**Elaboration Phase Specification**

**Members**:

Smit Patel, Alain Kagaba, Samuel Akinfenwa, Walter Pryor, Brent Hedden

**System Requirements**

The system will use these requirements in a nonfunctional and functional way to ensure that the user and client get the best out of the system. Lets the users know what is needed for the system to be accessed.

**Nonfunctional Requirements**

1. The new system will have a user interface.

2. The new system will be easy to use by all customers.

3. The new system will create an account in 5 seconds or less.

4. The new system will retrieve account information in 5 seconds or less.

5. The new system will operate on the University of Louisville servers/cloud systems.

6. The new system should backup information at the end of each day

7. The new system should have Two-factor authentication

8. The new system will have live updates

8.1. Hours of operations

8.2. Closings

8.3. Locations of operations- repairs or needing maintenance.

9. The new system will have similar password requirements as ULink.

10. The new system will delete inactive members.

**Functional Requirements**

1. Users can check membership status.

2. Users will be required to create an account.

3. Users can make payments online.

4. Users will be able to change a password or reset it.

5. Users will use the same email and password protocol as ULink.

6. The system will use PayPal for online payments.

7. Users can view weekly schedules.

8. Users can reserve equipment.

9. Users can contact the facility.

10. Users can register for Intramurals.

**Use Cases**

Just like the requirements, the system will allow the client and users to do a lot of things that are stated in here, some being high risk and low risk. Also explain what has to happen for the use cases to be performed and what’s needed.

Use Case Name: Create Member

ID: 1

Actors:

* Members of the SRC
* SRC Staff

Preconditions:

* User navigates to the form.

Normal Flow:

* The user will enter email.
* The user will enter password.
* The user enters first name.
* The user enters last name.
* The user enters student ID
* The user enters a phone number.

Postconditions:

* The account will be created for the member in the database.
* User will be granted access to their account.

Alternative Flows:

* Account could be created by SRC staff in the facility.

Use Case Name: Delete Member

ID: 2

Actors:

* SRC Staff

Preconditions:

* SRC wants to keep database updated.

Normal Flow:

* The staff will search for inactive members.
* The staff will delete members that are inactive for 6 months.

Postconditions:

* The database will be cleaned of inactive members
* Free up space for new members.

Alternative Flows:

· None

Use Case Name: Login

ID: 3

Actors:

* Members of the SRC
* SRC Staff

Preconditions:

* User wants to access account.

Normal Flow:

* The user will enter email.
* The user will enter password.

Postconditions:

* User will be granted access to their account.

Alternative Flows:

* Invalid password, user resets password.

Use Case Name: Sign Up

ID : 4

Actors:

* Members of the SRC
* New Members
* SRC Staff

Preconditions:

* User wants to have an account.

Normal Flow:

* The user will enter email.
* The user will enter password.
* The user enters first name.
* The user enters last name.
* The user enters a phone number.

Postconditions:

* The account will be created for the member in the database.
* User will be granted access to their account.

Alternative Flows:

* Account could be created by SRC staff in the facility.

Use Case Name: Forgot Password

ID: 5

Actors:

* Members of the SRC
* SRC Staff

Preconditions:

* User cannot remember their password.

Normal Flow:

* The user will enter email.
* The user will click on the forgot password link.
* The user enters answer to security question.
* The user will reset password.

Postconditions:

* User will have password reset.
* User will be granted access to their account.

Alternative Flows:

* Login, user remembers password.
* Helpdesk if having difficulties.

Use Case Name: Make Purchases

ID: 14

Actors:

* Members of the SRC

Preconditions:

* User wants to make online purchases.
* The user will log into their account on the SRC website.

Normal Flow:

* The user will select the link to purchase.
* The user enters first name.
* The user enters last name.
* The user selects payment option (PayPal, etc.)
* The system will prompt the user to enter payment information.
* The user presses submit.

Postconditions:

* The user will then have confirmation of purchase.

Alternative Flows:

* The user prefers to make purchase via SRC front desk instead of online.

User Case Name: Make reservations

ID: 15

Actors:

* Members of the SRC
* SRC Staff

Preconditions:

* User wants to make reservation

Normal Flow:

* The user will select what reservation he wants to do on SRC website
* The user will pick date and time from available times for the reservation

Postconditions:

* User will get the reservation

Alternative Flows:

* Reservations can be made at SRC front desk

User Case Name: Check facility activity.

ID: 16

Actors:

* Members of the SRC

Preconditions:

* User wants to check facility activity

Normal Flow:

* The user will go to SRC website
* The user will go to the page where facility activity information is

Postconditions:

* User will get the information on facility activity

Alternative Flows:

The user can get facility activity information at SRC front desk

User Case Name: Get email notifications.

ID: 17

Actors:

* Members of the SRC
* SRC Staff

Preconditions:

* User wants to get email notifications

Normal Flow:

* Member visits the SRC website
* User enters their email in the website to get email notification
* The user now will get email notifications

Postconditions:

* User will get email notification for reservations,
* User Case Name: Get email confirmations.membership, and lockers.

Alternative Flows:

None

ID: 18

Actors:

* Members of the SRC
* SRC Staff

Preconditions:

* User wants to get email confirmations

Normal Flow:

* Member visits the SRC website
* User enters their email in the website to get email confirmations
* The user now will get email confirmations

Postconditions:

* User will get email notification for reservations, membership, and lockers.

Alternative Flows:

None

User Case Name: Suspend accounts.

ID: 19

Actors:

* SRC Staff

Preconditions:

* User wants to suspend accounts

Normal Flow:

* The user will select what account he wants to suspend
* The user will verify that account he selected is the account he wanted to suspend
* The user will suspend accounts

Postconditions:

* Free up space for new members
* The database will be up to date

Alternative Flows:

None

User Case Name: Provide live updates.

ID: 20

Actors:

* Members of the SRC
* SRC Staff

Preconditions:

* User wants to provide live updates

Normal Flow:

* The user will update the information live
* The user will do live updates regularly

Postconditions:

* User will get to provide live updates

Alternative Flows:

None

Use Case Name: Purchase Lockers

ID: 21

Actors:

* Members of the SRC
* Billing System
* SRC Staff

Preconditions:

* User chooses available locker they request to purchase.

Normal Flow:

1. The user will log into their account on the SRC website.
2. The user will select the link to purchase/reserve a locker.
3. The user enters first name.
4. The user enters last name.
5. The user selects payment option (PayPal, Venmo, etc.)
6. The system will prompt them user to enter payment information.
7. The user presses submit
8. The system prompts user to verify email
9. The user verifies email via link
10. The user accesses locker via SRC front desk

Postconditions:

* The locker will be reserved for the member in the database.
* User will be granted an expiration date for the locker rental.

Alternative Flows:

2A1: The user prefers to purchase locker via SRC front desk instead of online.

1. The user will arrive at the SRC front desk
2. The user will provide first name.
3. The user will provide last name.
4. The user will provide email to account.
5. SRC employee will enter information in their database.
6. SRC will provide user with access to desired locker.

Use Case Name: Provide Security

ID: 22

Actors:

* SRC website administrators
* Security Provider

Preconditions:

* The SRC website needs a security provider in order to protect sensitive information about the SRC and its members.

Normal Flow:

1. SRC website administrators find a reliable security provider.
2. SRC will choose SiteLock for their security provider.
3. SRC implements the security provider’s system.
4. SRC administrators receive a weekly report for their website.
5. Security provide provides bi-monthly updates to security system.

Postconditions:

* SRC website now has the security needed to protect the users and the administrators of the website from cyber threats.

Alternative Flows:

* None

Use Case Name: Provide Contact Information

ID: 23

Actors:

* SRC website developers
* Members of the SRC
* Non-members of the SRC (Potential members that visit SRC website)

Preconditions:

* The user accesses the contact information page on the SRC website.

Normal flow:

1. Site developers input contact information for SRC.
2. The user accesses the SRC website.
3. The user clicks on the link for SRC contacts.
4. The user clicks on the contact us button on the page.
5. The user enters full name.
6. The user enters their email address.
7. The user writes their comment/question
8. The user selects submit.

Postconditions:

* The user accesses the contact list and then uses it to contact the SRC in their desired fashion.
* The user is able to send a direct email to the SRC for quick questions.

Alternative Flows:

4A1: The user can alternatively copy the email address from the page and paste it on a desired email platform.

1. User access the SRC website.
2. User navigates to the link for SRC contacts.
3. User copies email address to their clipboard.
4. User pastes the email address into their desired email platform.

Use Case Name: Provide Staff Information

ID: 24

Actors:

* SRC website developers
* Members of the SRC
* SRC staff
* Non-Members of the SRC

Preconditions:

* The user needs to get some information on the staff.

Normal Flow:

1. Site developers gather information from notable staff.
2. Site inputs the staff information onto the website.
3. Member/Non-member/Website visitor visits the website.
4. User clicks the link for the staff information.
5. User now has access to the SRC staff information.

Postconditions:

* The user now has access to information about that staff that can give them an idea of the people operating the SRC.

Alternative Flows:

* None

Use Case Name: Provide Intramural Information

ID: 25

Actors:

* Members/Non-Members of the SRC
* SRC Employees that manage Intramurals
* SRC Website developers

Preconditions:

* Member/Non-member is looking to get information on and sign up for Intramural sports at the SRC.

Normal Flow:

1. User visits the SRC website.
2. User finds link/button to send them to the intramural category.
3. User access the Intramural section of the SRC website.
4. User gathers information on the Intramurals provided by the SRC.

Postconditions:

* Member accesses the Intramural section of the SRC website.

Alternative Flows:

3A1: The user has an option to also sign up for Intramurals alongside with getting information about Intramural sports.

1. User clicks the sign-up button on Intramural page.
2. User selects a specific sport.
3. User selects their desired league.
4. User inputs full name.
5. User selects preference on whether to enter as a team or single.
6. SRC website enters you into the league.

Use Case Name: Secure Online Payments

ID: 26

Brief description: This use case describes how electronic payment could be made by clients with a PayPal or Venmo account.

Actors:

· Members of the SRC

· Billing System

· SRC Staff

Precondition:

· The client makes a payment online for their account or fees

Normal Flow:

1. User logins on the website to access payment.

2. User checks account.

3. The user selects fees.

4. The user selects payment options (PayPal, Venmo).

5. User input into payment information.

6. The user Verifies the payment before making it.

7. The system prompts the user to verify the email.

8. The user verifies the email via the link.

9. The user is cleared of all fees and payments.

Postconditions:

· The system processes the payment and provide output to the employee and client that the payment has been made

· The user gets an email that a payment had been from their account.

Alternative Flows:

The user could make the payment in the SRC facility

· The user will enter the SRC with the required credentials

· The user will provide account information to the SRC staff in the front desk

· The employee will input the information in their database.

· The employee will process the client’s desired payment.

· The client will get an email confirmation of the payment

Use Case Name: Updated hours of operations

ID: 30

Brief Description: The use case describes how employees would post daily hours of operation

Actors:

· Members of the SRC

· Non-members of the SRC (visitors)

· SRC website administrators

Preconditions:

· Employee will post the daily hours of operation on the website before it begins operation.

Normal Flow:

1. SRC Website administrators will get information on the SRC hours from management.

2. The website admin will post the hours on the main page of the website.

3. The website admin will also send email to clients if there is a change in the daily operations

4. The website admin will also send email to clients if there is an emergency that will affect operating hours.

5. The website admin will also post future holiday hours on the main page of the website.

6. The website admin will also send email to clients about future holidays hours.

Post Conditions:

· Clients will be getting updated daily hours of operation including holiday hours.

Alternative flows

· If the SRC website is not available to the client

· Clients could call the SRC front desk to get the daily operations hours

Use Case Name : Recover Account

Actors:

* Member
* SAC Employee (not recommended)

Preconditions:

* If the member forgets their account name or password associated with their membership, then they will need some mechanisms to retried the account name and/or reset the password.

Normal Flow:

* Members can’t remember their account name and/or password.
* System will prompt member which piece they need help with.
* If account name, verify member ID number or email first.
* If password, then email a link for password reset.

Postconditions:

* Members should be able to log into the system after recovery.

Use Case Name : Require Student ID

Actors:

* SAC Employee
* Member

Preconditions:

* In order to easily identify the individual member, the unique student ID number will be used.

