SMART CONNECT

DESIGN TEAM 9 - Team members
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Introduction

Our study focuses on the communication challenges within an academic context mostly between students and professors. Our Design report focuses on the communication issues and challenges faced by students in a college of school environment. The problems faced by students such as difficulty in making appointments, interacting with peers. Difficulty in communicating through a larger platform such a forum.
We performed need-finding through observation and survey, where we asked them various questions about their previous method of interaction with the professor.
We have set a few goals based on our findings so that our design prototype is mainly focused on and around them. We designed a user interface i.e. high fidelity prototype using Axure. We provided the prototype for testing to various users and took feedback and suggestions from them and analyzed them We conducted evaluation based on our findings from the prototype testing and redesigned the goals. In the following sections we discuss these steps in details.

Need finding

The first step of our need-finding process was observation. In our observation we asked students walk us through their normal communication process with one of their professors We asked them "Can you walk me through how you would communicate with your professor?" Then we asked them to arrange a group meeting with two of their peers and their professor.

We observed 4 students. We observed that three of the students used email to contact their professor and one used Canvas. The users stated that they chose the method because their professors mentioned this the best way to contact them. In the second part, one student emailed the professor and cc'd their peers. Another student called their peers and set a time window and then emailed the professor. The other three students messaged through their common group chats and set a time. Then emailed the professor. We mostly see that users need to arrange a time with their peers first and then contact the professor. When we asked them "if the professor is not available during the suggested time what will you do?" four of the students noted that they have to go through the process of contacting their friends again. The only student who started an email with both friends and the professor didn't have to do anything.

The main problem which we researched in the needfinding survey was the proper communication between the students and the faculty or staff member of the universities. Not many universities have a proper channel for communication. The communication is

primarily through official email. We performed the needfinding survey to focus on the problem that students are facing right now rather than suggesting them some solution.
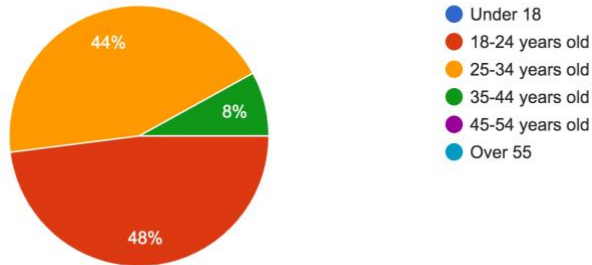
The second step was to do the survey. We made a set of questions about the problems students face while communicating with their professors. The second part of the survey was to ask professors and faculties, which we didn't do right now. So this is just part one of survey. We asked questions related to how frequently they contact them, what is their preferred method to contact professors, do they have any problems communication via email, how easily they are able to contact in case of emergency, etc. Basically, our survey was focused on how well communication platform is working right now, how satisfied are the students and if they need improvement in that.

Most of the questions were on their current experience with communicating, few were on demographic info, how frequently they contact their professors, do they get prompt reply when needed, how satisfied they are with their current communication platform. These kinds of questions were asked in the survey. Questions were mostly multiple choice, few were open-ended. We got a very good response on open-ended questions, students properly described what issues they are facing right now on the communication end.

We learned from this survey that many students contact their faculty once a week. However, there were times when they needed a quick response from the professors they didn't get it. They had to wait till the deadline or had to request to extend the deadline, etc. Overall, we analyzed that their can be a better communication platform for student and faculty. Most of the survey results also shown the same.
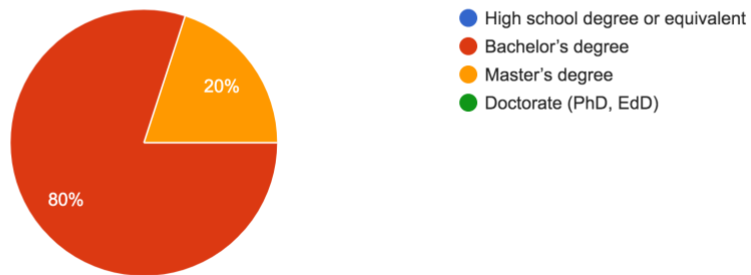
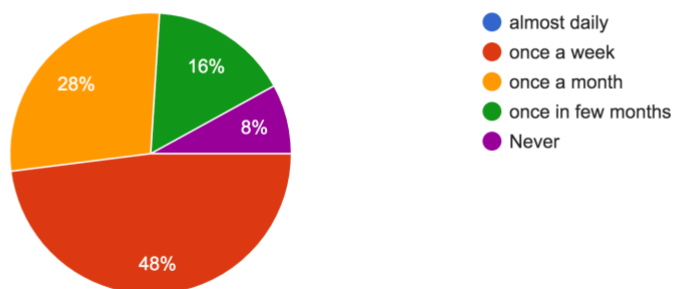## 2. What is your age?
25 responses

- Under 18
- 18-24 years old
- 25-34 years old
- 35-44 years old
- 45-54 years old
- Over 55

44%
8%
48%

4. What is the highest level of education you have completed? High school degree or equivalent
25 responses

- High school degree or equivalent
- Bachelor's degree
- Master's degree
- Doctorate (PhD, EdD)

20%
80%

7. How frequently do you contact your faculty members?
25 responses

- almost daily
- once a week
- once a month
- once in few months
- Never

16%
8%
28%
48%

8. What is your preferred way to contact professors/advisers?

24 responses

Legend:
- Via email
- Voice call
- Meeting in person
- Video call

87.5%
12.5%
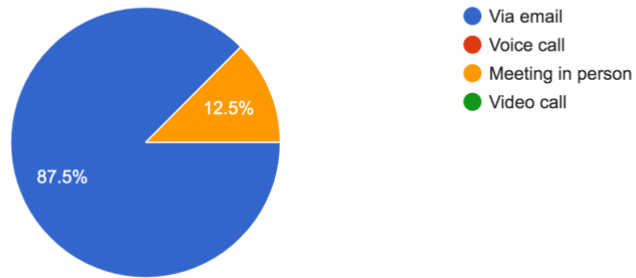
9. Do you feel comfortable in asking silly questions to the professor in person?

25 responses

Legend:
- Yes
- No
- Maybe

28%
36%
36%
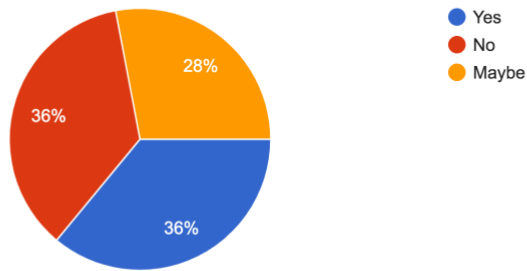
10. How easily do you get response from faculty?

24 responses

Rating	Count
1	0 (0%)
2	2 (8.3%)
3	4 (16.7%)
4	4 (16.7%)
5	4 (16.7%)
6	3 (12.5%)
7	2 (8.3%)
8	5 (20.8%)
9	0 (0%)
10	0 (0%)
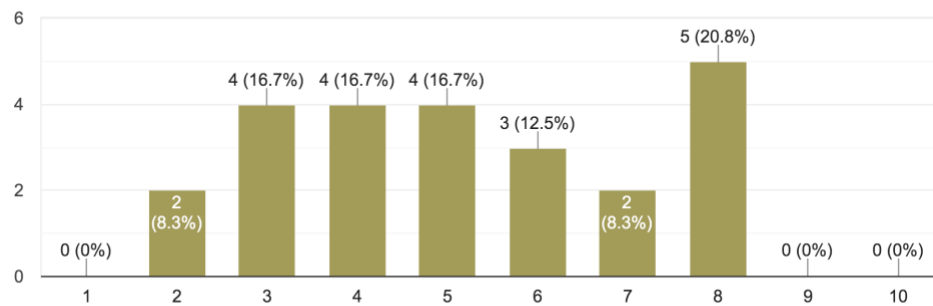
Here is a snippet from the survey results. We can see from the responses received, 48% of students agree that there should be a better way to communicate while other 44% are not sure about it, but if they get a better way, they will be happier we guess.

Among responses for the last question "Describe a situation when you needed help from a faculty, and they helped you or not helped you?" there were special cases like "The active shooting last year, it took a lot of time to know if we still had an exam or not." and more common situations like "when I was registering for classes" or "Most of the time help is within a few hours of when it is needed." Overall, it seems that students need to go through a process back and forth particularly when they need to arrange a meeting or ask a question as a group. They don't feel comfortable to have a conversation as a group in the current platforms.

Personas

We made two personas for our surveys, one of a student and another one of a professor.

Persona 1

Student : Since our main customers will be students, undergrad/ graduate/PHD. So we have taken one persona of a student as consideration. We included details like his background information, finances, academic behaviour, hope and dream and his personality.
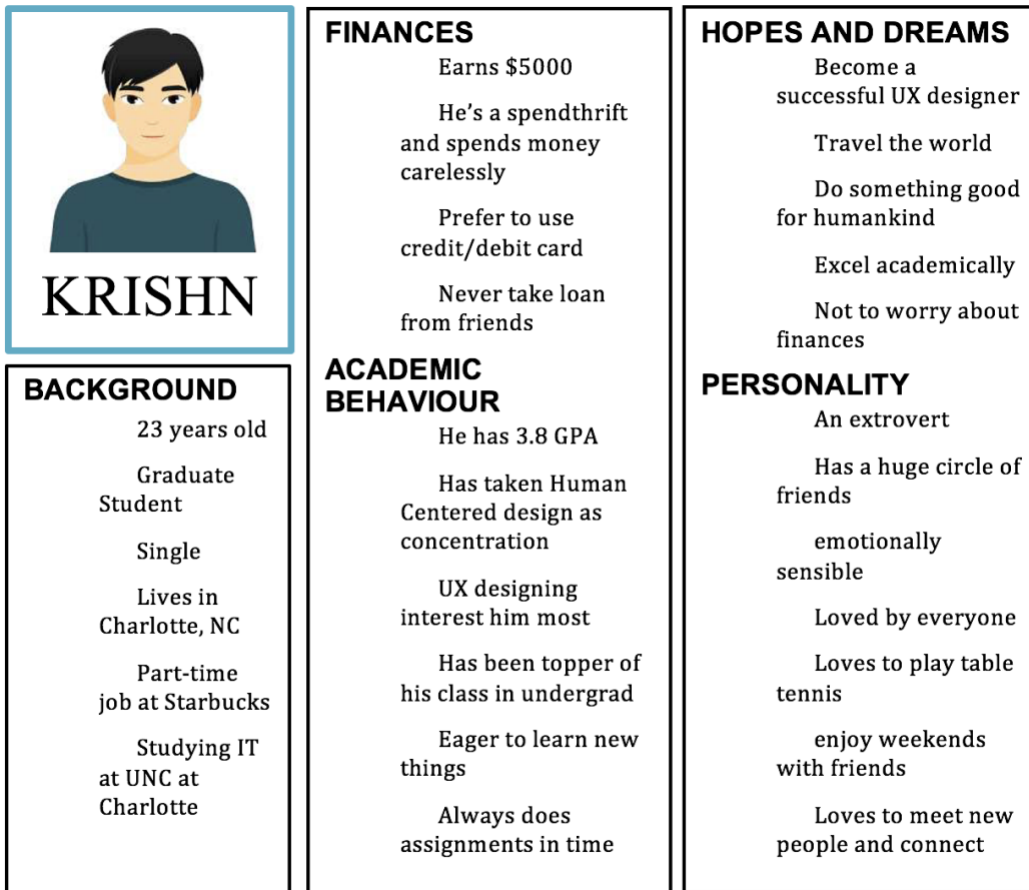
KRISHN

