Appendix

Appendix A: Works Cited

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Appendix B: Transcribed Interviews

All interactions are roughly transcribed from memory, unless otherwise specified.

V – Me

M – Client

T – Advisor

Client Interaction One:

V – Hi Monika aunty, thank you for being able to stay after class for a bit

M – Of course beta, what’s up?

V – You know how I take IB Computer Science at school, right? We have an IA project where I need to take a real-world problem and then address it using computer science. Last year, I used Mathnasium as my company and helped them implement a way so students could see comments from instructors and points. This year, I need to solve a problem, and I was thinking I use Gurukul.

M – Okay beta, let me think.

V – I was thinking, you know how we grade the interns on their performance in the classroom? But do they ever look at the Excel sheets with the grades.

M – I don’t think so. I don’t see them improving too much.

V – I always give the comment to ask students about their weekends, but not a single person does that!

M – Yes, we need to help the interns more. They need to be able to see their comments. Also, I notice that interns don't know certain students. There are trouble kids in all classes, right… And sometimes interns don't remember how to quiet down certain kids. We should also comment on the kids.

V – Well, I don't know if we should comment on the kids, but maybe the interns can do that! And then we can comment on the interns.

M – Oh yeah, and then we can show the parents the comments of the students too?

V – Well, I guess we could do that, but I'm not sure if it's even that useful to do that, because don't teachers talk about kids in the mid-term consultations with the parents?

M – What about a messaging service where all of our Gurukul people can talk on?

V – I wish I could do that aunty! But, I think I need to try to hit a more narrow problem so I have more time to do it justice. What about the comments we give to interns? I think those could use a bit more streamlining.

M – What do you mean?

V – Well I remember in public speaking, we went over all the different aspects of what made a good public speaker. And I notice that not all the interns are doing all these aspects. But it's hard to comment on these very effectively with the correct terms and all. I honestly usually give basically the same comment to the intern each time, it's hard to go really specific.

M – Oh okay, I could help you and we could create a suggestion system for the overseers and help them create a comment.

V – Exactly, and that would help so much just the whole comment system would be ten times better!

M – Okay beta.

V – Can we talk tomorrow? I'm going to talk with my mom about how to actually show this in an application.

M – Of course.

Advisor Interaction One:

V – Okay amma, I talked with aunty about the IA and I think I can do something similar to what I did last year for Mathnasium. But that was with Google Sheets and I can't do that again with this app.

T – Can you do mobile app instead? That way all the interns can look from their own phones and it becomes very easy.

V – Oh yeah, I could do that, I know friends that are using Flutter for their IA. Maybe I will do that.

T – How will you use database? Can you use Firebase? That's the Google backend, I've heard it's very easy to use.

V – Yeah, I could do that.

T – What language is Flutter in? [searched it up] Oh okay, dart is very much like Java. I can help teach you if you need. It's very similar to the code I work with.

V – Sure, thanks amma, I'll let you know if I need any more help.

Client Interaction Two:

V – So, I sketched it out aunty, and I think it'll work. Would it work if we did the application as like an Android app? Because I know most of our interns have Android phones anyways. If the functionality is super helpful for the interns, I can always change it.

M – You can change it? How? Because if the app is good right, we need to make sure everyone can use it. I like the idea of the phone though. That way it's easy, we can just type it in on our phone, keep comments small.

V – Yeah, so on Flutter, it allows me to translate the code pretty easily to display on iOS devices. I want to perfect it on Android first though, so I think I will keep it as that.

M – Okay beta, that sounds good. What else do you need?

V – Honestly, I'm not sure. Are there any privacy concerns I should be aware of or anything like that?

M – No, not really, since we are all a big community, it doesn't matter too much if others are able to access the comments of others. Besides, it helps us grow right? We will all get better with this data flow. That's how the world is now, big data and all.

V – Okay sweet, thanks aunty. Would you be able to outline some sort of success criteria for my program? I need it for part of my write-up and it will help me have some sort of direction to move along with my IA.

M – Sure beta, can I email it to you tomorrow?

V – Sure, and then I'll hit you back with my proposed changes and we can agree on something.

M – Of course, bye!

Client Interaction Three:

Her rough criteria are below:

- Interns can comment on students
- Overseers can comment on interns
- Interns can see their own comments
- Comment Suggestion system for comments for overseers

I sent her added criteria:

- Can log-in as intern or admin
- Can create account as intern
- Clean User Interface
- Overseers can search for specific interns and interns can search for specific students
- Interns can delete, add, and edit students, while overseers can edit interns

We came to a consensus success criteria based on this which is reflected in Criterion A.

Client Interaction Four:

V – Hi aunty, are you ready to see this?

M – I was born ready.

V – Okay, so …[long conversation involving me going through my test plan and showing her the different functionalities of the app]. Okay, time for comments. What do you think I should improve?
M – Honestly, I don't think we need to change anything with how it works.

V – Awesome.

M – But, I think we could make some stuff look better. For example, I see that you keep pressing the back button on the bottom of the screen to go back on screens. Shouldn't we just add some sort of button, like the log out button that I see on some of these pages, on every page? That way we can just go back in a much cleaner manner. Atleast, this is what I see on apps like Facebook. Very easy to navigate. And that's super important for the user or they will get annoyed with the application.

V - Okay, I get that. I'll try implementing that on every page.

M – And, I think that the font you use to tell the user that they need to enter a longer password, or enter a name, or you know, I think that font is way too small. And the red color does not look good. I also think that you should change the color from yellow on that one page, I don't remember which one it was.

V – Okay aunty, I got you. I can change the validator text and those other factors pretty easily. Anything else?

M – No beta, I'm very proud of you. I can't wait to implement it here once you finish cleaning up the design! It looks awesome!

V – Thanks aunty, I appreciate it! This was really fun, maybe I'll code another app next year.

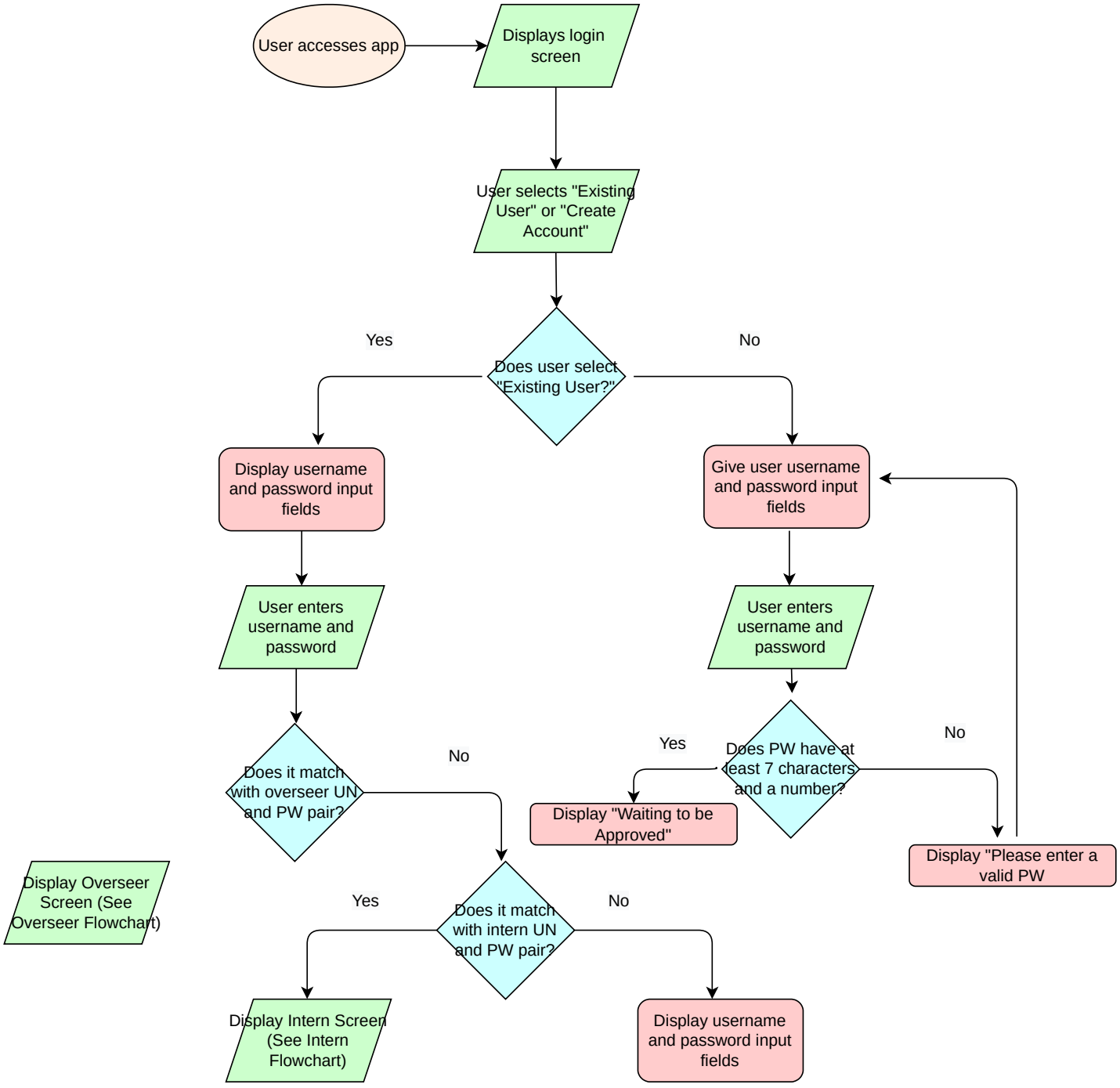
M – Hopefully!

