Final Development of EduMate Wireframes with Improved User Experience for Our Three User Journey Tasks: Creating an Account, User Roaming to Match with a Tutor, and Users Paying for their Tutoring Session

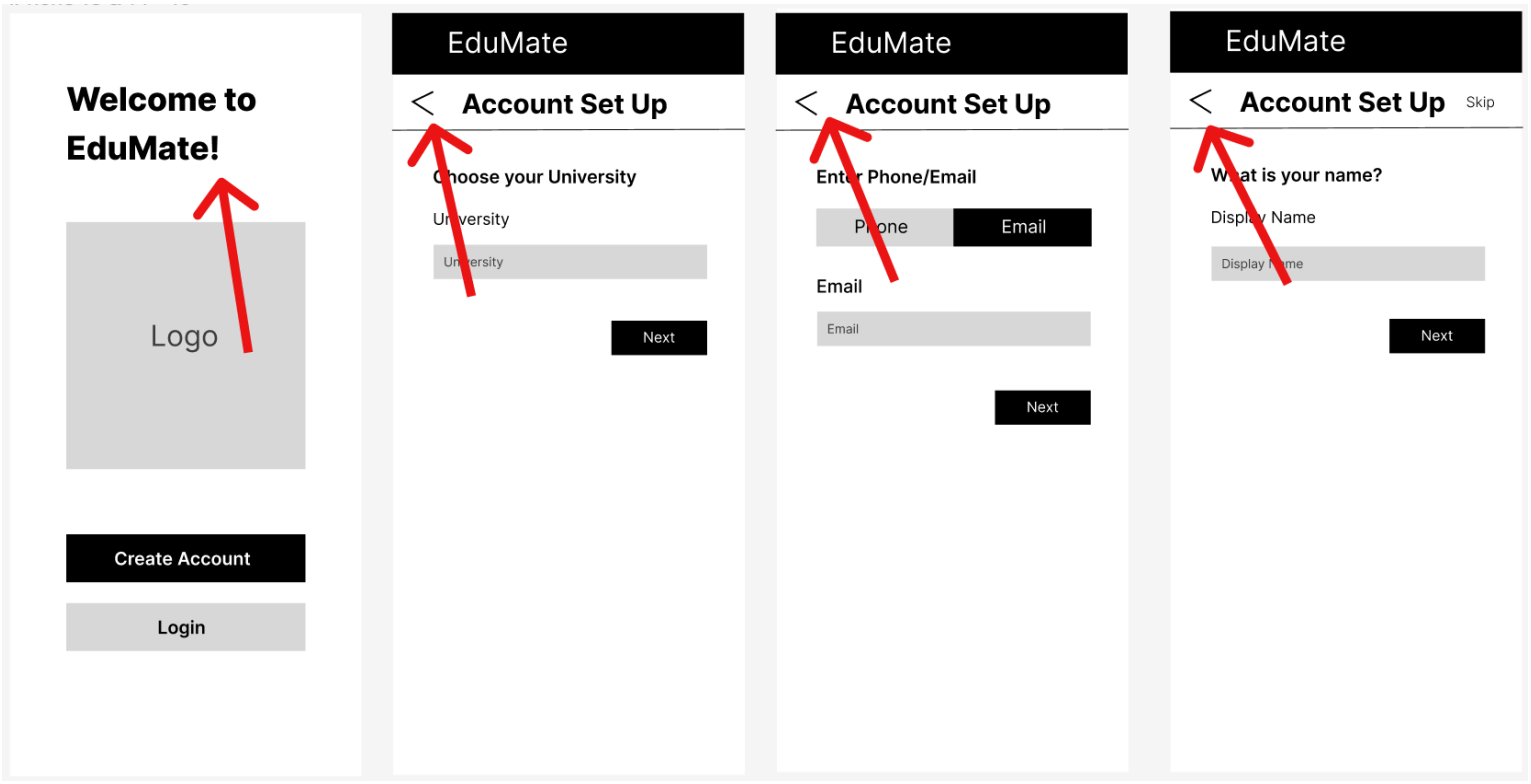
Our Three User Journey Tasks Revised to Improve Future User Experience with our Wireframes by: Adding More Buttons for Easy Navigation, Changing the Order of Pages to Feel More Intuitive, Dividing Payment Information into Separate Sections, and Making the Payment Link More Official

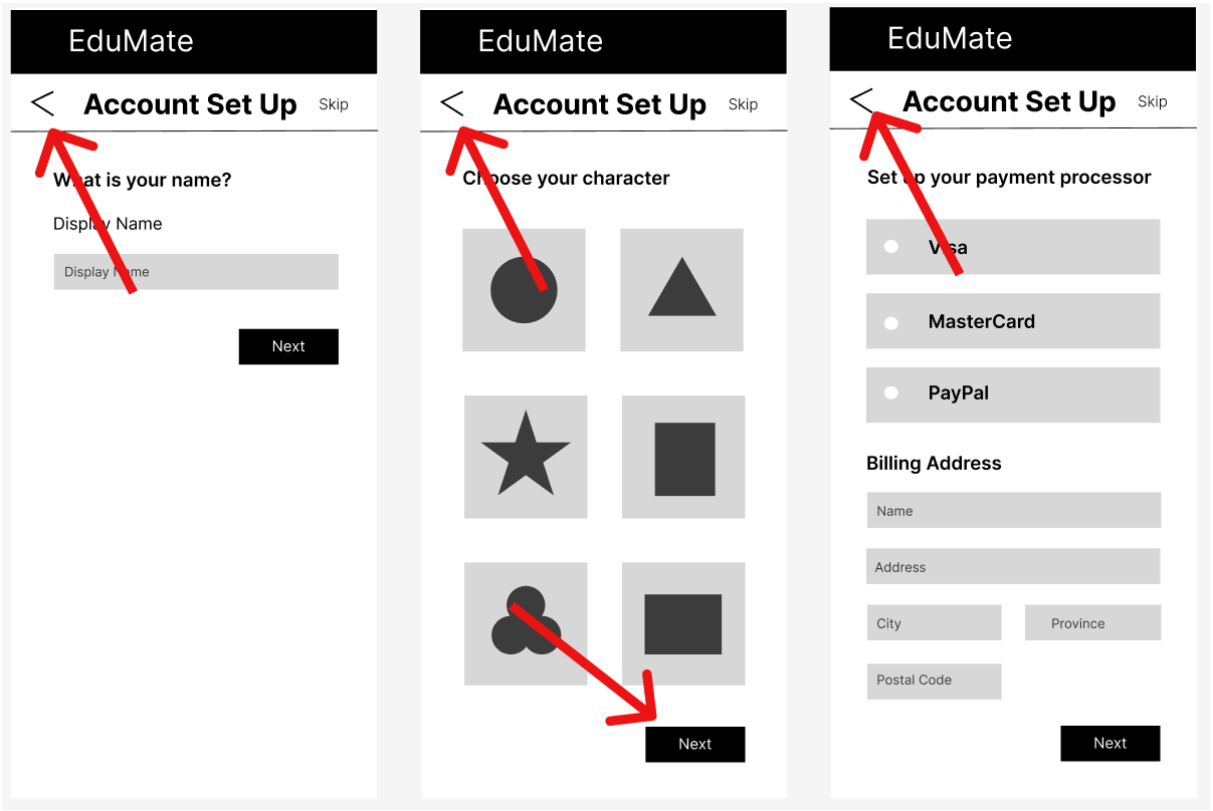
There are many components that go into developing an application, which can be scary. How would someone even begin to create a good user experience for an application from scratch? Well, they can start by conducting a competitor analysis with similar applications already on the market, using that information to create a navigation tree in order to find common themes between neer-peers. Afterwards, they can start developing the first stages of the application by creating a flow chart depicting every route a user can take, while also developing specific user journeys and wireframes for tasks. User-testing those wireframes, and using the data collected from them are useful in improving future user experience. Finally, they can make more revisions to their wireframes, and repeat any steps as necessary in order to create an application, like EduMate, that understands how to revise their wireframes according to user experiences.

Wireframes of EduMate's 3 User Journeys Creating an Account, User Roaming to Match with a Tutor, and Users Paying for their Tutoring Session After Revision

All applications can constantly be worked on to improve the user experience. User tests need to be conducted on applications and their wireframes and prototypes. Through these user tests, we are able to note what are the problems and errors in our applications' design and resolve those issues to improve the usability of our application.

Wireframe of a User Journey of Account Set Up for Proposed Tutoring Application After Revision




EduMate
Account Set Up
Skip
What is your name?
Display Name
Display Name
Next
EduMate
Account Set Up
Skip
Choose your character
Next
EduMate
Account Set Up
Skip
Set up your payment processor
Visa
MasterCard
PayPal
Billing Address
Name
Address
City
Province
Postal Code
Next

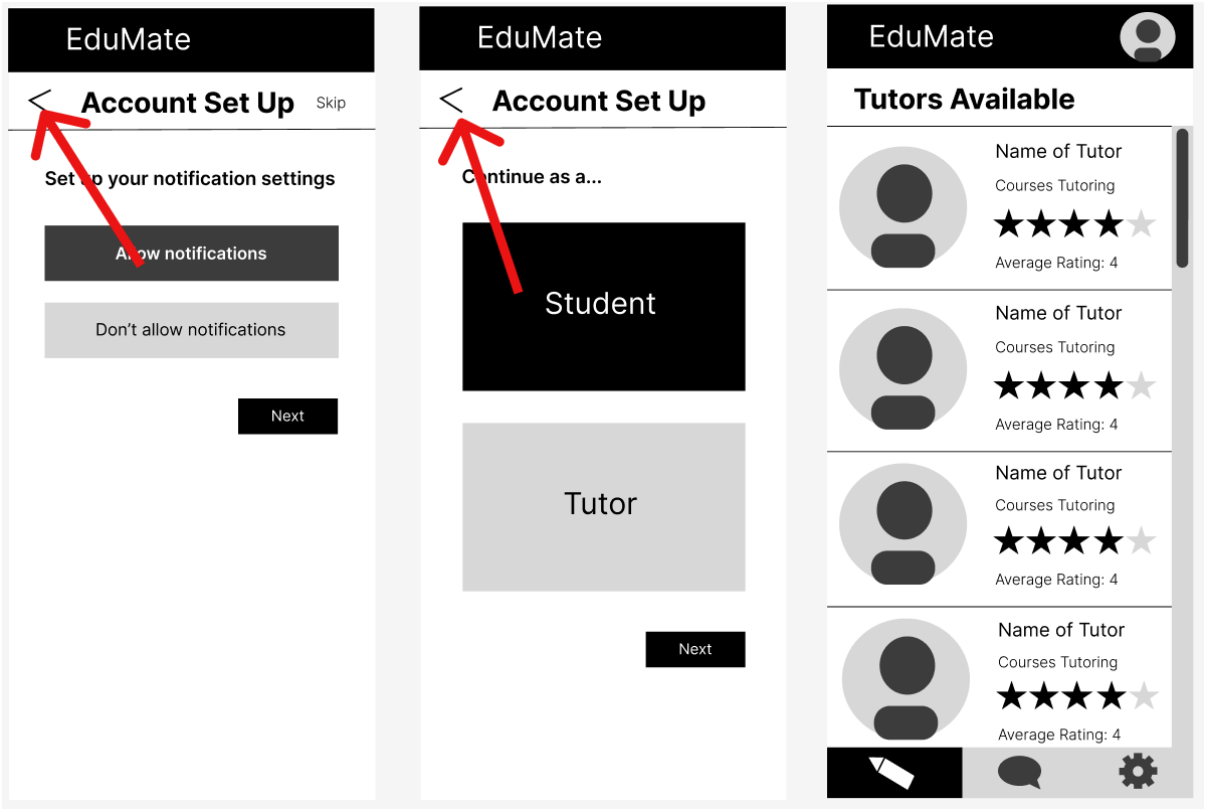
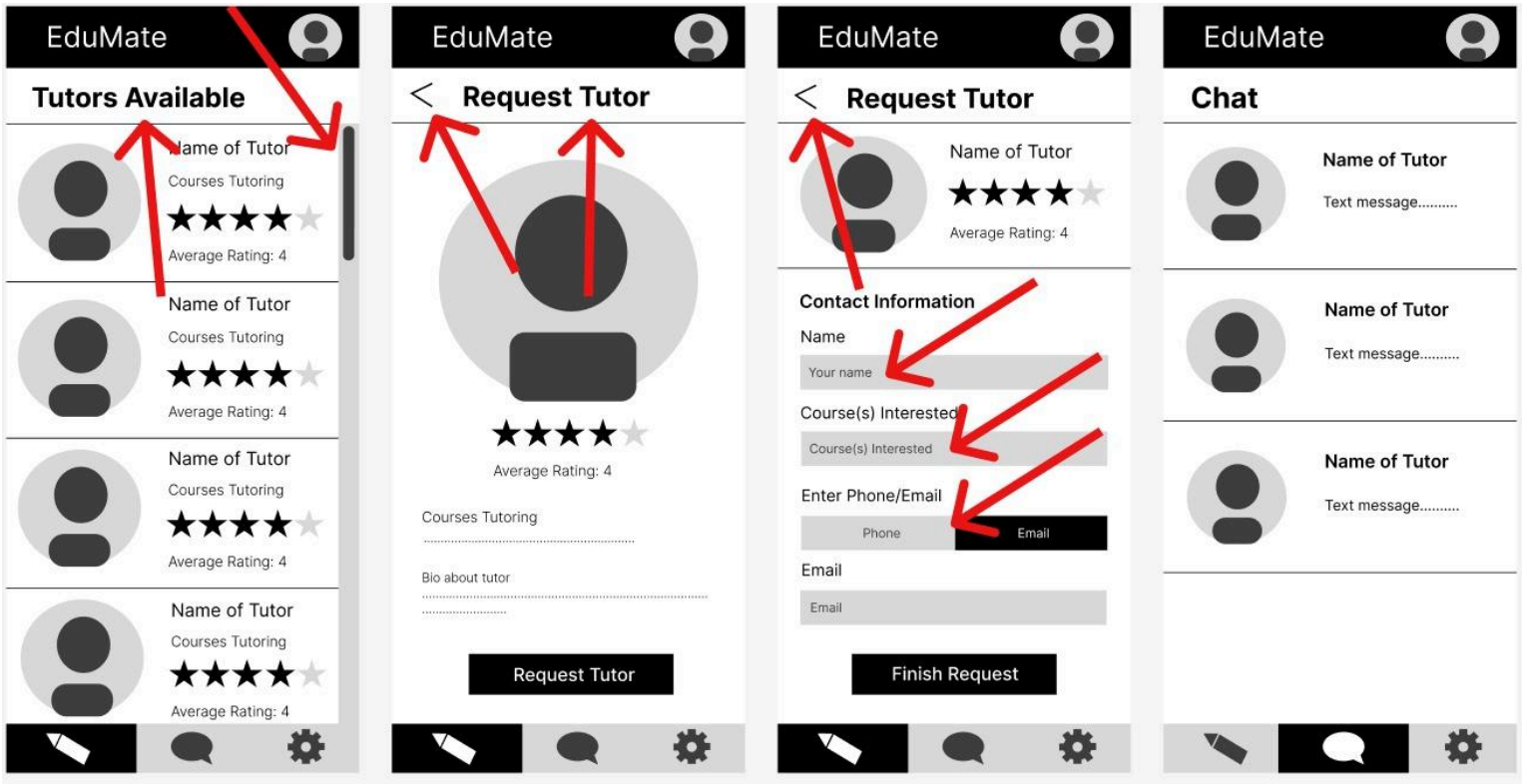
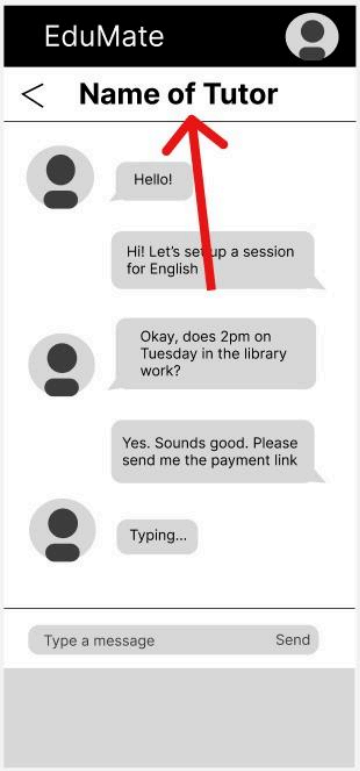