BACKGROUND

23 years old

Graduate Student

Single

Lives in Charlotte, NC

Part-time job at Starbucks

Studying IT at UNC at Charlotte

FINANCES

Earns $5000

He's a spendthrift and spends money carelessly

Prefer to use credit/debit card

Never take loan from friends

ACADEMIC BEHAVIOUR

He has 3.8 GPA

Has taken Human Centered design as concentration

UX designing interest him most

Has been topper of his class in undergrad

Eager to learn new things

Always does assignments in time

HOPES AND DREAMS

Become a successful UX designer

Travel the world

Do something good for humankind

Excel academically

Not to worry about finances

PERSONALITY

An extrovert

Has a huge circle of friends

emotionally sensible

Loved by everyone

Loves to play table tennis

enjoy weekends with friends

Loves to meet new people and connect

Figure 1 Persona 1, Krishn

Persona 2

Professor : Our second persona is a professor, as our application is meant for faculty/professors as well as students. So both the perspectives are equally important. Here we have taken persona of a senior very qualified professor. We discussed his background, professional summary, family and likings, his hopes and dreams and his personality.
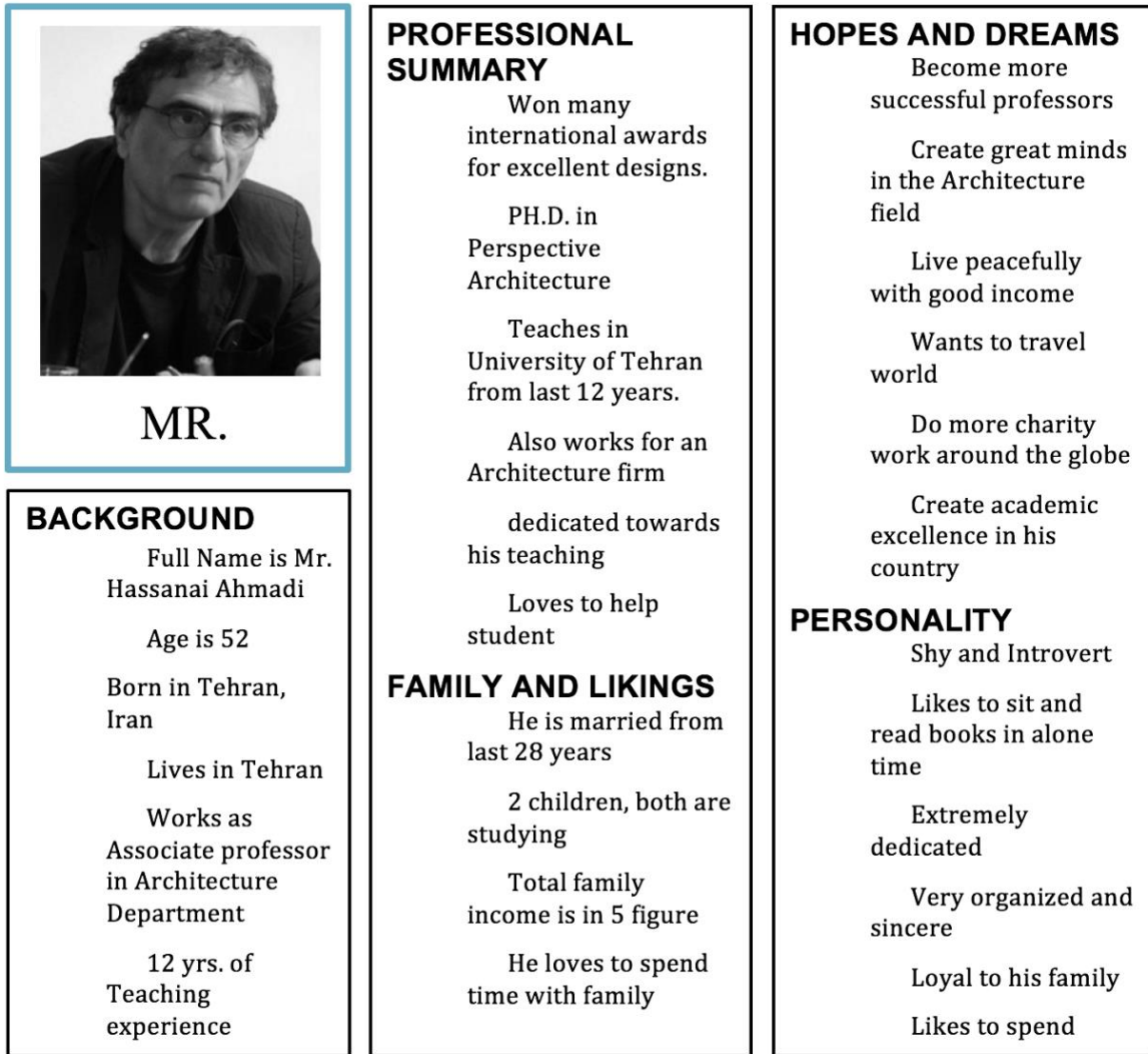
MR.

BACKGROUND
Full Name is Mr. Hassanai Ahmadi

Age is 52

Born in Tehran, Iran

Lives in Tehran

Works as Associate professor in Architecture Department

12 yrs. of Teaching experience

PROFESSIONAL SUMMARY
Won many international awards for excellent designs.

PH.D. in Perspective Architecture

Teaches in University of Tehran from last 12 years.

Also works for an Architecture firm

dedicated towards his teaching

Loves to help student

FAMILY AND LIKINGS
He is married from last 28 years

2 children, both are studying

Total family income is in 5 figure

He loves to spend time with family

HOPES AND DREAMS
Become more successful professors

Create great minds in the Architecture field

Live peacefully with good income

Wants to travel world

Do more charity work around the globe

Create academic excellence in his country

PERSONALITY
Shy and Introvert

Likes to sit and read books in alone time

Extremely dedicated

Very organized and sincere

Loyal to his family

Likes to spend

Figure 2 Persona 2, Mr. Ahmadi

Comparative Analysis from the User Research report

As a part of the user research report, we extensively evaluated the online messaging and communication application discord. We had several anonymous people reply to our surveys on what they think about discord and we also had about ten people interviewed about the discord application extensively in the first half of the semester, trying to understand if the discord's design goals are very well in alignment with the user experience and the way they feel about the application for beginners and the audience with a certain level of expertise using it.

The findings of the discord competitive and extensible analysis were sure artifact elements that we imbibed from the discord as a section of its advantages and shortcomings in our design. The most widespread feature we observed was that the target audience or the customers in customary don't read the guidelines most of the time. With the amount of science and digital machine journey people have a tendency to think they can deal with the functionality of the new utility such as discord. Discord has a unique way of instructing the tutorial to it's new customers by means of blinking exclamation marks near specific aspects and other popup notifications targeted at new users. Most new users ignored the flashing exclamation marks and closed many of the pop ups except studying them carefully, claiming they determined the ride too overwhelming. So, the very first take away for this software used to be to maintain the navigation pages simple. Any consumer with minimal cell telephone understanding and application ought to without difficulty navigate thru the dashboard or the device we designed surpassing the need for tutorials, having said that we had many signifiers and affordances which we discuss later in this document to point the consumer in their intended direction.

The other finding that our team found extremely significant was about the discord home button and the channels and servers tab carried down to every other tab that the user navigates all throughout the application. We imbibed this idea and had the profile button on top right like a bar which is constant throughout the application which gives the user a feasibility to go back to profile tab whenever required.

Design goals
We can list our main goals as follows:

- The high level goal is making communication in academic platform more efficient by bringing important features of different single platforms in one application.
- Increase the convenience of the students' and professors' interactions and communications.
- Increase the approachability in an easier manner while giving professor special privileges like blocking calendar or appointment requests.
- Making students feel like they are never neglected out. They can reach out to professor anytime they want.
- Increasing the daily interactions among students and professors.
- A forum facility which will help students to seek advice, feedback and suggestion on anything they want to.

Scenarios

- **Sunny day:** Jake is student in Network Based Application Development. Every fortnight he has milestone submission due. Every time he used to work along with his friend Michael. As Michael was good at programming he used help Jake whenever he was stuck at any point. During one submission Michael was out of town and Jake had to do the milestone all alone. Everything was going good but he got an issue with the server which he couldn't resolve. He was so distressed and thought of giving up but then he remembered about an application "Smart Connect" through which he can book appointments, initiate chat and participate in the forums. Jake downloaded the application right away. He created a new account and tried to contact Dr. Nadia , his Network Based application development instructor. He initiated a chat with her and to his surprise he received a reply within 10 minutes. He explained the professor his problem. The professor felt a meeting would be best to clear the doubt, so she asked him to book an appointment based on her available time. Jake navigated through to the appointments tab and searched for the professor. He looked at the available timings of the professor through a calendar in her profile. He booked an appointment the next day. He went to the meeting and clarified the doubt. He could complete the milestone well before on time and he scored full points in it as well.

- On a sunny day, Jake was going through his college emails. He found that his System Integration professor has posted an assignment regarding writing an essay about RESTful services. He was worried as it was due in two days and he didn't know anything about RESTful services and he had never written a technical essay before. So he was worried and told his friend about his situation. His friend suggested him to use Smart Connect's forum feature to post questions and take feedback and suggestions from others. He opened the Smart Connect application on his phone and navigated through to the forums page. He searched about the RESTful but couldn't find anyone discussions about it. So he created a new post regarding RESTful services and technical essay. He waited for some time for the replies. Soon replies started coming in suggesting blogs and tips. After that day he looked over all the replies and workout the essay on his own. He submitted the assignment successfully and scored full marks . He also got a special appreciation about his essay in the next class. He was happy and suggested other students about the forum feature in the application.

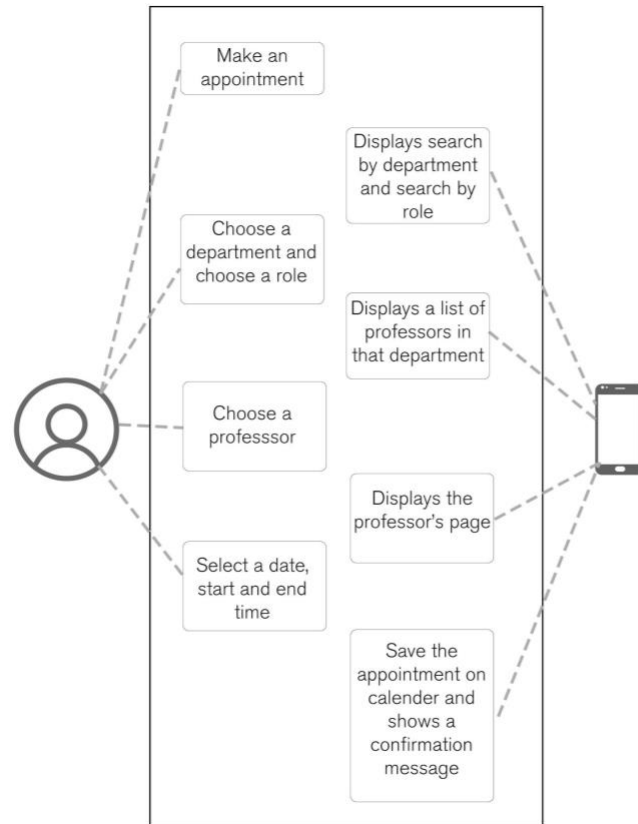 The following is a use case example for making an appointment.

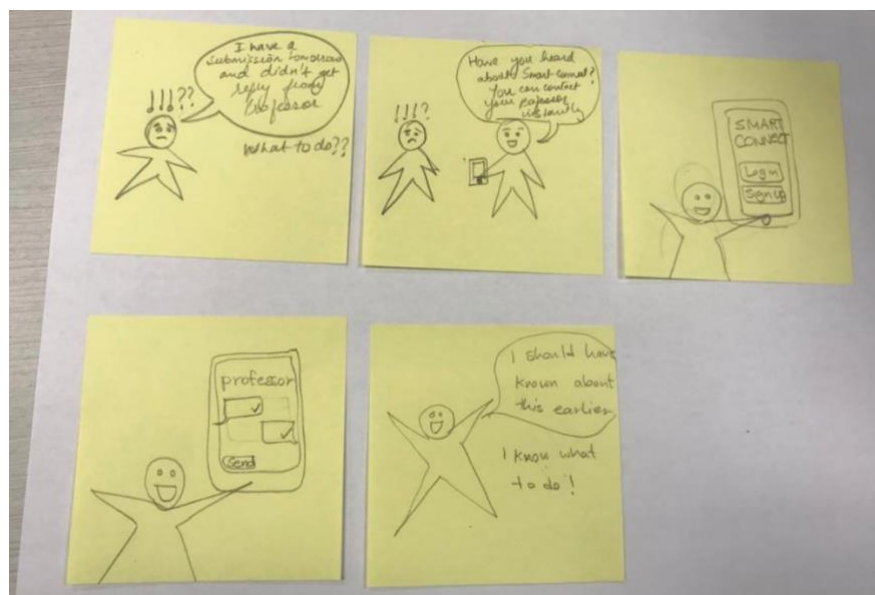*Figure 3 Use-case diagram for making an appointment*

Storyboard

Figure 4 Story board

Focus Group study

Goals of the Focus group Study

- An understanding of the communication platforms in the quality of students professors/faculty interaction
- An insight into student experiences with the current methods specifically canvas, email and piazza and other communication methods that they prefer.

Focus group schedule

- Welcome note.
- An overview of the topic; .
- Ground rules of the focus group, and assurance of confidentiality
- Questions
- Discussions

Methodology

- To conduct this focus group discussion , we have clearly defined our goals which should be in line with our users.
- We targeted participants of different age groups to get a better understanding of the goals
- Our participants from different age groups varying from 22-35.
- We noted down the feedback from the participants and addressed all the questions.