Normal Flow:

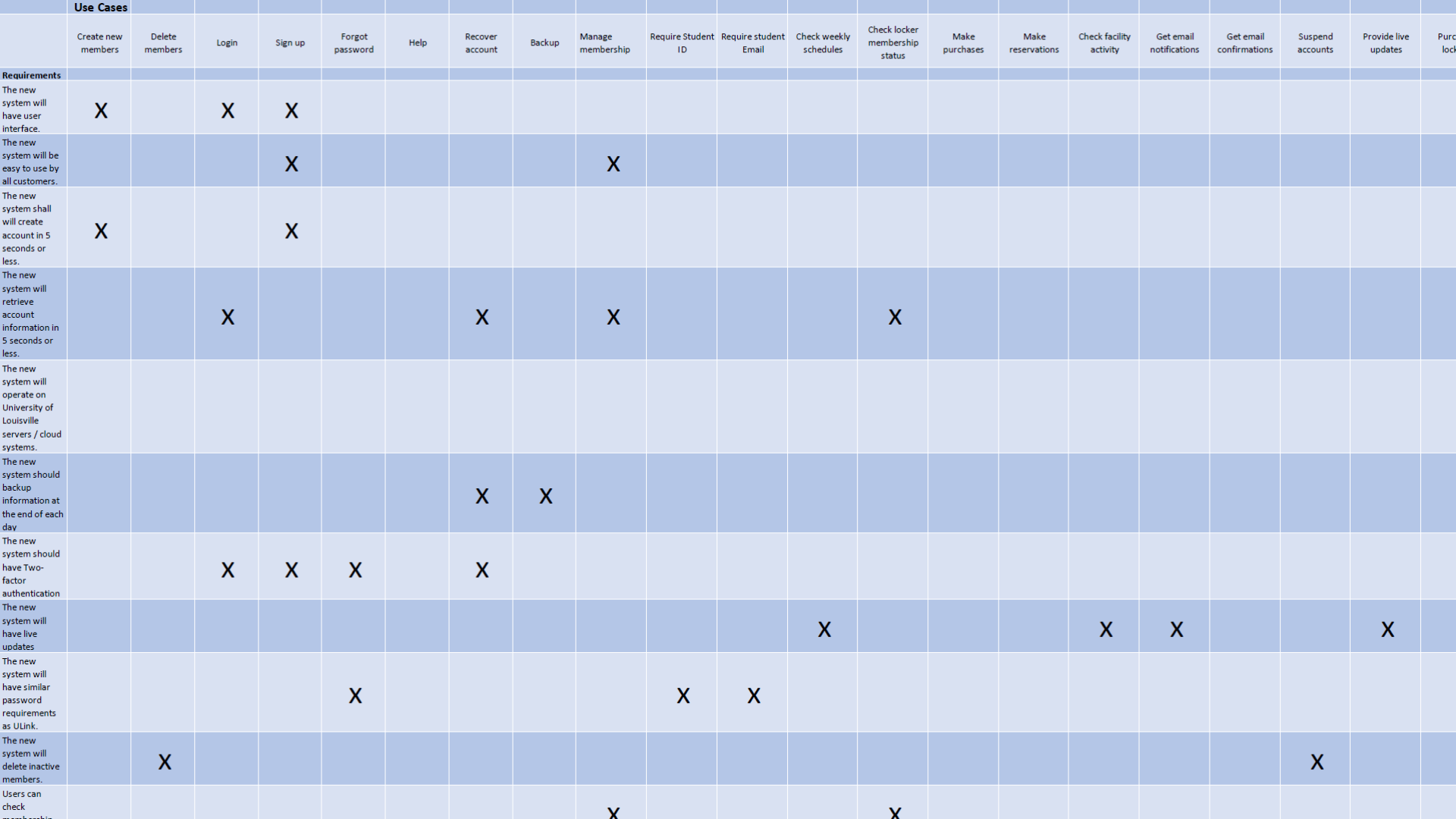
* Members or potential members should already have an ID number beforehand.
* Signing up for a membership requires the student ID to be attached to the membership
* Entering the SAC facility requires the member to show ID, which will have the student number on it

Postconditions:

* Using the student ID, the member can enter into the facility once the SAC employee verifies the student ID is associated with a valid SAC membership

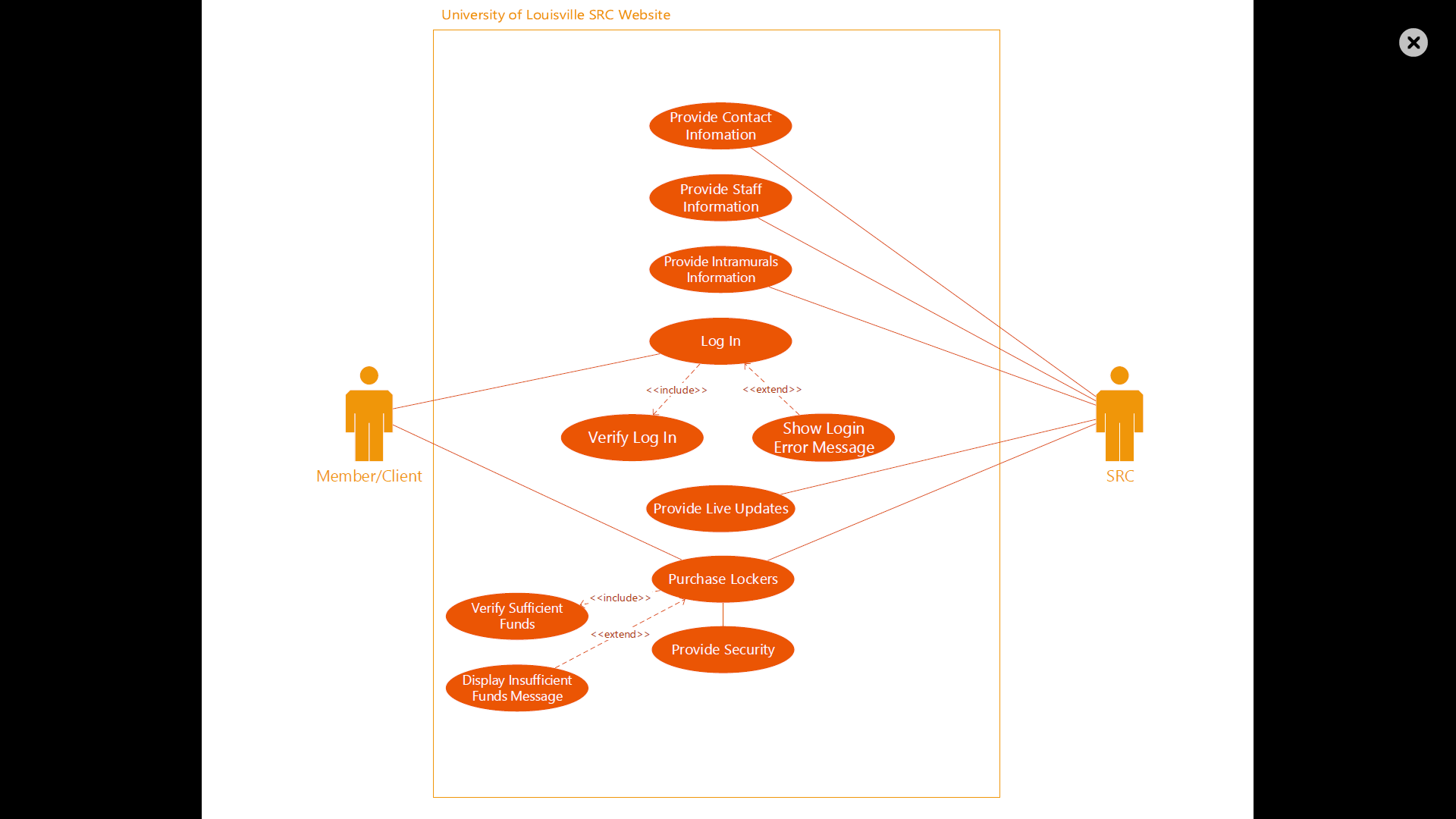
**Trace Matrix**

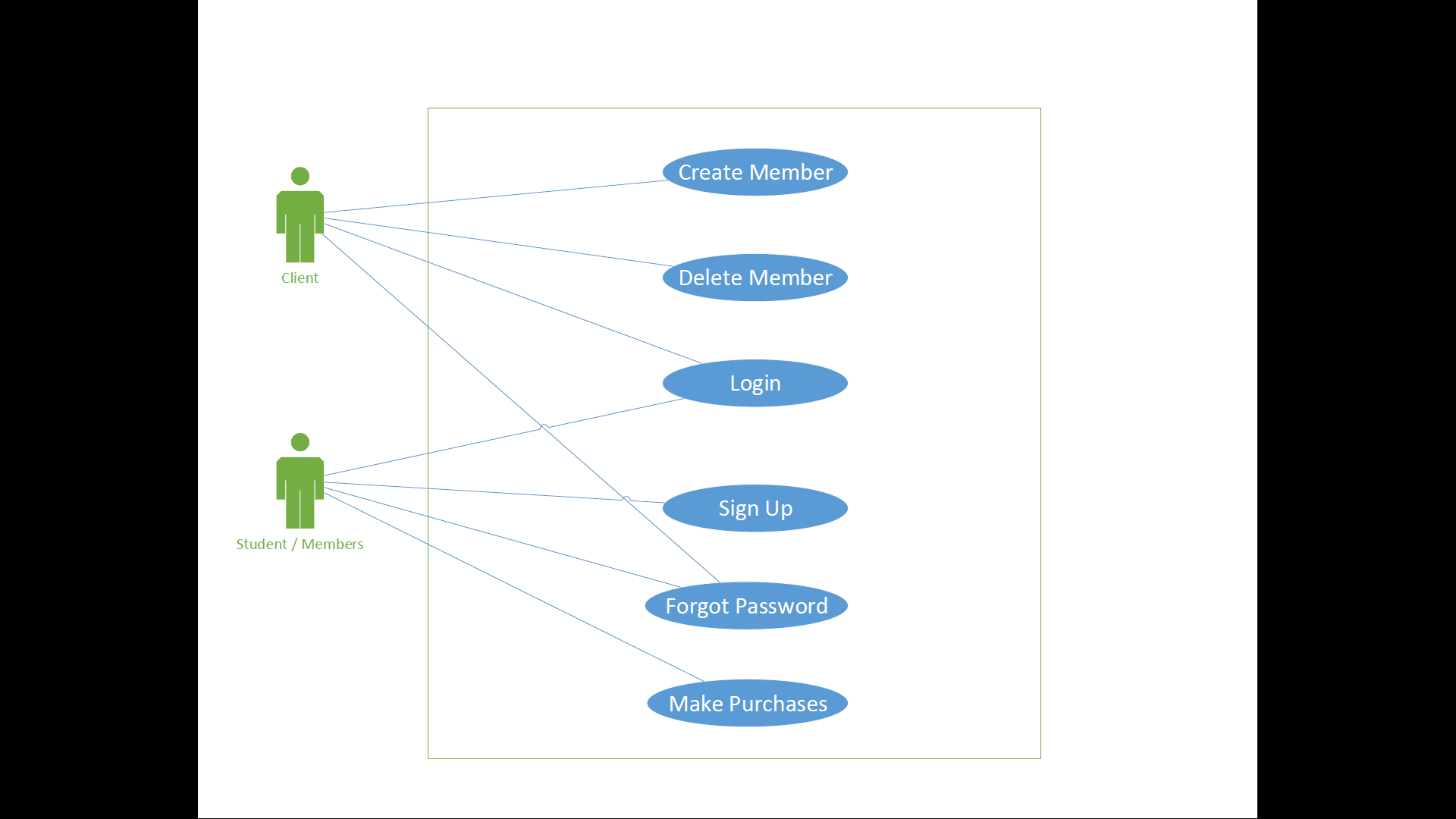
Used to show how the requirements and use cases are connected. Basically shows how the use cases are met based on certain requirements.