EduMate
Account Set Up
Skip
Set up your notification settings
Allow notifications
Don't allow notifications
Next
EduMate
Account Set Up
Continue as a...
Student
Tutor
Next
EduMate
Tutors Available
Name of Tutor
Courses Tutoring
Average Rating: 4
Name of Tutor
Courses Tutoring
Average Rating: 4
Name of Tutor
Courses Tutoring
Average Rating: 4
Name of Tutor
Courses Tutoring
Average Rating: 4

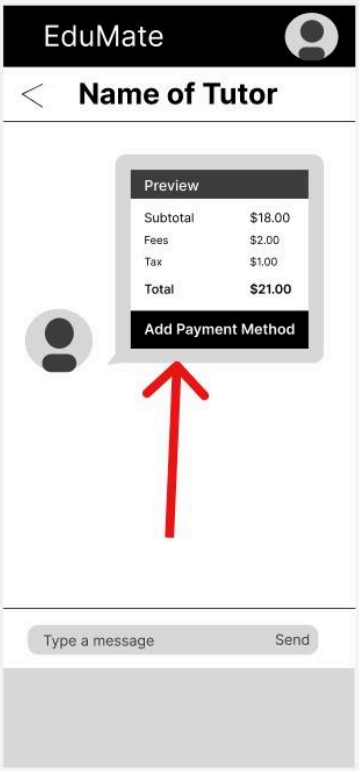
FIG 1: This is a wireframe sketch of our user journey where the user is trying to create an account on EduMate after revisions.

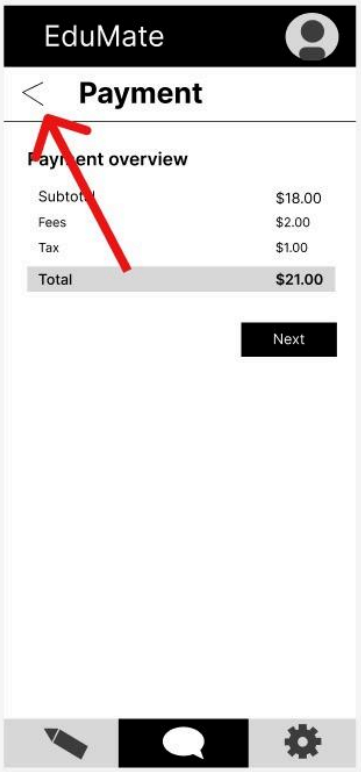
The most common point our users brought up regarding performing this task was that there was no going-back option to change/fix the information you put in. So, we added a going back button onto each page to ensure the user had more control over the navigation of this process. Another point that was brought up was that our language was too focused on assuming the user would be a student when it is in fact created equally for students and tutors so we fixed up our wording in this task as well. Lastly, users also mentioned that the pages on these wireframes could be switched up to work in a more easier flow. We decided to change the university selection page to be sooner in the order of these pages so the processes would feel more intuitive. Another change in the wireframes was we added the "EduMate" border on the top for a more cohesive experience. Also, we added an "Account Set Up" border close to the top of the page so users are able to easily tell what task they are completing. These are the revisions we have made to this wireframe, according to what insights we found in our user tests.

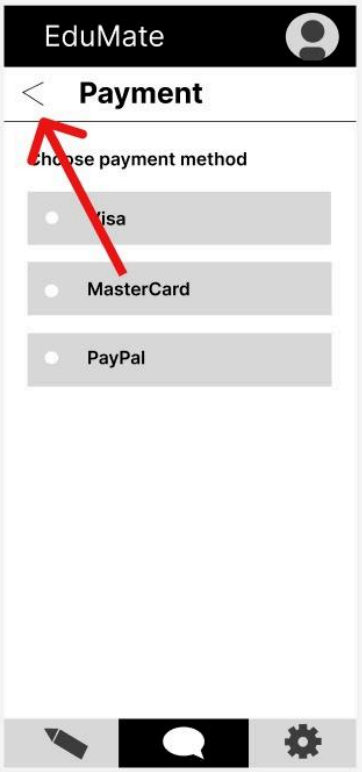
Wireframe of a User Journey of Roaming, Requesting a Tutor, and Completing a Session for EduMate After Revision

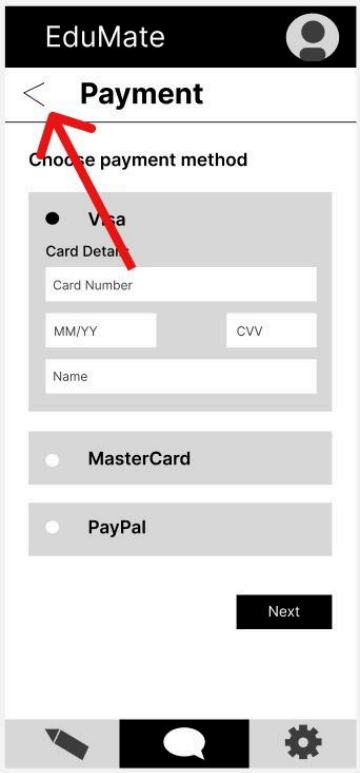


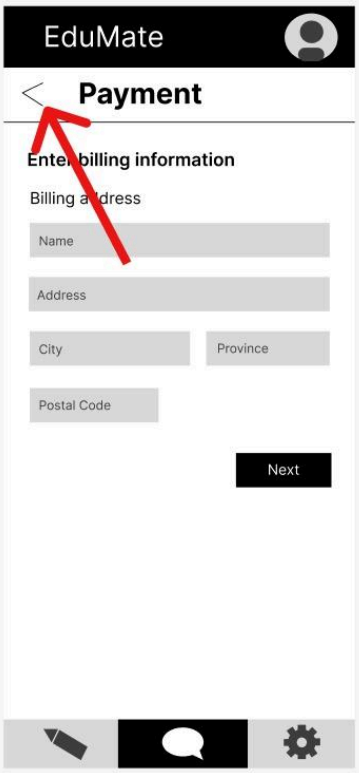

EduMate
Name of Tutor
Hello!
Hi! Let's set up a session for English
Okay, does 2pm on Tuesday in the library work?
Yes. Sounds good. Please send me the payment link
Typing...
Type a message
Send


EduMate
Name of Tutor
Preview
Subtotal $18.00
Fees $2.00
Tax $1.00
Total $21.00
Add Payment Method
Type a message
Send

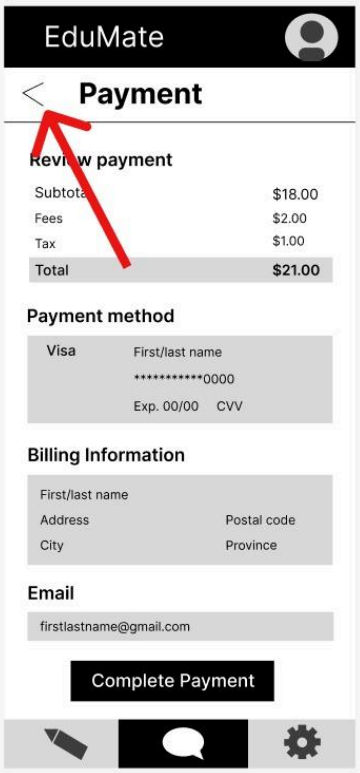

EduMate
Payment
Payment overview
Subtotal $18.00
Fees $2.00
Tax $1.00
Total $21.00
Next


EduMate
Payment
Choose payment method
Visa
MasterCard
PayPal


EduMate
Payment
Choose payment method
Visa
Card Details
Card Number
MM/YY
CVV
Name
MasterCard
PayPal
Next


EduMate
Payment
Enter billing information
Billing address
Name
Address
City
Province
Postal Code
Next


EduMate
Payment
Confirmation email
Email
Email
Next


EduMate
Payment
Review payment
Subtotal $18.00
Fees $2.00
Tax $1.00
Total $21.00
Payment method
Visa
First/last name
**********0000
Exp. 00/00 CVV
Billing Information
First/last name
Address
Postal code
City
Province
Email
firstlastname@gmail.com
Complete Payment

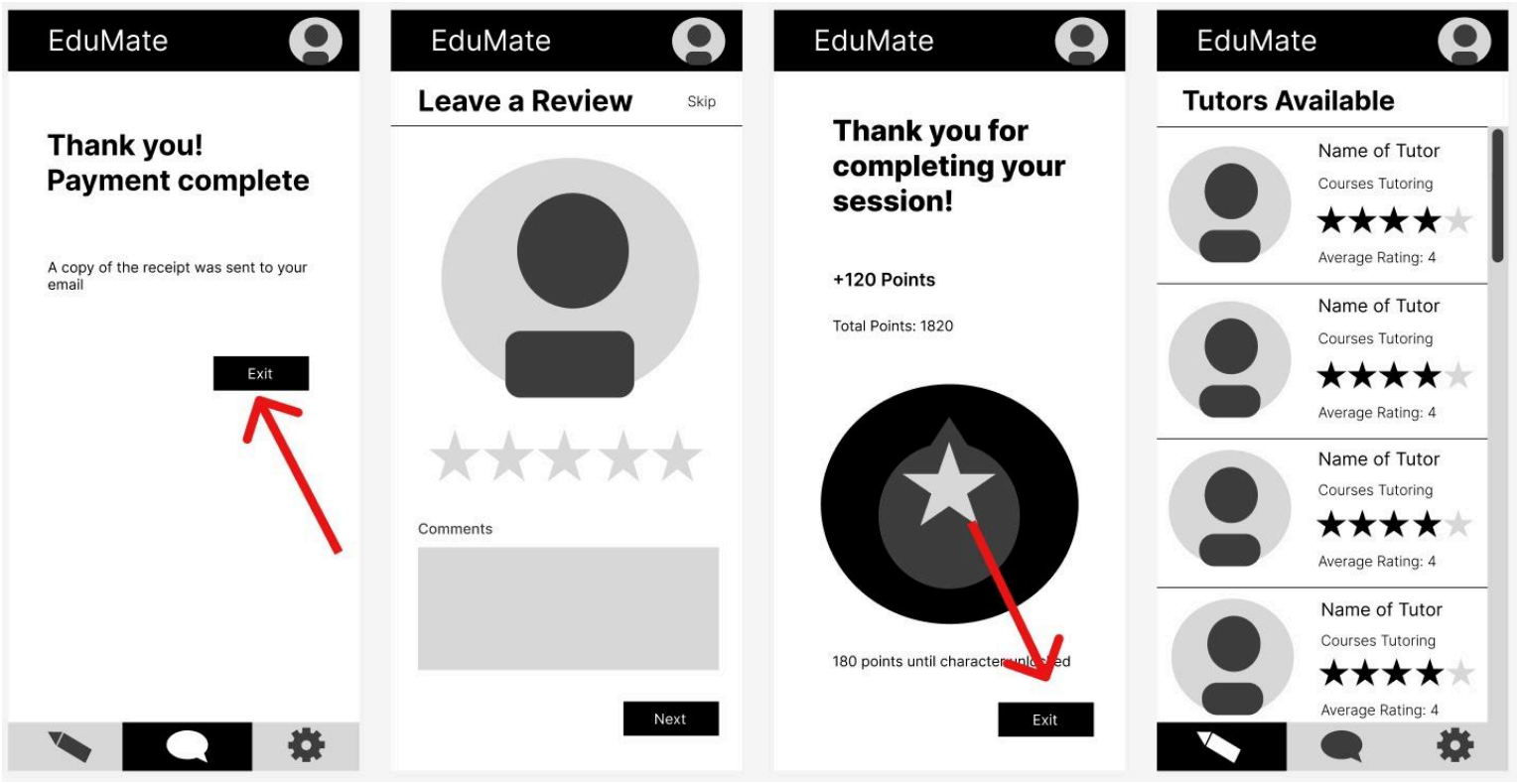
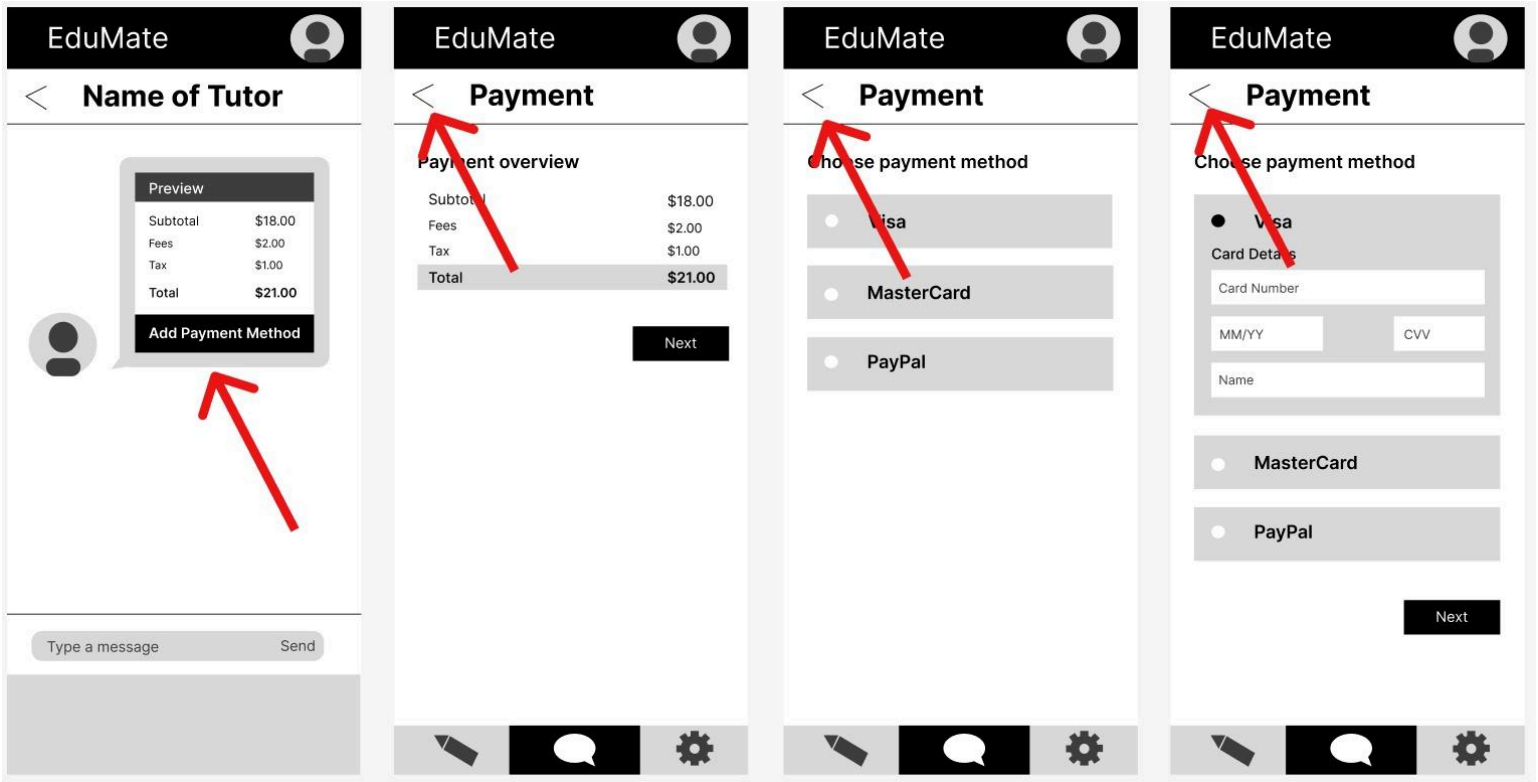


FIG 2: This is a wireframe of a user journey of roaming on the home page, requesting a tutor, setting up a meeting in the chat, going through payment, and finishing a session on our application after revisions.

