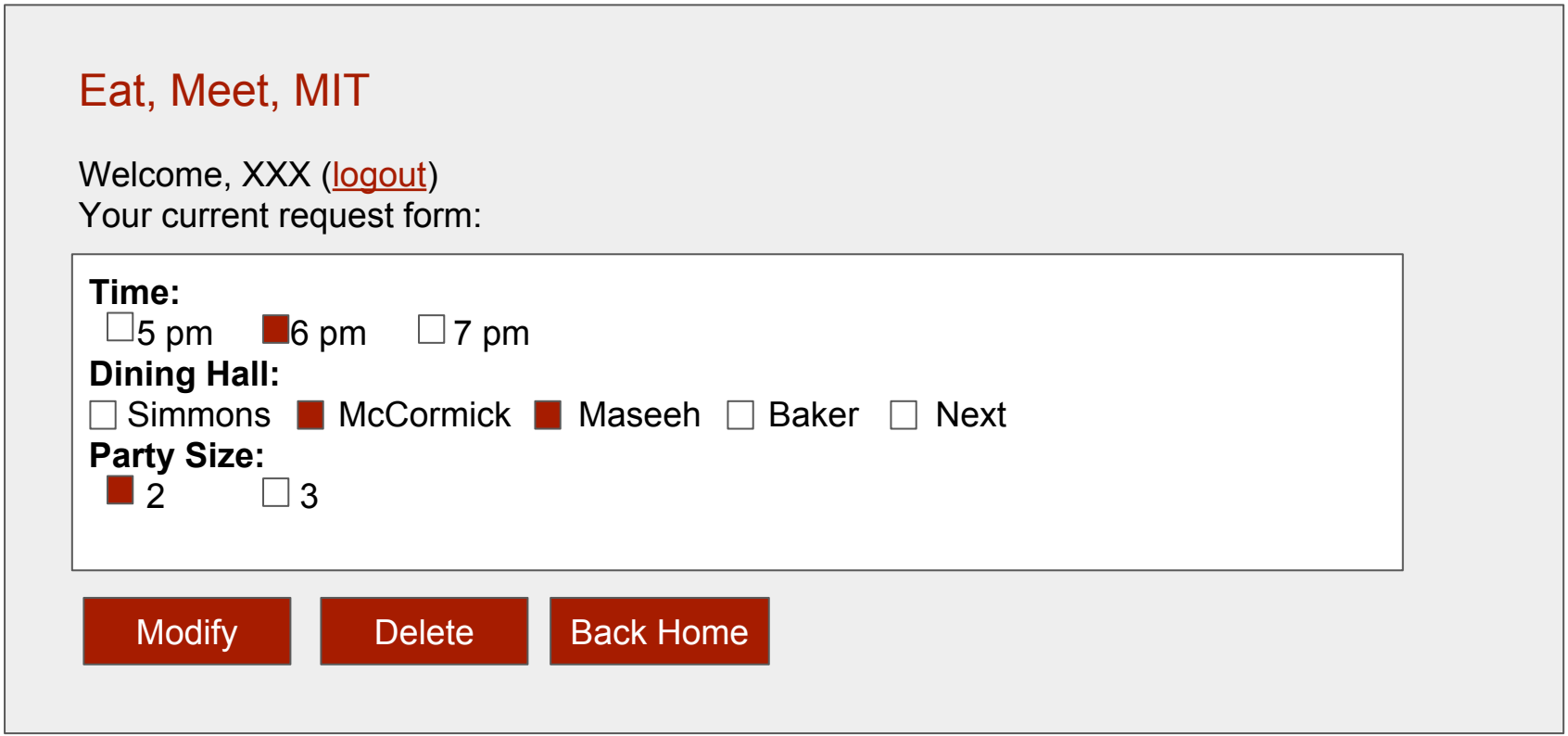
User Request Page before fill in



User Home Page (after sending a Request)



User Request page after send Request



User Request Page (after deleting a request)

Eat, Meet, MIT

Welcome, XXX (logout)
Your request has been deleted

New Req | Back Home

User Home Page (after being matched)