Client Interaction Five
My advisor and I discussed and evaluated the success criteria together along with future extensions, and the results of our conversation are reflected in Criterion E.

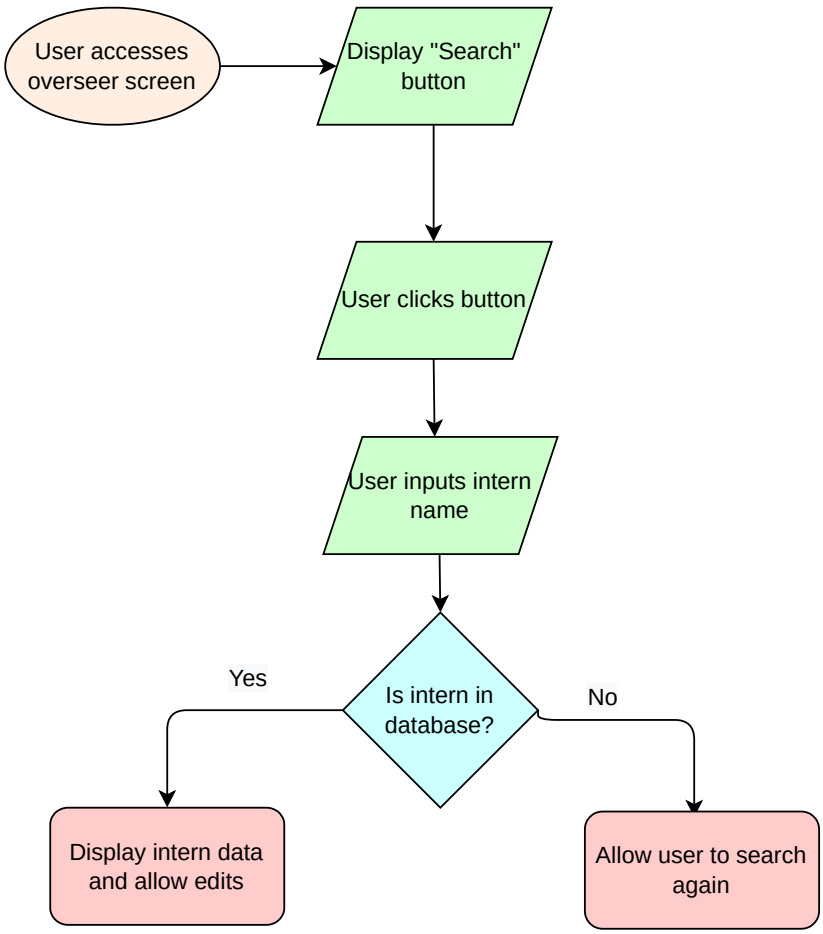
Appendix C: Diagrams

User Flow Diagrams:

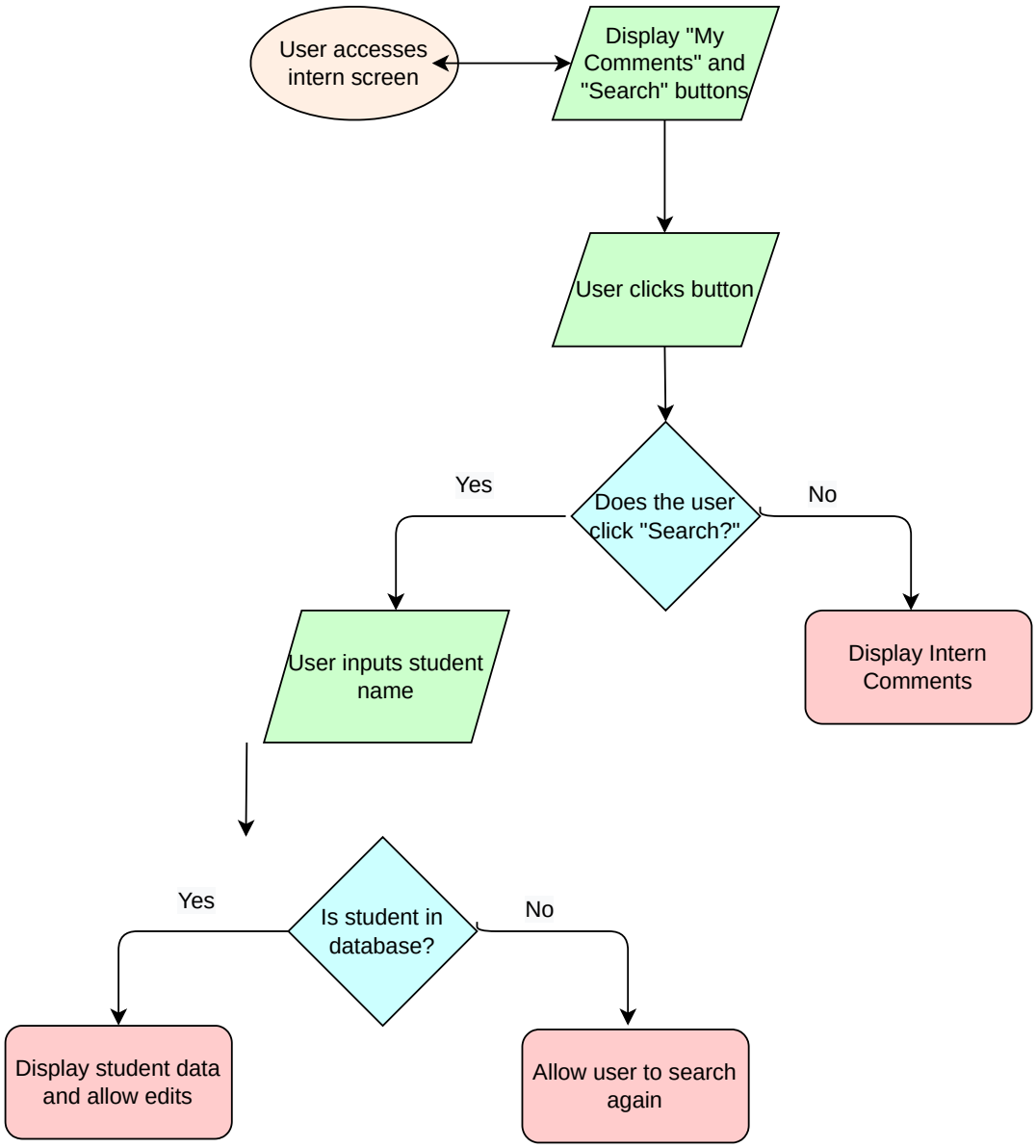
Initial Log-in Flow:



Initial Overseer Flow:

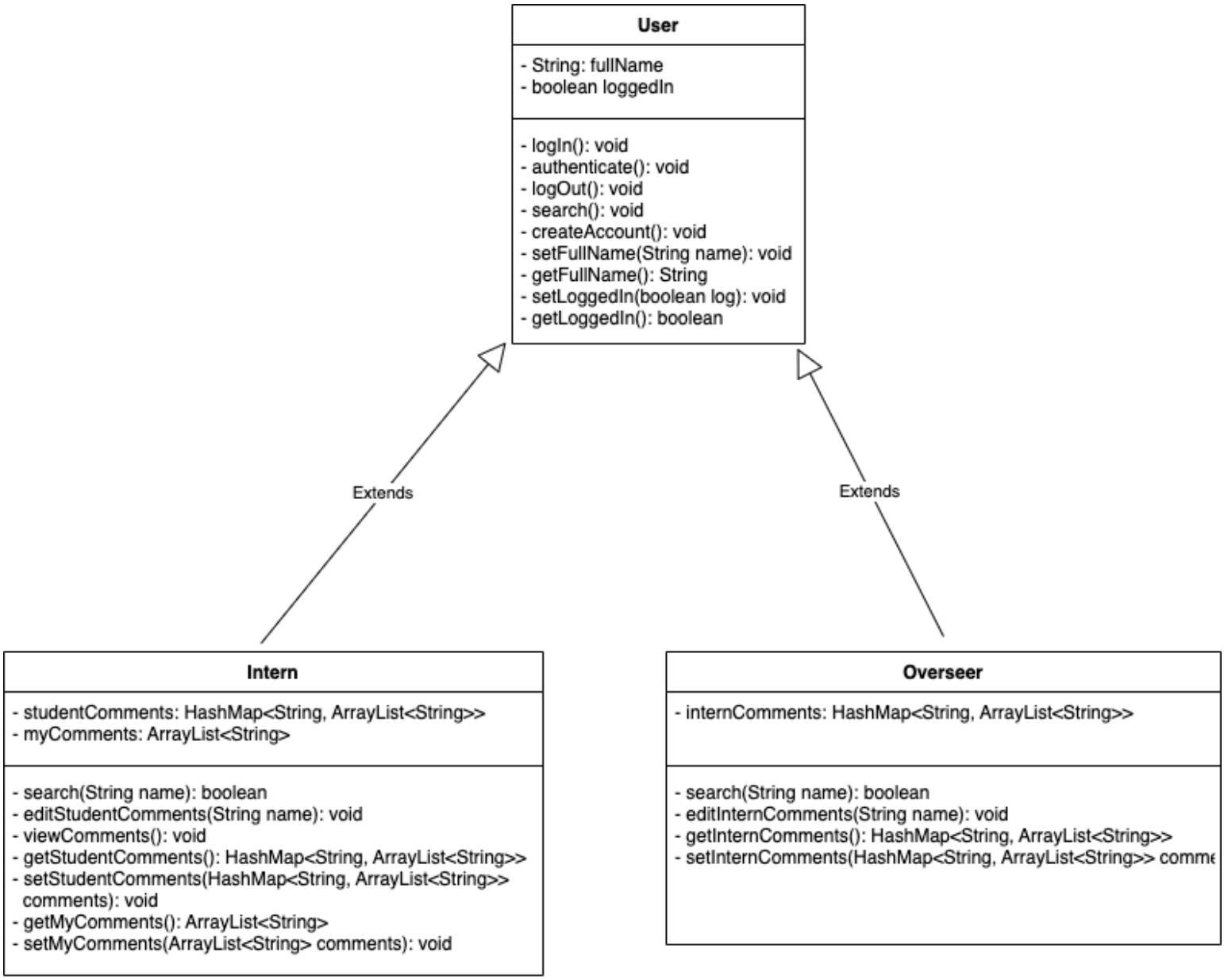


Initial Intern Flow:



UML Diagrams:

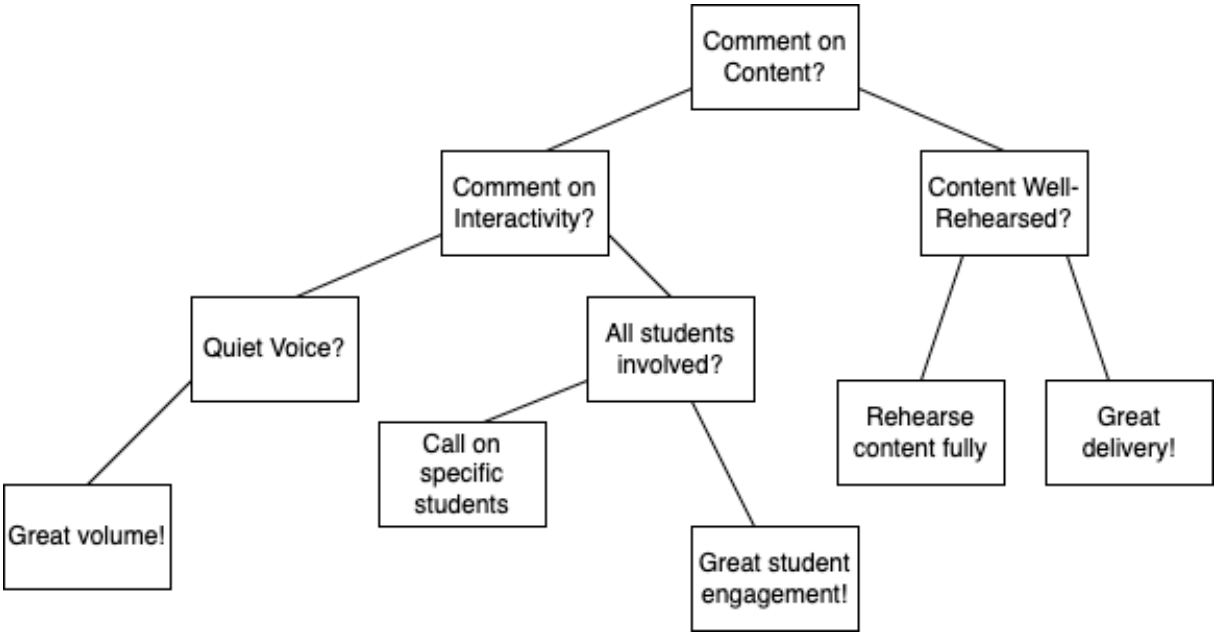
Initial UML Diagram:



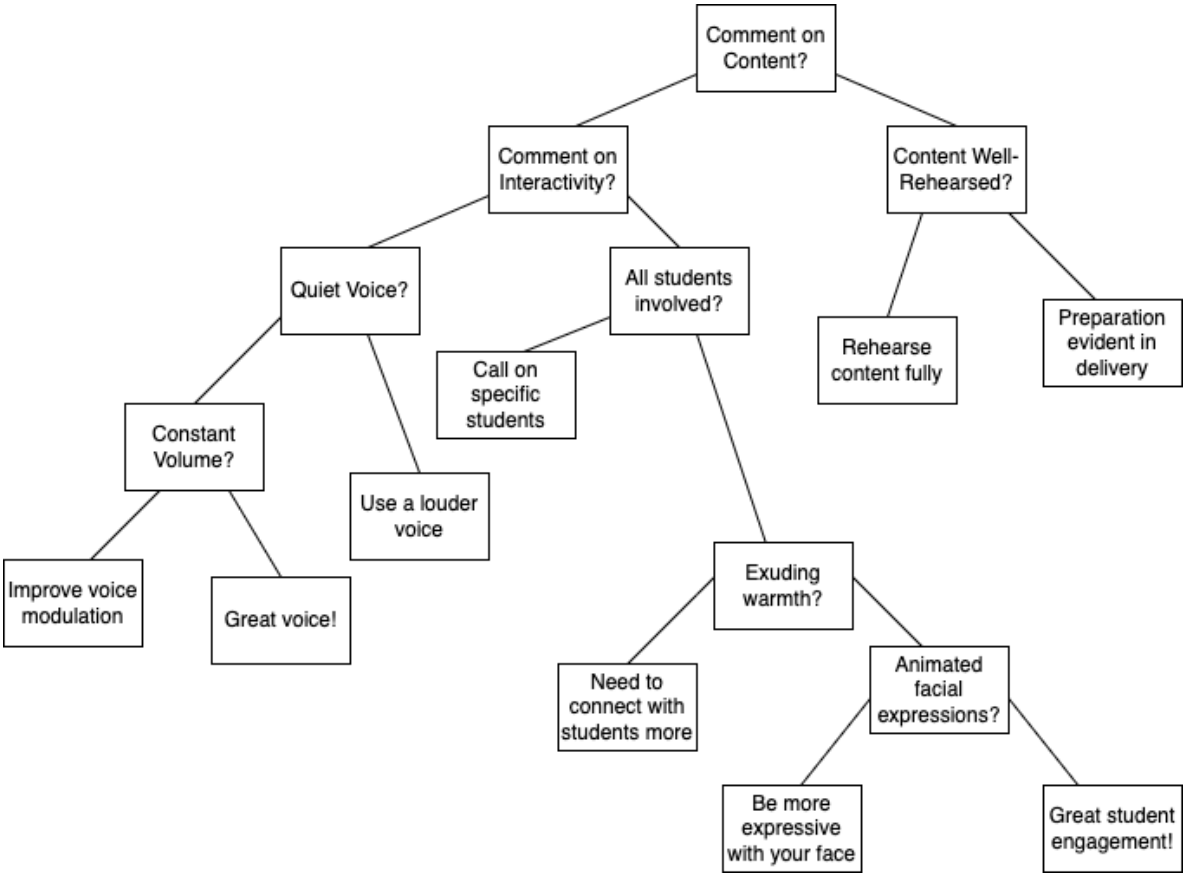
Initial Binary Tree Diagrams:

The tree branches left if the answer to the question is no, and right if the answer is "yes."