Questions

1. What experiences have you had of contacting methods with your professors?
2. In what cases have you encountered problems contacting your professors?
3. What is your opinion about contacting faculty or university staff via email?
4. What is your opinion about contacting faculty or university staff via canvas or piazza?
5. How would you compare email and canvas messages for contacting professors or TAs?
6. How would you feel about being offered a platform with which you see the professors available times?
7. Would it be useful if each student is individually categorized rather than in a group when it comes to messaging and guidance with the professor?(from the professors view)(Not like piazza)
8. Would it be useful or more convenient if you were allowed to have group conversations with the professors or would you want it to be private ?(to check what doubts have you asked and clarifications from professor)
9. Do you think a rating system for both the professor and the student availability at the end of the semester will be useful to increase the communication?

10. Finally, is there anything connected with communication methods which has not been discussed that you feel strongly about and would like to bring up now?

Analysis

- The goal of this application design is to connect students and teachers in a seamless way.
- All the users preferred Emails to contact the professor as it is a more formal way of communication rather than using applications like Piazza.
- Graduate students of age group age 22-25 have shown dislike in their present communication methods with the teacher. They felt left out as it takes much time for doubts to get cleared.
- Participants who completed the graduation feel it not necessary to have a seperate application when they can use email and piazza. That's because they don't know the problems students are facing, they can only think about them give feedback.
- Many shared their experiences on how they faced issues with communicating with TAs and faculty when it was needed the most and how they overcame it.
- Few shown concern about how the email give slow response when they need it urgently.
- We also took some suggestions on how to improve the application. What extra can be added from their point of view.
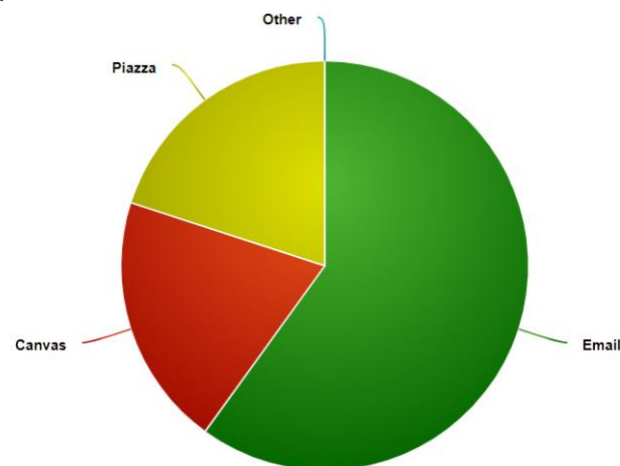
Figure 5 Preferred way to communicate

What is the "big idea" in the ideas behind the design goals?
Answer:

The enormous thought behind the plan is only the structure idea which guides the answer for the issue. Its principle thought which prompts the structure of the item .

Consistency , consonance and incorporation will be kept up all through the plan . Once in a while it can likewise be an imaginative investigation to create at least one ideas and afterward focusing

on one for definite use. Typically, it is assembled data that will characterize the issue and produce thoughts.

To build up an idea it is ideal to utilize an iterative procedure that goes to and fro between imaginative investigation and the diagnostic refinement and association of our indexed lists while investigation.

It's ideal to think of whatever number thoughts as would be prudent , as we will wind up dismissing most of them for a decent and better thought. The demonstration of creating thoughts will in the end lead to fresher, better thoughts.

While picking the idea, questions like which of your ideas work best with the site , clients , and the story they need to tell ought to be replied. While it may not generally prompt the correct answers , it's ideal to simply try it out as it just shows signs of improvement with time.

How do design goals appeal to the intended users? What will they like about it?
Answer:

Structure objectives should originate from the issues looked at by clients . The objectives will have the option to discover an answer for the issue that clients are confronting. They address the answer for an issue bit by bit. The objectives that were structured encourages the clients to make sense of the answer for an issue they were confronting. For the most part, various clients have various objectives and feelings which will assume a fundamental job. The issue ought to be characterized appropriately and each objective must be a stage to take care of the issue.

For the design goals of our application, clients have responded well. They found that most of the goals were clear and helps to solve the problem. There are still some few goals the clients didn't show interest in having them. They even gave suggestions on what can be added other than out idea about the application. They liked the idea of having individual chat window for each user as i can help them keep track of previous chats. Some also liked the review system as it will help both student and faculty on improving their weak areas.

How do the design goals connect with something users do already (on this website or elsewhere)? Is this a reasonably small step from what they do or know already?
Answer:

One of the current technology used in our field of design is Piazza. It has a chat window where anyone can post a question or answer to the whole group which includes students , faculty and TAs. But we are going a step further by adding an option to make individual chat possible. This will enable each student to interact directly and personally with faculty. Also ,appointment booking has been incorporated.

Do the design goals allow people to do things in different ways?
Answer:

Design goals do allow people to think in different ways because of the applications that are designed for the users comes from the needs of the users by properly analyzing the issues pertaining to the issue. Different aspects involved in the application allows the users to achieve a better interaction with the interface, as needed by the user. In this regard, the design goals help the designer in designing applications as per needs of the user and how to add the required features that can used to the users considering various situations and scenarios. Also considering the solutions that are already available and how can they improve to give better experience to the users. In this specific application users have options like individual chat, review system, group messaging and file upload options. Individual and group chats will give a better platform to communicate with an ease to reach out to professors and faculty which has been a difficulty lately.

Design Description
1. Design concept

An interactive communication platform for students and professors. Our design mainly focuses on the problems faced by students in interacting with the professors.

Major Components in the interactive design:
Login: The student can login from his account or create a new account.
Appointments: The students can book an appointment with the professors depending on the availability.
Chat: The user can initiate chat with anyone in application and it can a group chat as well.
Student Forum: Users can interact with others in the multiple threads running throughout the college about various topics.

User Journey:
- The user logs into the application using username and password.
- The user can book an appointment by going to the appointment tab and searching for the professor and their available timings.
- The user can also initiate a chat with anyone(student, professor) or a group chat just by going to the chat tab and selecting the people accordingly.
- The user can also post their views on various topics in the student forum.

2. Design prototypes
Wire frames
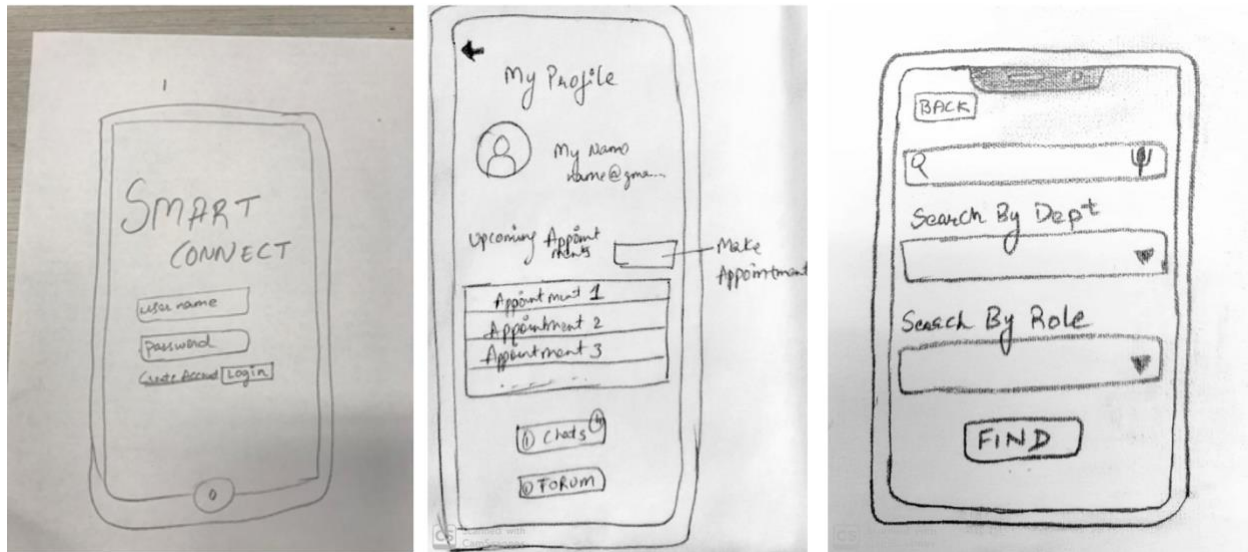
Figure 6 from left to right: Login page, profile page, professor search page,
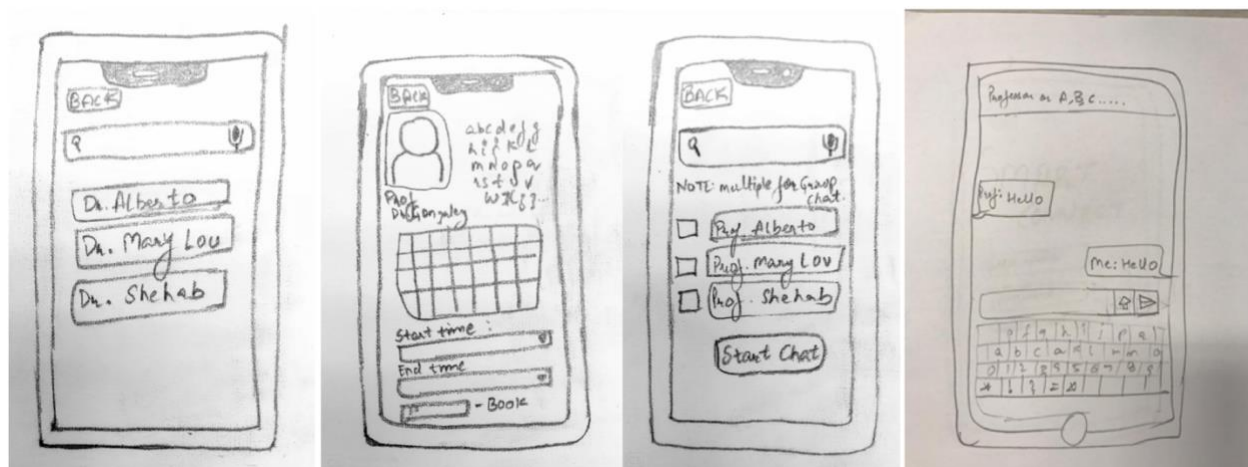
Figure 7 from left to right: Professor search page, professor page, chat selection window, chat page,

Visual Design

Visual design of our prototype is very simple and aesthetical appealing. Since the site is intended for school/university use, we have kept the color usage to a minimum. We have used the minimalist design pattern here keeping the content to the minimum. The website looks decluttered by having a minimalistic approach. Apart from the minimalist approach

we have broken the tasks into bite sized to avoid chaotic design which may confused users. In few places throughout the app we have used familiar screen also which allows users to use prior experience to interact with the app, with no learning curve. They don't require additional explanation because users are already familiar with them. Like in chats feature we have taken inspiration from WhatsApp's chatting and calling features.

Consistency is a fundamental principle of design. Consistency eliminates confusion. Maintaining an overall consistent appearance throughout an app is essential. We have tried to maintain the consistency throughout the app be it visual consistency, functional consistency or external.

Keeping the Typefaces, buttons and labels consistent across the app we have maintained the visual consistency. All the interactive elements works similarly in all parts of the app like buttons turn blue while mouse hovering. All the links shows underline when hovered. There is an arrow back button and a profile icon throughout the app so that user can go to previous page and view his profile whenever required. This also helps us to maintain consistency all over the app.

Here is the detail analysis of various visual design components of out application SmartConnect.