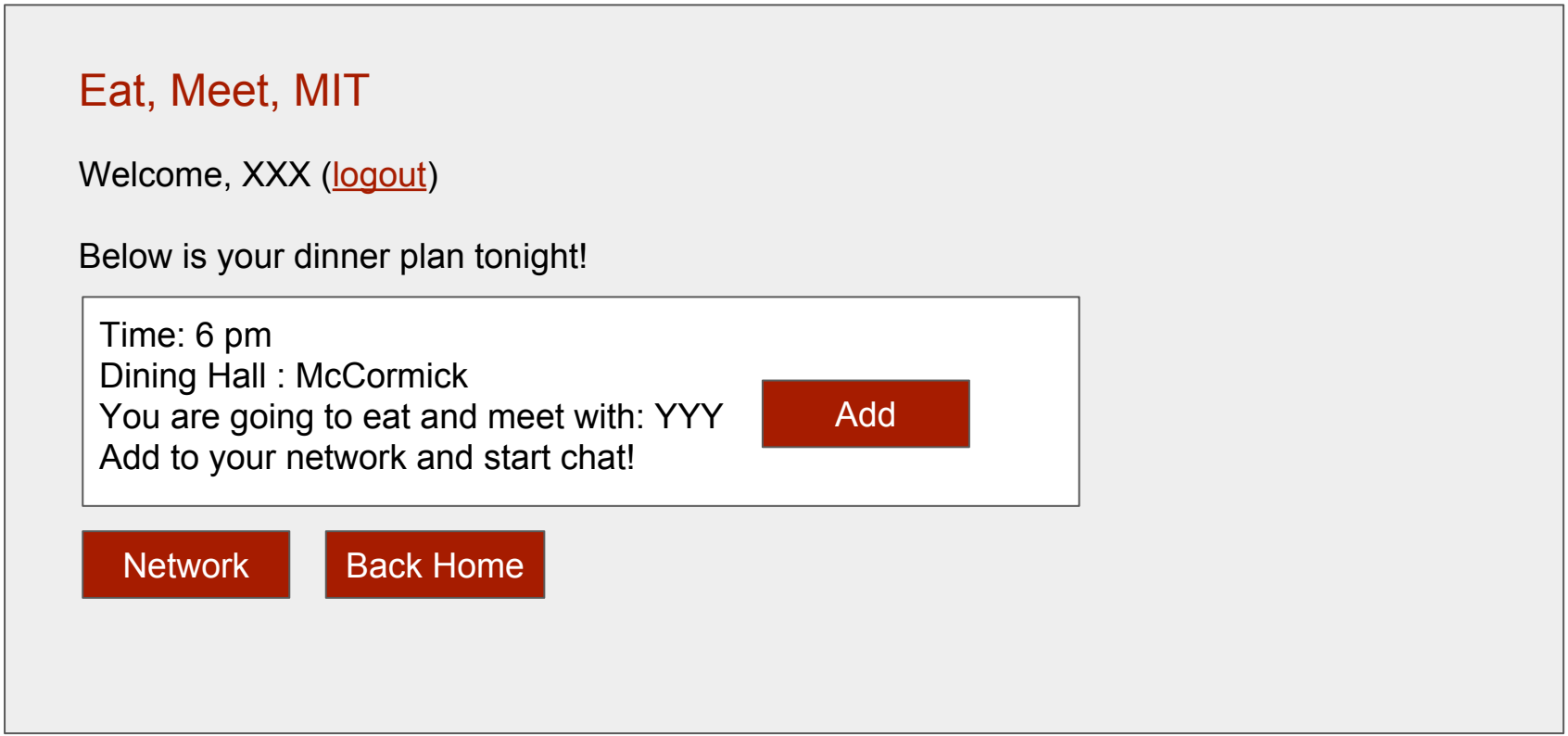
Eat, Meet, MIT

Welcome, XXX (logout)