For the roam page, there is an added scroll bar to the right, so users are less confused on what to do, and where they can go when they have reached this page. In this wireframe, we have added both back and next buttons to make the navigation through these pages a bit easier for our users, as that is something many users suggested they would like to see present in this task. We have also edited the payment link, so it does not look like a link sent by a scammer but instead gives you a preview of the process, and then as you continue on with it, it looks a lot more professional and official compared to our initial payment process. This makes our users feel a lot more secure while going through this process. There was also certain information that our users said they didn't feel comfortable sharing such as their phone number, so we have made it optional and they can choose to give either their email or phone number, so the interaction doesn't ask for too much information from the user. Also, there is now a “payment overview” page that can help avoid confusion with the payment steps. Lastly, the biggest cause of confusion for our users in this process was the payment process being too overwhelming with too much information on one page. So, we have split up the Payment method/information section from the billing address section; this allows our users to focus on one task at a time and makes the process as a whole easier for them to follow. Finally, there is a “review payment” page to also make the users’ payment journey easier, and they would not need to keep on pressing the back buttons to review their information, and they can easily change their information by clicking on each section. The last page is the roam/home page since one of the users from the user test was confused on where they would end up after clicking on the “exit” button. These are the revisions we have made to this roaming wireframe, according to what information we have gathered from our user tests.

Wireframe of a User Journey of Going Through Payment Process for EduMate After Revision



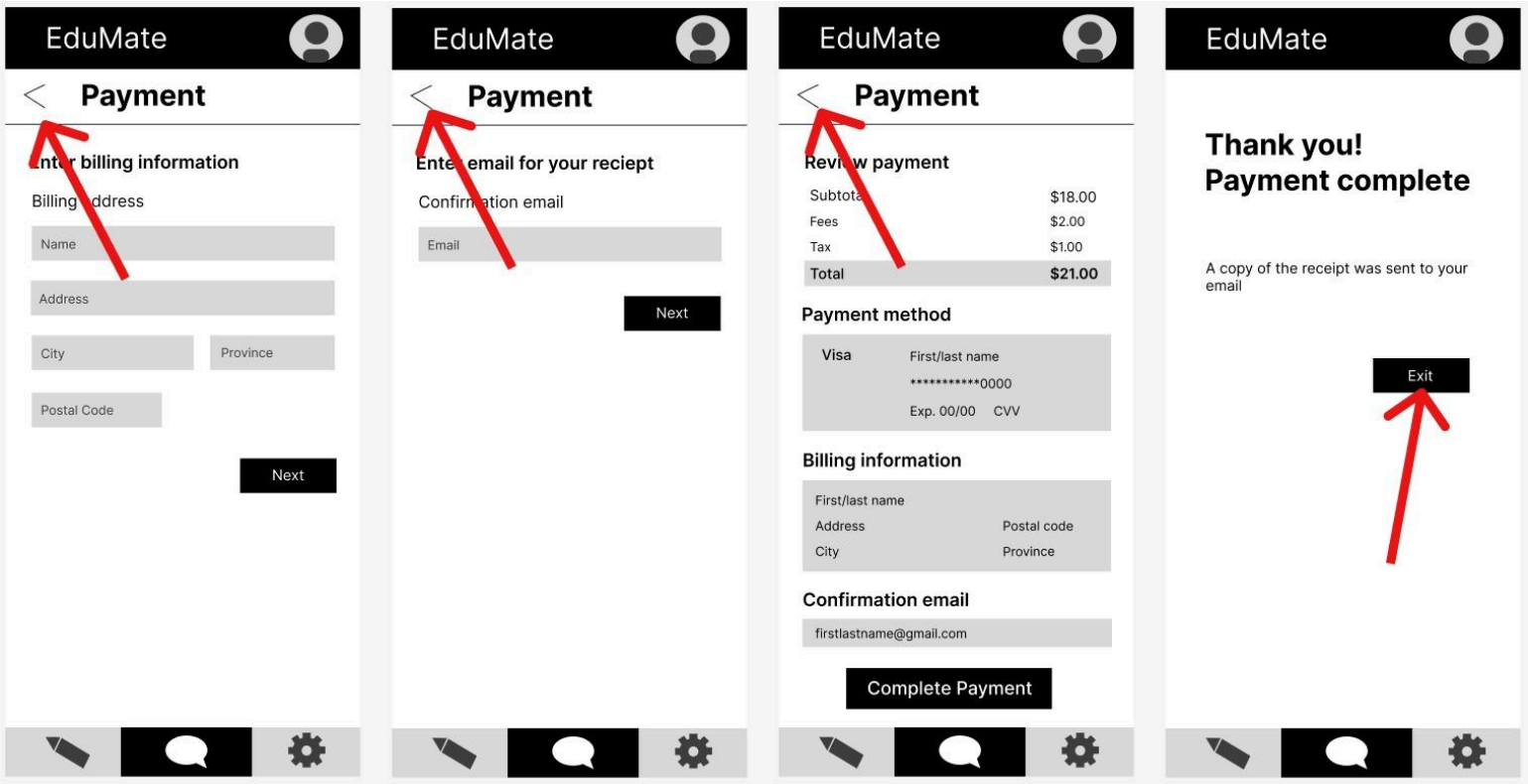


FIG 3: This is a wireframe of a user journey after clicking on the payment link sent by the tutor and going through the payment process after revisions.

For this task, we have added back buttons, next buttons, as well as an exit button at the end to make this process easy to navigate and control. Users noted for this task that the order of the pages could be changed a bit to make the process more intuitive, and also the information on certain pages could be split up, so it was easier to fill in. In addition, there is a “payment overview” page at the beginning so users are able to see how much their payment will be. For this task, a big cause of confusion for our users was the payment process being too overwhelming with too much information on one page. So, we split up the payment method/information section from the billing address section; this allows our users to focus on one task at a time and makes the process as a whole easier for them to follow. Giving more options and space in these processes makes the task simpler for users to complete. Lastly, there is now a “review payment” page so users are able to easily check their payment information without having to go back. These are the revisions we have made to our payment process wireframe, by making changes that our users suggested and were confused about in our user tests.

Revisions Made to Improve the System Errors Found from User Tests for EduMate

After performing user tests on our initial wireframes we were able to gather many insights on areas of confusion and hesitancy in our prototype that we did not see ourselves. Performing the think-aloud testing exercise helped us note what areas in our wireframe tasks made our users pause with confusion, hesitancy, or some other frustrated emotion. Noting these key moments of error, we were able to better understand the flaws in our design and how we could improve our application to be more user-friendly. One aspect of change that we added to all our wireframes was more buttons for

easy navigation; which would allow users to go back, skip, or next on to certain parts. This was a key component that needed to be added to our wireframes to improve their usability overall. We also changed the order of pages on all our wireframes to make the process feel more intuitive and flow better. Lastly, and most importantly, the biggest cause of confusion for our users while interacting with our application wireframes was the payment process. They were hesitant to click on the payment link because it did not look official and were also confused by some information in the payment process section. To resolve this issue, we have split up this section into much more precise and simple steps. We have made the payment link into a preview that looks a lot more official and then split up the payment method and billing address section of the payment process, so our users feel a lot more comfortable while going through this process, and it is also easier for them to understand. These changes in the payment process tasks have all been made by understanding what parts of this process were truly causing errors for our users. Overall, we have made all these changes according to what insights we have gained from our user tests so our application is better designed to work for its user audience.

A User Flow Chart for EduMate Derived from Our Navigation Tree, and our 3 User Journeys: Creating an Account, Users Roaming to Match with a Tutor and Completing a Session, and Users Paying for Their Tutoring Session, as well as 3 Wireframe Prototypes

This navigation map shows the five categories of features that will be available in our app for users to navigate through the app. These categories were determined by the connections that we found in the Gephi visualization, which shows the common connections our users made. This also shows the five categories of features that the users will expect in a learning/tutoring app like the one we intend to make.

Common Themes: Accessibility, Initial Profile, Tracking, Gamification, and Resources Will be Present in Our Application to Help Users Navigate their Learning

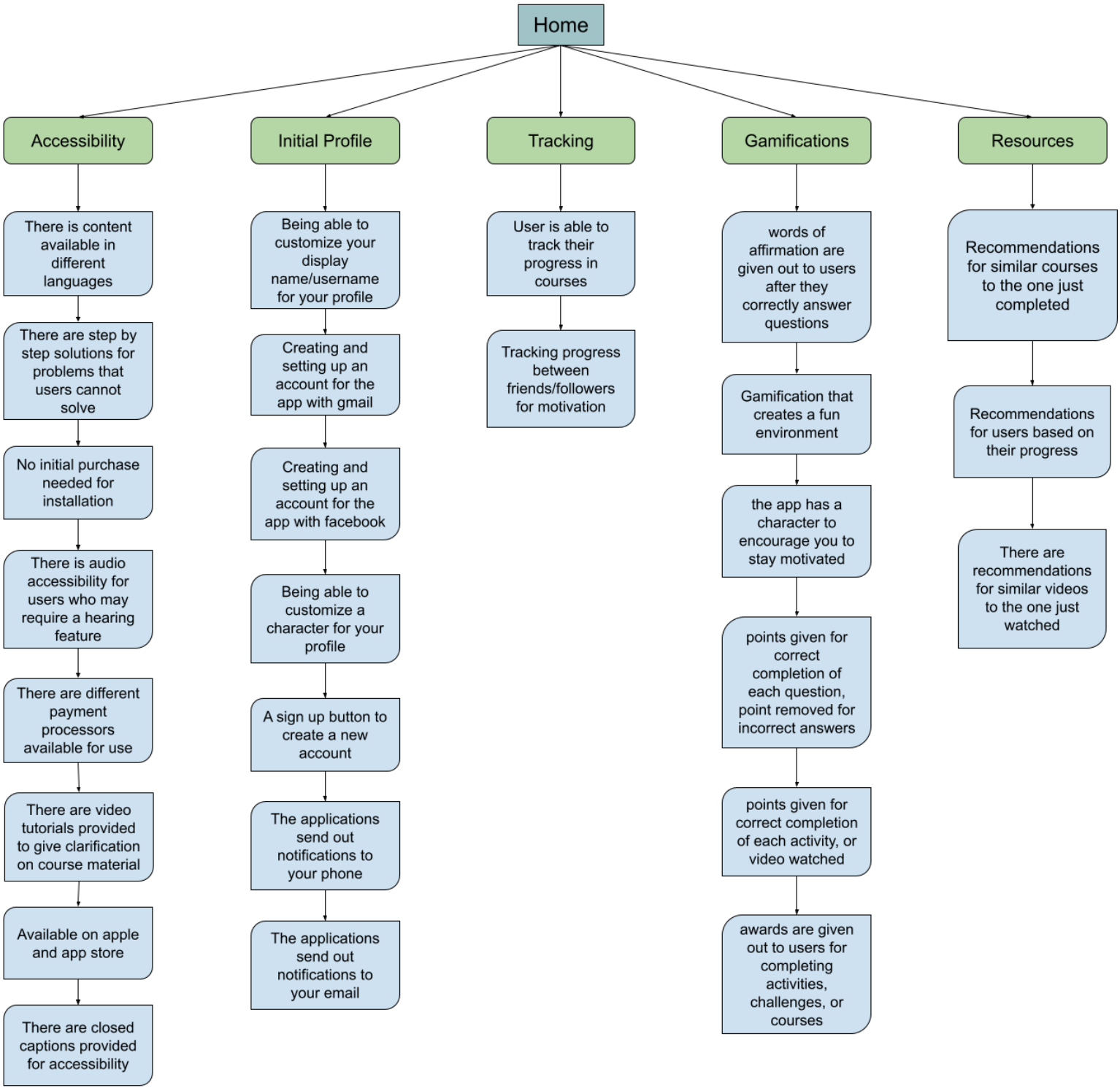


FIG 4: This is a navigation map that shows the 5 menu items that will be present in our application, and the features they will let users use.

This is a navigation map that has been derived from the 5 categories Gephi has formed for us in the previous visualization (Table 8). This table shows more clearly what features were grouped together, and then we have named those categories based on what were the similarities between all those features–the reason behind why all those features were grouped together. The Accessibility

category consists of making the app and its payment processes more readily available, step-by-step instructions to make it more understandable, and having general accessibility options such as: audio, closed captions, and different languages. The Initial profile category consists of three main features which are: signing up for an account using different platforms, customizing an accounts character/username however you want, and setting up notifications. The Tracking category is all about users tracking their progress in their courses, and also being able to compare their progress with their friends/followers. The Gamifications category consists of features such as giving users points for completing questions, and words of affirmation. Users also receive points and awards for completing courses. This category also consists of a character that is there to encourage you and also make the process of learning more fun. The Resources category consists of features which give recommendations to users based on what courses users have taken, tier progress, and what videos they have watched.