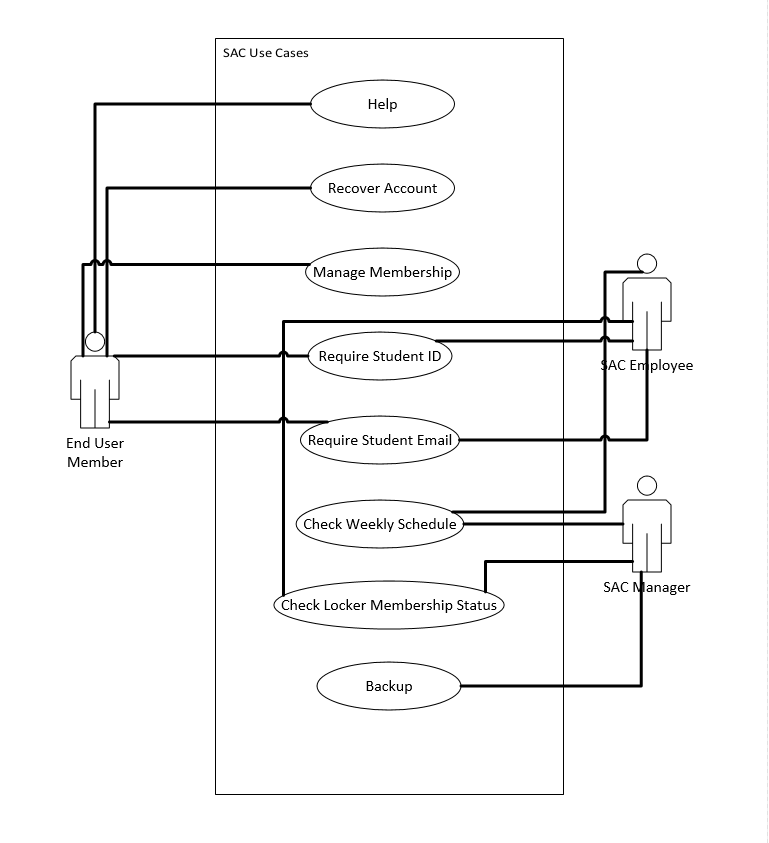


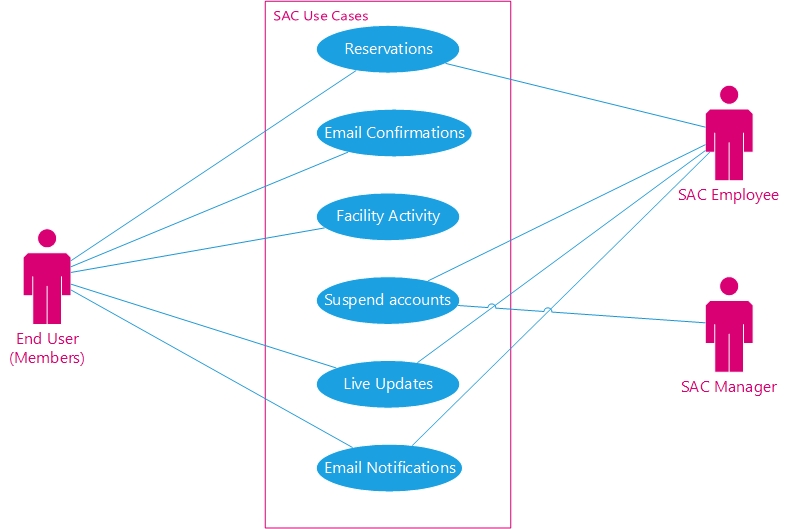
**Use Case Diagrams**

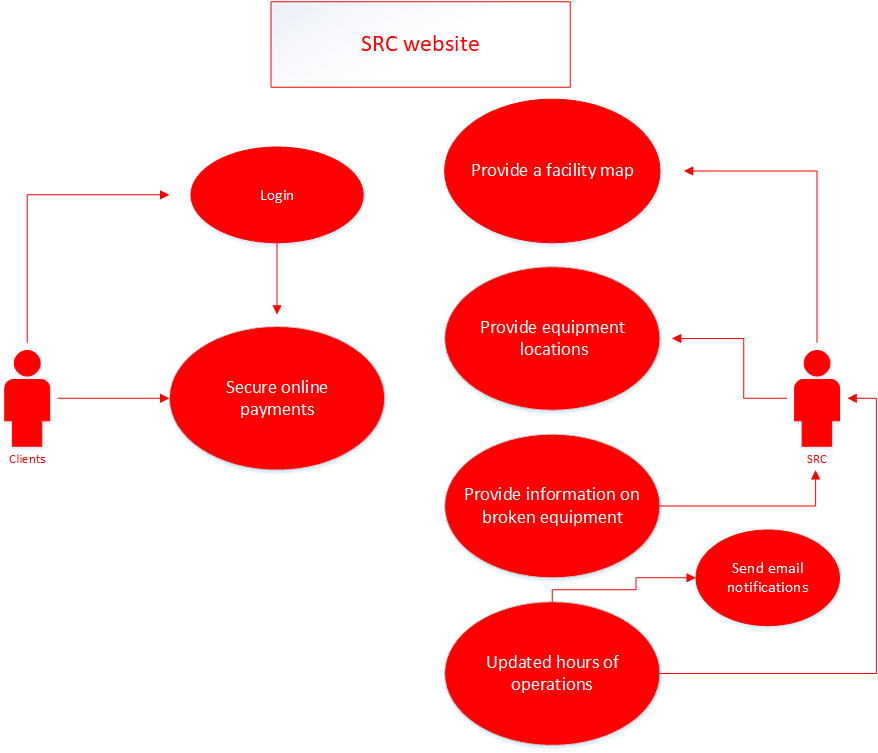
These diagrams show how the use cases are manipulated by user or client. The lines show which use case they actually perform.





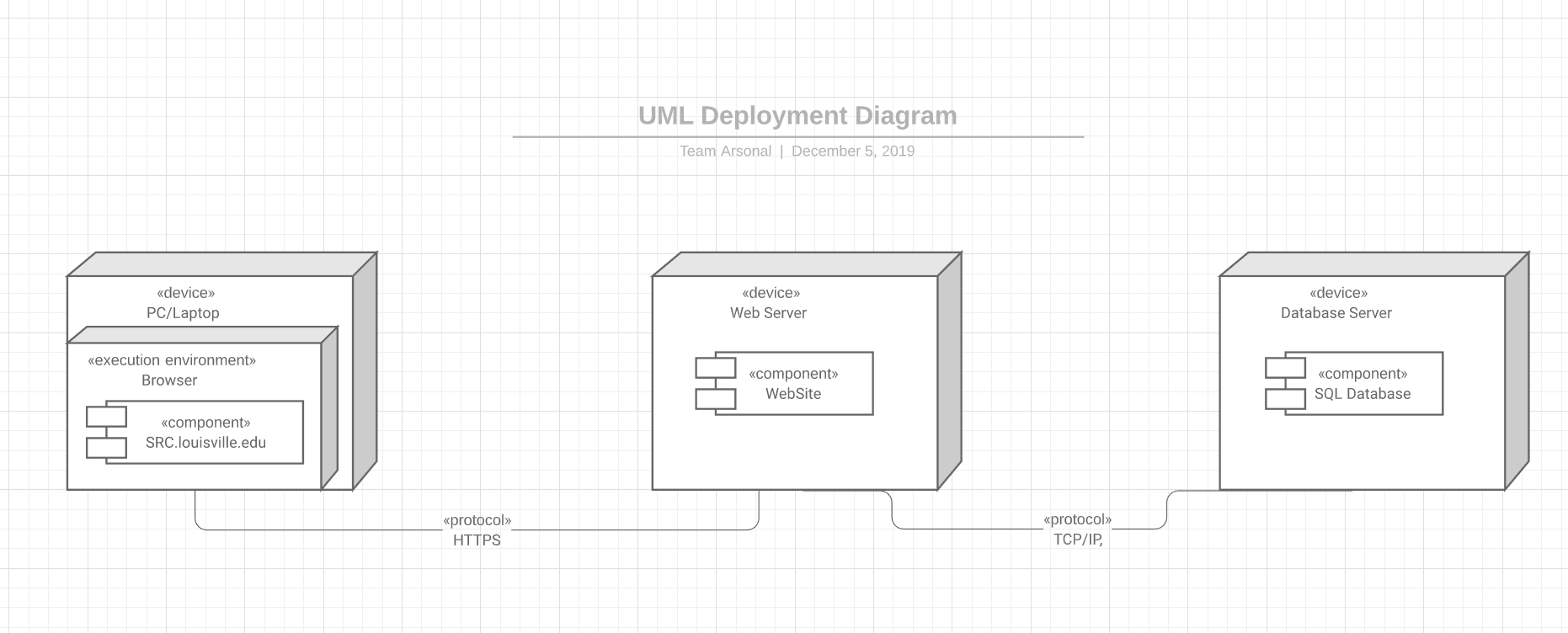






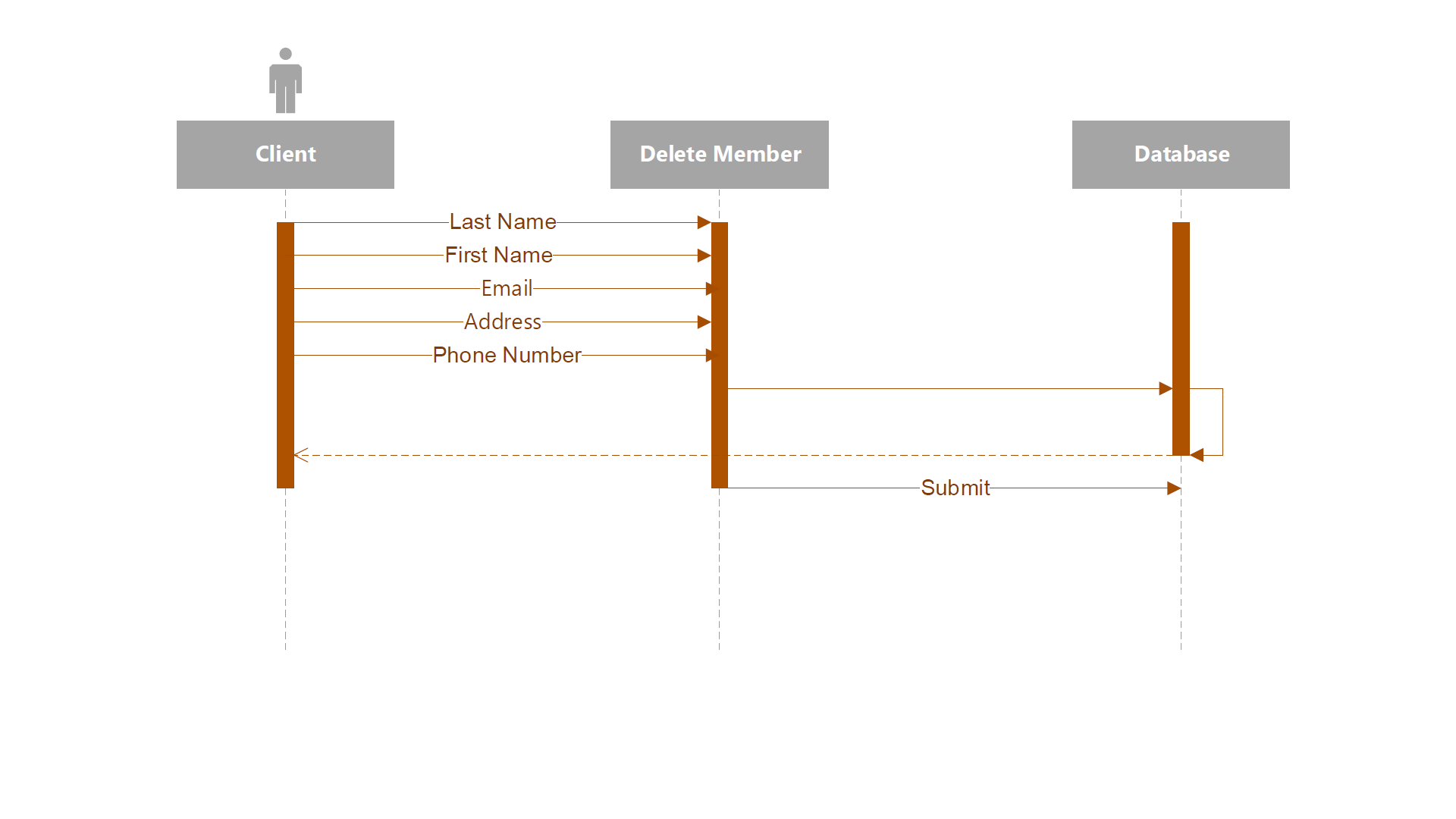
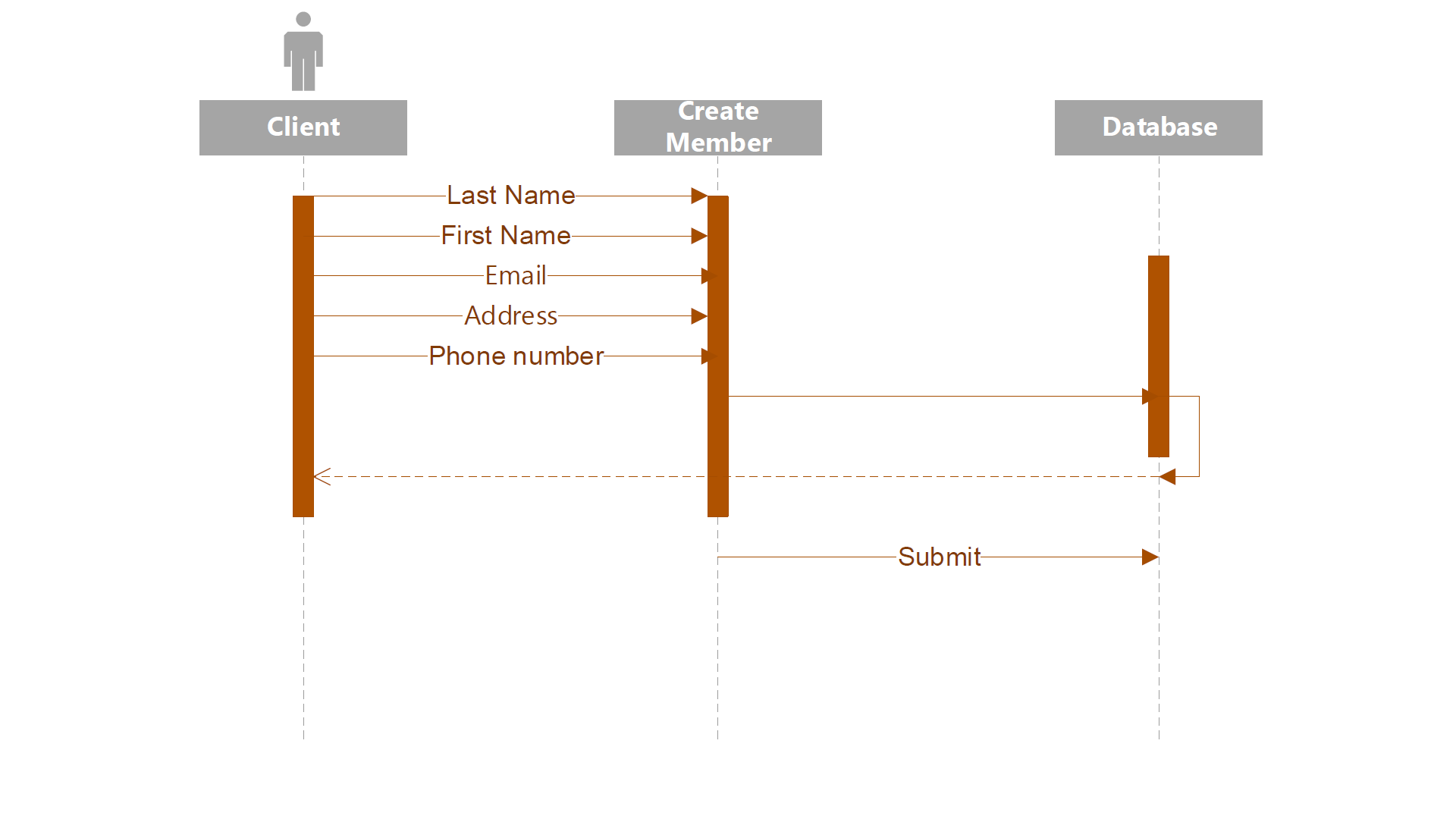
**Deployment Diagram**

