SW Engineering CSC648/848 Fall 2021

SFSU TUTORS

Team No. 07

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Section 1: Executive Summary

Studying in university is a major event in a student's life. The expectations of having the perfect university experience are high for every student. A major part of having a good university experience is being able to understand and enjoy the classes that a student takes in a semester. However, it is not uncommon for students to miss out on this part. There are instances in a student's educational career at university where they are not able to keep up in class, have missed classes, or are losing interest in the class. In any of those cases, what a student needs is reinforcement and additional support. Additional support can come in the form of many ways, one of those ways being tutoring from someone who has good knowledge of the subject. It is natural for one to ask why such a service is necessary when there are TA's and Instructors to help the student. Well, the TA's may not be able to give sufficient reinforcement for the student, and the instructor may not have enough time to allocate to that individual student. Tutoring services are great for helping students remove the gaps in their knowledge because the tutors cater to the needs of that individual student. The service that my team and I are creating will aim to exist as a safety net for students who need help in their subjects.

The application that we are building is called "SFSU Tutors" with an objective of providing quality tutoring services to students at flexible times. SFSU Tutors will only provision for the tutoring needs of SFSU students, and so it is site that will support a niche market. The application will allow students to view tutors, their resumes, and their availability so create an appointment to meet with tutors that best suits their schedule. Although there are many tutoring services out there like Kumon, Kahn Academy, and many more, our website will bring a fresh perspective by creating an environment where knowledge transfer occurs between students who haven't taken that course and students who have and have scored well. Our website allows for students to become tutors for a particular subject. Students will find it easier to navigate our service via our intuitive user interface design. Furthermore, services come at a price that is affordable by students of SFSU!

My team and I are a part of a startup that is interested in creating a tutoring service for San Francisco State University. We are a group of students so who better than us to understand the needs and/or problems of students and create solutions and resources. We are very familiar with the tutoring marketplace and have good knowledge in the types of services that other companies offer. We plan on using this knowledge to carefully create a tutoring service that will stand out when compared to other companies in the marketplace. Our goal is to create resources that will aid in the development of everyone in the field of education, whether it be students, instructors, or tutors. My team is dedicated to creating a fully functional and operational application that will greatly benefit the users.

Section 2: Personae and Use Cases

Personae

Figure 1: https://unsplash.com/photos/4-EeTnaC1S4

Jeff

About

- 3rd year SFSU student
- Majors in computer science
- Likes to study at the library, prefers to study in groups
- Basic coding skills

Pain Point

- Has a tough time learning online

Goals and scenario:

- Gets stuck on a homework coding assignment. He checks class Discord first if anyone asks the same or similar question(s) he has.
- Wants to find a reliable tutor to ask questions so he does not have to rely on Discord messages or asking questions in class.

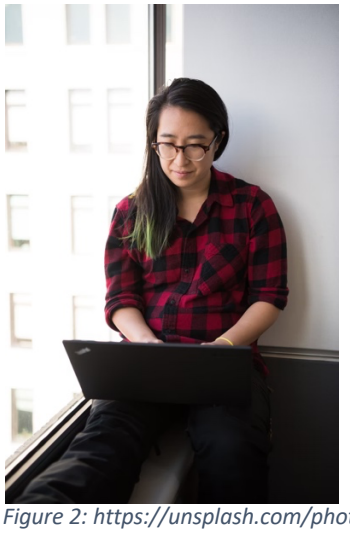

Figure 2: https://unsplash.com/photos/4-EeTnaC1S4

Christine:

About

- Graduate student at SFSU
- Majored in computer science
- Has been a team lead in school projects and has work experience
- Great leadership skills.

Pain Point

- Prefers tutoring in person, but can make do with online tutoring.

Goals and scenario:

- Is looking into becoming a tutor at SFSU. Understands how difficult it is for students and wants to help.
- Wants to put her leadership skills and work experience to use to help students.

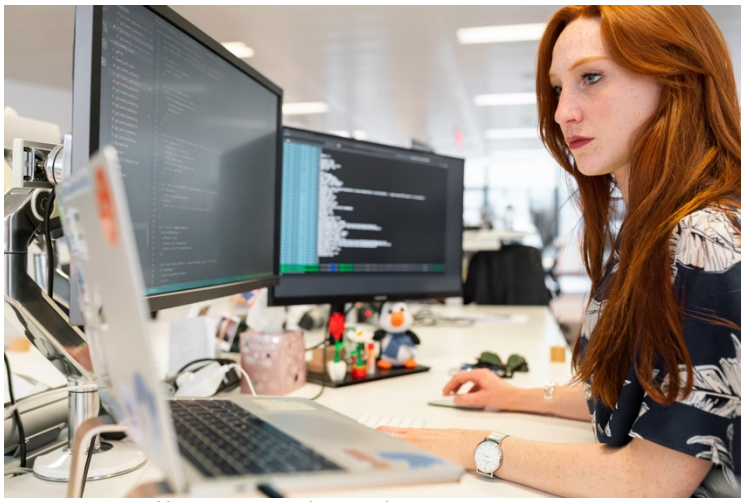

Figure 3: https://unsplash.com/photos/4-EeTnaC1Ss

Jennifer

About

- System admin
- SFSU alumni
- Has experience working on back end
- Understands the needs of SFSU students to make user experience better

Pain Point

- May be unfamiliar with front end bugs

Goals and scenario:

- Wants to create a usable, interactive tutoring app tailored for SFSU students.
- If something breaks on the back end, she tries to fix it herself before asking others on her team.