EduMate User Flow Chart Derived from our Main Categories of our Navigation Tree

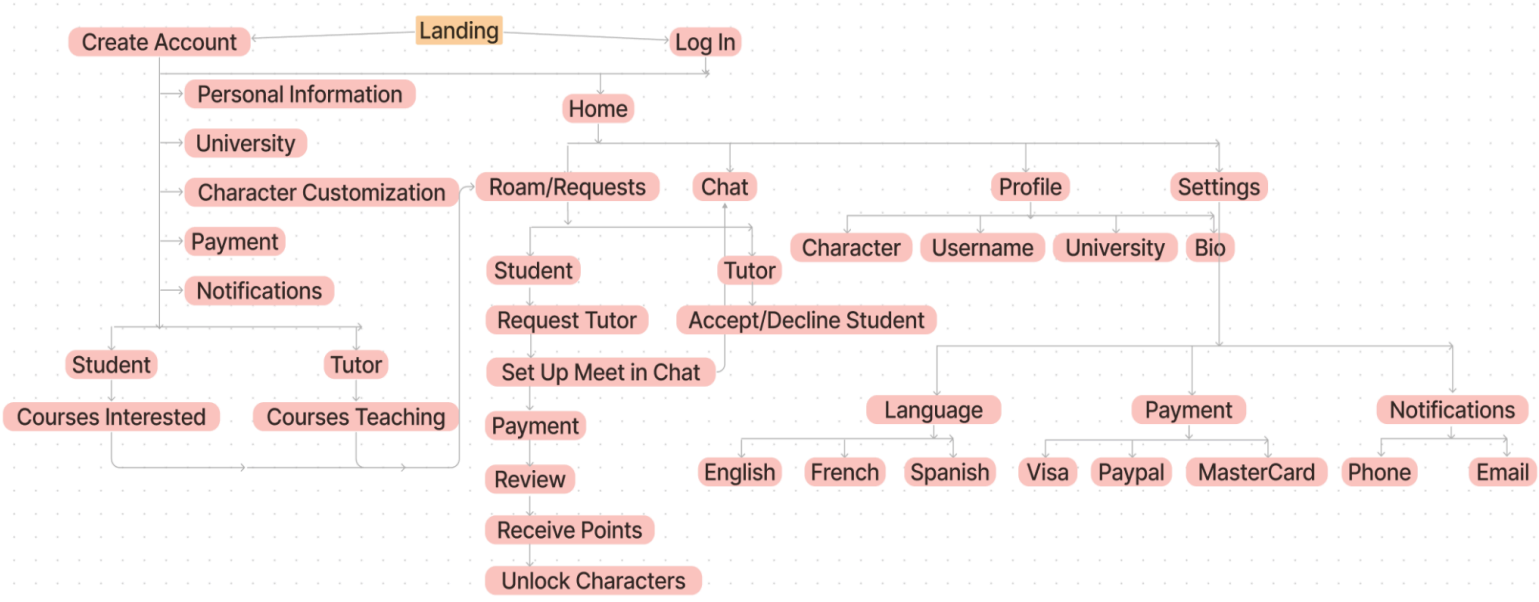


FIG 5: This is a user flow chart derived from the main categories of our Navigation Tree.

This shows in more detail what navigating through our app, EduMate, will look like. When you initially download and open the app, it will lead you to the landing page where you can decide to either log in if you already have an account, or create an account. If you decide to create an account you will have to add information on these points: personal information, university, character, payment, notifications. Lastly, you will choose whether you decide to continue in the app as student or tutor, this will bring you to our home page which would be the same as if you logged in. The home page opens up on the Roam/Requests page, and there is also a menu bar with some options. You can go into chat to book a session with one of your current tutors, or you can go onto the roam page which is our home page, and try to find a tutor to match with and set up tutoring sessions. There is also a profile icon at the top right corner of almost every page, and you can see all of your personal information: username, character, university, and bio. The settings page includes language choice (English, Spanish, French), saved payment methods (Visa, PayPal, Mastercard), and notifications (through phone or email). See FIG 2 and FIG 3 for a closer look at this user flow chart.

EduMate Partial User Flow Chart Derived from our Main Categories of our Navigation Tree: Create Account

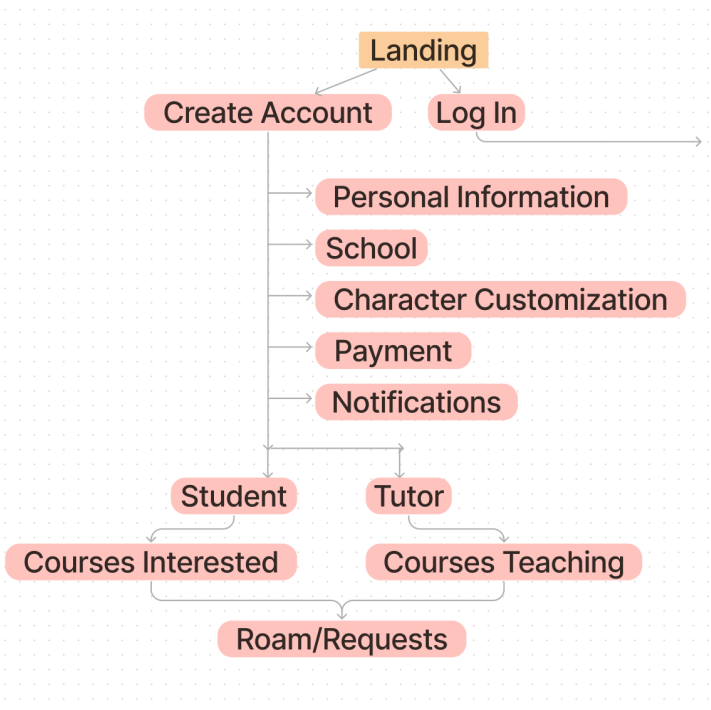


FIG 6: This is a close up version of part of FIG 1, the user journey for creating an account.

When the app is first opened, it prompts you to either log in or create an account. If you decide to create an account you will have to add information on these points: personal information, university, character, payment, notifications. Lastly, you will choose whether you decide to continue in the app as student or tutor, this will bring you to our home page, or roam, which would be the same as if you logged in instead.

EduMate Partial User Flow Chart Derived from our Main Categories of our Navigation Tree: Log In

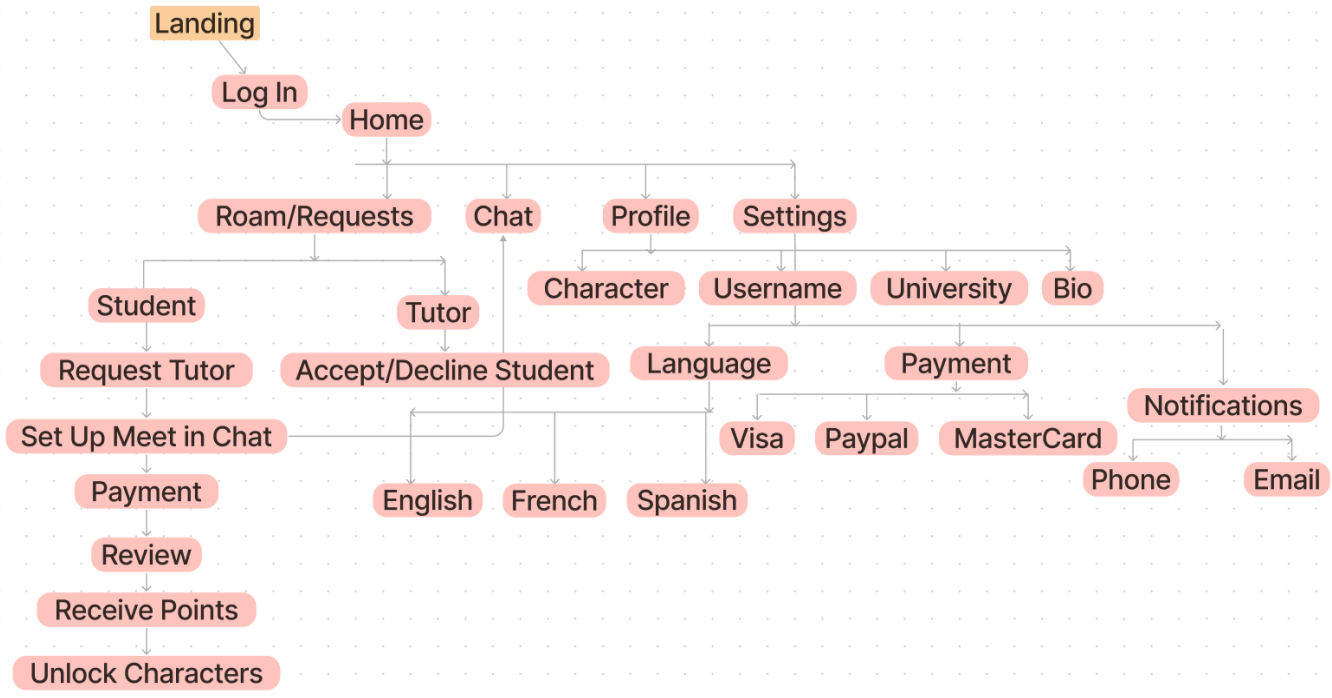


FIG 7: This is a close up of part of FIG 1, if the user chooses to immediately log in.

If this happens, the app brings you to home that opens up on the Roam/Requests page, where there is also a menu bar with options. You can go into chat to book a session with one of your current tutors, or you can go onto the roam page which is our home page, and try to find a tutor to match with and set up tutoring sessions. There is also a profile icon at the top right corner of almost every page, and you can see all of your personal information: username, character, university, and bio. The settings page includes language choice (English, Spanish, French), saved payment methods (Visa, PayPal, Mastercard), and notifications (through phone or email). See FIG 2 and FIG 3 for a closer look at this user flow chart.

User Journey of Account Set Up for Proposed Tutoring Application

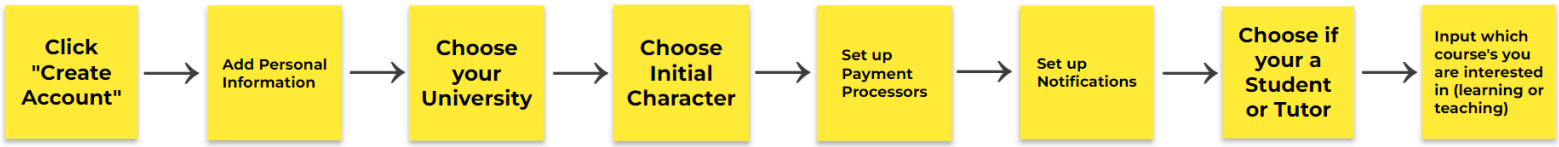


FIG 8: This is a user journey of creating an account.

This process consists of the user adding their personal information, such as their name, phone number, and email address. Then the user would choose the university they are studying at. After, the user can choose which character they would like to be in this application. They can also decide to set up their payment processor, or notifications, or skip any of these steps that are not vital to creating their account. Lastly, the user would choose whether they want to navigate through this app as a student and tutor, and that will determine the rest of their experience there.

User Journey of Student Roaming to Find Tutor and Complete Session for Proposed Educational Application

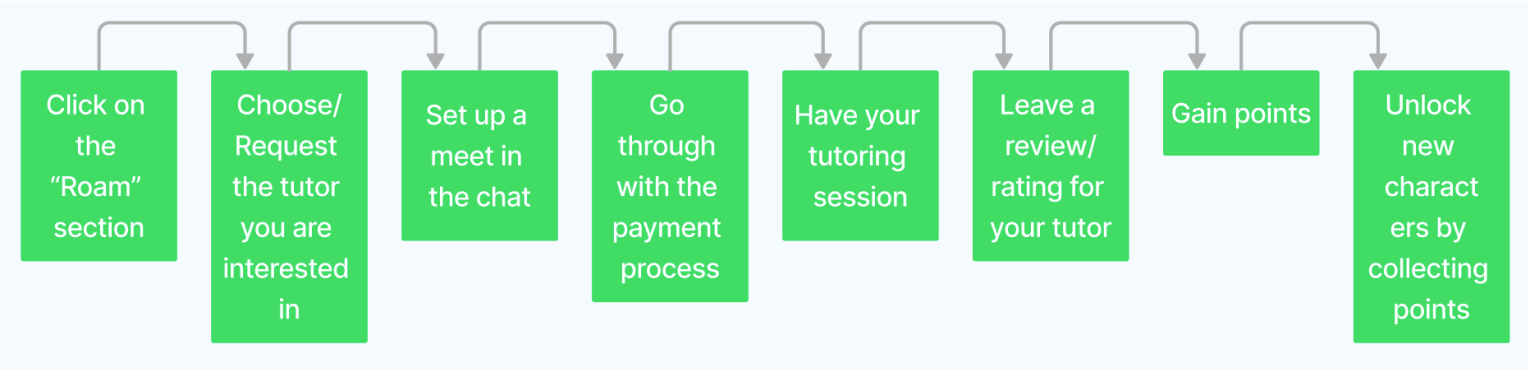


FIG 9: This is a user journey of a student roaming to match with a tutor, as well as completing a session with the tutor.

The user will initially go on the roam section of the app which can be found on the menu bar and is also the home page. They would then look through tutors to find one they like, and request to be tutored by them. The user and tutor can then set up a meeting in their chat, and the payment process will be prompted when a session has been scheduled. After the tutoring session the user can leave a review or rating. Also, after each session, the user gains points that go towards unlocking new versions of characters that they can change in their profile.

User Journey of Student Completing Payment Process After Setting Up Session With a Tutor for Proposed Tutoring Application

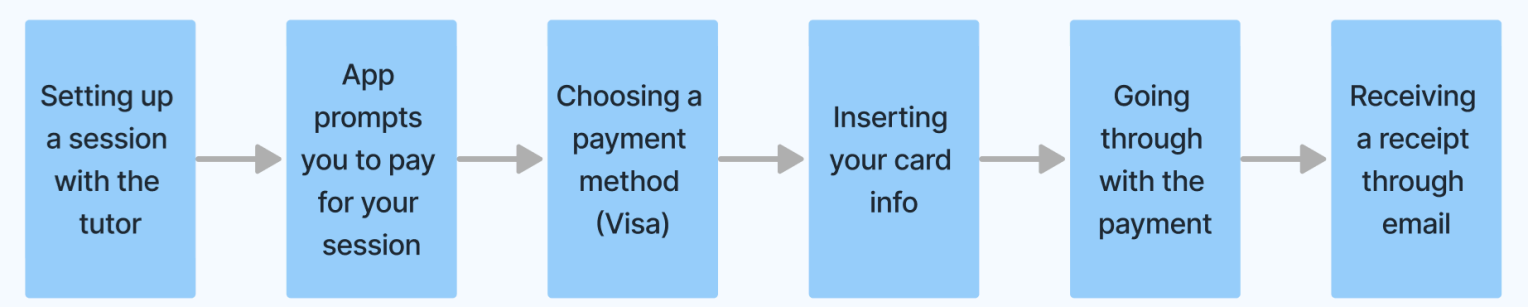
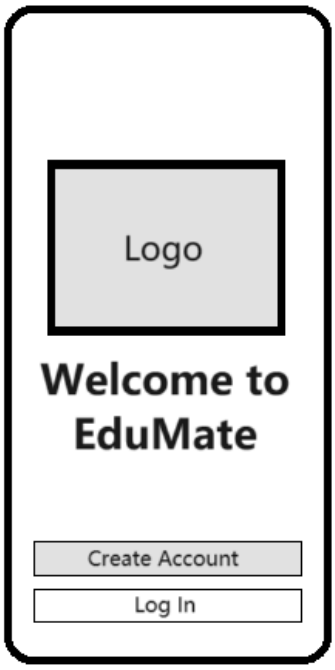
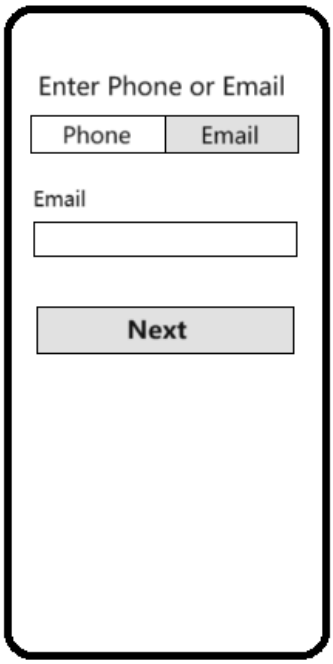


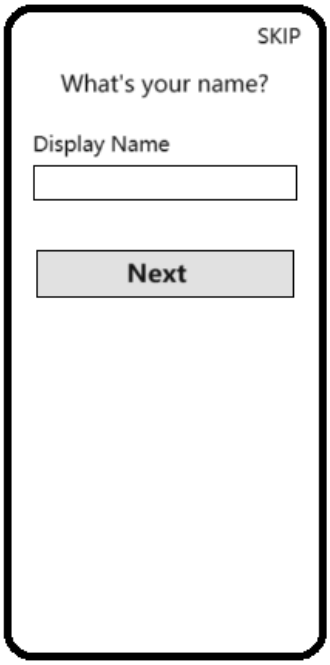
FIG 10: This is a user journey of a student going through the payment process for their tutoring session.