Grid and Alignment
- Throughout the app there is only a single column grid layout with small sections here and there divided into grids
- The column is divided into various rows.
- The application is centrally aligned across all the pages
- Since it has only one column therefore the grid isn't broken anywhere.
- Various pages are divided into two sections, one is header which contains of heading, back button and a profile icon, another is the body part where major content of the page lies.
- Whitespaces had been used mainly at header and footer area. To main sections distinguishable whitespaces are also used along with a separator horizontal line. White spaces between the columns are used to divide the parts and make them easier to recognize.
- On few pages like where time selection is required the section is divided into three columns with equal gutters in between to make distinction. Again this is maintaining our overall layout of there row sections.
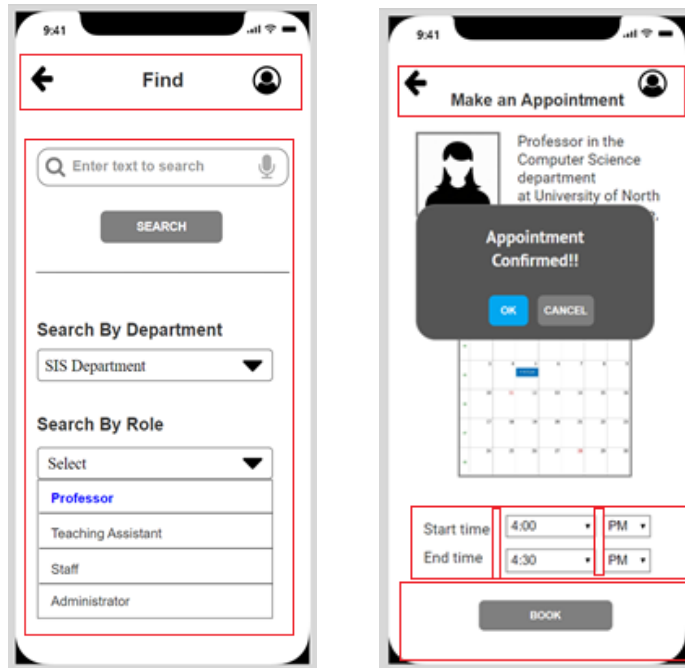
Typeface and Emphasis

- All over the page we have only used Sans Serif font, which makes the text more readable and clearer.
- Text hierarchy is shown by varying font weight and font size. We have made the headers in bold and bigger fonts and other subheading also in font weight bold but smaller fonts.
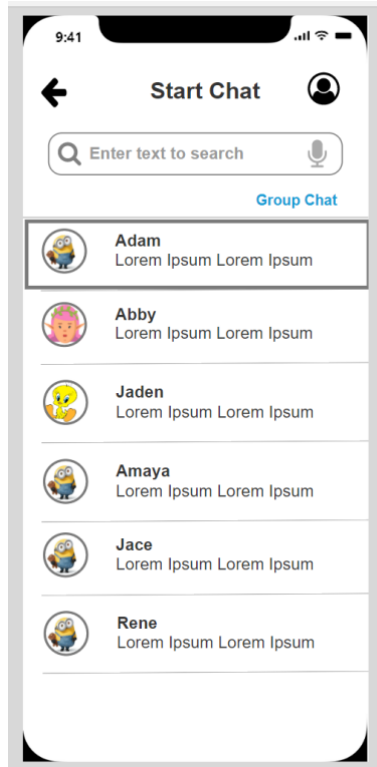
- The font all over is in lowercase only. The text on buttons however are uppercase to make them clear to read.
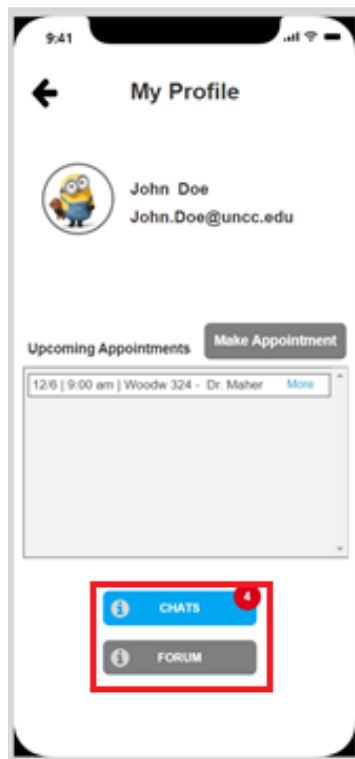
- We have maintained the color consistency throughout the website in shades of grey and black only. This color hues gives the website a more sophisticated look. The headers are in black color all over.
- Backgrounds are mostly white or grey.
- The buttons are in grey color which text in white color. The button background changes to blue color in hover of the mouse to signify that it is clickable.
- Notifications are shown in red color circle with the number of notifications
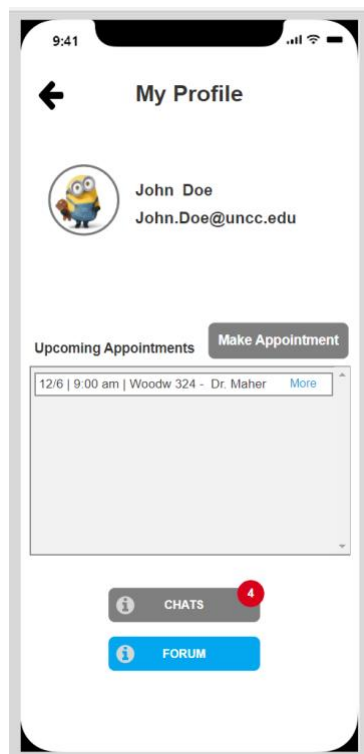
- All the links are in blue color initial. On mouseover the text is underlined to show that they are clickable and redirect to another page.
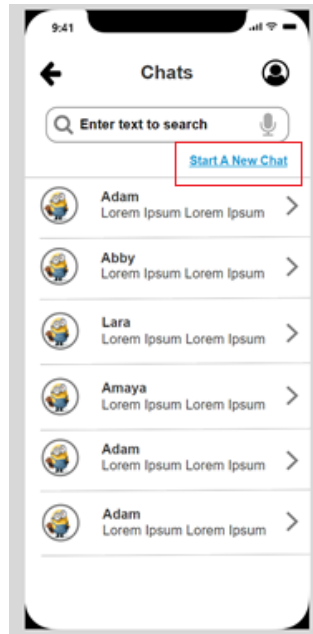
- The text on dropdown also changes to blue color when hovered upon to signify the text selected.
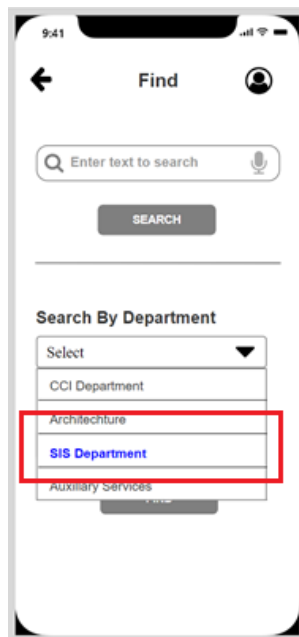
HCI Design Element Analysis
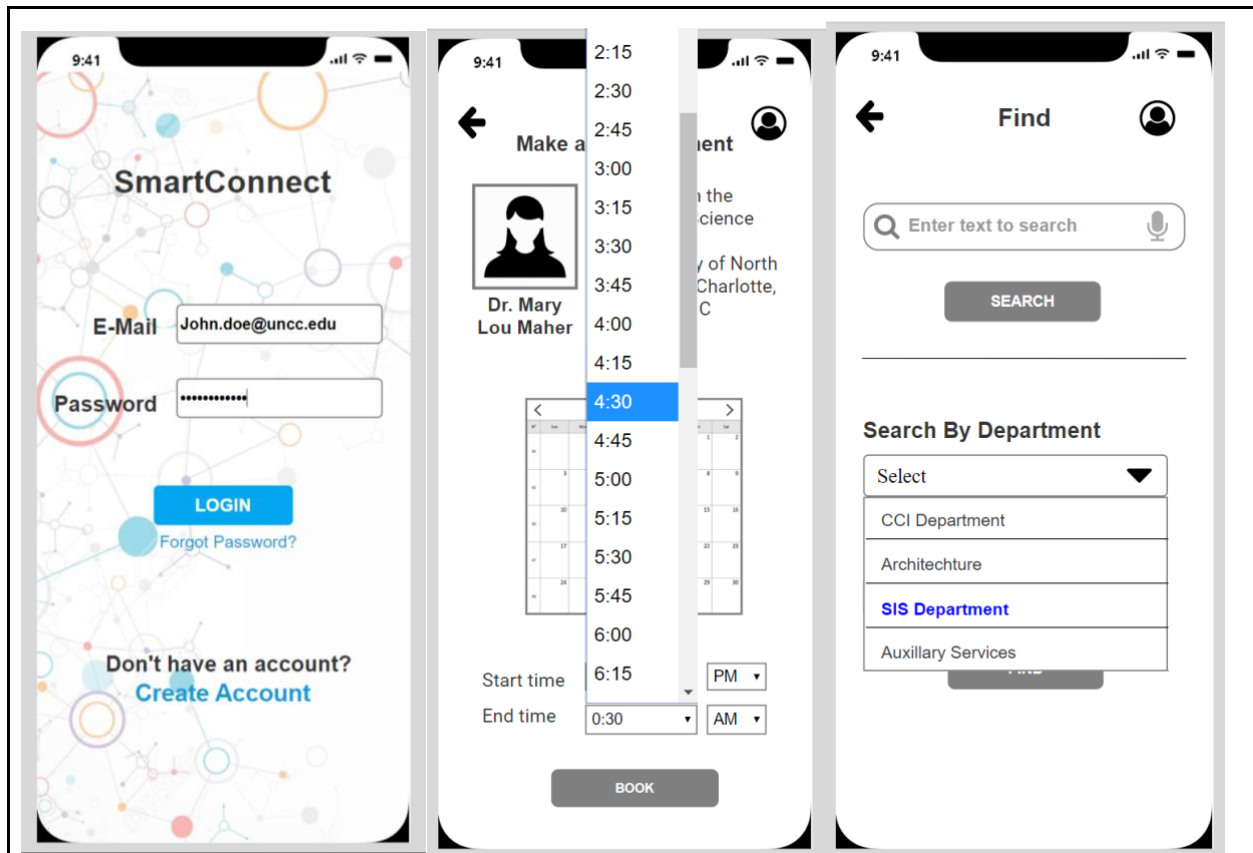
Icons, buttons, Dropdowns, Text Entry

Signifiers, affordances, and modalities:
Signifiers: Button, links, Arrows, underline on hovering the link, change of button color while hovering
Affordances: Clicking, typing, tapping
Modalities: Touch

Applicable metaphor: Device

**Description of mapping between metaphor and signifier/affordance/modality:** We can say that the device metaphor is applied here because all the buttons has a real-life mapping with any device having buttons. Like a physical button it can be pressed upon to do any action.
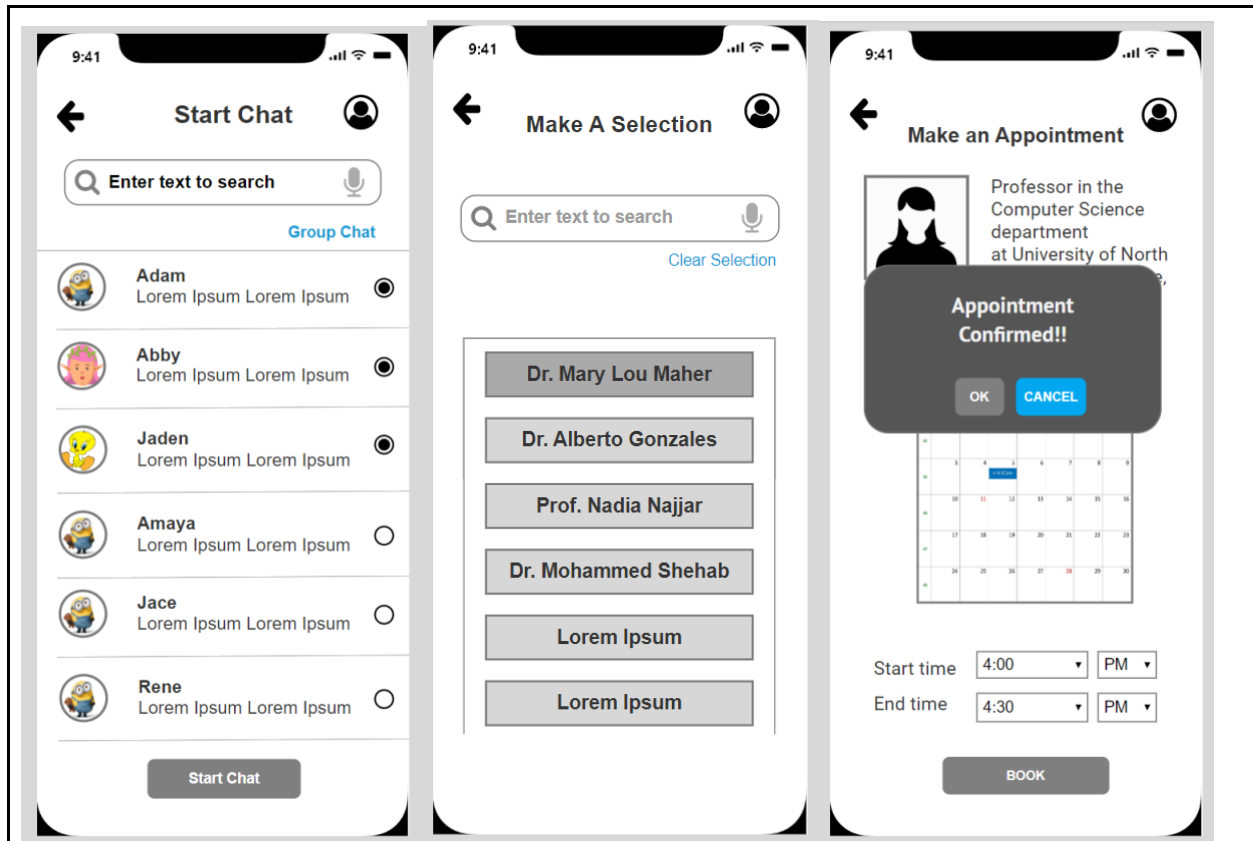
Icons, buttons, Dropdowns, clickable tabs, selectors

Signifiers, affordances, and modalities:
Signifiers: Button, Arrows, blue color on hovering the link, change of button color while hovering, highlighting the tab when mouse over, highlighting the tab when mouse over, round black selectors on radio buttons.
Affordances: Clicking, tapping
Modalities: Touch

Applicable metaphor: Device

Description of mapping between metaphor and signifier/affordance/modality:
Similarly, as above we can say that the device metaphor is applied here because all the buttons has a real-life mapping with any device having buttons. Like a physical button it can be pressed upon to do any action.

