CS4530 Final Project

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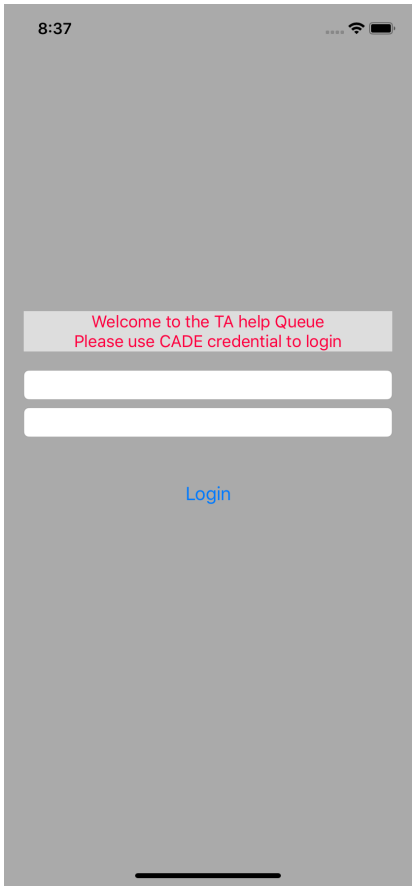
Abstract:

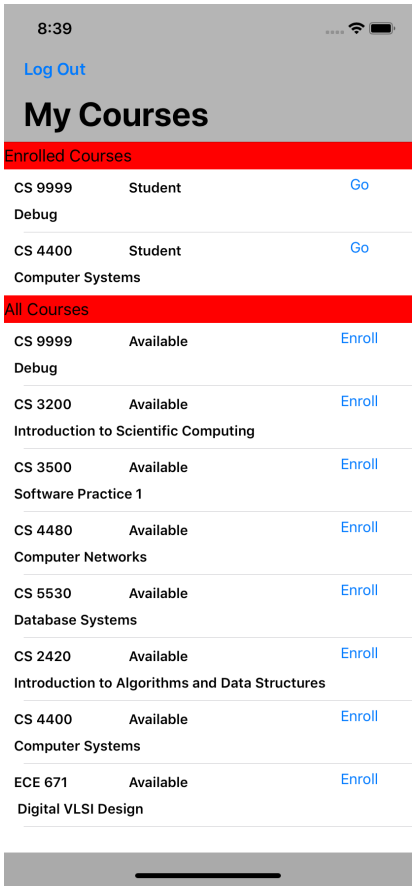
Create an app that uses University of Utah Computer Science TA help Queue as my final project. A new web version of TA help Queue was released since Fall 2018 as one of the Senior Projects by former CS students, an iOS version of TA help queue is implemented as my final project for CS4530. The mobile TA help queue has the following features: user login with CADE credentials, enrolled and available classes information retrieval, join of help queue by course, user enqueue and dequeue, and TA assignment. The creation of this app is to release the burden of carrying a laptop while helping students across CADE lab, greatly making TAs' life easier. Public API used can be found here: https://ta-queue.eng.utah.edu/swagger/index.html#/Authentication/post_login

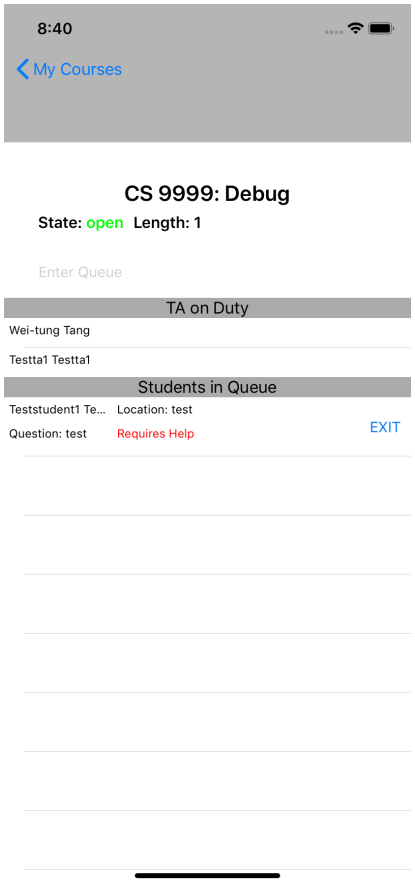
App Screen Descriptions:

First of all, I did not manage to submit a final project design document because I was not sure how to approach it. I had no clue what I wanted to work on for my final project. However, I made great effort in searching for a potential topic for my final project and reached out to the creator of CS TA help queue system. I've enjoyed a lot while working on this app.

The mobile TA queue system consists of major use login, course navigation, and TA help queue pages (shown below).







System Screenshots

The login page contains two textfields which takes CADE lab credentials. It calls the public Queue API for University of Utah College of Engineering (https://ta-queue.eng.utah.edu/swagger/index.html#/Authentication/post_login). The course list categories enrolled and all courses for the logged-in user. Finally, the 3rd screenshot describes a user story when a student or a TA joins the queue. The app depends on the public API and constantly asking for data from the endpoints. For the time being, the user who has CADE credential is allowed to login, browse his/her enrolled and all courses

provided by School of Computing. Finally, the logged-in user may enter the queue and ask for a TA to help out and leave the queue freely. The user can also login as a TA, browse his/her enrolled/TAed courses, and join the queue to start helping students with questions. The logged-in TA can also dequeue a student.

List of Future Features:

The mobile TA help app is not completed yet. Some of the features such as students' input for question/location as well as TA announcements are not implemented yet. Some of the public API do not work properly right now. For open/close queue for TAs, the endpoint to get all the TAs enrolled in the course does not work; therefore, it is unable to determine the role of the user. You may still open and close the queue; however, you won't be able to go on duty as a TA right now. I will reach out to the public API creator and work with him to resolve this.

I intend to fully implement it and publish to APP store so that students/TAs at the U can use it for free. Some interesting features that are unique to iOS devices:

- **Push notifications**: Students/TAs can receive/push text notifications to other users to enhance communication.
- **Virtual help meetings**: online help hours can be easily achieve with mobile device. Students/TAs can also meet online for help hours, great reduce travel cost for individuals who are physically unavailable. Multiple streaming library such as WebRTC can be used to implement the said feature.

- **Rating System**: Students can review and comment on the help received from the TA, incentivize TAs' hard-work.

Breakdown and Tracking:

User login page	2 days
Courses page	2 days
TA queue page	4 days
API testing	4 days
Debug	1 day
Total	13 days

Grading and Testing notes:

As I have mentioned above, some of the public API endpoints do not get documented correctly. I spent a lot of time attempting to test the endpoint. I managed to get in touch with original API developer and he showed me the correct endpoint. However, there are still so incorrect endpoints on their swagger documents; thus, I was not able to fully implement everything in the end. When you grade my final project, please keep in mind that all TAs cannot go on and off duty right now, yet they can close/open the queue. Once you close the queue, there is no way you can go on duty as a TA via mobile app. For testing purposes, I have obtained two students and one TA account from the original developer. Please feel free to use them.

Test account info:

1. teststudent1/test1234
2. teststudent2/test1234
3. testta1/test1234