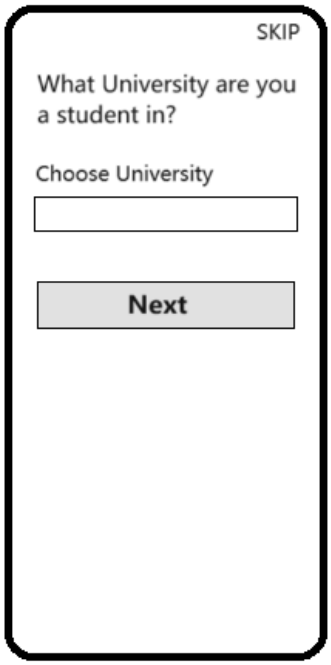
This expands on FIG 5, after which the user has scheduled a session with a tutor, and now is being prompted to pay for that session. The user can then choose their method of payment which is Visa, Mastercard, and PayPal. In this example the user chooses Visa, and then proceeds to put in their card information. After the payment has gone through, the user will get a message saying there will be a copy of the receipt in their email.

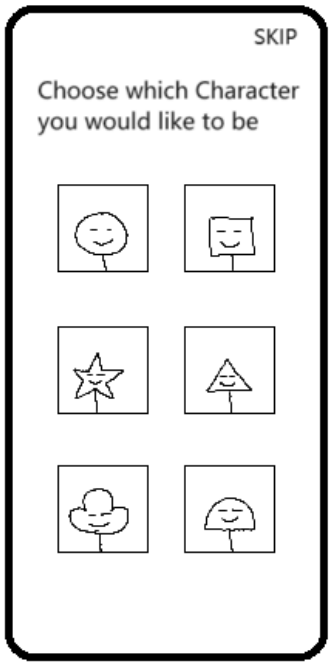
Wireframe of a User Journey of Account Set Up for Proposed Tutoring Application Before Revision

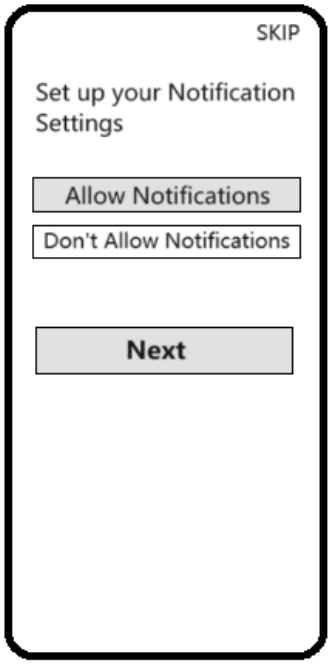












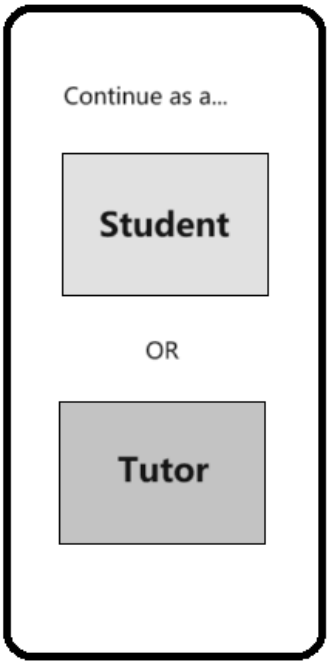
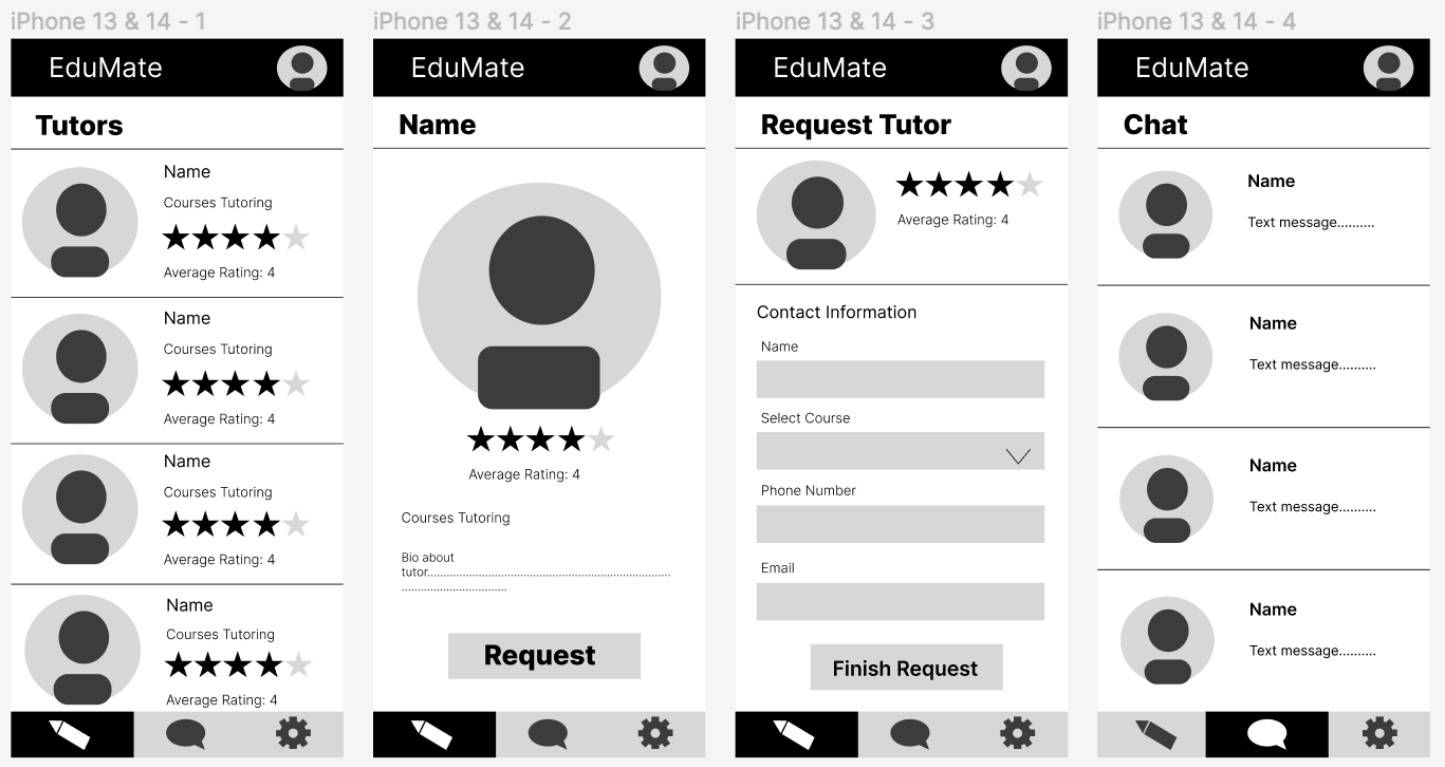


FIG 11: This is a wireframe sketch of a user journey where the user is trying to create an account on EduMate.

It shows how the landing page of the app will either have you log in or create an account before starting. Then it will take you through a step-by-step procedure, asking you one question at a time, and helping you create your account. This information will include an email/phone number, name, university, character profile, payment processor, and notifications. Many of these steps can be skipped as well, but overall help you organize the app how you want it to be for your service. Lastly, the setup procedure asks you whether you are a student or tutor, and that will determine the rest of your experience on this application.

Wireframe of a User Journey of Roaming, Requesting a Tutor, and Completing a Session for EduMate Before Revision



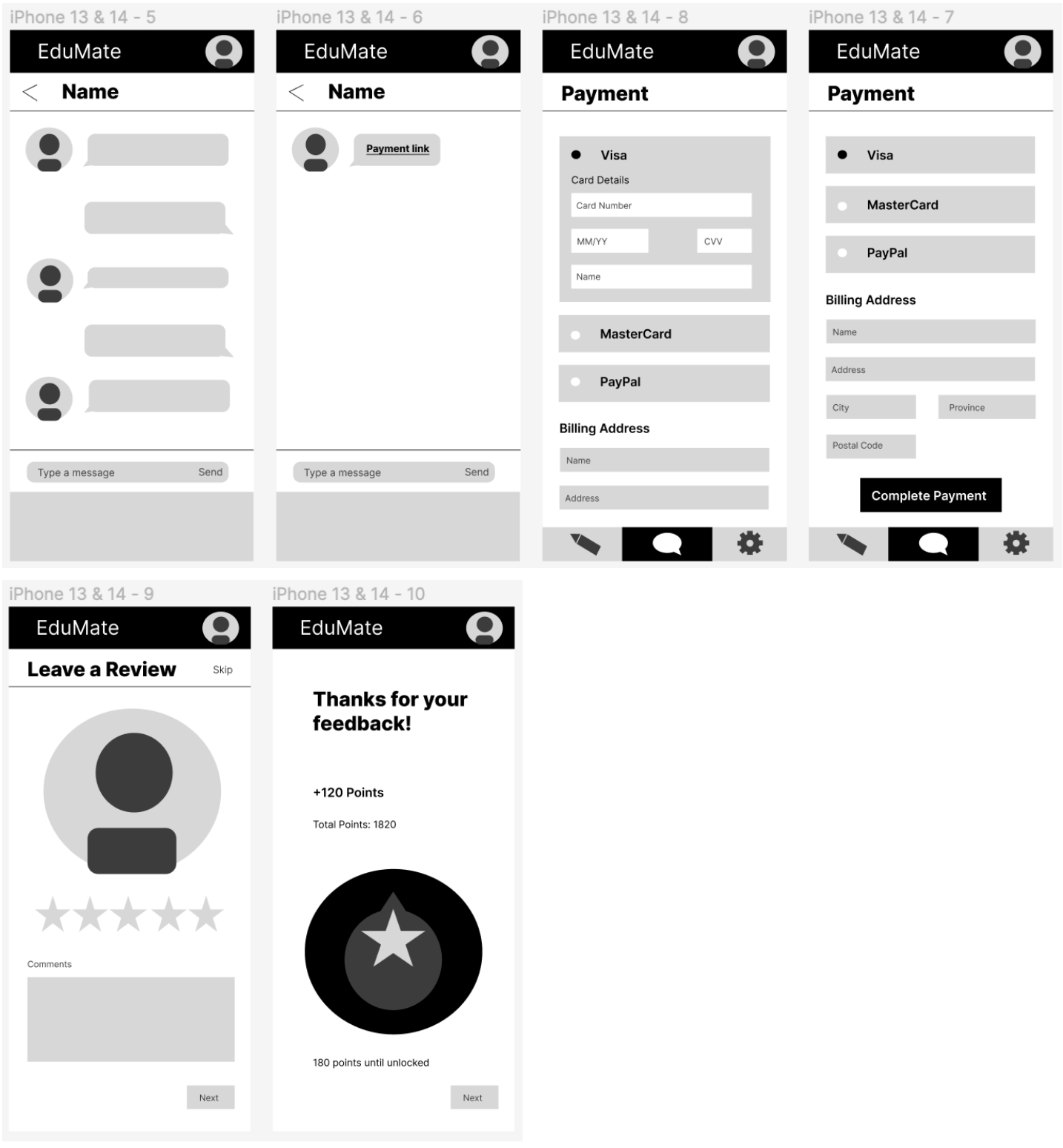


FIG 12: This is a wireframe of a user journey of roaming on the home page, requesting a tutor, setting up a meeting in the chat, going through payment, and finishing a session on our application.

The first frame is what the user sees after they go through either login or create an account, they automatically get put on the homepage, or roam, where they can look around for a tutor. When the user has found a tutor they are considering, they can click on the profile and take a closer look, there is also a short bio from the tutor. The user can click on the request button to request the tutor. Then fill out some contact information such as name, phone number, and email, for any notifications, as well as which course they would like some help in. When the request is accepted by the tutor, they are able to chat on the app and set up a meeting. The tutor is able to send a link to payment whenever the session is booked. Once the user clicks on the link, it leads to the payment screen with three payment options: Visa, Mastercard, and PayPal. In this scenario the user picks Visa, after they enter their card details, they are able to scroll down and fill out the billing information and email. After they hit complete payment, the meeting is set up. When the session is over, wherever the user opens up the application again, they will be prompted to leave a review on their most recent tutor. It is out of 5 stars, and they are also able to leave a message if they choose to, or they can completely skip the review process. If they choose to skip or press next, they would get shown onto the next screen, which thanks them for their feedback and shows how many points they got from completing the session, and those points would go to new characters for their profile.