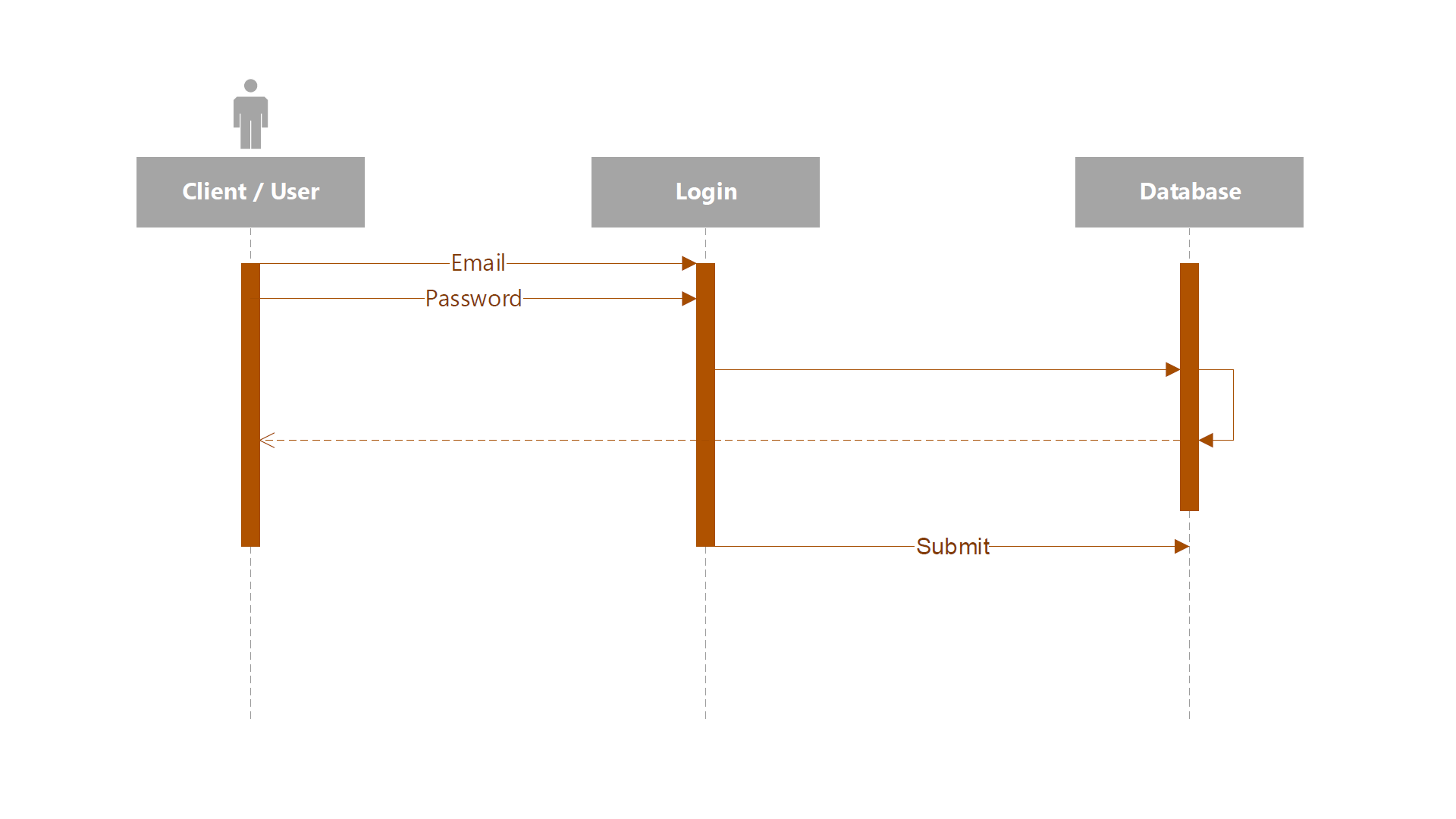
Diagram shows how the would be deployed over the UofL servers and it’s very simple since we would not be creating a whole new system with servers.