Prototype Walkthrough

1. User lands on the home screen and he can login using his credentials or create a new account if doesn't have one.
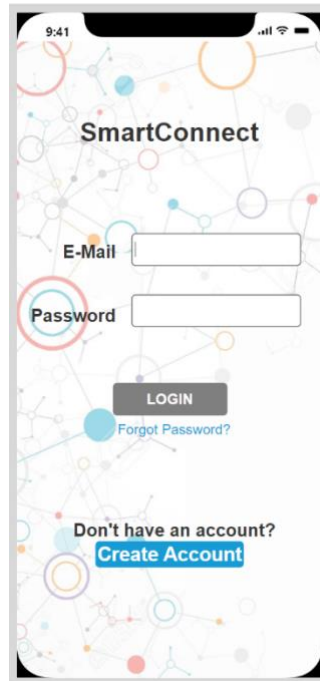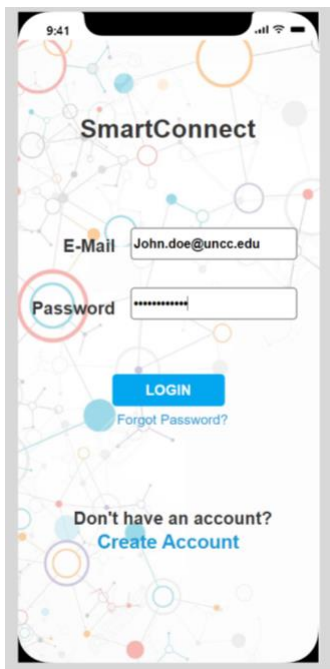
2. When user click login after filling the email and password, he lands to his profile page. Since he is an existing user he can view his upcoming appointments on his profile page and can make a new appointment as well. User can also see the notifications on his chat tab.
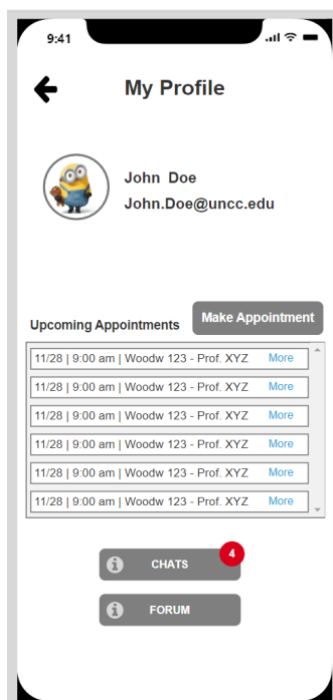
3. If user chooses to Create a new account, this screen will be shown. User can fill in the details and submit to create a new account.

4. After the account is created user is redirected to her profile page. Since she is a new user so her upcoming appointments are blank.

5. When user clicks on "Make Appointment", she is redirected to this screen to make new appointments. For that she can directed so a text search or she can select from the dropdowns to filter the department and the role for which the search is done.

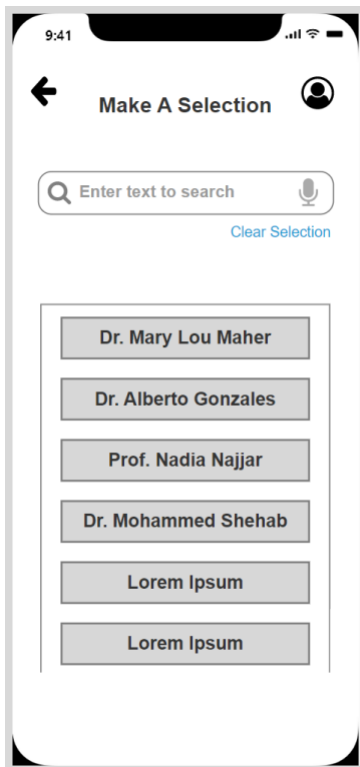

6. After the selection user can click on "Find" to find the list of professors in SIS department.
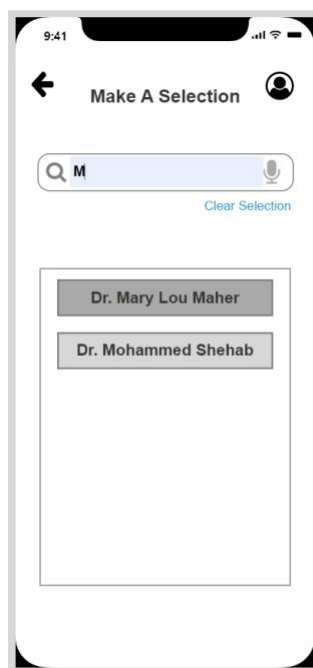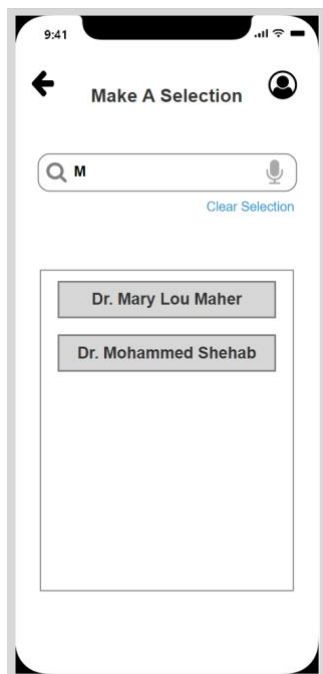
7. User land to this screen to select the professor to make an appointment with.

8. User can filter the names also by typing on the search bar. As soon as the user starts typing the filtered names are shown. User can also clear the selection made by "clear selection" link. Then user can view the professor's page by clicking on the highlighted name.
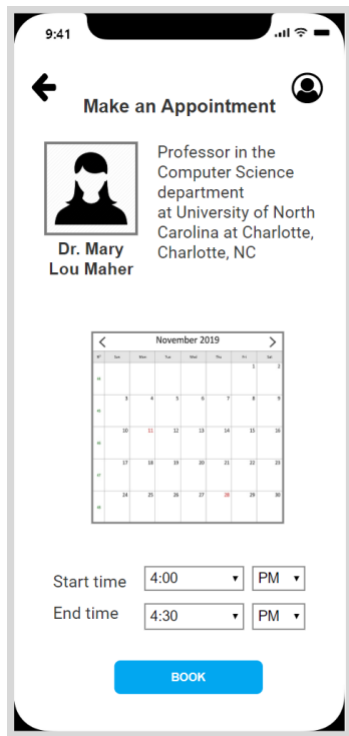
9. User will be landed on the professor's book appointment page after clicking on the name tab.