Use Cases

Case 1

Jeff feels like he is falling behind in his CSC510 Analysis of Algorithms class after getting a lower score on the midterm than he expected. He understands that he will not be able to make good progress in the class if he does not review previous concepts. Jeff is referred to the SFSU Gator Tutoring App by one of his classmates. Jeff uses the search bar to find a **tutor** for CSC510. He finds a **tutor** that is well reviewed and has **a schedule** that comfortably lines up with his that he can meet up with at least once per week. Before being able to book an **appointment** with the tutor, Jeff is prompted to **register onto the app as a student**.

Case 2

Jeff finishes the semester with an A- in CSC510 thanks to the tutoring he took throughout the semester. After the semester Jeff logs into the tutoring app again to leave a review for his tutor. Jeff leaves a positive **review** with 5 stars and emphasizes how much of a positive impact tutoring had on his learning experience during the semester.

Case 3

Christine wants to become a **tutor** to help students and grow connections with people in the computer science field. She learns about the SFSU Gator Tutoring App from one of her peers and applies to become a **tutor**. Christine has to upload her resume. In her application she chooses what class she wants to tutor for and her schedule of availability. The application is looked over by a site admin to make sure that she is qualified to become a **tutor**. She is then notified if she is **eligible to become a tutor** or if **she has been rejected.**

Case 4

Jennifer is a **system admin** for the tutoring app. Jennifer is reviewing Jeff's review of his tutor as well as Christine's tutoring resume. Jennifer reads Jeff's review and verifies that Jeff did not post anything inappropriate in his review and keeps it on the site for other users to read. Jennifer goes over Christine's resume and verifies her credentials and makes sure that Christine is signing up to tutor the correct subject. Jennifer passes Christine through the application process and Christine is notified that she is **eligible to become a tutor.**

Section 3: List of main data items and entities – data glossary/description

Glossary Description

Unregistered Users: can access all public info. Cannot access tutor information. Does not need to login/register

Registered Clients: can access the list of tutors by subject or course. Can request appointments with tutors. They need to login/register.

SFSU Email:
password:

Registered Tutors: can access the list of tutors and set their subject/course preferences.

SFSU Email:
Password:
Supporting Documents:

Approved Registered Tutors: In addition to the behaviors of a registered tutor, an approved tutor can accept, deny, or cancel appointments. Can set their availability.

Admin: An administrator who can revoke or grant privileges to users. They can monitor and change requests, listings, reviews, and any user-based queries on the site.

Appointment: description, day/time, subject, and course.

Tutor Availability: day/time, subject, and course.

Subject: title, courses

Course: subject, title

Major: title

Review: tutor, subject, course, description

Tutor invited to appointment: Upon accepting the appointment, both the user and tutor can cancel the appointment or request a day/time change through the invitation settings.

Section 4: List of Functional Requirements

Unregistered User:
1. A general user shall be able to search for a tutor without creating an account.
2. A general user shall be able to search for a tutor according to the department.
3. A general user shall be able see the tutor profile.
4. A general user shall be able to send inquiries to the tutor on their email.
5. A general user shall be able to search for tutor review.
6. A general user shall be able to create an account.
7. A general user shall be able to view the privacy policy.

Registered User:
8. A registered user shall be a tutor.
9. A registered user sees an online tutor.
10. A registered user shall be able to log out.
11. A registered user shall be able to subscribe for paid tutoring service.
12. A registered user shall delete his/her posts.
13. A registered user shall be a student of San Francisco state university.
14. A registered user shall be able to review tutor.
15. A registered user shall be able to display their online status.
16. A registered user shall be able to see their uptime [member since].
17. A registered user shall comply with the website terms and conditions.
18. A registered user shall be able to view the privacy policy.
19. A registered user shall be able to change their contact information.
20. A registered user shall be able to change their password.
21. A registered user shall be able access their profile information
22. A registered user shall be able to edit their profile information
23. A registered user shall be able to add specific tutor to favorites.
24. A registered user shall be able to add tutoring service to the Wishlist.
25. A registered user shall be able to invite their friends by message.

26. A registered user shall be able to delete their account.
27. A registered user shall be able to share the website content in social media.
28. A registered user shall be able to filter search by rating.
29. A registered user shall be able to give feedback to another registered user.