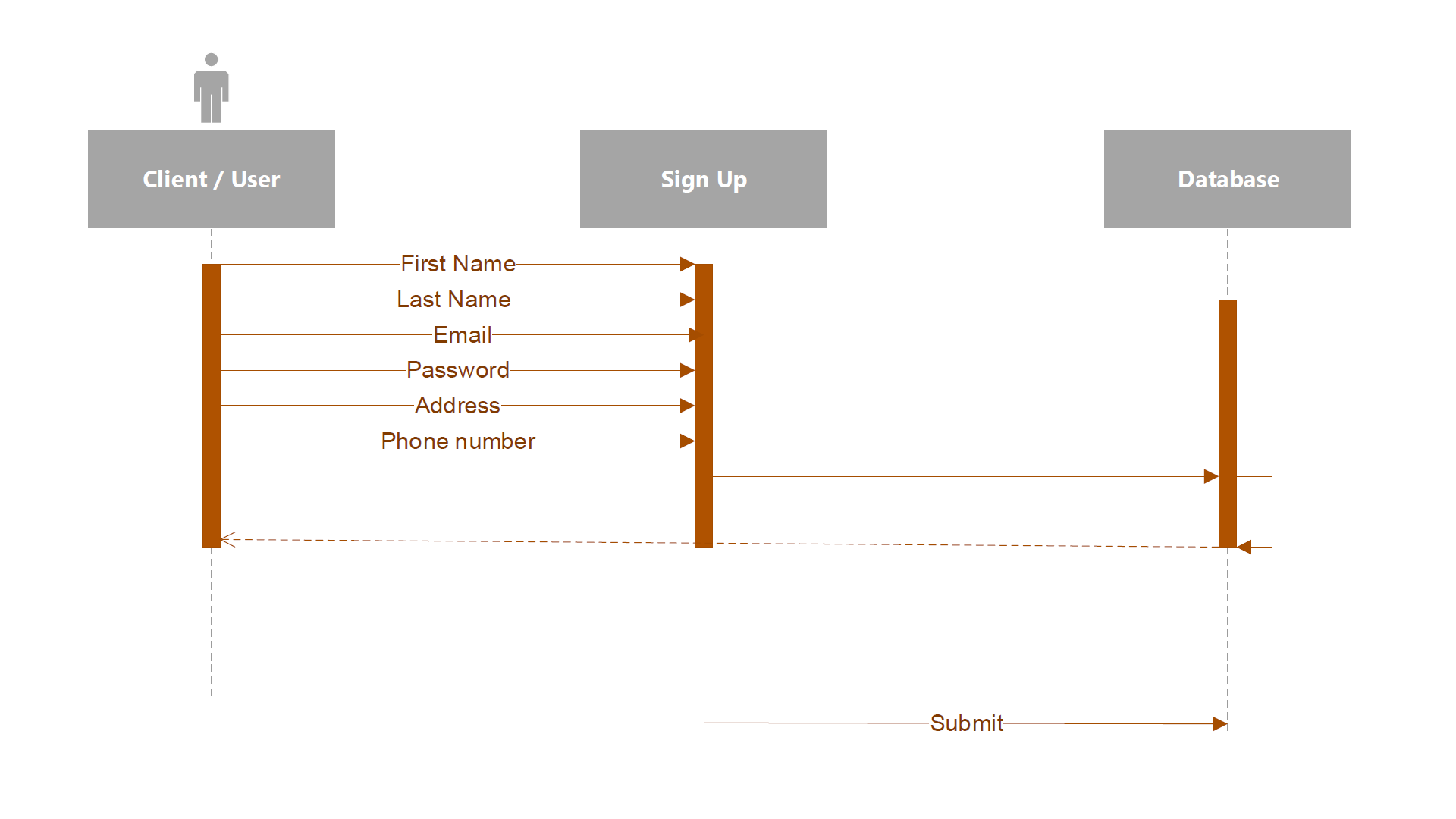
****

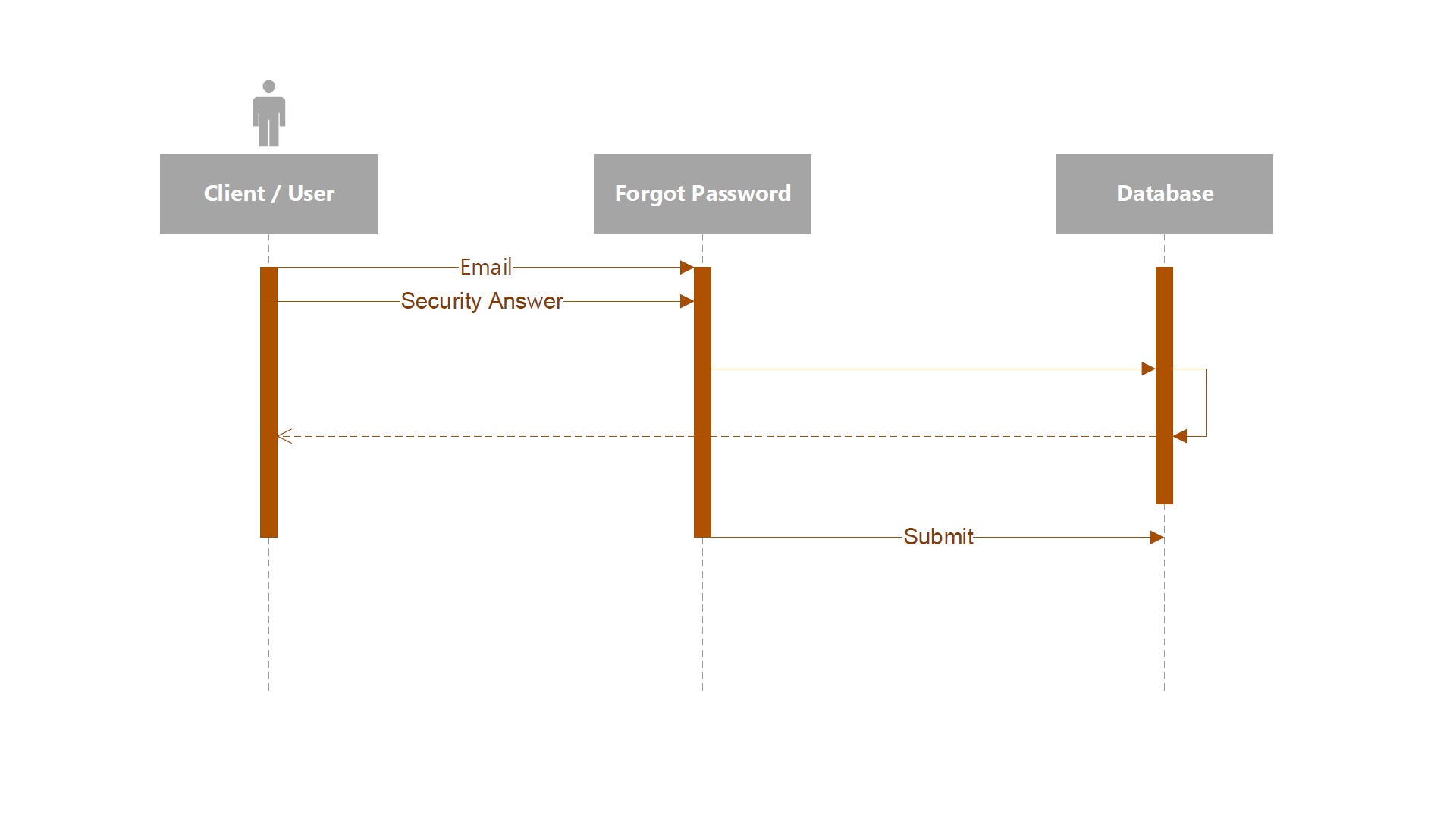
**Sequence Diagrams**

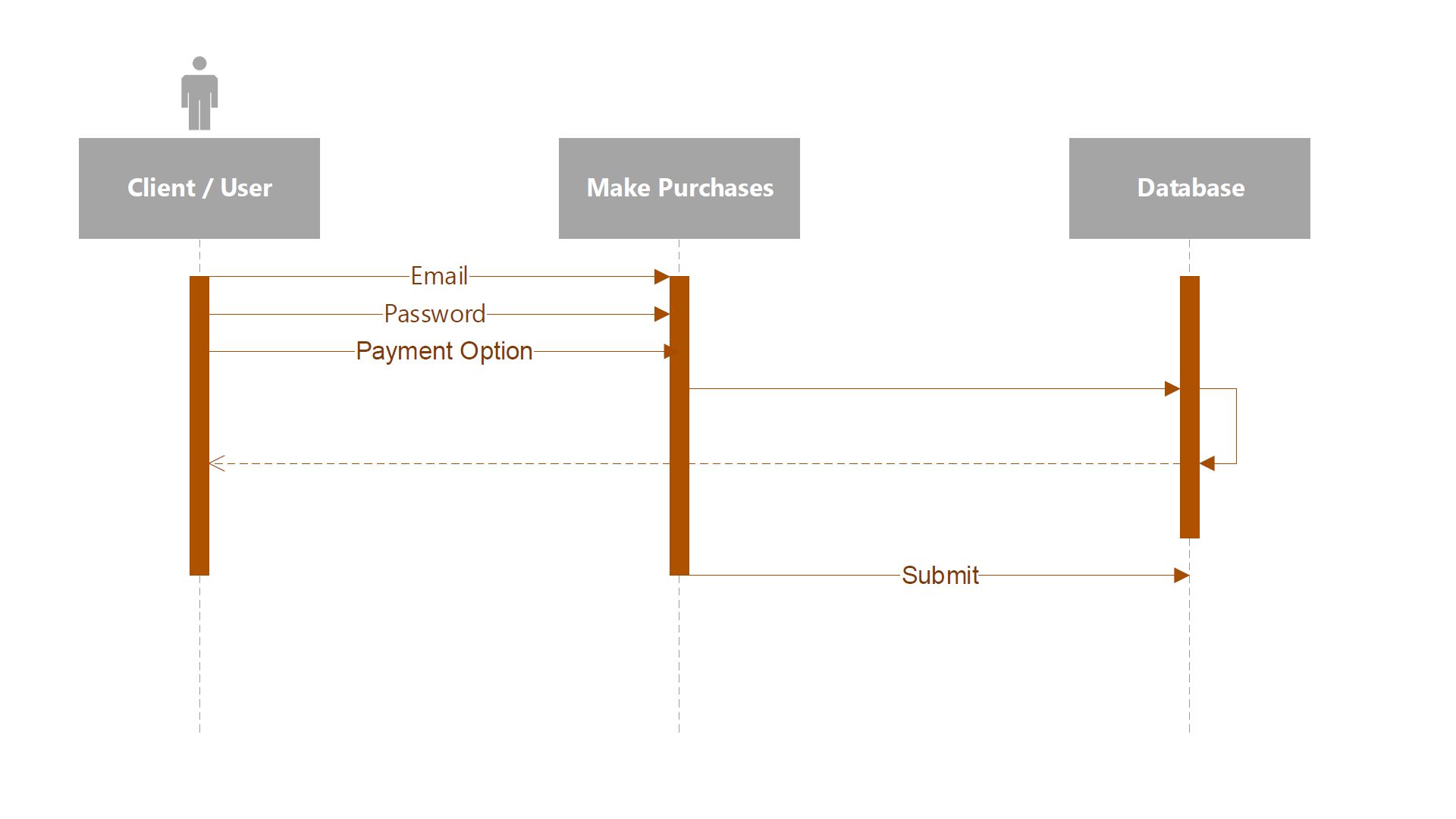
Diagrams that are showing what happens when the user or client inputs data into the system. A way of showing the steps each use case would normal take to be fully executed.

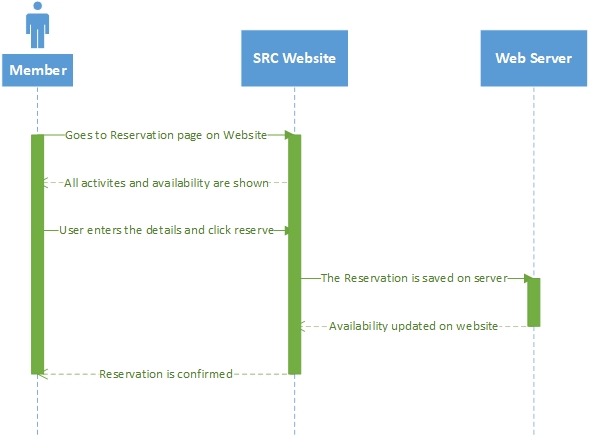
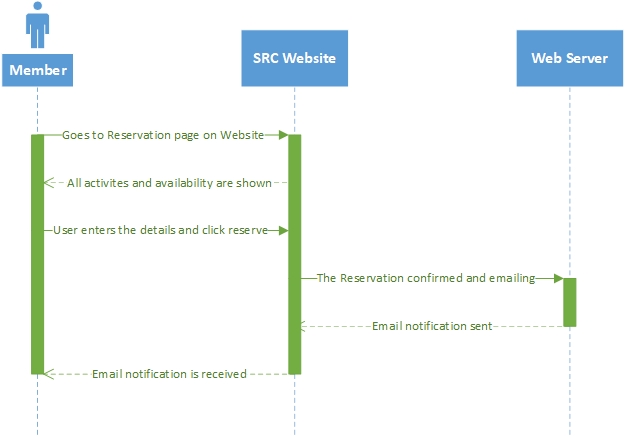
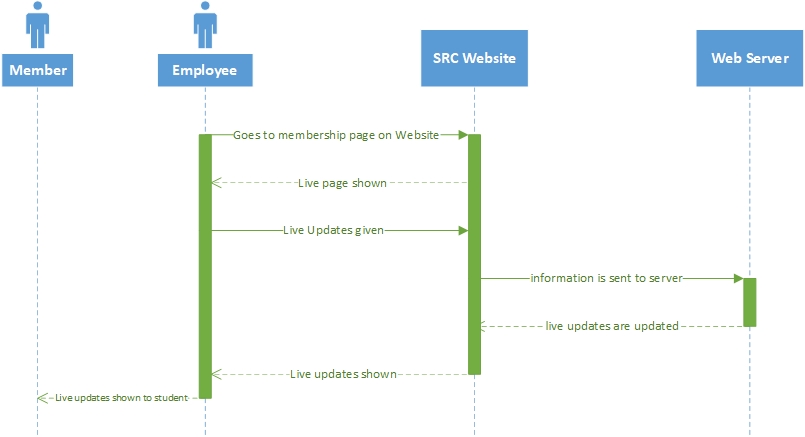
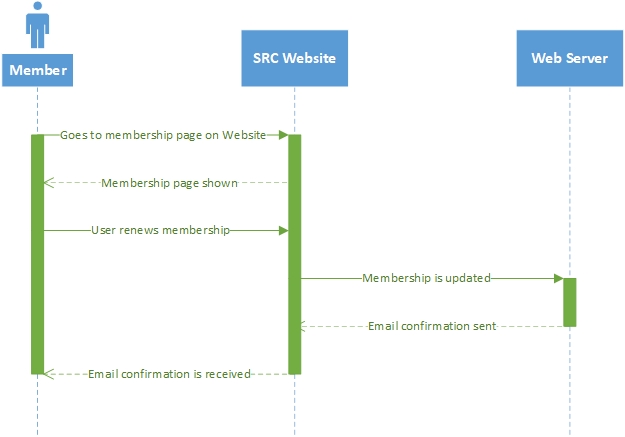
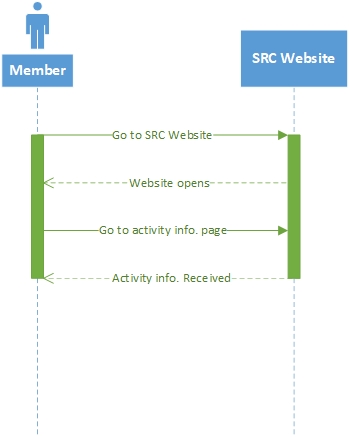
****