Wireframe of a User Journey of Going Through Payment Process for EduMate Before Revision

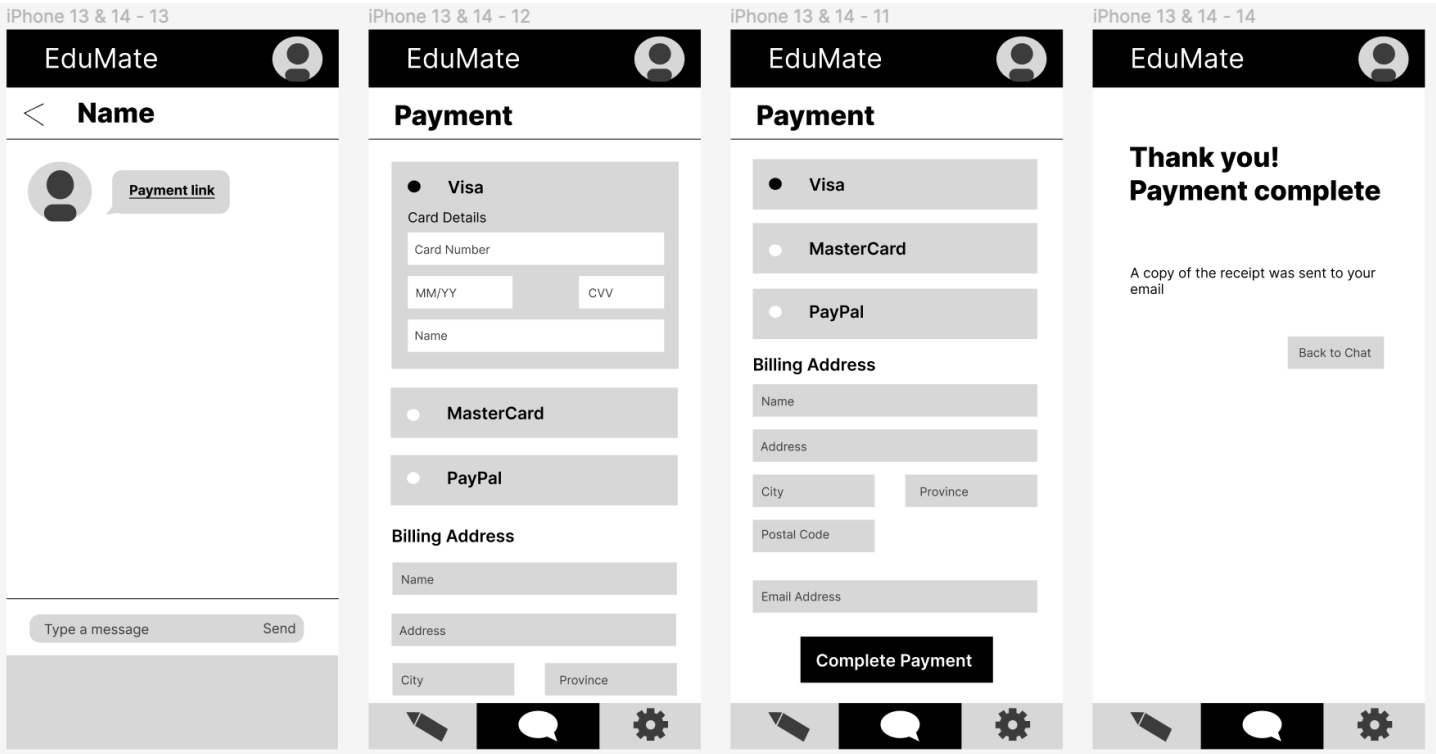


FIG 13: This is a wireframe of a user journey after clicking on the payment link sent by the tutor and going through the payment process.

After the user has clicked on the payment link, they can choose to fill out card information for either Visa or MasterCard, otherwise, they would have to connect their PayPal account to the

application in order for payment to go through. In this scenario, the user chose to use their Visa. Next, they would have to fill out their billing details, as well as their email for the receipt, only then are they able to press complete payment. After, the message “Thank you! Payment complete” pops up, and the text below tells the user that they are able to look at the receipt through their email. They are able to go back into the chat area after they are finished reading.

We Conducted User Tests on EduMate’s Three Tasks to Determine What Errors Users Have with This Application, Which are: Confusion with the Arrangement of Pages, Lack of Variety in Buttons, Confusing Icons, Hesitancy to Click on the Payment Link, and Unclarity as well as Lack of Options in Payment Processes

All applications can constantly be worked on to improve the user experience. Usertests need to be conducted on applications and their wireframes and prototypes. Through these user tests we are able to note what are the problems and errors in our applications design and resolve those issues to improve the usability of our application.

Performance Metrics: Time-To-Perform-Task, Success, and Errors, Between User Tests

New applications come out all the time, some of them do not meet the expectations of users. A new user may struggle with understanding how the layout of a new application works, but by conducting user tests with different tasks, it can generate useful data such as performance metrics: time-to-task, success rate, and errors.

Performance Metrics Task 1 Comparison Between User Tests

TaskOne: Subject:	Time-to-perform-task	Success (yes, no)	Error(s)

TestSubjectOne	1 minute 15 seconds	yes	n/a
TestSubjectTwo	2 minutes 1 second	yes	No go back button on pages, would be a hassle to change if made mistake (have to go to profile after setting up) Order of interfaces can be re-arranged, especially “continue as a tutor/student” can go ahead before “what University are you a student in”
TestSubjectThree	53 seconds	yes	n/a
TestSubjectFour	1 minute 17 seconds	yes	n/a

FIG 14: This is a table on performance metrics (time to task, success, and errors) on all test subjects for task 1.

Test subject 1 took 1 minute and 15 seconds to complete the first task successfully with no errors. The second test subject took two minutes and one second to complete task 1 successfully with two problems. The first problem was there were no back buttons for profile set up, so if the user wanted to backtrack or change anything they previously submitted, they would have to wait until they finished their account set up and go to their profile to change it. Secondly, they were confused with the order of some of the interfaces, and suggested that the “continue as a tutor/student” page could come before “what University are you a student in”. Test subject 3 successfully completed this task in 53 seconds with no errors. Lastly, test subject 4 successfully finished this task in 1 minute and 17 seconds with no problems. Overall, the geometric mean if these time-to-perform-tasks were 1 minute and 18 seconds, very close to the two median values. Also, all of the users successfully completed the task in an efficient manner with only one user having errors.

Performance Metrics Task 2 Comparison Between User Tests

TaskTwo: **Subject:**	**Time-to-perform-task**	**Success (yes, no)**	**Error(s)**
TestSubjectOne	2 minutes 36 seconds	yes	Payment link didn't look official, hesitant to click
TestSubjectTwo	3 minutes 18 seconds	yes	Paused when finding a tutor to choose from roam page, confusion Bottom border with icons, doesn’t know what they stand for and had to think about it, confusion No go back button for pages like the one on the request tutor page
TestSubjectThree	2 minutes 14 seconds	yes	Is confused about whether the contact information they are suppose to be adding is their own Is assuming that the payment link will bring them

			to the payment process, but isnt confident Suggest that we add a continue button on certain pages to make it more straight forward.
TestSubjectFour	3 minutes 2 seconds	yes	Wonders if the phone number option is optional or required. Is guessing on certain information and what its content is, such as the billing address. Suggests that the option of Visa be included as well, alongside Mastercard and Paypal, but backtracked. Also suggests that we change up the hierarchy or order of the wireframe so we choose the payment process before we are introduced to the billing address section.

FIG 15: This is a table on performance metrics (time to task, success, and errors) on all four test subjects for task 2.

For the first test subject, they successfully completed the task in 2 minutes and 36 seconds with one error. They noticed that the payment link sent by the tutor did not look official, so they became hesitant to click on it. The second test subject took 3 minutes and 18 seconds to successfully complete this task with three problems. First was the display of the home/roam page for students that were able to browse for tutors, they paused because they did not understand what they needed to do next in order to finish this task. They also stated that the bottom border with icons were confusing because they were not able to connect what they stood for in a short amount of time. Lastly, they noticed that there were no go back buttons for certain pages that could use them, like the one on the request tutor page. The third test subject took 2 minutes and 14 seconds to complete task 2 successfully, also with errors. On the request page, they did not know if the contact information they were adding was supposed to be theirs. They also were not sure if the payment link would bring them to the payment process and hesitated. On the payment page, they suggested that we add a continue button to make it easier for users. For the fourth test subject, they took 3 minutes and 2 seconds to complete the task successfully, also with errors. When they filled out the request form, they wondered if the user's input on their phone number was optional. Another was guessing on certain information like the billing address during the payment process. User also suggested that we should have a Visa option, but backtracked when they realized there was. Also suggested that we change hierarchy in the payment section and choose the payment process before we are introduced to the billing address section. Overall, everyone completed this task within 2-3 minutes with several errors.

Performance Metrics Task 3 Comparison Between User Tests

TaskThree: **Subject:**	**Time-to-perform-task**	**Success (yes, no)**	**Error(s)**
TestSubjectOne	1 minute 18 seconds	yes	Payment link didn't look official, hesitant to click “Back to Chat” button could lead to another place, or should say “exit”

TestSubjectTwo	51 seconds	yes	n/a
TestSubjectThree	33 seconds	yes	Isn't sure where the final page takes you to. Whether that is the homepage or the chat, or how he can exit from this process.
TestSubjectFour	33 seconds	yes	n/a

FIG 16: This is a table on performance metrics (time to task, success, and errors) on all test subjects for task 3.

The first test subject had errors with task 3 which is about going through a payment process for your tutoring session. The user said the payment link looked sketchy and they were hesitant to click on it. So, making that not a link, but instead more professional would have made them feel more confident paying their tutor. They also discussed their confusion with the back to chat button, and felt that there should be an exit button instead. The third test subject also commented on this matter and also said that the final page should have some sort of exit button, as that is standard after a payment process. The second and fourth user seemed to have no problems with the third task.

Orange Hierarchical Clustering and Condordancer Finds Categories of Problems with Context from User Tests

Some researchers may run into problems. One of them is not knowing what to do with the data that is collected from think aloud user testing. In this case, Orange, a data-mining program that finds relations based on the frequency and distribution of terms, is used to find relations between common terms with hierarchical clustering, then finding the context with the concordancer.

Orange Hierarchical Clustering Finds Two Main Categories Within Transcript: Payment and Problems, and Account-Set Up

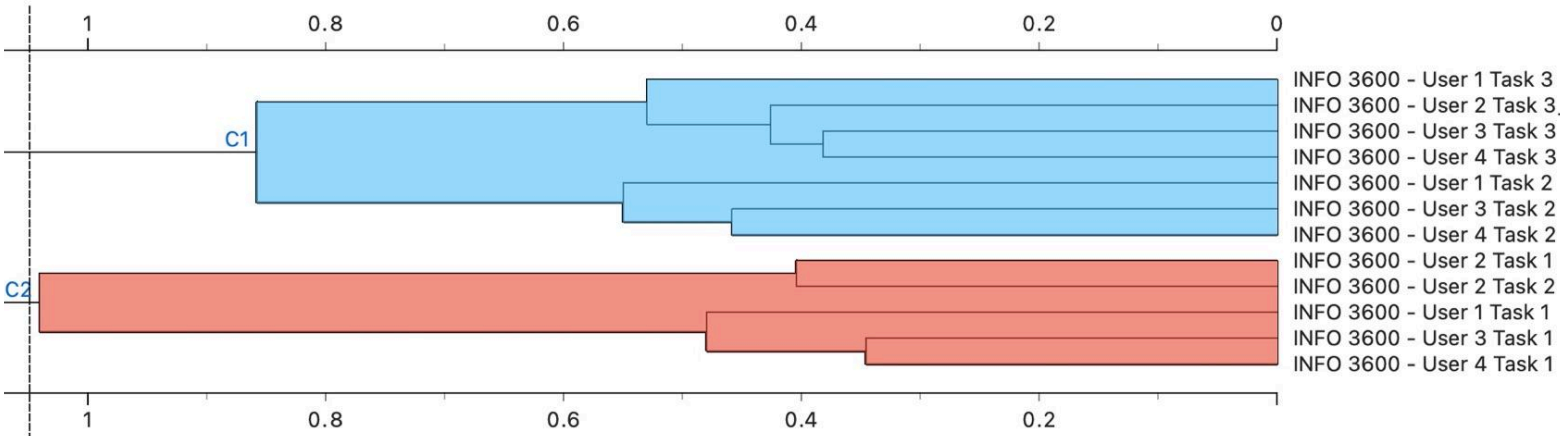


FIG 17: This is an image of hierarchical clustering from Orange after inputting transcripts from user tests, finding two main categories: payment and problems, and account creation.

Orange is a program that finds relations based on the frequency and distribution of terms. C1 contains user 1 for task 2 and 3 with problems, user 2 for task 3 with no problems, however they say "payment" quite a bit so it relates to the rest of the cluster, user 3 for task 2 and 3 finding problems, finally, user 2 with task 2 and 3 with 1 problem for task 2. C2 contains all of the users for task 1, with only user 2 finding problems with this task. Also, within this cluster, it contains user 2 and task 2 with problems. For this, Orange put the user tasks that contained the most problems at the top, with the least amount of problems near the bottom.

Orange Hierarchical Clustering Shows Areas in User Test with Main Keyword: Problem, Most to Least Frequent

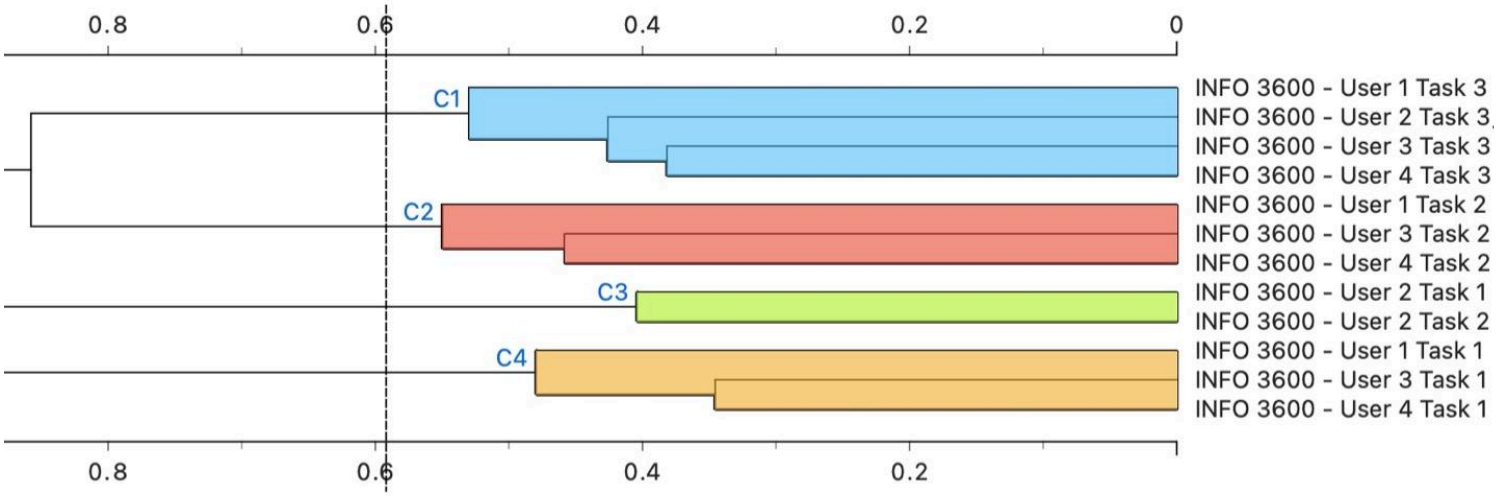


FIG 18: This is a hierarchical clustering from Orange that shows the frequency of words within the user test transcript, finding clusters of "problems", ordering them from most to least frequent.

The C1 cluster consists of all the users for task 3, finding the most number of problems within the user test out of all the tasks. C2 was grouped with user 1, 3, and 4 for task 2, with 2-4 errors within each user test. C3 only consisted of user 2 for both task 1 and 2, finding 3 problems for each task. C4

contained user 1, 3, and 4 for task 1, finding no problems for this task. Overall, this hierarchical clustering found the most amount of problems within task 3, then task 2, task 1 was mostly error free.