Administrator:
30. An administrator shall be able to create an account.
31. An administrator shall be able to approve a new tutor.
32. An administrator shall be able to view a list of tutors on the website.
33. An administrator shall be able to view comments posted by other registered users.
34. An administrator shall be able to delete an account of all registered users.
35. An administrator shall be able to remove a tutor review.
36. An administrator shall be able to view inquiries from all registered users.
37. An administrator shall be able to send inquiries to all
38. An administrator shall be able to delete a comment on a tutor review.
39. An administrator shall be able to validate the appropriate review and post it.
40. An administrator shall be able to ban a specific user for misconduct.

Tutor
41. A tutor shall see a rating about themselves.
42. A tutor shall be able to edit their profile information.
43. A tutor shall be able to delete their account.
44. A tutor shall be able to change their online status.
45.A tutor shall be able to accept new students in their session.
46. A tutor shall be able to remove students from their session.

Section 5: List of non-functional requirements

High-level non-functional specifications (how the app is delivered and other constraints) that MUST be adhered to (not negotiable)

1. Application shall be developed, tested, and deployed using tools and servers approved by Class CTO and as agreed in Milestone 0. Application delivery shall be from chosen cloud server
2. Application shall be optimized for standard desktop/laptop browsers e.g. must render correctly on the two latest versions of two major browsers
3. All or selected application functions must render well on mobile devices
4. Data shall be stored in the database on the team's deployment cloud server.
5. No more than 50 concurrent users shall be accessing the application at any time
6. Privacy of users shall be protected, and all privacy policies will be appropriately communicated to the users.
7. The language used shall be English (no localization needed)
8. Application shall be very easy to use and intuitive
9. Application should follow established architecture patterns
10. Application code and its repository shall be easy to inspect and maintain
11. Google analytics shall be used

12. No email clients shall be allowed.
13. Pay functionality, if any (e.g. paying for goods and services) shall not be implemented nor simulated in UI.
14. Site security: basic best practices shall be applied (as covered in the class) for main data items
15. Application shall be media rich (images, video etc.). Media formats shall be standard as used in the market today
16. Modern SE processes and practices shall be used as specified in the class, including collaborative and continuous SW development
17. For code development and management, as well as documentation like formal milestones required in the class, each team shall use their own GitHub to be set-up by class instructors and started by each team during Milestone 0
18. The application UI (WWW and mobile) shall prominently display the following exact text on all pages *"SFSU Software Engineering Project CSC 648-848, Fall 2021 For Demonstration Only"* at the top of the WWW page. (Important to not confuse this with a real application).

Section 6: Competitive Analysis

Key Features	http://www.tutor.com/ (Competitor A)	https://tutorme.com/ (Competitor B)	https://www.skooli.com/ (Competitor C)	Our Future Product
Text Search	-	+	+	++
Navigation Bar	+	+	+	++
"How it works" guidelines	-	-	++	+
Sign up/Login	+	+	+	+
User Reviews	+	+	+	+

(+) Contains Feature

(++) Superior Feature

(-) No Feature

I reviewed competitor tutoring web applications and they all looked solid. However, as I browsed through their key features, what I noticed was that most of their features such as the landing page and navigation bar seemed to be cluttered. For example, Competitor A did not have a search function and their landing page doesn't give users a general idea of how things work. Competitor C seems to have everything, but they also have unnecessary things like recognitions and awards which can be put on another page. What makes our app competitive is that our text search will return something no matter what and our navigation bar will have a simple UI (unlike Competitor A & B) for users who aren't tech savvy.

Section 7: High-level system architecture and technologies used:

Below is a list of the technologies used in Team 7's software stack:

Server Host: AWS EC2 Instance 1vCPU 2GB Ram
Operating System: Ubuntu v18.0
Database: MySQL v8.0.26
Web Server: Nodejs 14.17.6
Server-Side Language: Javascript
Additional Technologies: Web Framework: Expressjs 4.17.1
Front-End UI: Reactjs 17.0.2, HTML/CSS
IDE: Visual Studio Code Website
Performance: Google Analytics

Section 8: Team and roles

1. Alekhya Gandu - Team Lead/ Back end team lead
2. William Lushbough - Github Master
3. Justin Diones - Front end Lead
4. Rui Qi Huang - Front end team member 1
5. Rupak Khatri - Front end team member 2
6. Mai Ra - Back end team member 1

Section 9: Checklist

1. So far all team members are engaged and attending ZOOM sessions when required	OK
2. Team found a time slot to meet outside of the class	DONE
3. Back end, Front end leads and Github master chosen	DONE
4. Team ready and able to use the chosen back and front end frameworks and those who need to learn are working on learning and practicing	ON TRACK
5. Team lead ensured that all team members read the final M1 and agree/understand it before submission	DONE
6. Github is organized as discussed in class (e.g. master branch, development branch, folder for milestone documents etc.)	ON TRACK