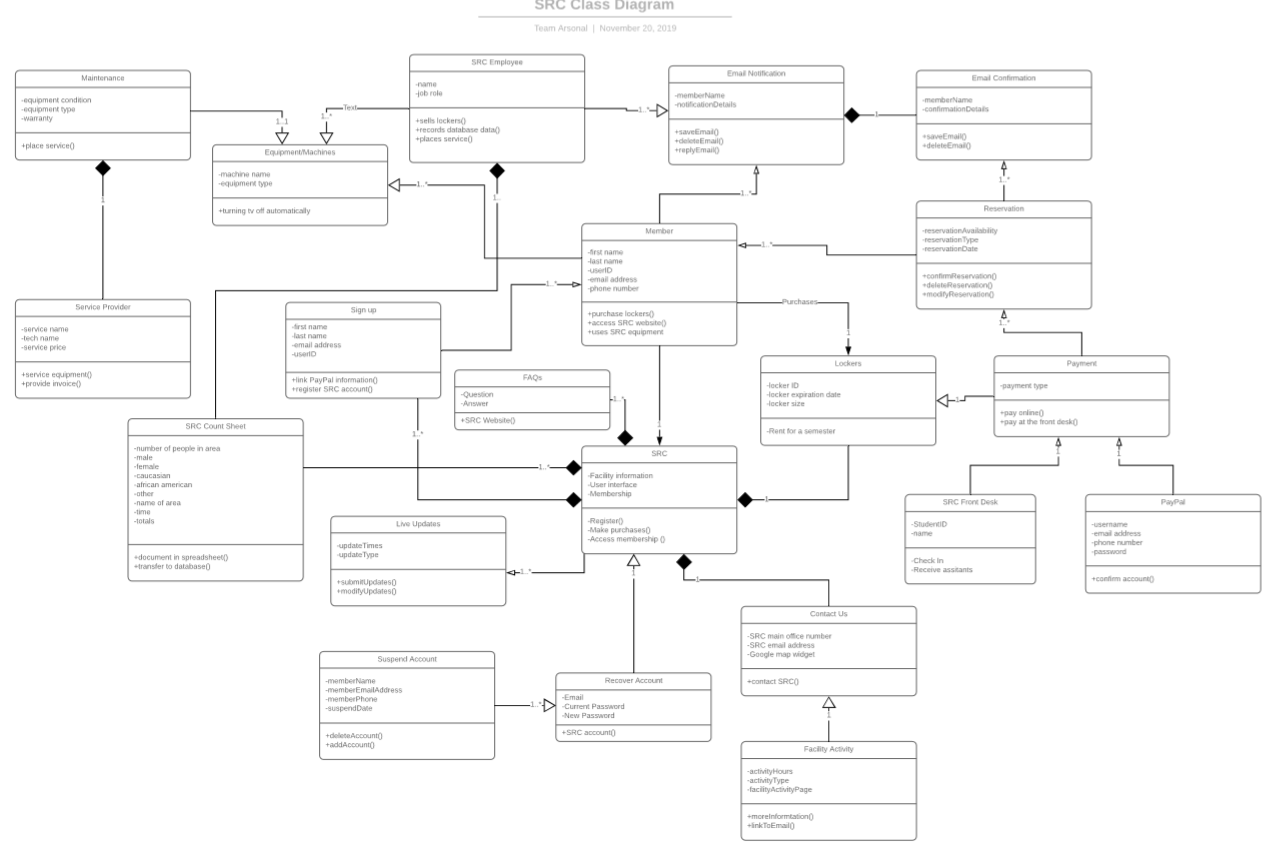
****

****

****

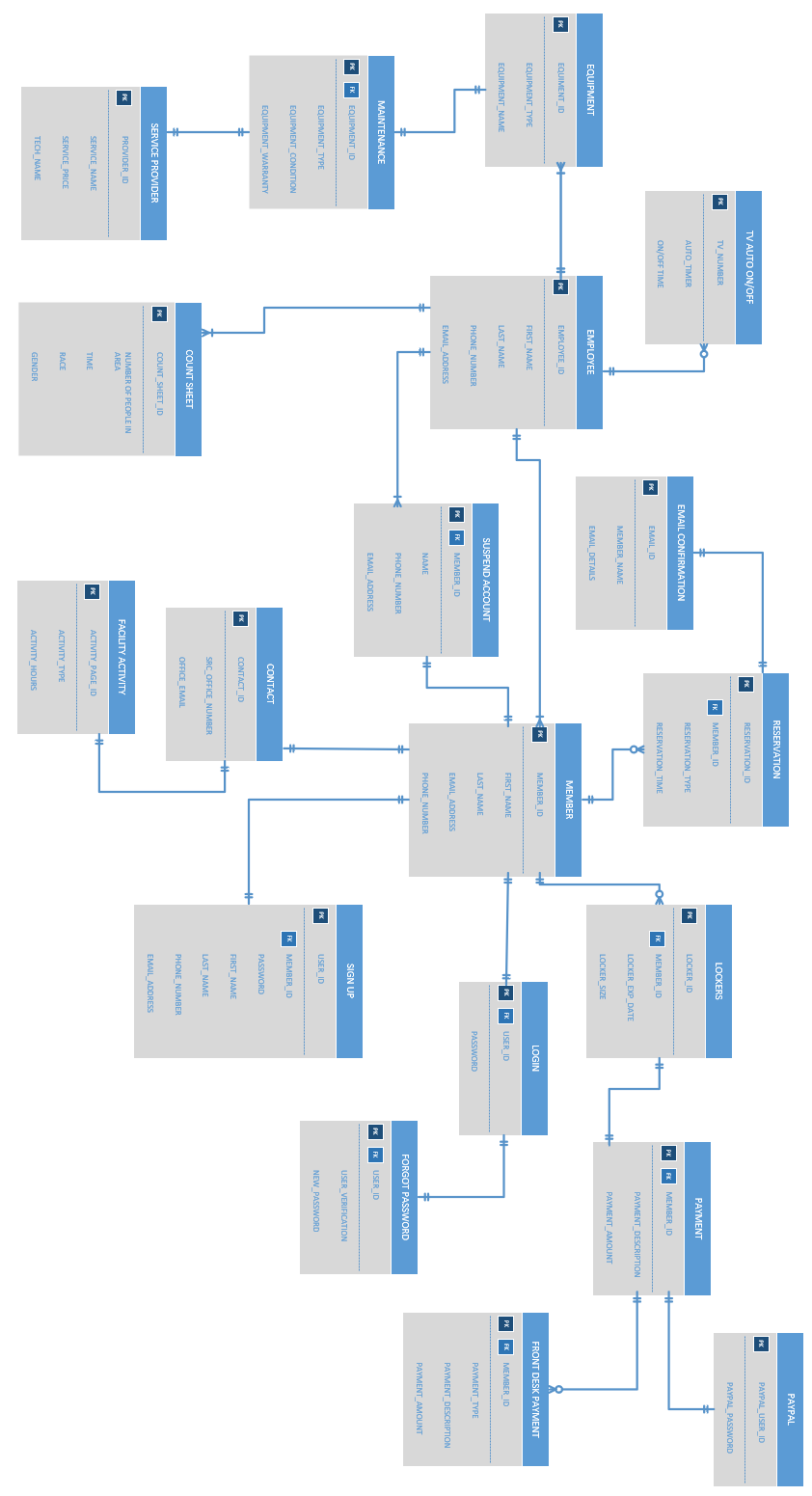
****

**Up**

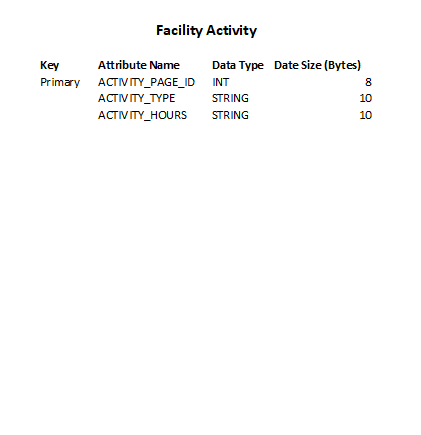
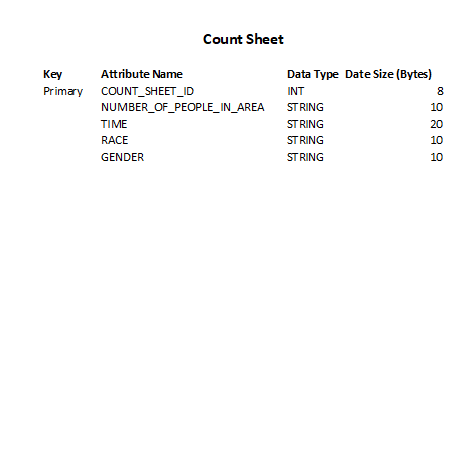
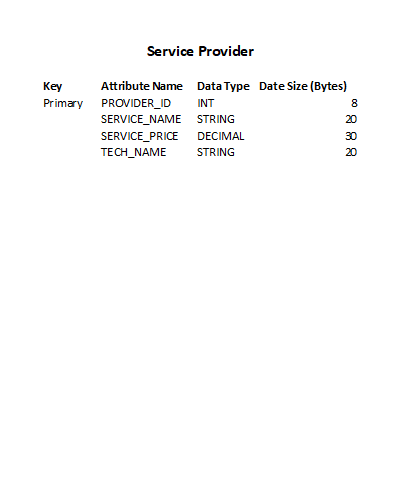
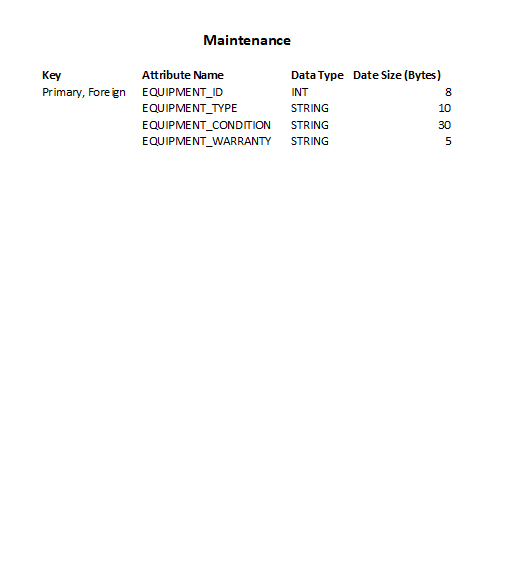
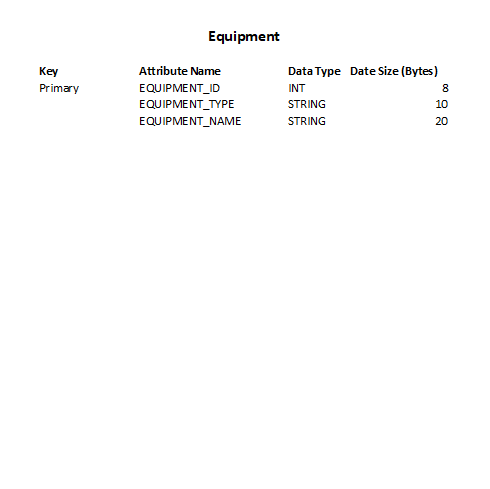
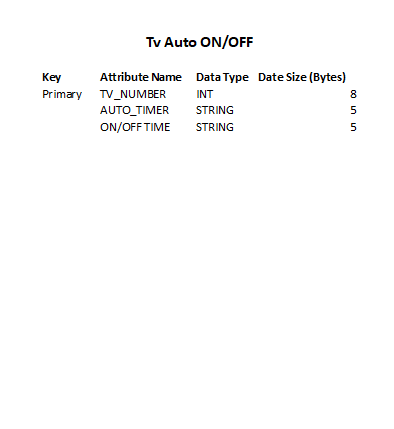
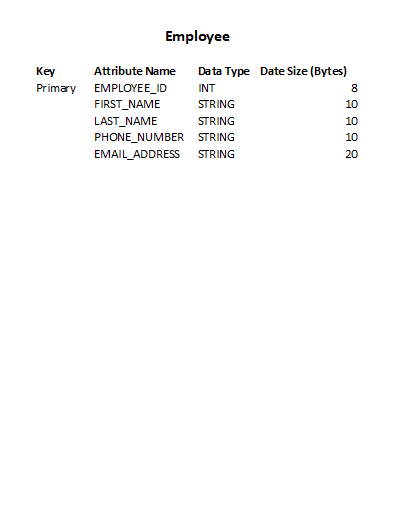
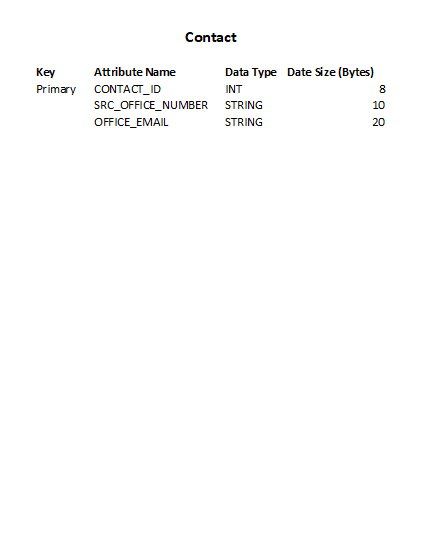
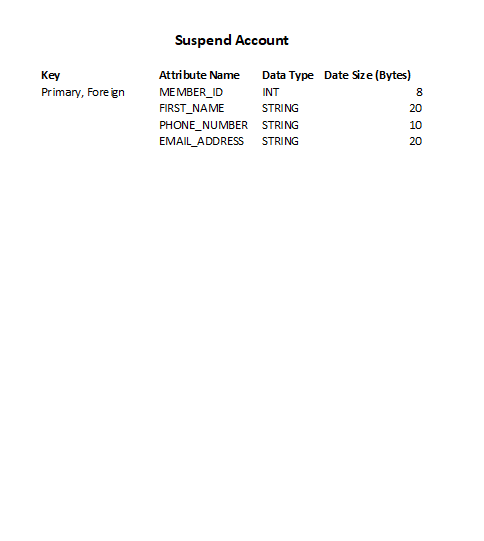
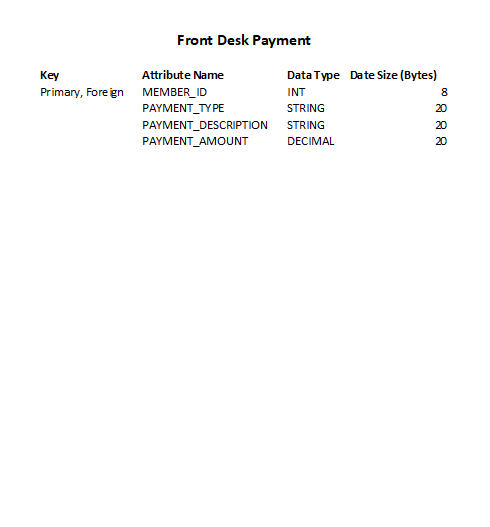
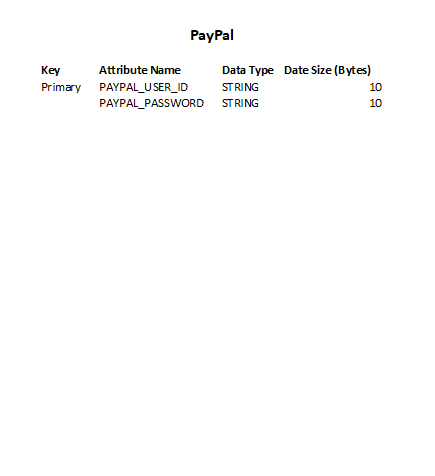
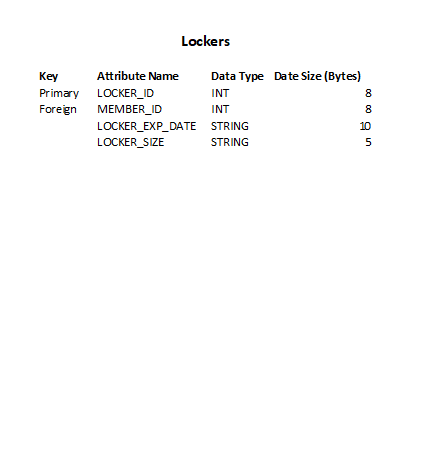
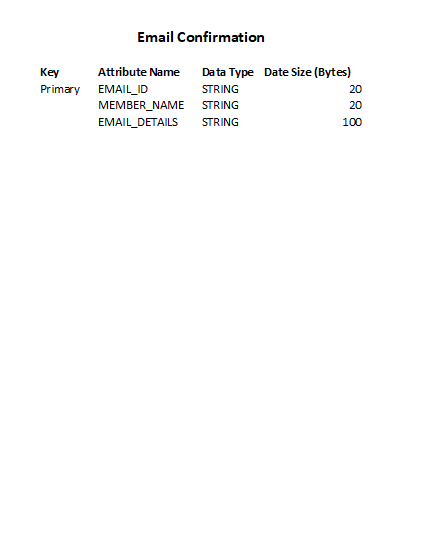
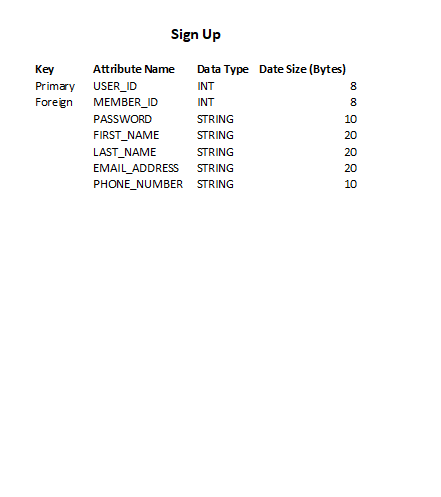
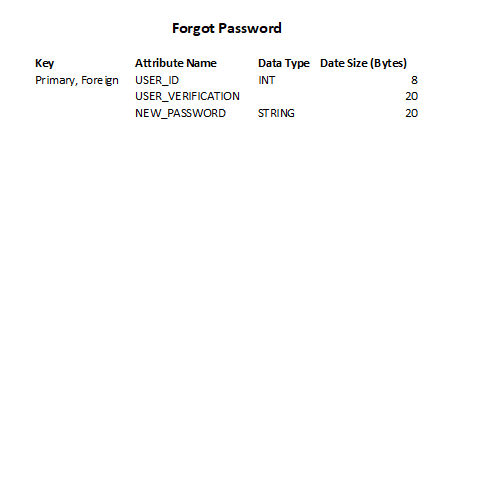
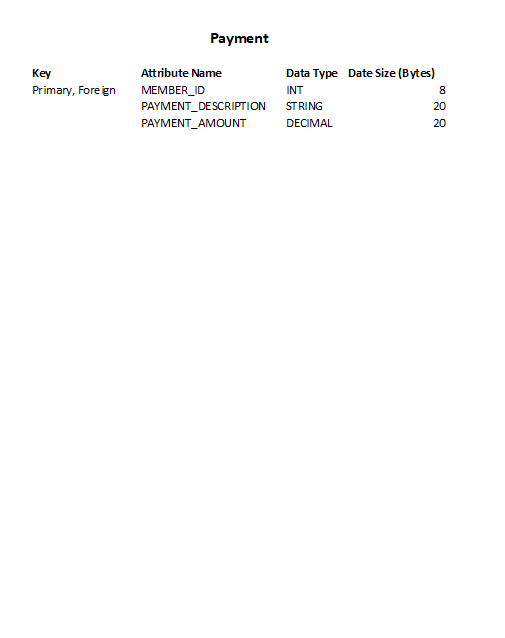
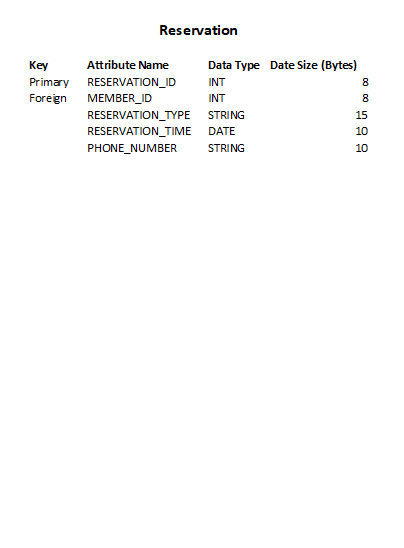
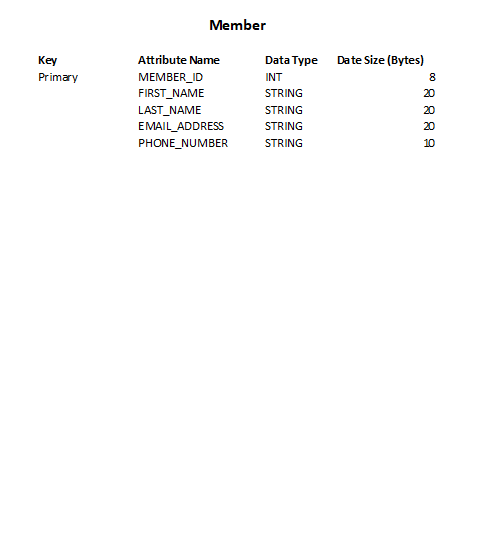