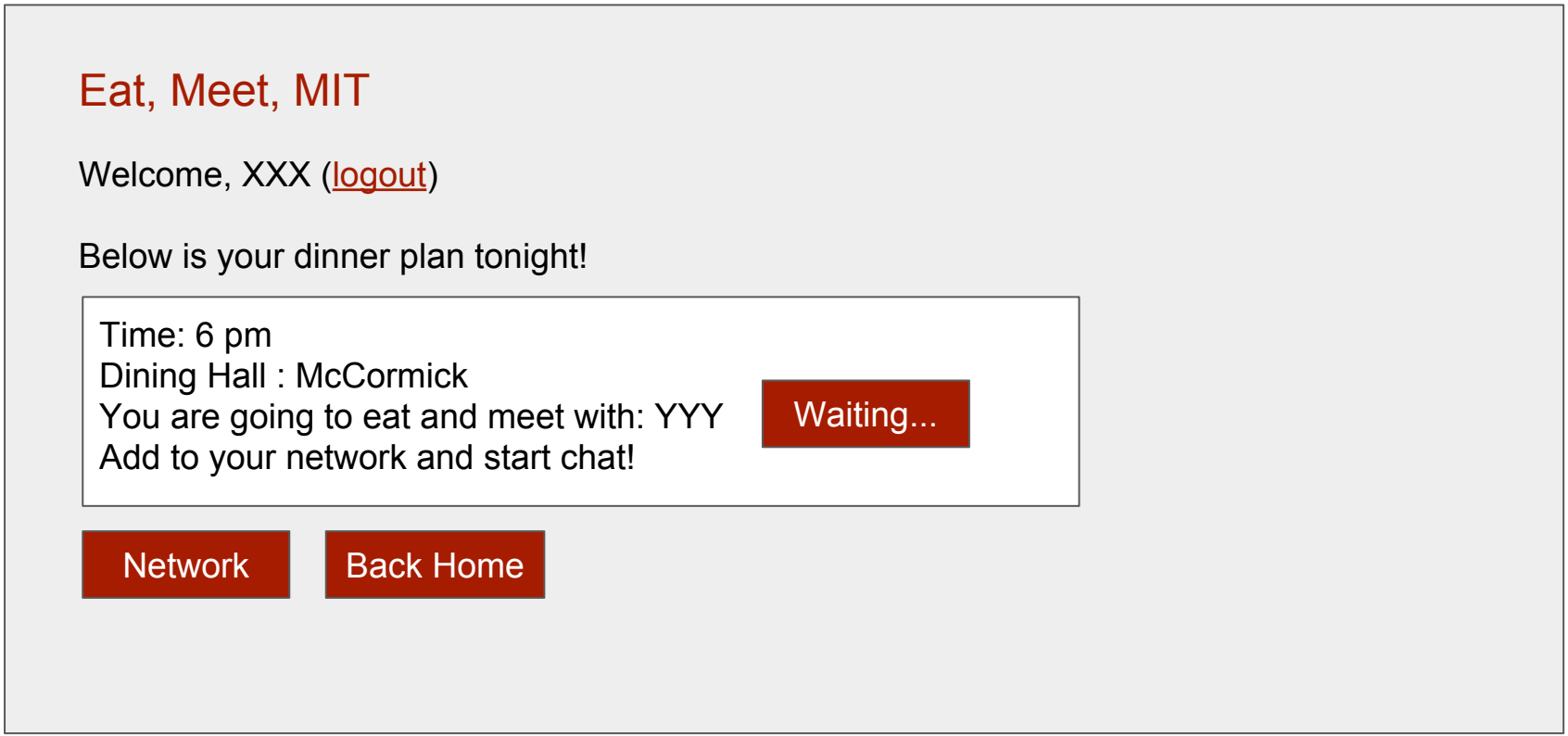
You have matched request!! Click Matched to find out who!