10. User selects a date and time to book an appointment.

11. User clicks on "Book" after all the selections are made.

12. User sees a confirmation modal with "ok" and "cancel" button. User can click cancel to reedit the appointment or ok to confirm.
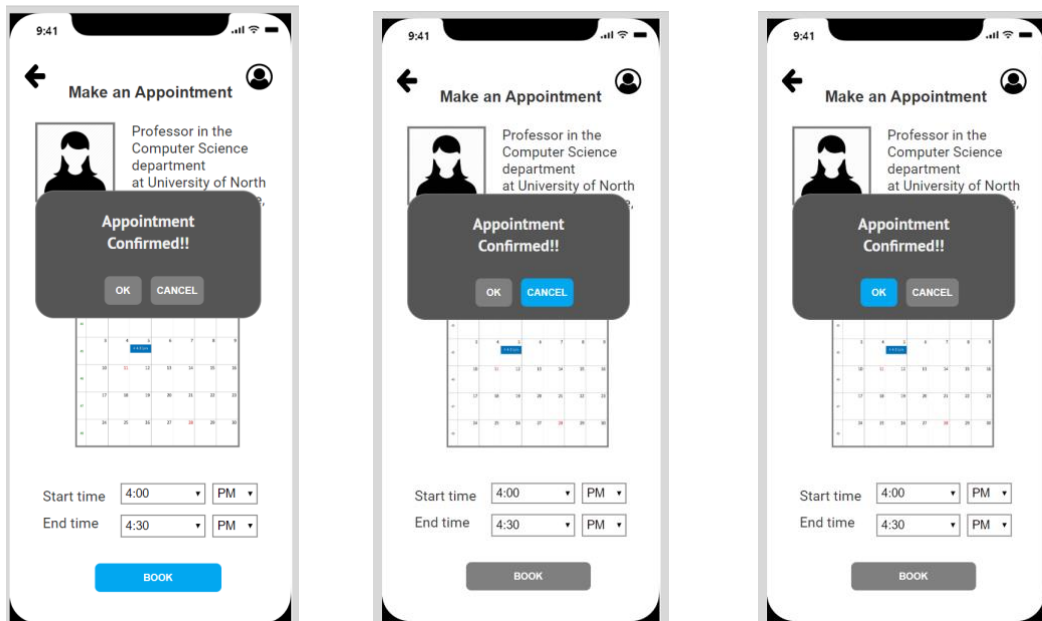
13. After the appointment is made user is redirected to his profile page with the new appointment entry.
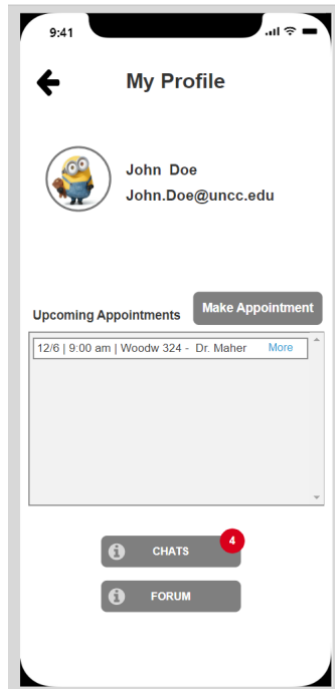
14. Now, User can click on chats to see the chats and start a new group or one on one chat.
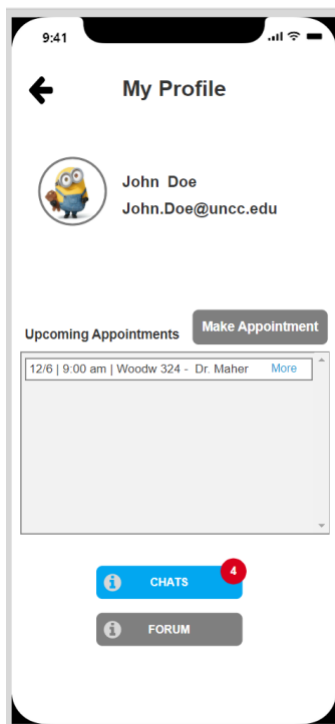
15. User lands on the homepage of chats. Where he can see his ongoing chats. Where he can continue to chat with someone on clicking the little arrow beside the name. User can also start a new chat by clicking on "Start a new chat".
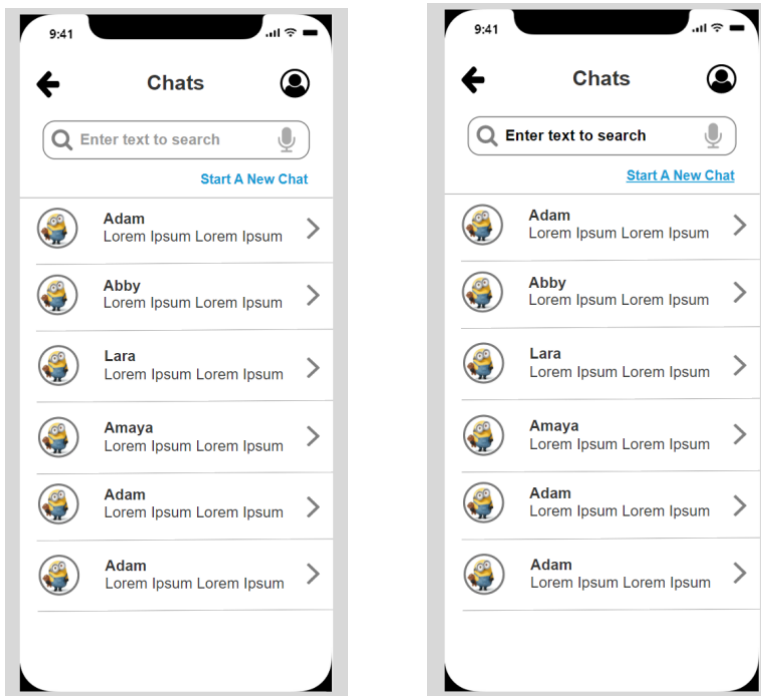
16. After clicking on "Start a new chat", user lands to this page, here he can start a group chat or start a single chat with the highlighted friend's name.
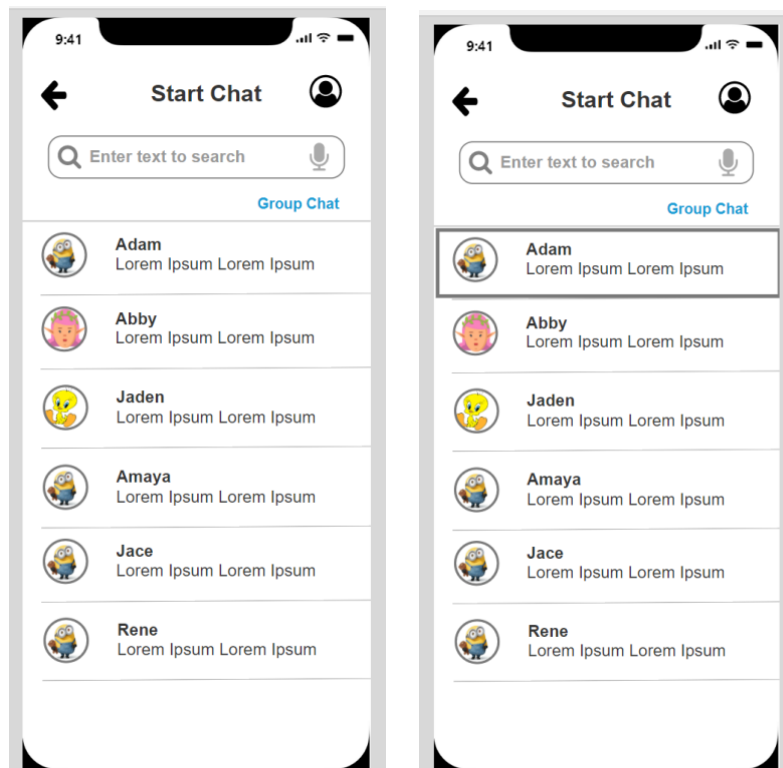
17. User then can start chatting with his friend/professor.
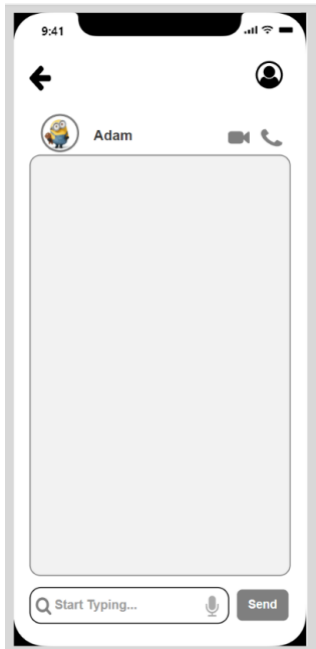
18. User can start a group chat also by clicking on "group chat" link and selecting the friends with whom he wants to chat with.
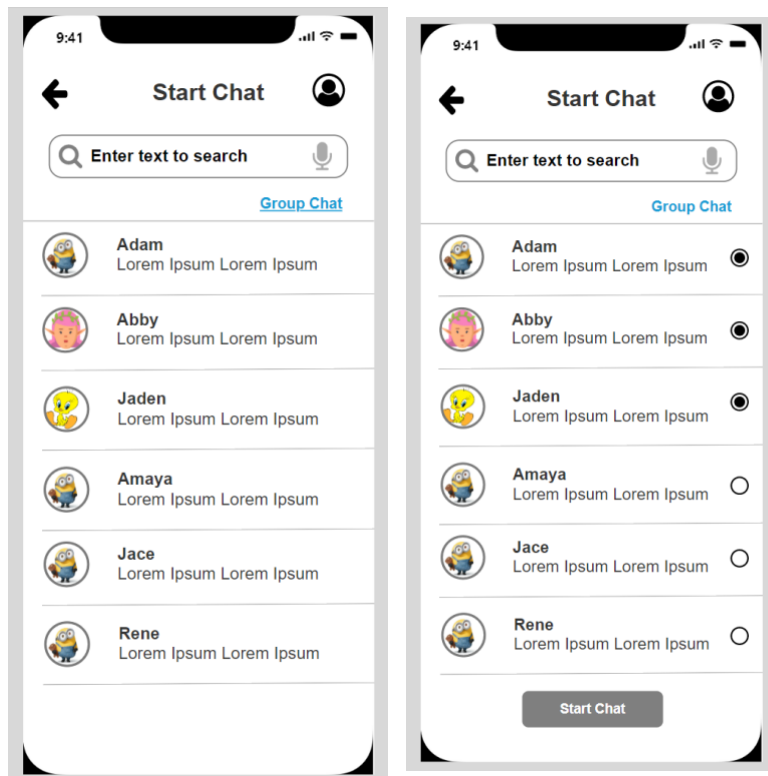
19. When user clicks on group chat, chatting page is displayed with all the group members and a feature to video/audio call.
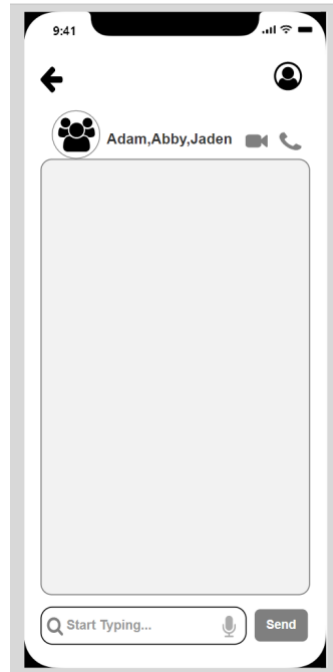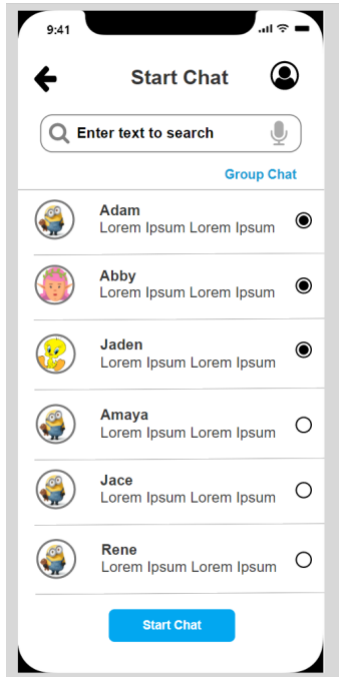
20. User clicks and sends the text to chat.

now the can see the ongoing threads and start some new thread if he wants to.
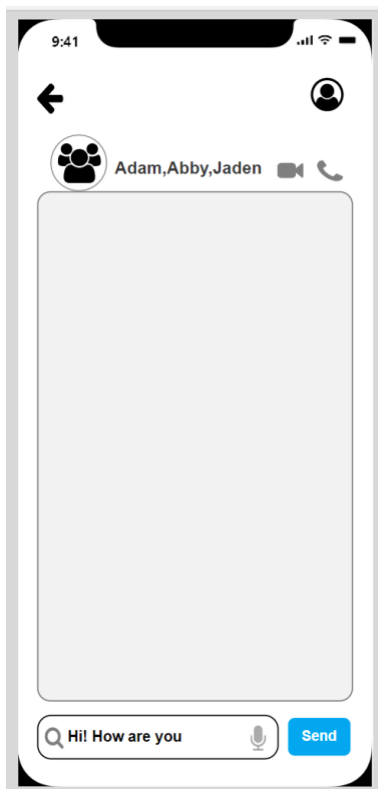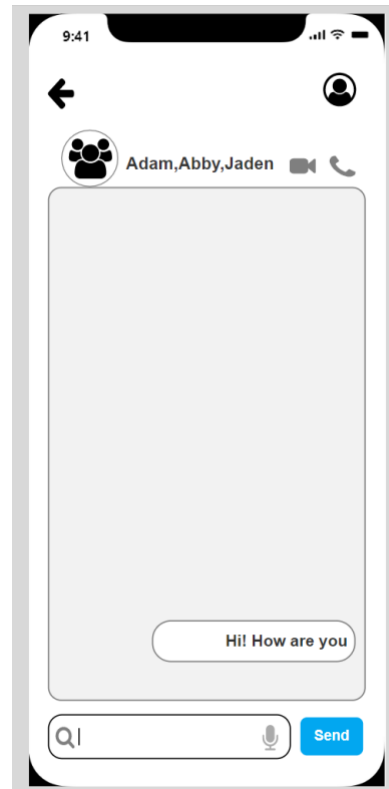
21. User wants to access forum, where he
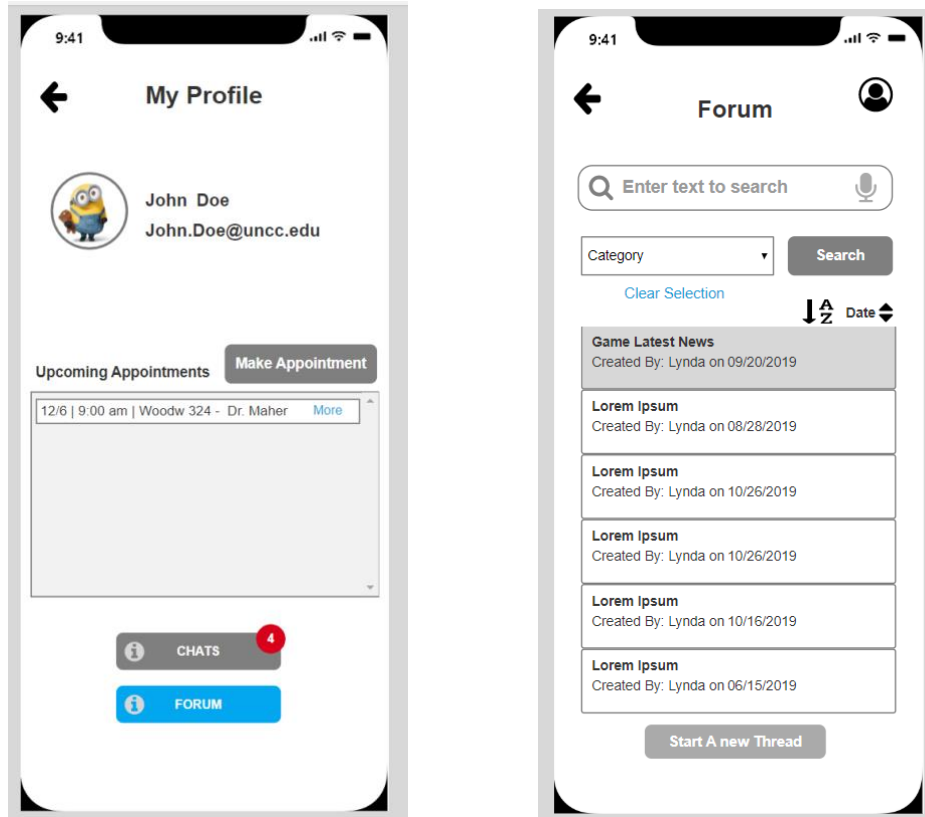
22. User can filter by category and search the ongoing threads or he can select from the list.
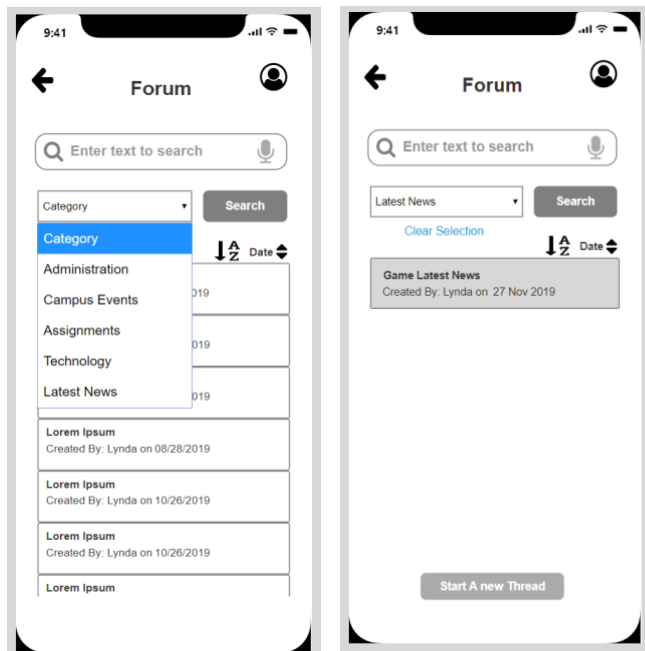
23. When user _Start A new Thread_ selects the thread, he can view the thread's details and post a comment on that thread.