Our class diagram focuses on two specific classes within the diagram: The member and the SRC website. The majority of the other classes have some form of association with these two classes because they have such a significant impact on the rest of the classes. Each class contains attributes and methods which are essentially verbs and nouns associated with that class. The diagram itself depicts the relationship between many elements that will go into the system that is being implemented. The errors that have white points represent inheritance. This is when one class inherits one functionality of another class in the diagram. The black diamonds on the class diagram represent composition. This means when the class with the diamond is destroyed or phases out, so does the class on the other side of the line. Overall, the class diagram displays different relationships between elements of the system.

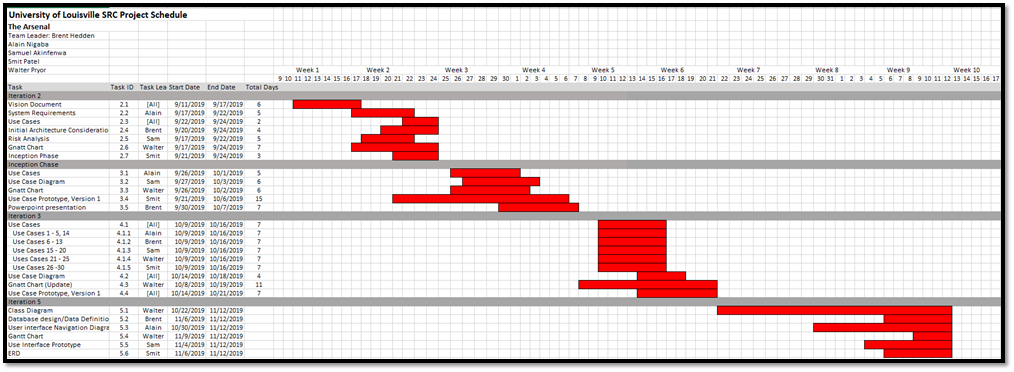
Entity relation diagram that shows the connections between majority of the classes. It provides the primary keys and foreign keys.



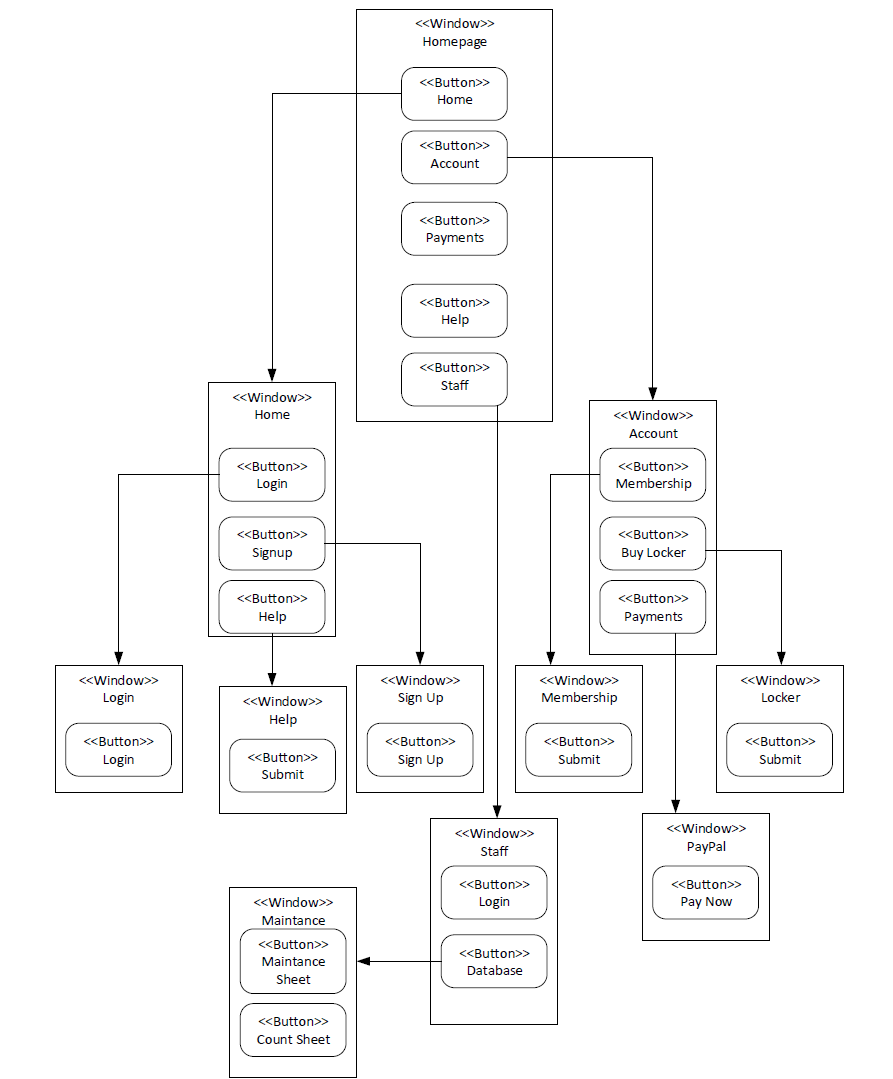
Next pages are database design, which explains and shows how each attribute is stored in the database.

****

Gantt Chart:

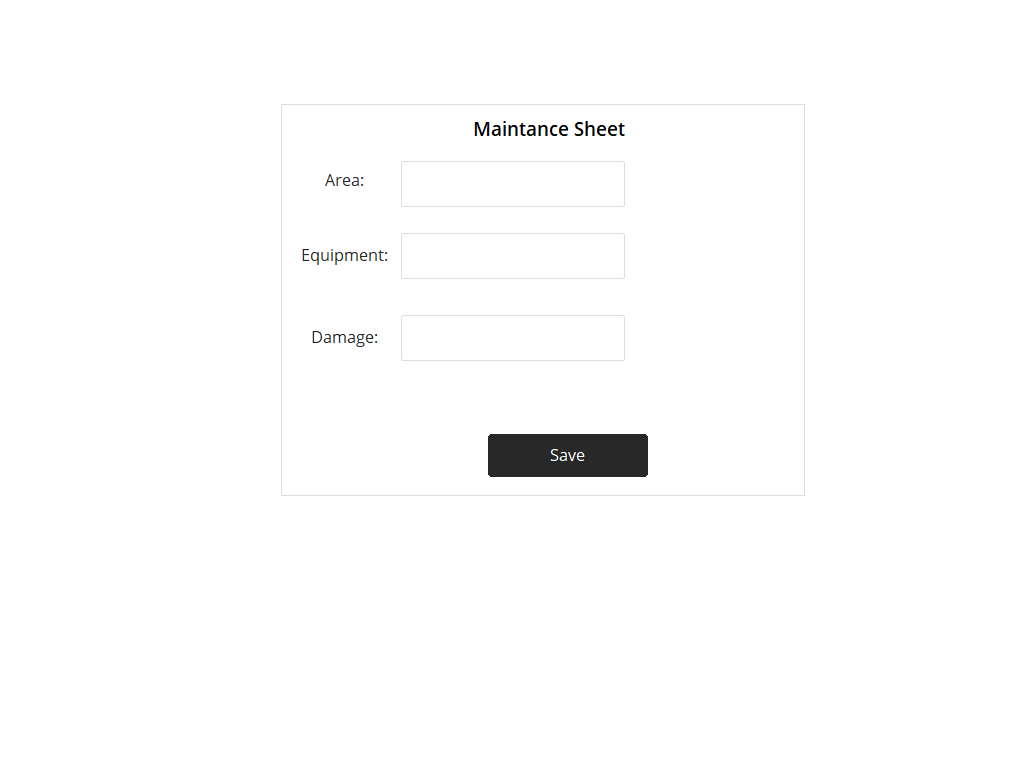


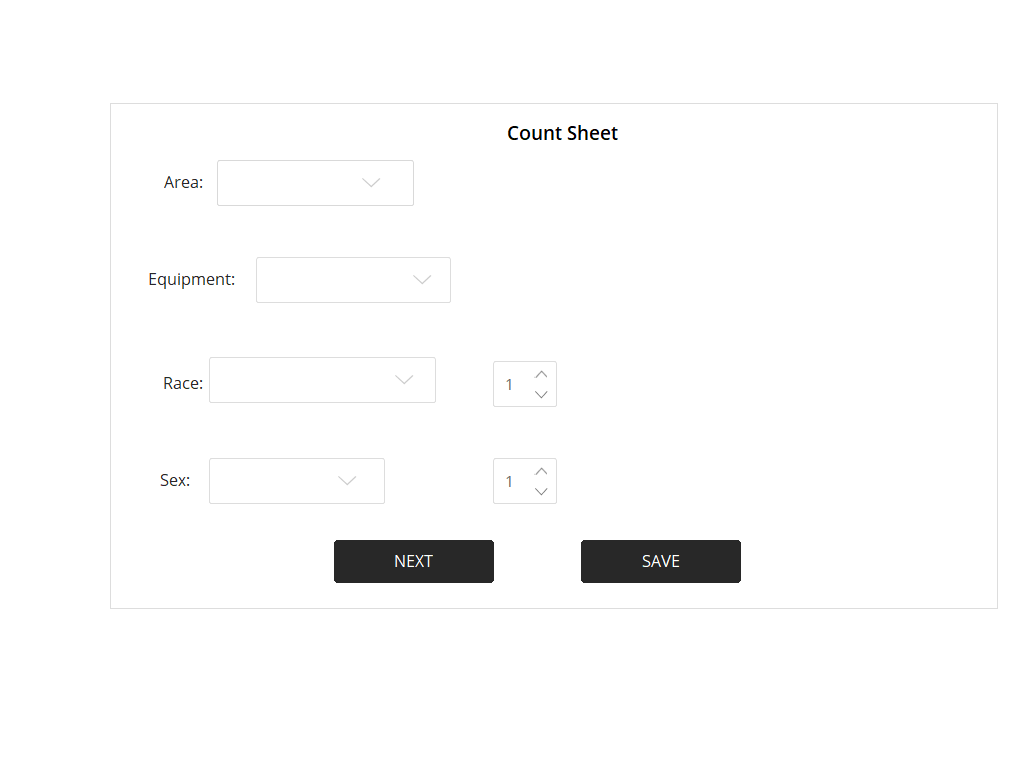
* For the Gantt chart, Iteration 5 is added to the chart. In this iteration, the Class Diagram was the key focus for all elements. It was the first element drafted and is important to the other elements of the iteration due to the implementation of the classes. This time around, we have an even spread when it came to the workload. Everyone had their own specific task. There were no sub-tasks. Every assignment was straightforward enough to complete in set drafts.