Initial One Year Binary Tree:

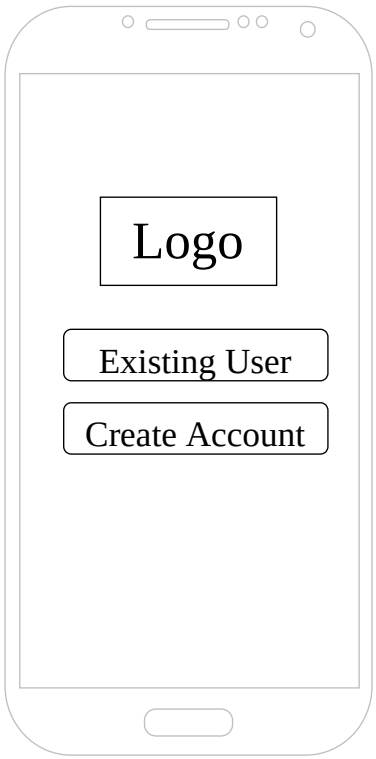


Initial Experienced Binary Tree:

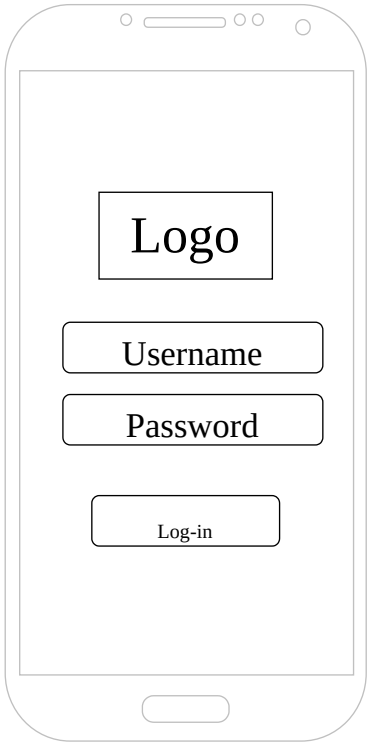


Appendix D: UI Flows

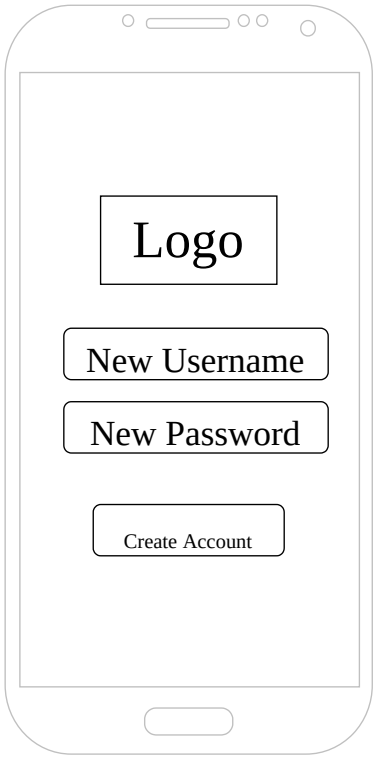
Initial Home Wireframe:



Initial Existing User Wireframe:



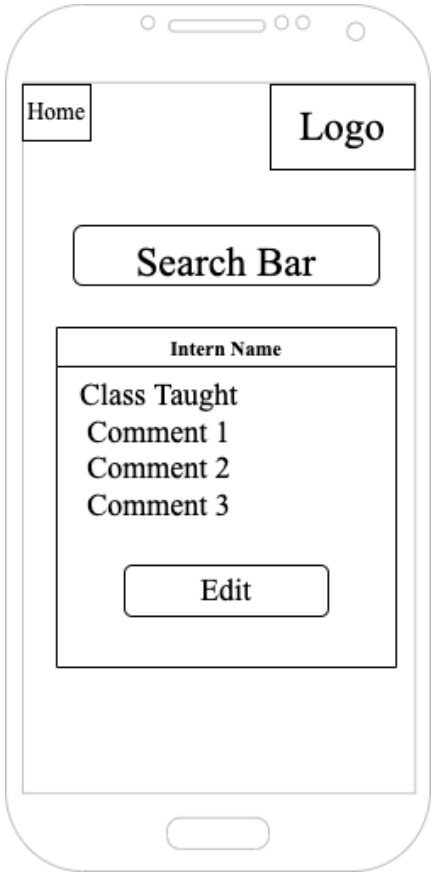
Initial Create Account Wireframe:



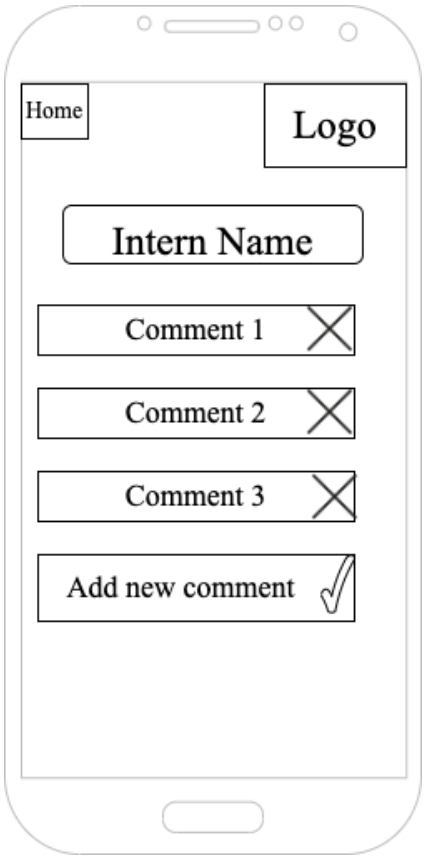
Initial Overseer Wireframe:

Initial Intern Wireframe:

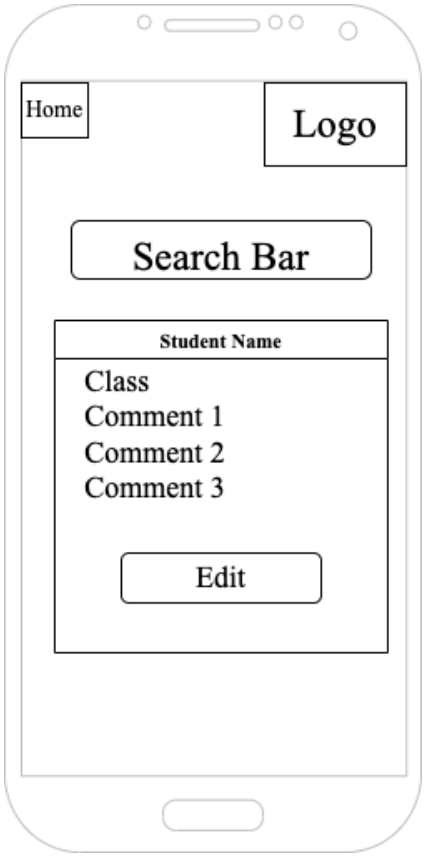
Initial Overseer Search Wireframe:



Initial Overseer Edit Wireframe:

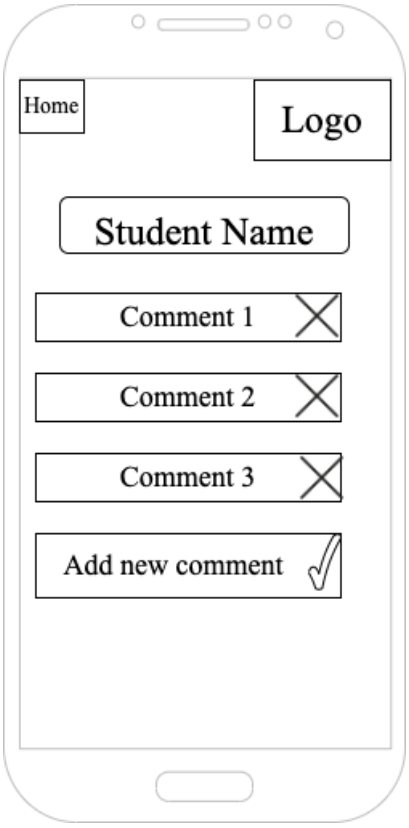


Initial Intern Search Wireframe:



Initial Intern Comment View Wireframe:

Initial Intern Edit Wireframe:

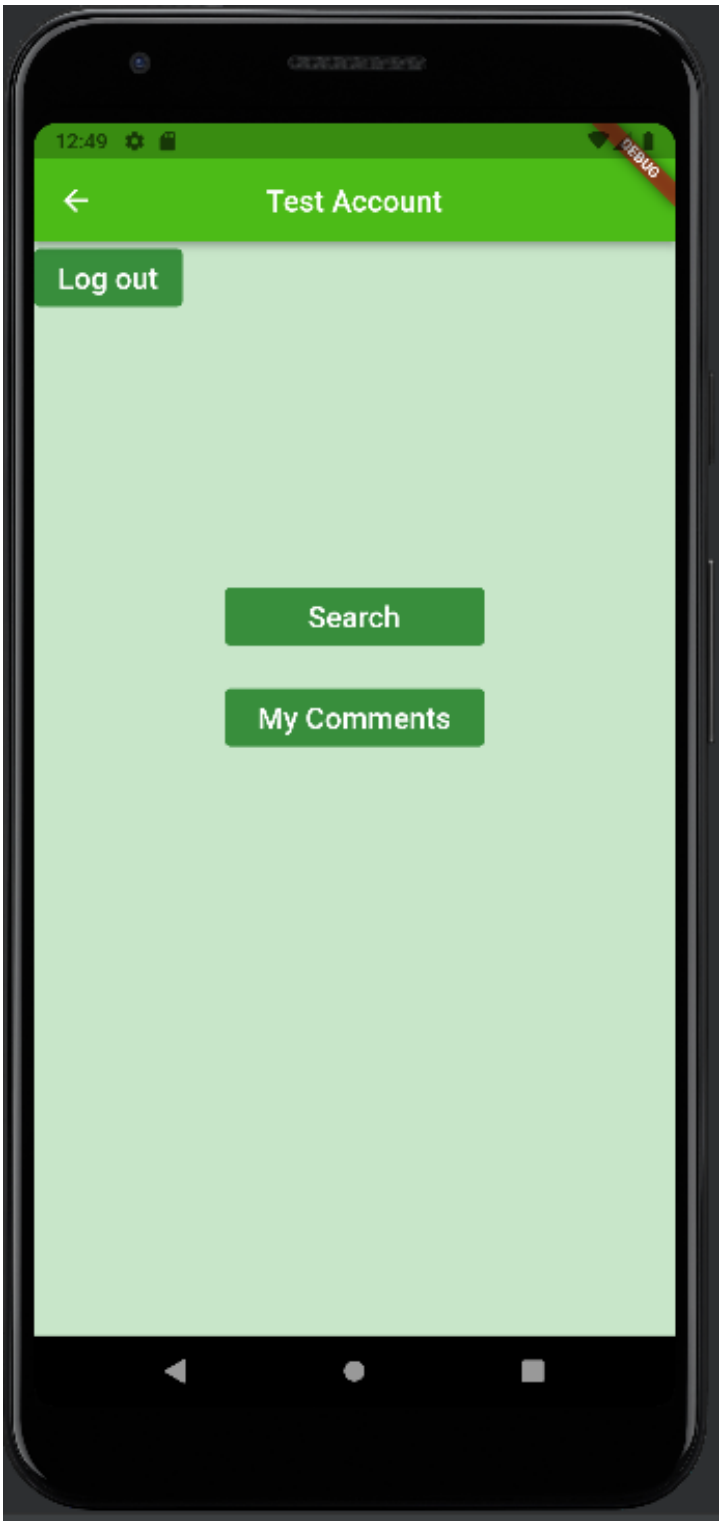


Initial Home Screen: (following screens shown to client and then improved after interaction four)

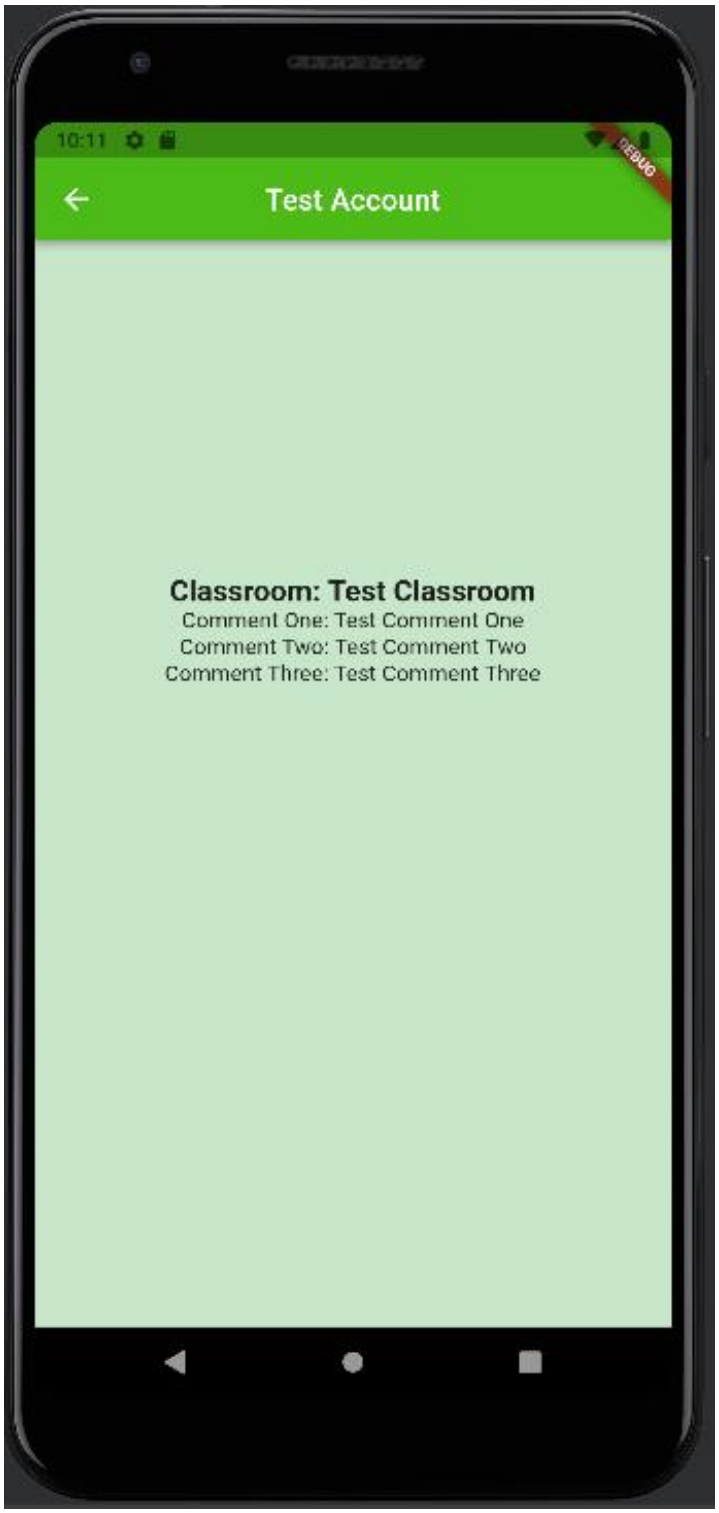
Initial Log-In Screen:

Initial Create Account Screen:

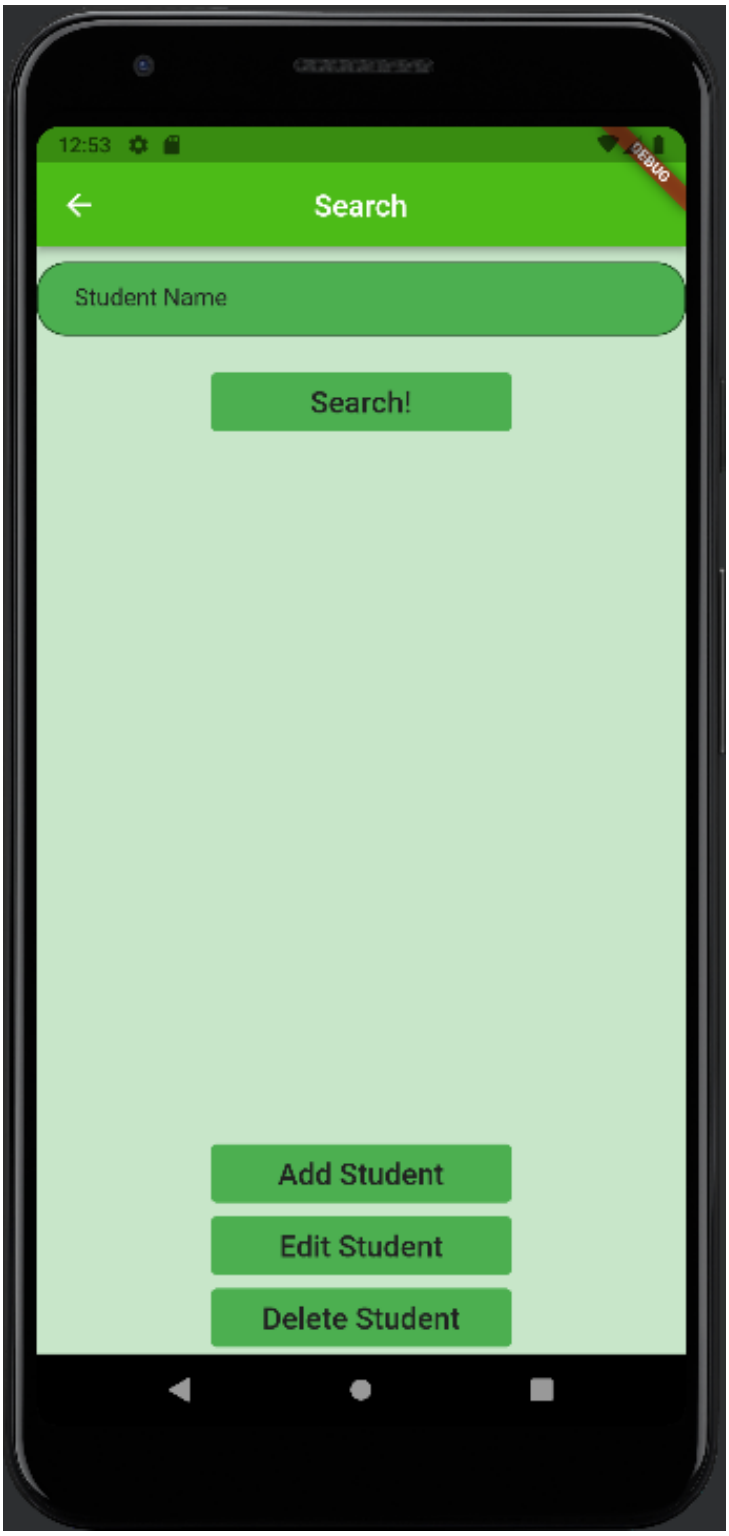
Initial Intern Screen for Intern “Test Account”:



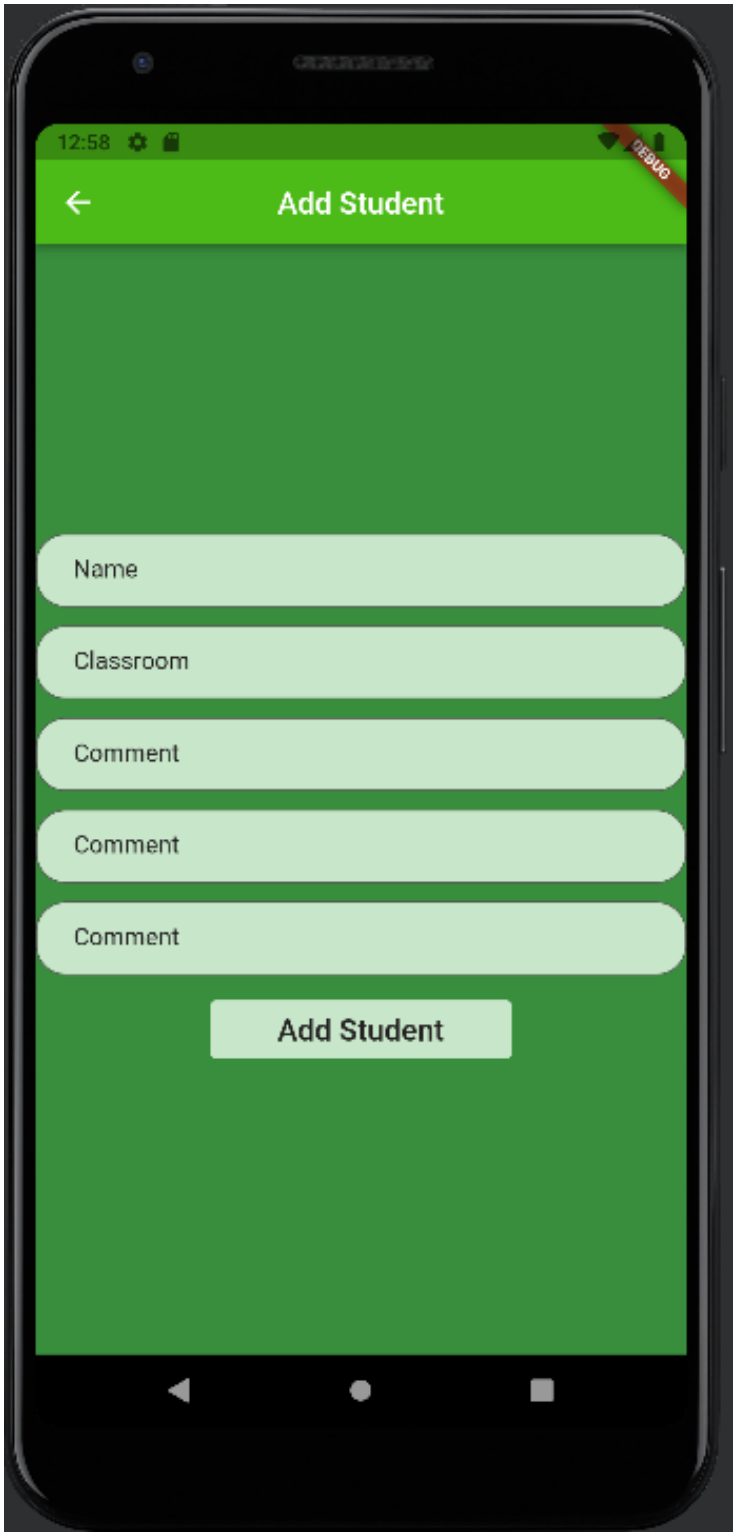
Initial Intern Comment View Screen for Intern “Test Account”:



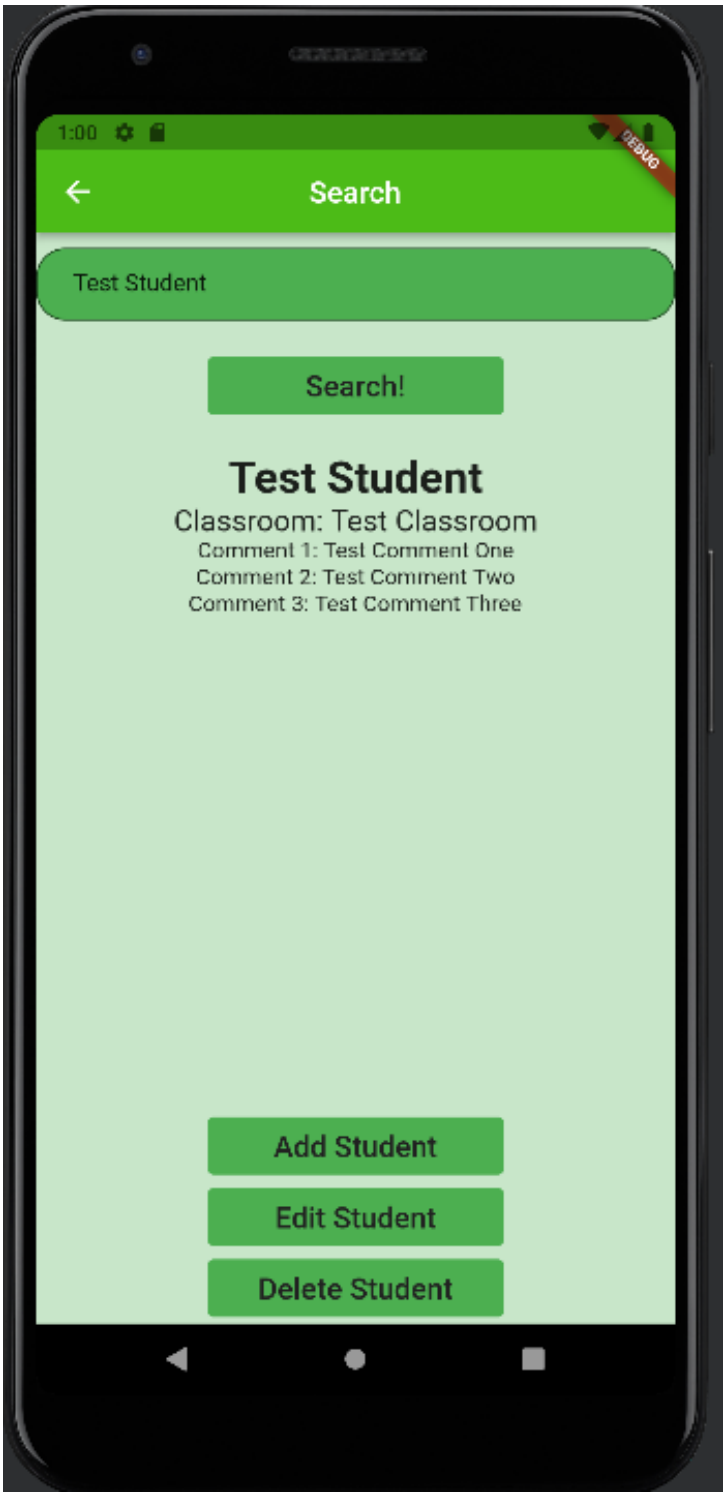
Initial Intern Search Screen:



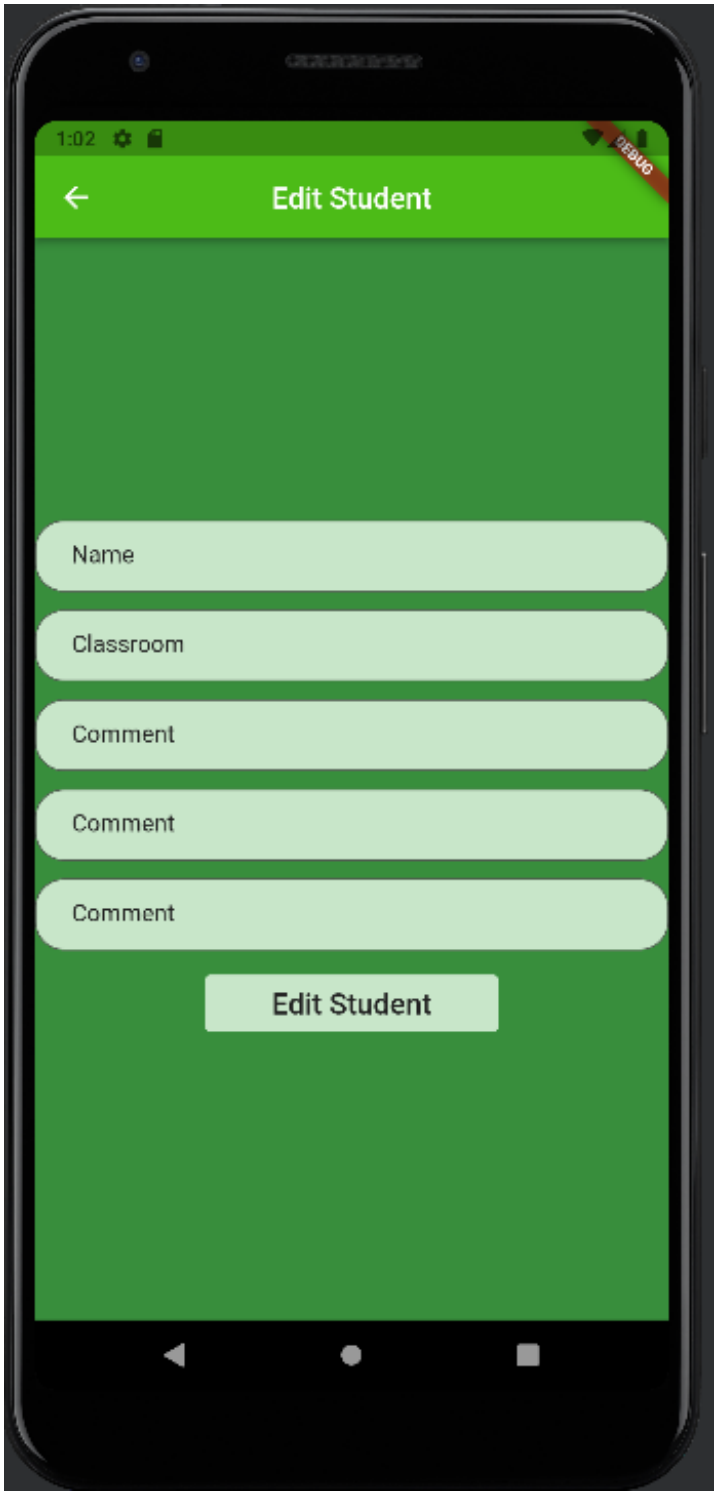
Initial Add Student Screen:



Initial Search Student Screen with “Test Student” Searched For:

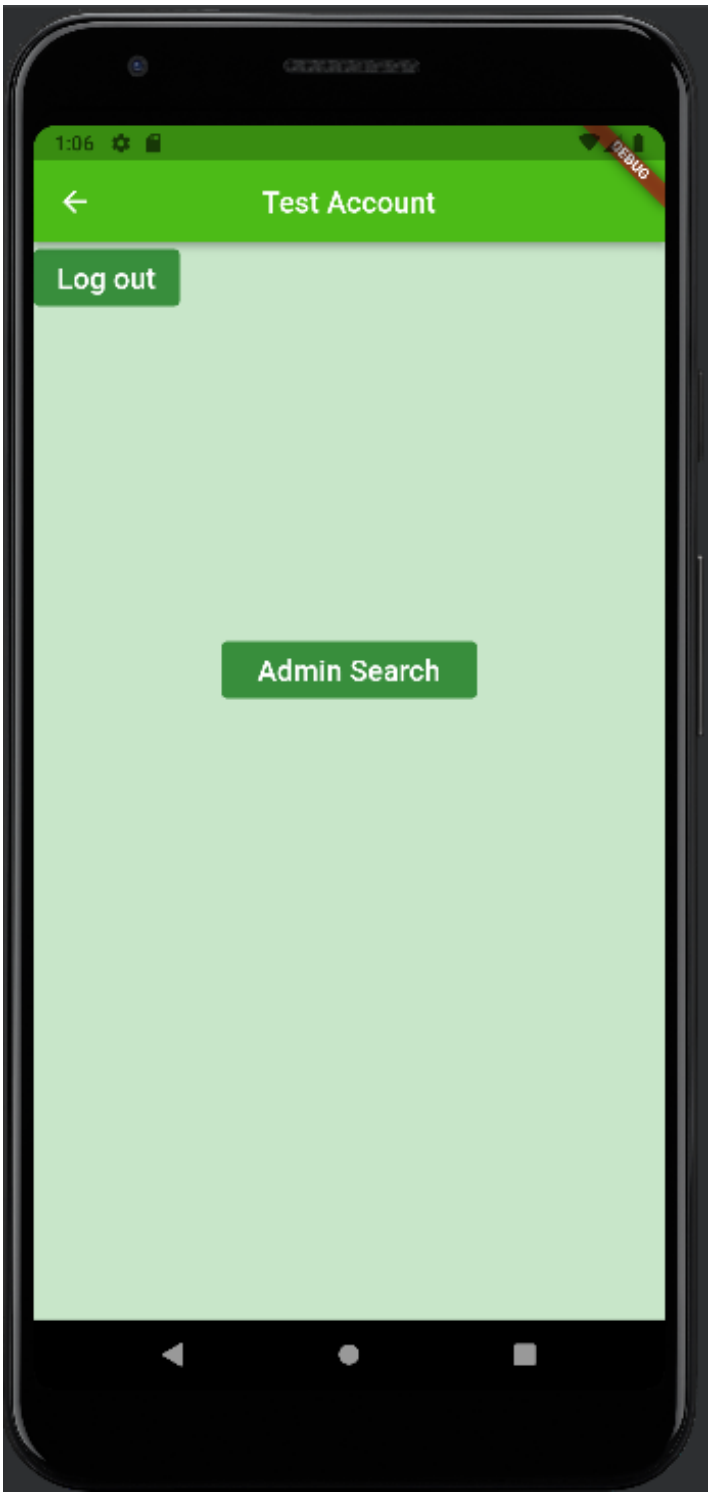


Initial Edit Student Screen:

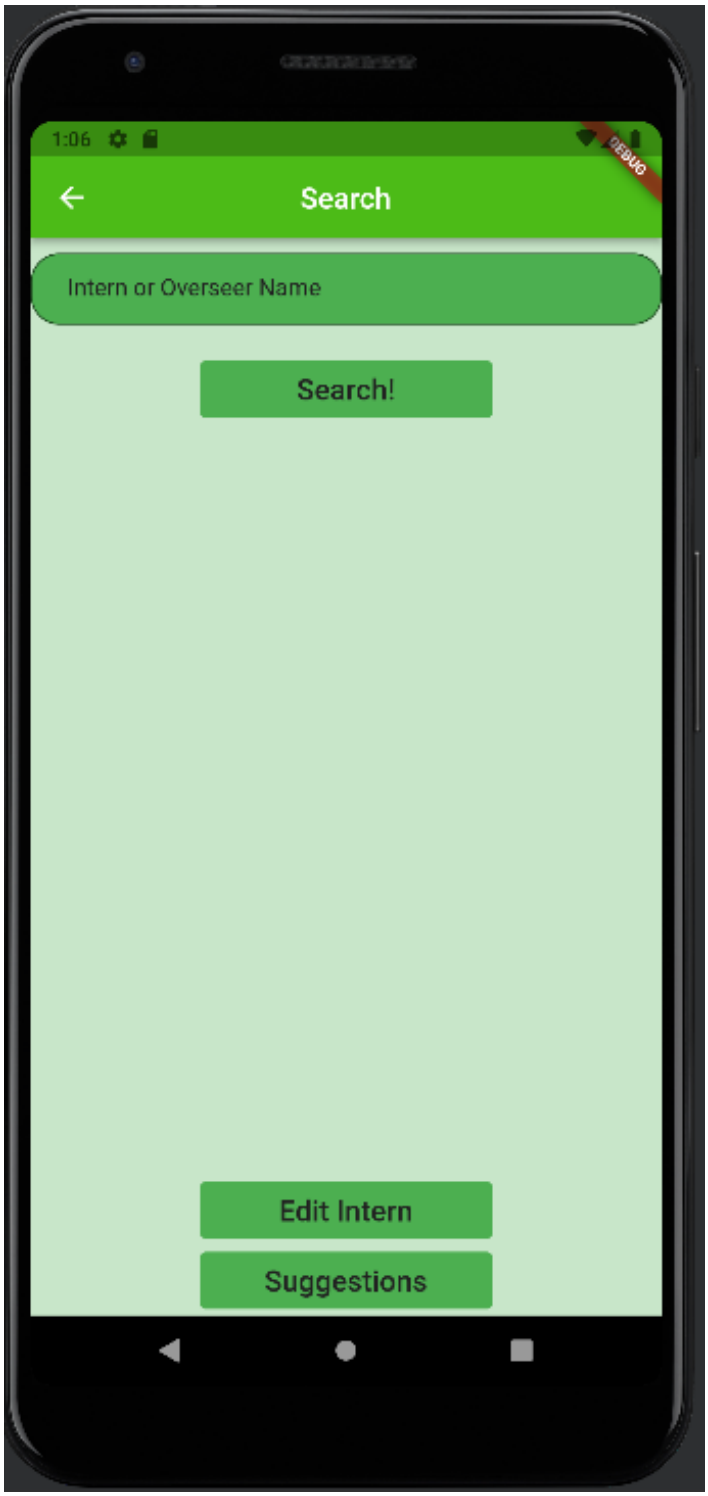


Initial Delete Student Screen:

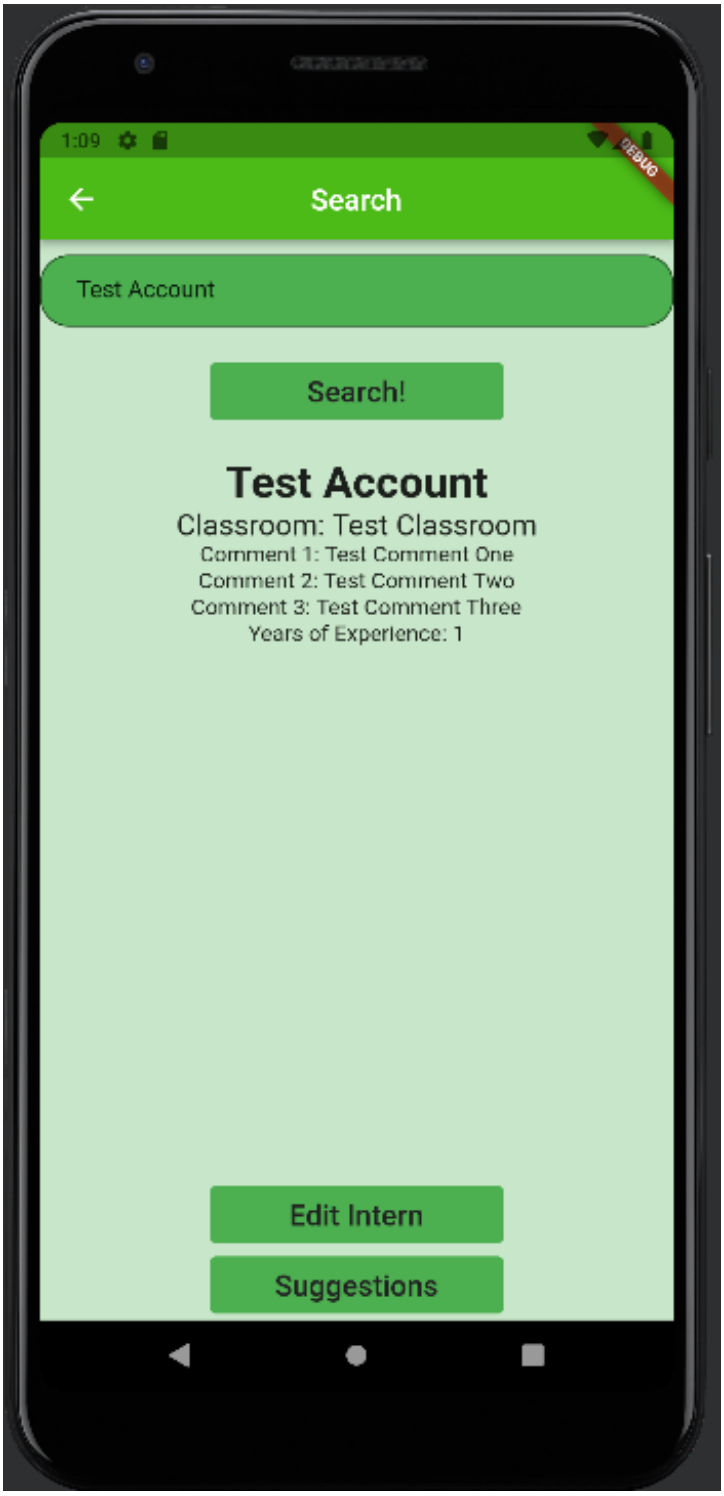
Initial Overseer Screen for Intern “Test Account”:



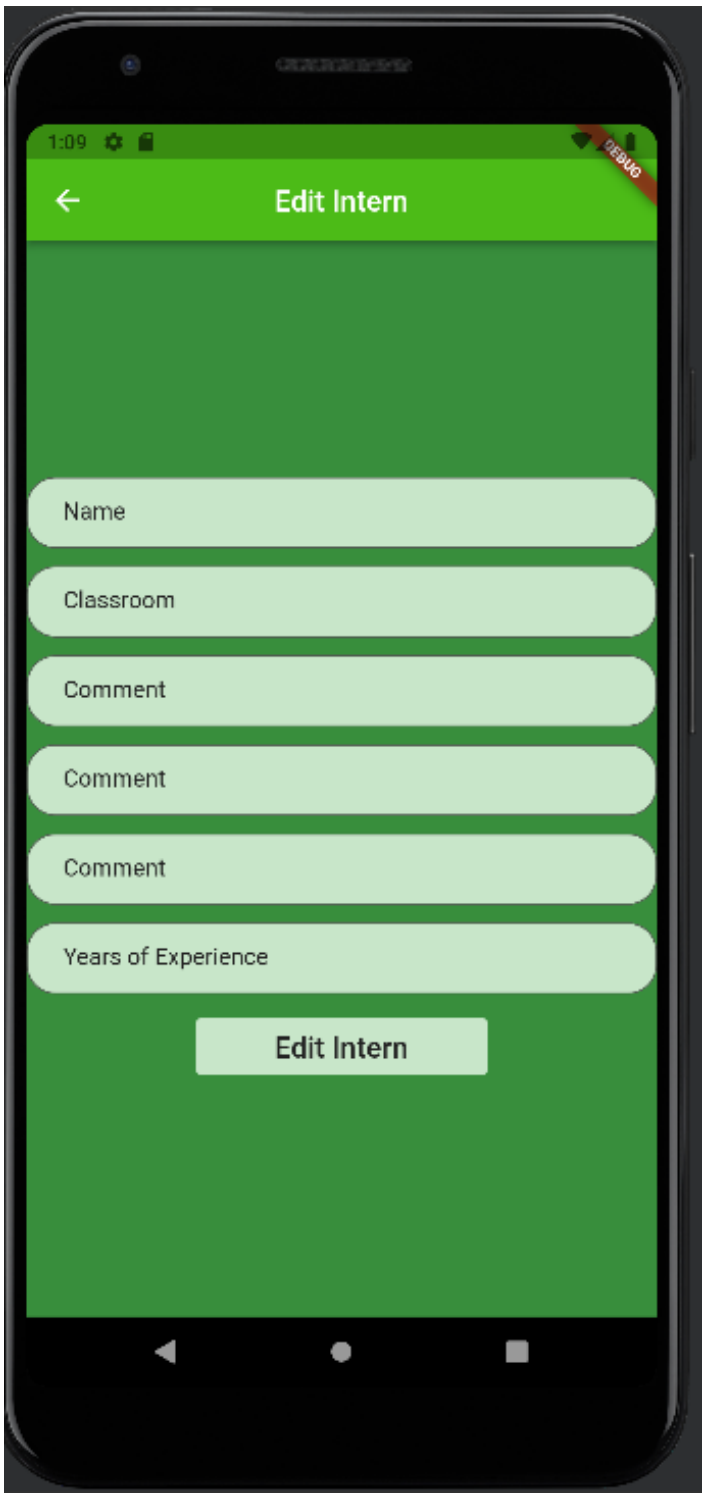
Initial Search Intern Screen:



Initial Search Intern Screen with data of search “Test Account”:



Initial Edit Intern Screen:



Initial Suggestion Screen:

Word Count: 1870