Orange Concordancer Input Keyword: Problem, with Context From Transcript for User Tests

Maybe it reminds me of a spam text .*	Problem	(confused)* Oh ,but then this but then
Okay ,that makes sense .All right .*	Problem	(confused)* And then I ' ll leave a
this looks real .This is super real .*	Problem	(hesitant)* So I input my card number .
like we were to like exit or whatever .*	Problem	(confused)* And then I ' m done .
a name and then I ' m done .*	Problem	(pause)* I click next ,click next .
to a setting and then change it afterwards .*	Problem	(confusion)* I think the order of interface can
but afterwards it ' s kind of confusing .*	Problem	(confusion)*
tutor page .So I ' ll click on *	problem	(hesitant)* it I ' ll click a tutor
.And I click on one of them .*	problem	(hesitant)* And I see a chat .And
time for me to guess what they are .*	Problem	(confusion)* I think the name page is fine
maybe that ' s something you can consider .*	problem	(confusion)* Yeah ,I think overall it '
name .I assume I enter my name .*	problem	(confusion)* Select Course ,info design ,phone
the link and that ' s the payment .*	problem	(confusion)* I fill out the information and then
Other than that ,it was really straightforward .*	problem	(suggestion)* Again ,everything seemed clear .The
or chat .I don ' t know .*	problem	(confusion)* Yeah just a little confusing .I
change the chat but otherwise ,very straightforward .*	problem	(confusion)*
.He has four stars ,okay request .*	problem	(hesitant)* Name ,my course ,phone number
I wonder if the phone number is optional .*	problem	(confusion)* Finish request .I shall text this
name ,address ,city ,province Alberta .*	problem	(confusion)* Leave a review ,you are awesome
a visa for that one page .Sorry .*	problem	(suggestion)* Yeah ,this one this one Yeah
feel that would actually make much more sense .*	problem	(suggestion)* So yeah ,so I said the

FIG 19: This is an image from the concordancer in Orange showing where one of the keywords, “problem”, shows up in the transcripts from the user tests, inputted into the system.

In total, there were 22 problems found within the transcripts, with a small description of what kind of problem it is. They were either confused, hesitant paused, or had suggestions. Most of the problems were confusion, and the least were pauses. The concordancer was able to show the context, text before and after “problem”, which helps us understand where the problem was within the tasks.

Voyant Illustration that Shows How Frequently Keywords were Used by Users during the User Tests of Three Tasks for EduMate: Creating an Account, Matching with a Tutor, and Going through a Payment Process

It is important to make our applications as easy to navigate through as possible, to increase usability. While going through the same process there are certain things that most users are bound to have the same opinions on. These Illustrations help us notice patterns in our EduMate tasks for user experiences, but also help us notice, most importantly, what areas are most frequently a problem for users to navigate through.

A Voyant Illustration Depicting Keywords Relative Frequencies by Users in Task 1

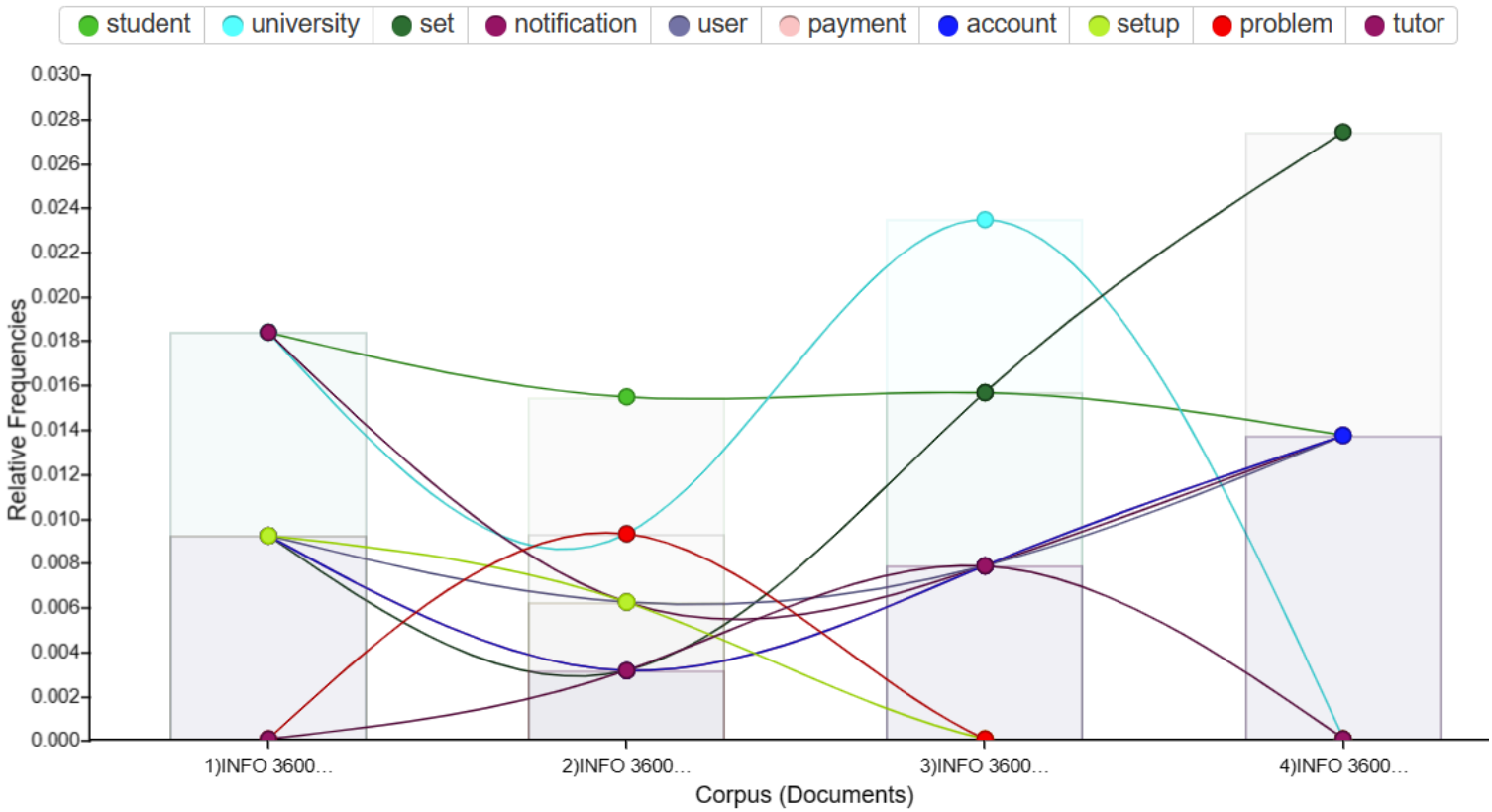


FIG 20: This is a voyant illustration that shows the frequency of key words from the first task, which is to create an account.

From the left to the right we can see the 4 different users and how often they used these key words during the task. This shows that points that were a main focus of this task were setting up and choosing your university. This also highlights which users had problems–showing us that the second user had problems at the frequency of 0.009, and no other users had problems with this task.

A Voyant Illustration Depicting Keywords Relative Frequencies by Users in Task 2

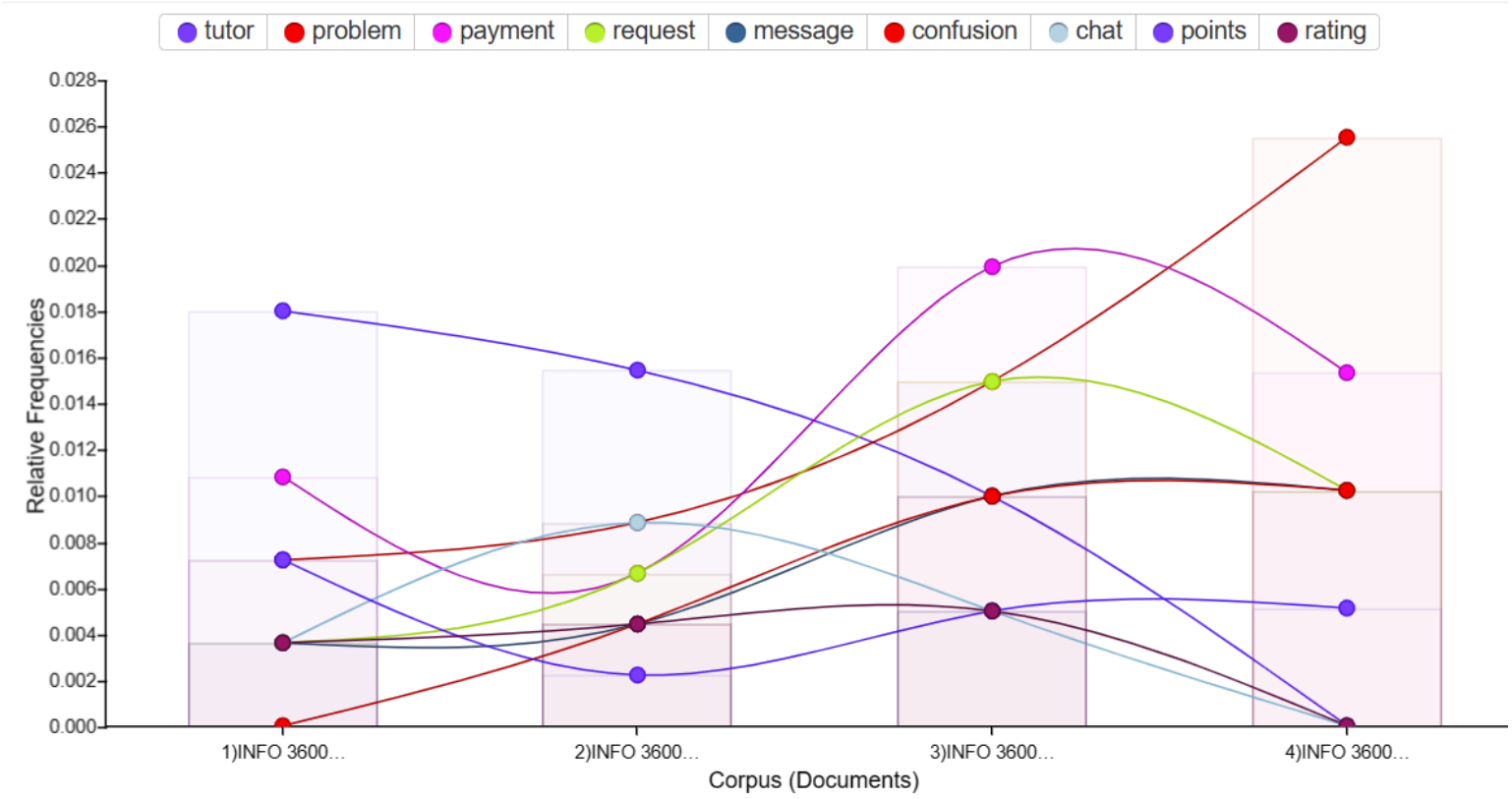


FIG 21: This is a voyant illustration that shows the frequency of key words from the second task, which is to match with a tutor.

From the left to the right we can see the 4 different users and how often they used these key words during the task. The frequency of the words in this illustration show us that tutors and payment were a main focus for users in this task. It is also evident that there was more confusion in this task overall for users. The confusion in users increases, from user 1 being the least confused to user 4 being the most confused at a frequency of 0.026. We can also infer that since payment and confusion are the most common terminology for users 3 and 4, that the payment process of this task is what these users were most confused about.

A Voyant Illustration Depicting Keywords Relative Frequencies by Users in Task 3

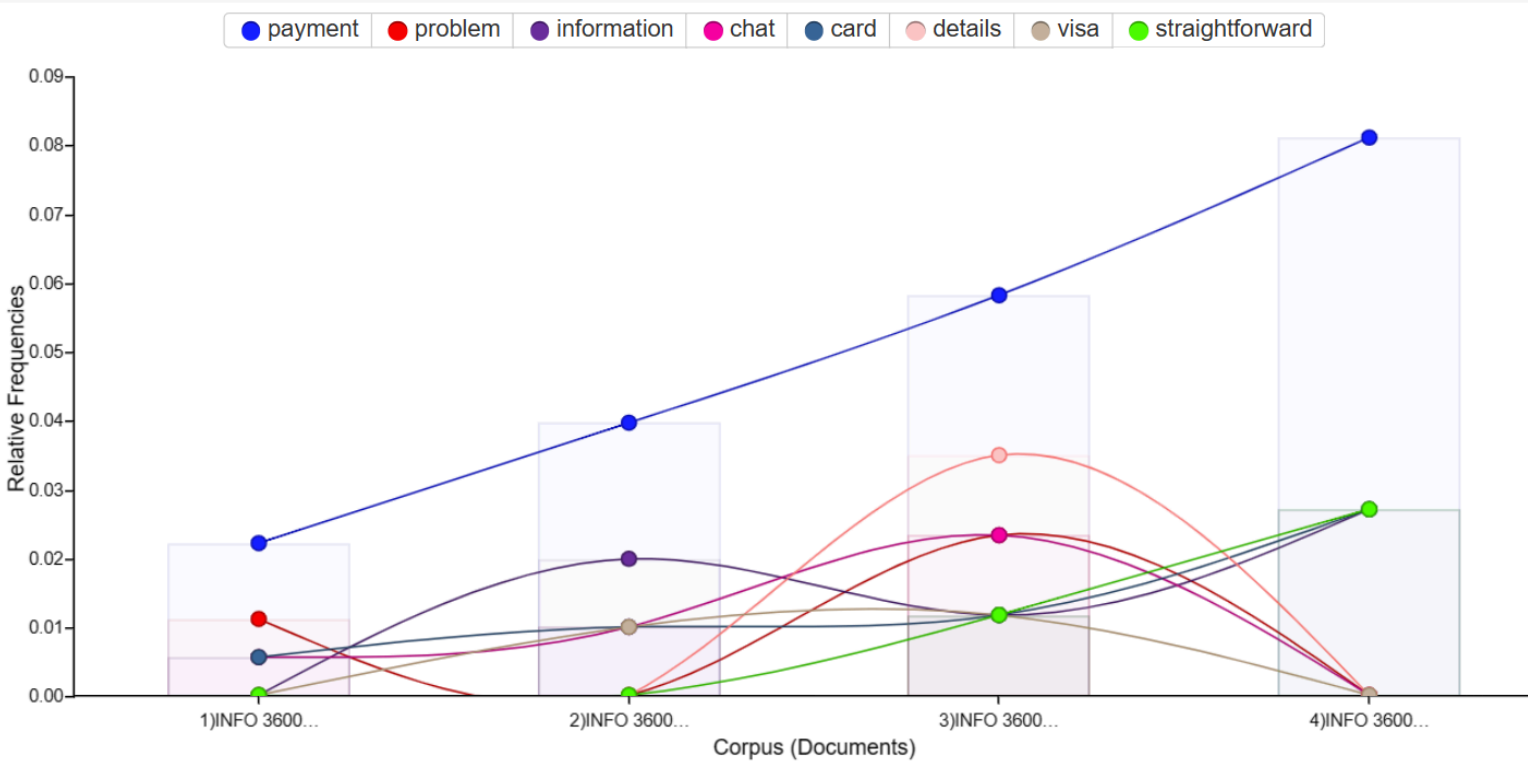


FIG 22: This is a voyant illustration that shows the frequency of key words from the third task, which was to go through a payment process.