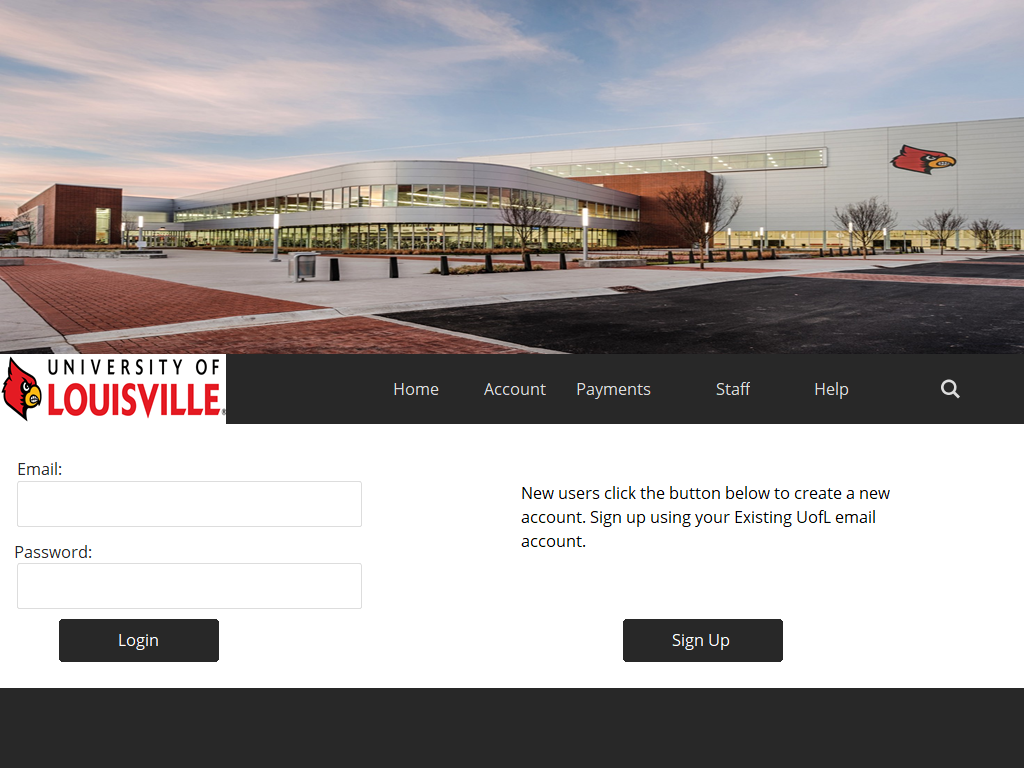


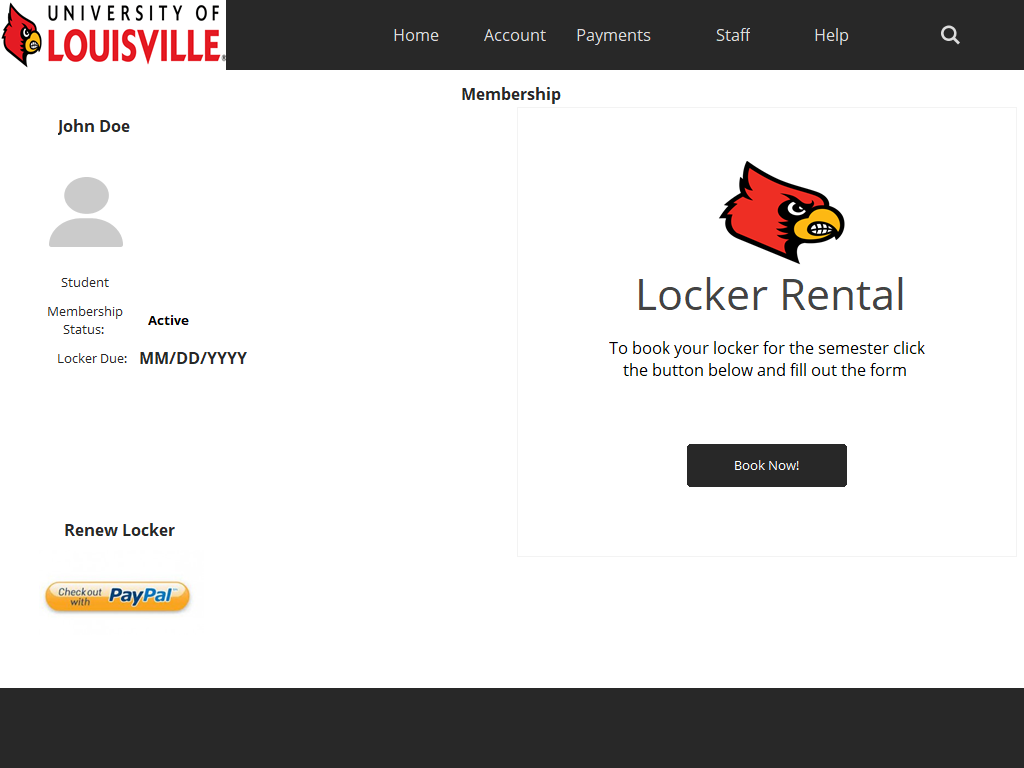
The prototypes presented match how the user interface navigation diagram can help the user or client use the website. For instance, many of the function can be found on the homepage which is labeled “Homepage” on the diagram but the first prototype shows how they are displayed in links or on the header.

Here is a screen layout of what the staff member would see once they are trying to make a report of what equipment needs to be repaired. The next one is what they would use to count the certain amount of people in an area based on their race and gender. It also includes which equipment they would be using. The input field is actually a dropdown menu which the staff can easily select from instead of manually entering. The counters are there so they can select the amount of people at a given area. The next button is there so can do multiple count sheets for different areas. And when they are done they could click save.

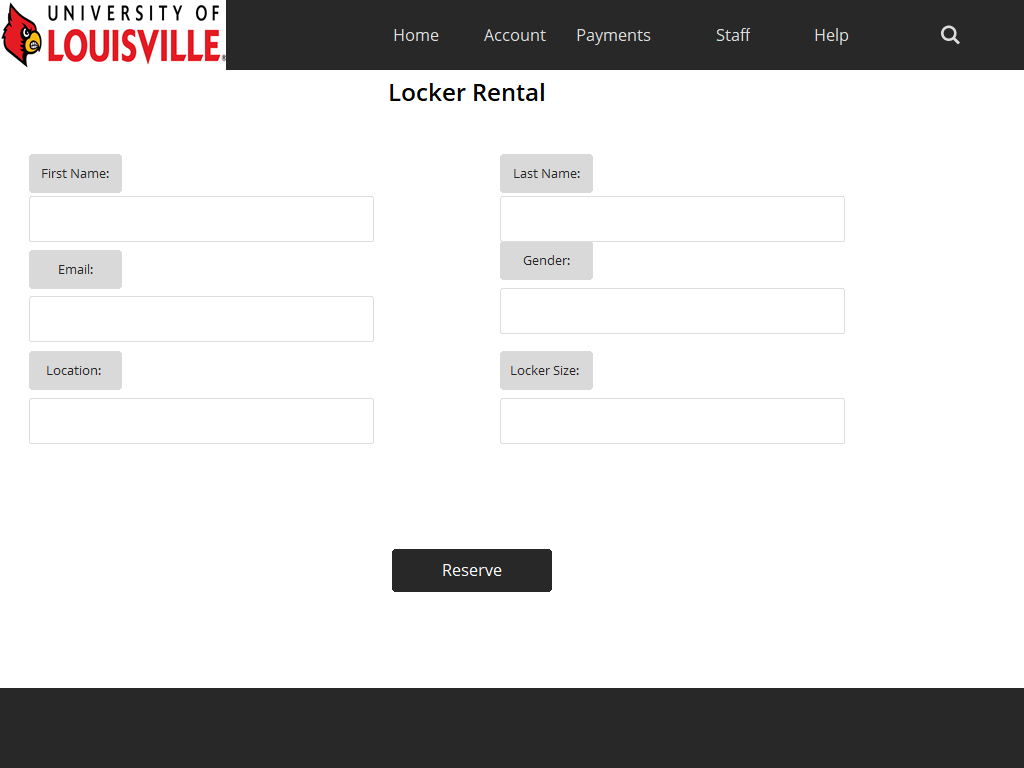




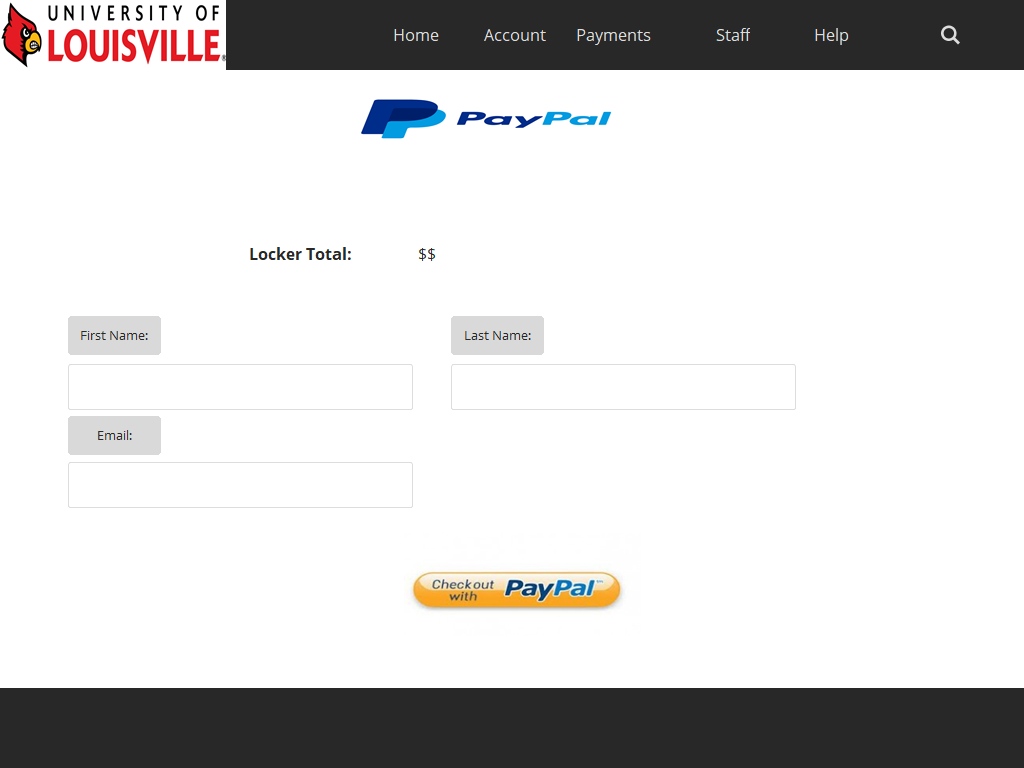
The first prototype presented is basically like a homepage. This way the user can click the links/buttons and it will direct them to their desired location. Also includes the login page and sign up for new members.



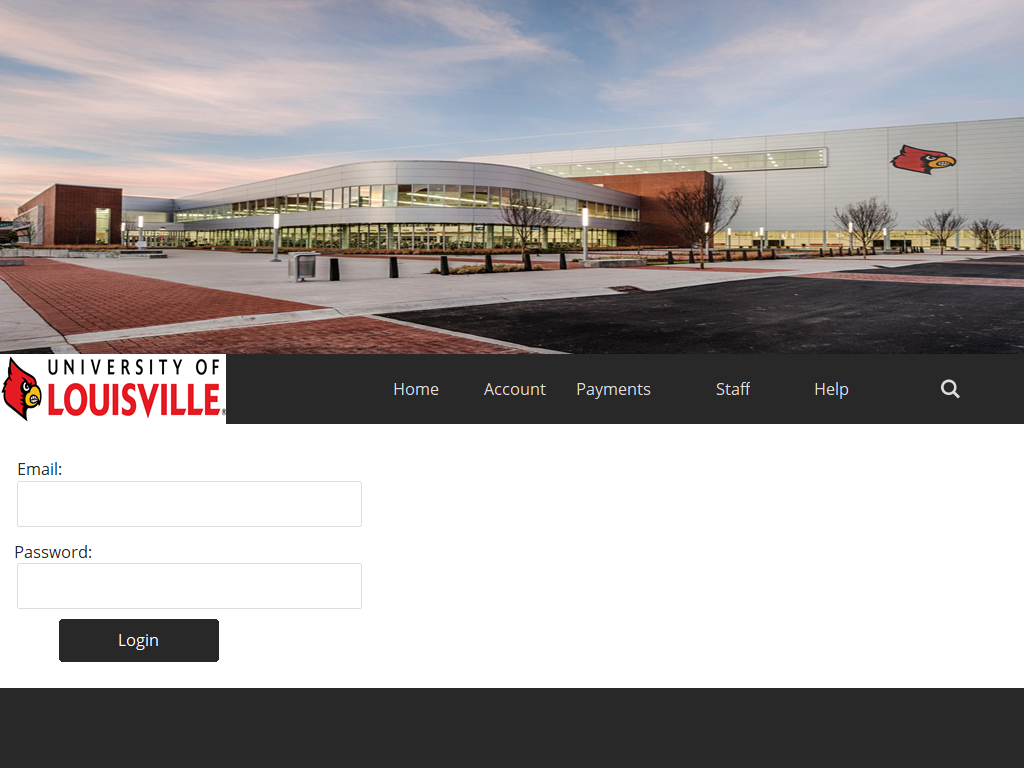
This would be the “Account” view that the member would see once they login in.



Locker rental for members that wish to purchase lockers would have to fill out all of this information.



Members would use PayPal to complete and make payments on lockers.

This is what the staff member login in would look like once they tap on that staff button on the header.