Matched Network

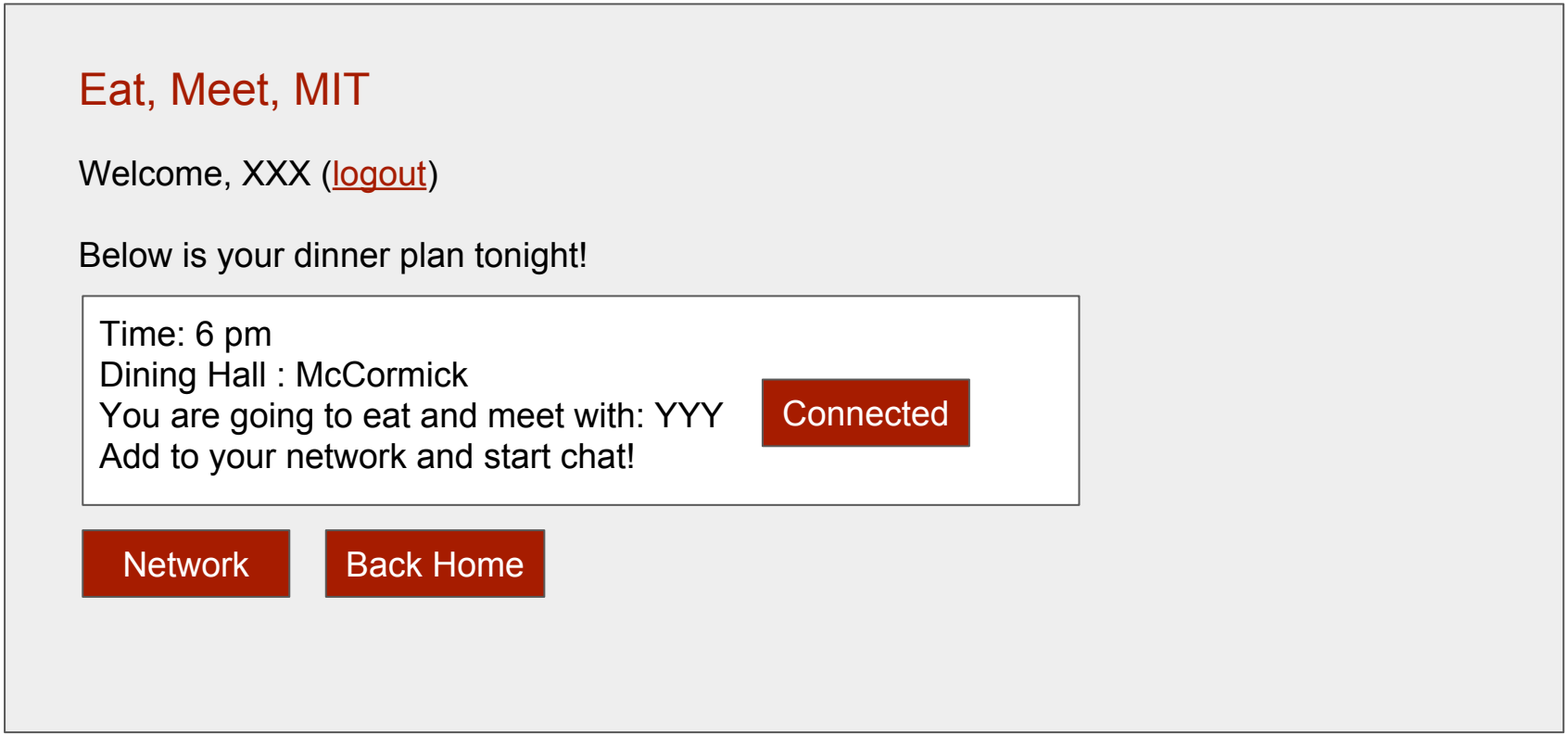
Dinner Plan Page (prior to adding)



Dinner Plan Page (after adding)



Dinner Plan Page (after both added)



Network Page

Eat, Meet, MIT

Welcome to your Network, XXX (logout)

All Username

YY1	chat
YY2	chat
YY3	chat
YY4	chat
...	

Back Home

Chat Page

Eat, Meet, MIT

Welcome, XXX (logout)

Your Chat with YY1

YY1 hey

hey XXX

YY1 dsfasdfasfe

sfasdfdsa XXX

Network | Back Home