24. User can also sort the threads alphabetically by name or by date posted.
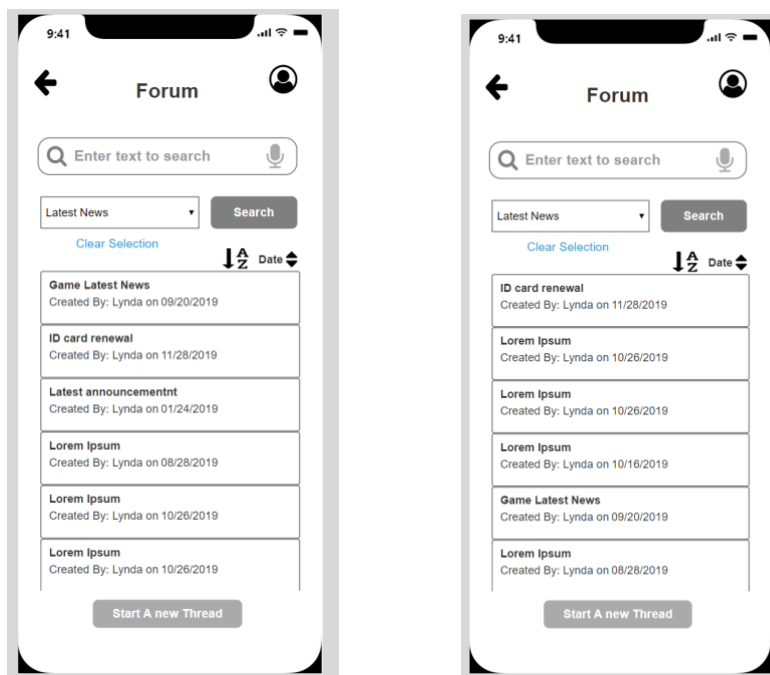
Usability and Evaluation

Goal of the study

The goal of this study to understand if the app is helpful for participants.Is it making the current communication situation any better. To analyze if the participants can easily use the app and understand the activities need to be done.

- The high level goal is making communication in academic platform more efficient by bringing important features of different single platforms in one application.
- Increase the convenience of the students' and professors' interactions and communications.
- Increase the approachability in an easier manner while giving professor special privileges like blocking calendar or appointment requests.
- Making students feel like they are never neglected out. They can reach out to professor anytime they want.
- Increasing the daily interactions among students and professors.

Welcome notes

We explained the participants that there are 5 sets of tasks that they need to perform. We told them that there are no time limit but we timed the process. We handed them the task descriptions one by one and then ask them post study questions after finishing all the tasks . The process was think-aloud. So we asked users to explain what they are thinking and why they are doing it.

Set of tasks
1. Create an account and go to make appointment page.
2. Make an appointment with Dr. Maher for November 5, 4 - 4:30 pm.
3. Start a chat with Adam and tell him about your upcoming appointments.
4. Filter the forum content by latest news and name the content and then comment on content.
5. Start a group chat with Adam, Abby and Jaden.
6. Name the first content in the forum based on alphabetical order.

Data to be collected
1. In how much time a participant finished a task
2. The number of errors they made(if they clicked on the wrong button or went to the wrong page.)
3. Were they enjoying the application.

Pre study questions

- How satisfied they are with email as a communication method with their professors or classmates from 0-10?
- How satisfied they are with Canvas as a communication method with their professors or classmates from 0-10?

Post Study Questions

- How do you rate the difficulty level of app from 0-10?
- Will you prefer using this app rather than using the current platform(email and canvas) which you use?
- Did you like the app?
- Anything you didn't like in the app?
- Anything you found missing?
- What was the most challenging task? Can you explain why?
- What would you change if you could make modification in the app?
- What feature in the app is not as helpful as email or Canvas?
- What feature in the app is more helpful than email or Canvas?

Results of study

Figure 8 Time per task for each participant

The following visualization shows the time that took each participant to complete each task. Tasks are marked by different colors. Based on this visualization it is apparent that tasks 2 and 4 were the most time consuming tasks and if we follow the errors made on each tasks in average time, participants made more errors while they were doing these tasks.

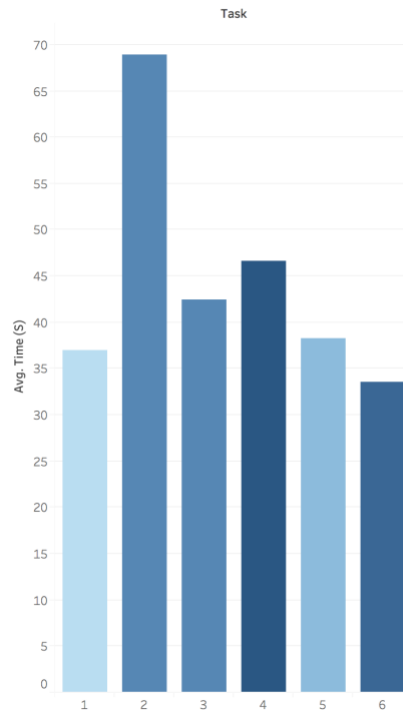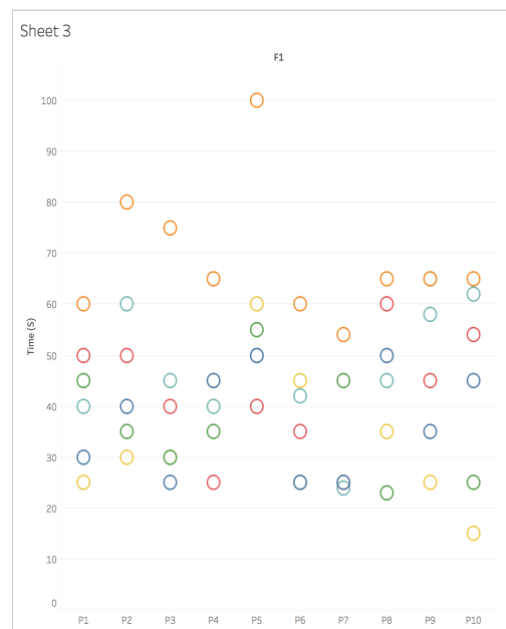*Figure 9 number of errors-time made per task*

Figure 10 time per task per participant

The above visualization shows that most of the participants spent between 25 to 65 seconds to complete each tasks. We can see participants that on average were slower that the other ones. This is a good way of finding out liars. The results seems aligned with our goal increasing the efficiency of communications.

Abc Sheet1 Q		Abc Sheet1 P1	Abc Sheet1 P2	Abc Sheet1 P3	Abc Sheet1 P4	Abc Sheet1 P5	Abc Sheet1 P6	Abc Sheet1 P7	Abc Sheet1 P8	Abc Sheet1 P9	Abc Sheet1 P10
How do you rate the difficulty level of app from 0-10?		5	3	1	5	3	3	2	4	8	6
Will you prefer using this app rather than using the current platform(email and canvas) which you use?		no	yes	yes	yes	yes	yes	yes	no	no	no
Did you like the app?		yes	yes	yes	yes	yes	yes	yes	yes	no	no

Figure 11 Three of the post task questions

The detailed description of what happened during the study, please refer to the appendices section.

We did the think aloud process for the study. Users were asked to describe what they are thinking while they were doing the study. One similar type of comment we heard during the process was about the make appointment page. " I don't know where I can select the date" or " hmm, this looks confusing. Is the calendar interactive?" or " oh, did I just select a date?". Another comment that we got was about the forum sorting feature. " Is this alphabetically? Hmm, I think it is because there is nothing else".

Overall comments about the application " I think the idea is generally useful. I don't have to text my friends zillions of times!". " The forum is nice. I was thinking why we don't have a forum for UNCC. Do we?".

Summary

Our design revolves around the student professor communications. Here we integrated booking appointment, chat feature between students and professor and forum feature to help students interact with others. We worked on our prototype to create a mobile application in which we used touch as a modality. We also have a plan to integrate voice into the application but for the purpose of prototype we didn't incorporate it. The metaphor we used is Device as it is a user initiated interaction. The student or the professor has to start interacting with application by doing various tasks.

We covered all of our design goals in our prototype. The students using our application can book appointments without any hassle. It is a simple twostep process for anyone to book an appointment. The students can directly start a chat with professors and other peer students.

The professor has a feature of blocking the calendar if busy. And can reject and accept the requests from the students regarding the appointment invitation. This is to make the life of students simpler and stress free as they won't feel neglected at any time. They can reach out to the professor directly or post their queries in the forum so that others can guide them. This will automatically increase the daily interactions between students and professors. It will help both the student and professor in knowing their drawbacks and they can work on them to improve it.

The forum facility will help them in non-academic things as well, which lead to a personnel development.

In future we would like to incorporate email facility as well for formal communication. We can integrate canvas like feature to have assignments and grades posted in the same place. Having said that they can be a lot implementations based on the responses from the users in future.

Appendices

Usability study

Participant 1

1. **Create an account and open make an appointment.**

   The participant was able to create the account and view the profile page on one go. There was some issue on the profile page. He couldn't view the contents clearly for few seconds, but later it was rectified.

2. **Make an appointment with a Dr. Maher for November 5, 4 - 4:30 pm.**

   With such long tasks participant was little lost earlier that exactly what he has to do. I had to break the task and tell him in parts what he is expected to do. After that the participant was able to find Dr. Maher easily using the search filter. The only issue he faced was interacting with the calendar which wasn't very interactive. He was able to set the time and book an appointment.

3. **Start a chat with adam and tell him about your upcoming appointments.**
   He didn't use the profile icon on top to go to the chat option, rather he clicked back button few times to go to the profile page. The profile icon wasn't notable enough may be. After he found the chat button then he was easily able to start a chat.

4. **Filter the forum content by latest news and name the content and then comment on content.**

   I had to explicitly tell him that he can use profile button to go back to his profile. Then was easily able to be navigating to the forum page. He used category dropdown to filter events. He navigated to that event page and added a comment.

5. **Start a group chat with Adam, Aby and Jaden.name?**
   He was able to navigate to the chat and start a group chat.

6. **Name the first content in the forum based on alphabetical order.**
   The second time it was easier for him to navigate to the form and sort the content. He quickly noticed the sorting button and tried to sort it ascending and descending order both.

Post-task questions:

- **How do you rate the difficulty level of app from 0-10?**
  3
- **Will you prefer using this app rather than using the current platform(email and canvas) which you use?**
  yes , its easy
- **Did you like the app?**
  yes
- **Anything you didn't like in the app?**
  Calendar widget wasn't interactive. The name of the person posting on forum and chats wasn't displayed.
- **Anything you found missing?**
  The person details, who is posting the content, were missing on forum and chat.
- **What was the most challenging task? Can you explain why?**
  Find the name of professors. There wasn't any option.
- **What would you change if you could make modification in the app?** calendar widget could have been little bigger. It has hard to view.

- **What feature in the app is not as helpful as email or Canvas?**
  Never used canvas.
- **What feature in the app is more helpful than email or Canvas?**
  Prompt reply was good. Immediate appointments could be made which is difficult in email.

Participant 2

1. **Create an account and open make an appointment.**

   The participant was able to create the account and view the profile page promptly. She was able to see make an appointment button and click on it

2. **Make an appointment with a Dr. Maher for November 5, 4 - 4:30 pm.**
   The participant went to make an appointment page and she filtered it by using the doctor Maher's name and then she saw the doctor and clicked on her name to book an appointment. She didn't face any problem in that the only issue she had was clicking on calendar widget which didn't show the date then she selected the time and she was able to book the appointment quite quickly.

3. **Start a chat with Adam and tell him about your upcoming appointments.**
   Initially she wasn't able to find the chat button so I had to guide her to the profile icon which is on the Top right of the page from where she can go to her profile page and click on chat button later that she was able to chat with Adam easily and she didn't drift away much in the website.

4. **Filter the forum content by latest news and name the content and then comment on content.**

   On asking to filter the forum content the participant use the search bar to filter it since the search is not working right now this is a prototype so I asked her to select the dropdown and then she was able to find the latest news and then she was able to comment on it

5. **Start a group chat with Adam, Aby and Jaden.**
   She was able to navigate to the chat and start a group chat quite easily. She also mentioned that the name of the person is not visible who is sending the text.