From the left to the right we can see the 4 different users and how often they used these key words during the task. This graph clearly illustrates that the word most users mentioned while doing this task was payment, which makes sense since that's what this task was focused on. We can also note that while users 2 and 4 seemed to have no problems with this task, user 1 had problems at a frequency of 0.01, while user 3 had problems at a frequency of 0.02. Other than the payment being a main focus for all users, we can also see that user 3 mentioned details of the payment information a lot, so we can infer that is what they were having difficulty with.

Logic Trees that Help us Reveal the Usability Issues in EduMate that We Need to Work on, which are: Arrangement of Pages, Text on Buttons, Confusing Icons, Hesitancy to Click on the Payment Link, Unclarity and Lack of Options in Payment Processes

It is important to recognize the problem in your application and to try to solve them to improve usability. EduMate has several errors that have been noted in the user tests which encompass a variety of problems from navigation to unclearness in the system. By becoming more aware of this application's issues we will be able to predict user experiences better and improve these problems for our future EduMate wireframes.

Negative User Experiences With Task 2 and 3 for Payment Process, and Future User Experience Predictions for EduMate

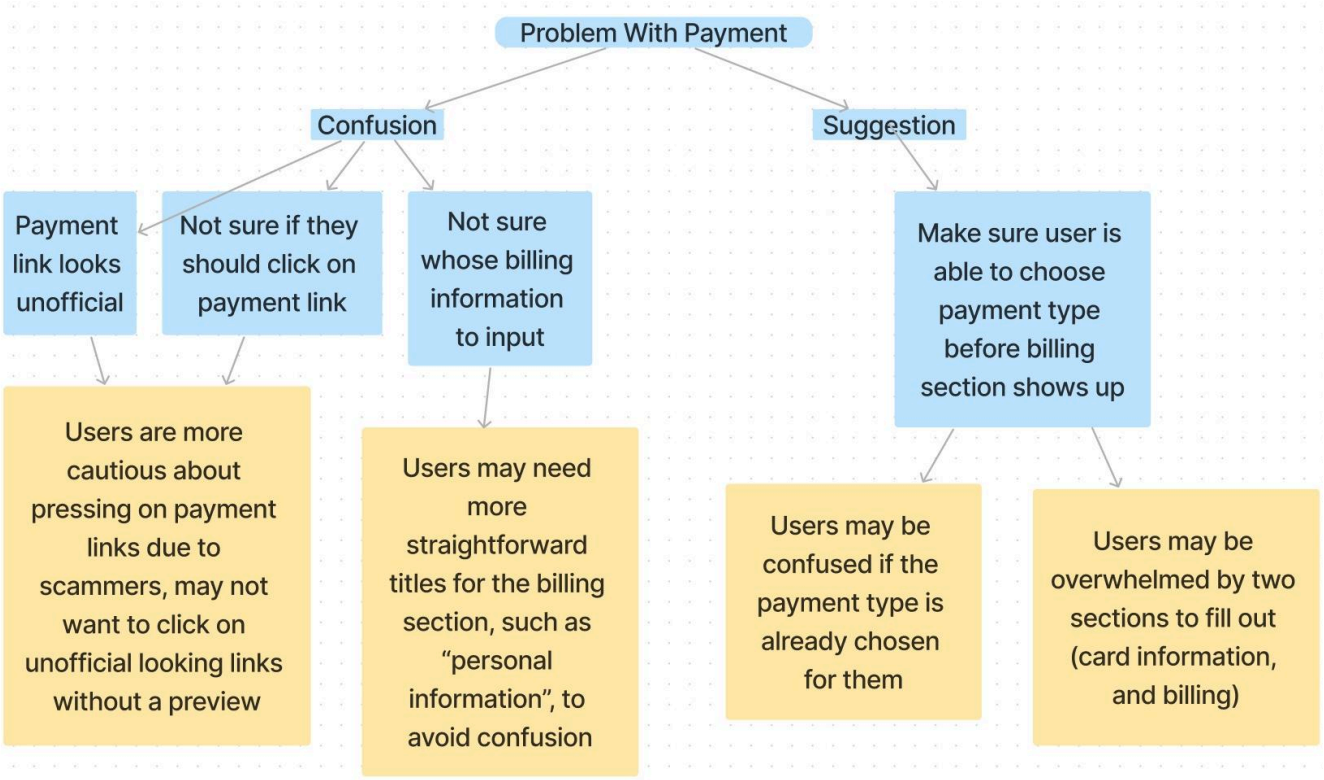


FIG 23: This is a logic tree showing negative experiences with tasks 2 and 3, during the payment process, as well as predictions for future user experiences.

There are two categories, confusion of users during their tasks, and any suggestions they had. Two users were confused about the payment link, if they should click on it because it looks unofficial. The other time a user was confused was about whose billing information to input. For the suggestion, one user shared that we should make sure future users are able to choose their payment type before the billing section shows up on the page, as well as not have the payment option chosen for them already. The yellow parts of this tree are future user experience predictions based on what our test subjects experienced. If the payment link does not look official or have a preview to the payment page, others may not want to click on it due to scammers. Users may need more guidance for the billing section in order to avoid confusion. They also may be confused if the payment type is already chosen for them. Lastly, users may be overwhelmed by too many empty text boxes to fill out, with both the card information and billing section open.

Negative User Experiences with EduMate's Tasks and Our User Experience Predictions/Recommendations Based on Those Errors

Problem with Payment		**User Experience Predictions**
Confusion	Payment link looks unofficial	Users are more cautious about pressing on payment links due to scammers, and may not want to click on unofficial looking links without a preview
	Not sure if they should click on payment link	
	Not sure whose billing information to input	Users may be confused without more guidance, like a "personal information" section
Suggestion	Make sure user is able to choose payment type before billing section shows	Users may be confused if payment type is already chosen for them
		Users may be overwhelmed by two sections of information to fill out (card details and billing)

FIG 24: This table shows users errors/negative experiences with EduMate's task during user tests and our user predictions based on those errors.

One main category of problems that we noted in our users was that they were confused in some parts of the tasks such as: the payment link looking unofficial, hesitancy with the payment process, and unclarity about billing information. For these errors we were able to determine that users require more official payment processes and also need more guidance/clarity in such processes. Another main category of problems that we noted in our user tests was users giving us suggestions about things they wanted to see changed in our tasks. The suggestion made by these users was that we should make sure that the payment process type is clear and easy for the user to choose. This suggestion helps us realize that our users are overwhelmed by there being too much information to fill out during the payment process and having to do one thing at a time will probably be better for them.

Negative User Experiences With Navigation Between Pages and Future User Experience Predictions for EduMate

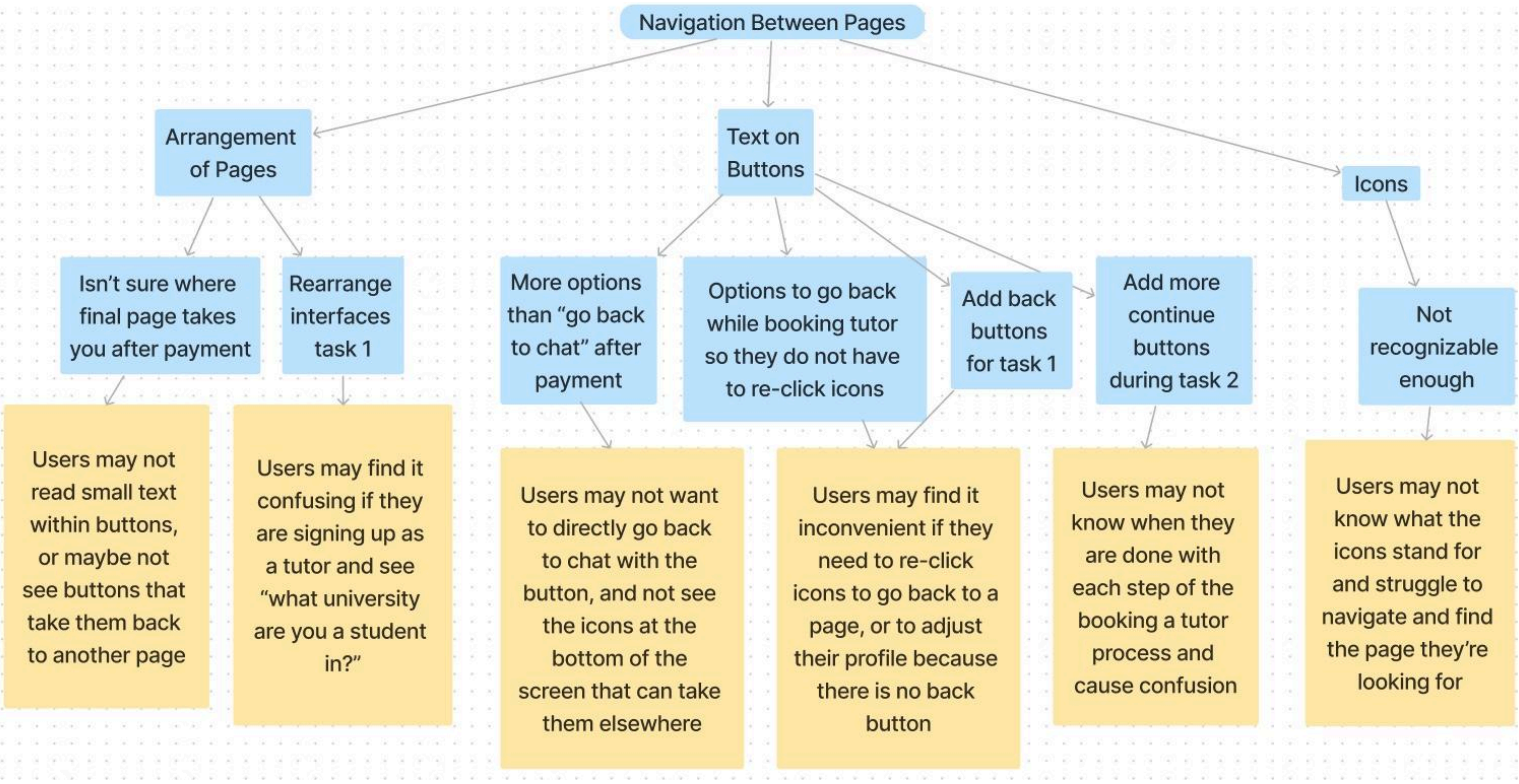


FIG 25: This is a logic tree depicting what areas of navigation our users had errors with, and what we can do to improve these negative experiences.

There are three main categories that all our user errors fall into. Firstly, we have an arrangement of pages which is all about users being confused because they either didn't know where the next page would take them, or they thought the order of our pages should have been different. Next, we have problems with text on buttons, which is users wanting to have more options in buttons, such as being able to go back or continue more. This also includes having more options of different ways you can go from one page to another, not just a simple step by step line process. Lastly, our users had problems with icons, which included not being able to recognize the icons in EduMate and what they represent. These are issues that we hope to address and solve in our next prototype wireframes.

Negative User Experiences with EduMate's Navigation Between Pages and Our User Experience Predictions/Recommendations Based on Those Errors

Navigation Between Pages		**User Experience Predictions**
Arrangement of Pages	Isn't sure where final page takes you after payment	Users may not read small text within buttons, or maybe not see buttons that take them back to another page
	Rearrange interfaces task 1	Users may find it confusing if they are signing up as a tutor and see "what university are you a student in?"
Text on Buttons	More options than "go back to chat" after payment	Users may not want to directly go back to chat with the button, and not see the icons at the bottom of the screen that can take them elsewhere

	Options to go back while booking tutor so they do not have to re-click icons	Users may find it inconvenient if they need to re-click icons to go back to a page, or to adjust their profile because there is no back button
	Add back buttons for task 1	
	Add more continue buttons during task 2	Users may not know when they are done with each step of the booking a tutor process and cause confusion
Icons	Not recognizable enough	Users may not know what the icons stand for and struggle to navigate and find the page they're looking for

FIG 26: This table shows users errors/negative experiences with EduMate's task during user tests, specifically with navigation and our user predictions based on those errors.

The first problem was with the arrangement of pages which is all about users being confused because they either didn't know where the next page would take them, or they thought the order of our pages should have been different. Next, we have problems with text on buttons, which is users wanting to have more options in buttons, such as being able to go back or continue more. This also includes having more options of different ways you can go from one page to another, not just a simple step by step line process. Lastly, our users had problems with icons, which included not being able to recognize the icons in EduMate and what they represent. This table also shows our user experience predictions for all these errors; what problems the users encountered and why.

Suggestions for How to Improve the Problems Found in These User Tests for EduMate

There are many problems we noted in our users with them being confused in some parts of the tasks such as: the payment link looking unofficial, hesitancy with the payment process, and unclarity about billing information. So, it is important for us to fix our wireframes so they are more official and clear and don't make users feel hesitant about the process. There were also some problems that we noted in our user tests that users gave us suggestions about–things they wanted to see changed in our tasks. The suggestion made by these users was that we should make sure that the payment process type is clear and easy for the user to choose. This suggestion helps us realize that our users are overwhelmed by there being too much information to fill out during the payment process and having to do one thing at a time will probably be better for them.

There are also some problems with the navigation between pages noted in our user tests. Firstly, we have an arrangement of pages which is all about users being confused because they either didn't know where the next page would take them, or they thought the order of our pages should have been different. Here, we hope to optimize how our pages transition from one to another. Next, we have problems with text on buttons, which is users wanting to have more options in buttons, such as being able to go back or continue more. Here, we need to make the navigation more accessible for users. This also includes having more options of different ways you can go from one page to another, not just a simple step by step line process. Lastly, our users had problems with icons, which included not being able to recognize the icons in EduMate and what they represent. Which we will fix by giving our pages names instead of unfamiliar icons. These are issues that we hope to address and solve in our next prototype wireframes.

Final EduMate Set-up After Considering Suggestions on How to Improve the Problems Found in These User Tests for EduMate

After performing user tests on our initial wireframes we were able to gather many insights and data in how to improve the usability of our application. Firstly, one feature that we changed in all our wireframes was to add more buttons for easy navigation; which would allow users to go back, skip, or next on to certain parts. This was a key component that needed to be added to our wireframes to improve their usability overall. We also changed the order of pages on all our wireframes to make the process feel more intuitive and flow better.

Another big cause of confusion for our users while interacting with our application's wireframes was the payment process. They were hesitant to click on the payment link because it did not look official and were also confused by some information in the payment process section. To resolve this issue, we have split up this section into much more precise and simple steps. We have made the payment link into a preview that looks a lot more official and then split up the payment method and billing address section of the payment process, so our users feel a lot more comfortable while going through this process, and it is also easier for them to understand. These changes in the payment process tasks have all been made by understanding what parts of this process were truly causing errors for our users.

Performing the think-aloud exercise with our users helped us note what areas in our wireframe tasks made our users pause with confusion, hesitancy, or some other frustrated emotion. Gathering this information we were able to find some suggestions for changes from our user tests. These suggestions have been followed in our final revisions of the application and hope to make the application more user friendly.