6. **Name the first content in the forum based on alphabetical order.**
   The second time it was easier for her to navigate to the form and sort the content. She noticed the sorting button and tried to sort it ascending and descending order both.

Post-task questions:

- **How do you rate the difficulty level of app from 0-10?**
  2
- **Will you prefer using this app rather than using the current platform(email and canvas) which you use?**
  yes , its very convenient.
- **Did you like the app?**
  Yeah I love the app it's so simple and you get to connect to your professors so easily
- **Anything you didn't like in the app?**

I think everything was great just one suggestion that the app would have been little bit more aesthetically appealing and it could have more functionality and in depth functionality

- **Anything you found missing?**
  The person details, who is posting the content, were missing on forum and chat.
- **What was the most challenging task? Can you explain why?**
  I think none of the tasks were very challenging it was very easy to navigate through the app and do all the tasks.
- **What would you change if you could make modification in the app?** calendar widget could have been little bigger. It has hard to view.
- **What feature in the app is not as helpful as email or Canvas?**
  Right now I can't think of anything which is not helpful in this app I think it has combined the email and canvas feature and added a chat functionality which is quite nice
- **What feature in the app is more helpful than email or Canvas?**
  I think the best feature this app is that you can connect to your professors quickly and you have to just see the time slots in which they are available and you can book an appointment. You don't have to wait for their email replies.

Participant 3

1. **Create an account and open make an appointment. (Time:)**

   The participant was able to create an account and view the profile page in one go.

2. **Make an appointment with a Dr. Maher for November 5, 4 - 4:30 pm.**

   The user could easily complete the task but was a bit confused about the search bar.

   But on telling him to search on the specific place he did it easily.

3. **Start a chat with adam and tell him about your upcoming appointments.**
   He used the profile icon to go back. He went into the chat tab and clicked on Adam name but the chat window didn't open. He was confused why the prototype didn't react on clicking. But later he clicked on the right side button was able to send a message.

4. **Filter the forum content by latest news and name the content and then comment on content.**

   Now the user observed the profile button and used it to go back. He selected the forum button and easily completed the task

5. **Start a group chat with Adam, Aby and Jaden.name?**
   The user first went to the chat tab, searched for group chat button which was not present there but on me prompting him to click on start a new chat and go to the next page he could easily start a group chat.

6. **Name the first content in the forum based on alphabetical order.**
   He could easily complete the task as the alphabetical order sorting was clearly available on the screen

Post-task questions:

- **How do you rate the difficulty level of app from 0-10?**
  5

- **Will you prefer using this app rather than using the current platform (email and canvas) which you use?**
  No, i would prefer canvas over this application
- **Did you like the app?**
  yes
- **Anything you didn't like in the app?**
  Search bar should provide suggestions as we start typing.
- **Anything you found missing?**
  Group chat is confusing.
- **What was the most challenging task? Can you explain why?**
  Overall everything was easy.
- **What would you change if you could make modification in the app?**
  Navigating to group chat was could be more easier.
- **What feature in the app is not as helpful as email or Canvas?**
  All are useful.
- **What feature in the app is more helpful than email or Canvas?**
  Immediate appointment was more helpful.

Participant 4

1. **Create an account and open make an appointment.**

   The user first starting typing details into the username and password fields but on prompting to create account he created the account successfully. He waited for some time on the profile page to take a glance at everything. But completed the task afterwards easily.

2. **Make an appointment with a Dr. Maher for November 5, 4 - 4:30 pm.**
   The user the search bar to find the professor and could easily complete the task easily and quickly.

3. **Start a chat with adam and tell him about your upcoming appointments.**
   The user used only the back button to go to the profile page . From there we went to the chat option. But the user was confused on clicking the name which made no response , but later tried clicking on the right button and it worked, He could start a chat then.

4. **Filter the forum content by latest news and name the content and then comment on content.**

   The user was confused on going back to the profile page. But when prompted to use the profile button. The user could complete the whole task easily.

5. **Start a group chat with Adam, Aby and Jaden.**
   The user was confused as he couldn't find the group chat button and navigated the whole application to find it. But on prompting to use it to start a new chat page he could easily to the group chat and start group chat but told that the sender's name was not visible.
6. **Name the first content in the forum based on alphabetical order.**
   The user completed the task in first attempt without wasting time around in the application.

Post-task questions:

- **How do you rate the difficulty level of app from 0-10?**
  3

- **Will you prefer using this app rather than using the current platform (email and canvas) which you use?**
  Yes, it's very convenient.
- **Did you like the app?**
  Yeah.
- **Anything you didn't like in the app?**
Filtering the forums should directly happen on selecting, there shouldn't be a
button to specifically press after selecting the filter
- **Anything you found missing?**
  Group chat button beside the Start a new chat button would have been more clearer to start a group chat.
- **What was the most challenging task? Can you explain why?**
  Going to home page on some screens.
- **What would you change if you could make modification in the app?**
  Logout button is not there in the application
- **What feature in the app is not as helpful as email or Canvas?**
  Everything was quite helpful. Not drawback as of the application's main
  Functionality except small once.
- **What feature in the app is more helpful than email or Canvas?**
  Main feature: Appointment is quicker, chat option is easier and forum as well

Participant 5

1.Create an account and open make an appointment.

The user first took a glance at the homepage was impressed by it. Later he clicked the create account and could complete the task easily.

2.Make an appointment with Dr. Maher for November 5, 4 - 4:30 pm.
The user the search bar to find the professor and could easily complete the task easily and quickly. But suggested to have the search bar text as Enter the professor's name.

3.Start a chat with adam and tell him about your upcoming appointments.
The user used the profile page button to go back and he wantedly clicked on other user which didn't work but when told to click on Adam he could complete it/

4.Filter the forum content by latest news and name the content and then comment on content.

The user the profile button to go back and completed the task quickly.
5.Start a group chat with Adam, Aby and Jaden.
The user started the group chat easily but he tried entering multiple messages which override the previous messages
6.Name the first content in the forum based on alphabetical order.
The user completed the task in the first attempt without wasting time around in the application.

Post-task questions:

- **How do you rate the difficulty level of app from 0-10?**
1

- **Will you prefer using this app rather than using the current platform(email and canvas) which you use?**
  Yes , it's very convenient.
- **Did you like the app?**
  Yeah.

- **Anything you didn't like in the app?**
  Nothing , everything was plain and simple.
- **Anything you found missing?**
  Enter professors name in the text bar container.
- **What was the most challenging task? Can you explain why?**
  None.
- **What would you change if you could make modification in the app?**
  Calendar was too small.
- **What feature in the app is not as helpful as email or Canvas?**
  Everything was quite helpful. Not drawback as of the application's main
  Functionality except small once.
- **What feature in the app is more helpful than email or Canvas?**
  Main feature: Appointment is quicker.

Participant 6

1.Create an account and open make an appointment.

The participant was able to create an account and view the profile page in one go.

2.Make an appointment with Dr. Maher for November 5, 4 - 4:30 pm.
The user wanted to use the search bar but I prompted that he can also use the filter options so he filtered based on the department and role. He could easily book the appointment.

3.Start a chat with adam and tell him about your upcoming appointments.
The user used the profile page button to go back went into the chat option and clicked on adam and sent him a chat.

4.Filter the forum content by latest news and name the content and then comment on content.

The user the profile button to go back and completed the task quickly.

5.Start a group chat with Adam, Aby and Jaden.

The user started the group chat easily but he tried selecting different people and it worked.

6.Name the first content in the forum based on alphabetical order.

The user completed the task in the first attempt without wasting time around in the application.

Post-task questions:

- **How do you rate the difficulty level of app from 0-10?**
  5
- **Will you prefer using this app rather than using the current platform(email and canvas) which you use?**
  Yes.
- **Did you like the app?**
  Yeah.
- **Anything you didn't like in the app?**
  Nothing , everything was amazing. Good user experience.
- **Anything you found missing?**
  Nothing everything was in the right place

- **What was the most challenging task? Can you explain why?**
  None.
- **What would you change if you could make modification in the app?**
  None
- **What feature in the app is not as helpful as email or Canvas?**
  Everything was quite helpful.A student would love it.
- **What feature in the app is more helpful than email or Canvas?**
  Main feature: Accessibility to chat is easy.

Participant 7

1.Create an account and open make an appointment.

The participant first entered username and password and pressed login and it worked. But I prompted him to go back and complete the task i told him.

2.Make an appointment with Dr. Maher for November 5, 4 - 4:30 pm.
The user used the search bar to select the professor and he could easily book the appointment but the mistake he did was that he forgot to change the To time in appointment to pm.

3.Start a chat with adam and tell him about your upcoming appointments.
The user used only the back button to go to the profile page . From there we went to the chat option. But the user was confused on clicking the name which made no response , but later tried clicking on the right button and it worked, He could start a chat then.

4.Filter the forum content by latest news and name the content and then comment on content.

The user the profile button to go back and completed the task quickly.

5.Start a group chat with Adam, Aby and Jaden.

The user started the group chat easily but he had difficulties finding the group chat option.

6.Name the first content in the forum based on alphabetical order.

The user completed the task in the first attempt without wasting time around in the application.

Post-task questions:

- **How do you rate the difficulty level of app from 0-10?**
  3
- **Will you prefer using this app rather than using the current platform(email and canvas) which you use?**
  Yes.
- **Did you like the app?**
  Yeah.
- **Anything you didn't like in the app?**
  Nothing , everything was plain and simple.
- **Anything you found missing?**
  Enter professors name in the text bar container.
- **What was the most challenging task? Can you explain why?**
  None.
- **What would you change if you could make modification in the app?**
  Navigating to group chat was could be more easier.

- **What feature in the app is not as helpful as email or Canvas?**
  All are useful.
- **What feature in the app is more helpful than email or Canvas?**
  Forum option was more helpful.

Participant 8

Create an account and open make an appointment.

The participant finished the task without the problem

Make an appointment with a Dr. Maher for November 5, 4 - 4:30 pm.

User easily found make an appointment but wasn't sure how to figure out the department and they realized they can also search. Did the rest of the task easily.

Start a chat with Adam and tell him about your upcoming appointments.
User went to the profile page and selected chats. Started the chat easily.

Filter the forum content by latest news and name the content and then comment on content.

Made an error by going to the make an appointment then went back to the profile page and found forum. The went to the forum page but wasn't sure how to filter. First wanted to search but then filtered.

Start a group chat with Adam, Aby and Jaden.name?
Participant finished this with no problem

Name the first content in the forum based on alphabetical order.
Participant found the sort sign and sorted and asked is this based on alphabetical order? They checked and made sure. They named the first one then.

Post-task questions:

- **How do you rate the difficulty level of app from 0-10?**
  4

- **Will you prefer using this app rather than using the current platform (email and canvas) which you use?**
  No

- **Did you like the app?**
  yes

- **Anything you didn't like in the app?**
  Boring colors

- **Anything you found missing?**

Color and graphic

- **What was the most challenging task? Can you explain why?**

Filtering in the forum. I mixed the search and filter

- **What would you change if you could make modification in the app?**

Made the graphic nicer

- **What feature in the app is not as helpful as email or Canvas?**

It is very sequential. You can't have access to everything from one page

- **What feature in the app is more helpful than email or Canvas?**

Group messaging and forum

Participant 9

Create an account and open make an appointment.

The participant did it easily

Make an appointment with a Dr. Maher for November 5, 4 - 4:30 pm.

The user couldn't figure out how to select the date.

Start a chat with Adam and tell him about your upcoming appointments.

The user got confused about the chat with Adam but they figured it out.

Filter the forum content by latest news and name the content and then comment on content.

The user could filter the forum content but she could not name and comment on it. The user could not found the place easily.

Start a group chat with Adam, Aby and Jaden.name?

The user did it very well.

Name the first content in the forum based on alphabetical order.

The user did it well the first one would be ID card renewal.

Post-task questions:

- **How do you rate the difficulty level of app from 0-10?**

8

- **Will you prefer using this app rather than using the current platform (email and canvas) which you use?**

No, it was not really user friendly and it was hard to find the locations I want to go.

- **Did you like the app?**
  The user finds it difficult to figure it out.

- **Anything you didn't like in the app?**
  The graphics are not very clear

- **Anything you found missing?**
  The clear graphics

- **What was the most challenging task? Can you explain why?**
  User finds it difficult to filter the forum do it after errors.

- **What would you change if you could make modification in the app?**
  I would do it in a more clear one.

- **What feature in the app is not as helpful as email or Canvas?**
  The things for it to be done were not familiar.

- **What feature in the app is more helpful than email or Canvas?**
  The way the size of the page is smaller and not so much information to be found on it.