

SW Engineering CSC648-848 Fall 2023

SFSU TutorLink

Team 02

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Milestone 1

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1. Executive Summary

In the SFSU community, students sometimes find challenges that extend beyond the classroom. Different timetables, working on the side or managing a school-life balance are problems many students struggle with, and no one knows how to manage time and courses better than those that have already done it. That is why SFSU Tutorlink appears as a platform to connect SFSU students with tutors who have gone through the same problems earlier, and are best equipped to help students learn and pass their courses swiftly.

We are a web-based platform bridging SFSU students in need with tutors with expertise, tailored to the students courses and needs. Students can schedule their tutoring sessions matching their own timetables and goals through our messaging system linking them with their tutors. This all can seem not very tied into SFSU, but we are tied to our community through various different unique offerings like the ability to search through your Courses and Professors, an adherence to all SFSU guidelines, and our focus on development of connections within the community, making our university a more supportive and collaborative learning environment.

Finally, we believe that investing into our student-run startup is an investment on academic success and the well-being of students, as well as an investment into the sense of community here at SFSU. SFSU TutorLink is not just a project; it's a promoter for academic excellence and a testament to your commitment to student success at SFSU.

2. Personas and Use Cases

Student - Mia

Mia

“ I should make the most of my time while I'm still here on campus. ”

MAJOR
Electrical and Computer Engineering

SCHOOL
San Francisco State University

AGE
22

General Characteristics

- Proficient in using engineering software and programming languages
- Currently, in the final year of the program, working on a senior design project that involves hardware and software integration

Skills

Mia possesses a strong foundation in electrical circuit analysis, digital logic design, microcontroller programming, and computer programming (languages like C++ and Python)

Goal

- Gain practical experience through engineering projects, internships, or research to enhance real-world problem-solving skills
- Secure a promising career in the field of Electrical and Computer Engineering upon graduation, with the aim of becoming a skilled and accomplished professional


Pain Points

- Struggles with the demanding workload of electrical and computer engineering courses, especially during exam period
- Requires extra assistance in specific subjects or topics, such as advanced microcontroller programming or digital signal processing

@Source: <https://www.visme.co/templates/>

Tutor - Smith

Smith



"Comfortable with technology and online platforms"

DEPARTMENT
Electrical and Computer Engineering

AGE
25 years

General Characteristics

- Graduate student at SFSU majoring in Electrical and Computer Engineering
- Has strong communication skills to explain complex concepts in a clear and understandable manner

Skills

- Proficient in digital logic design, computer architecture, computer networks, and robotics
- Experienced in research methodologies, data analysis, and publication.

Goals

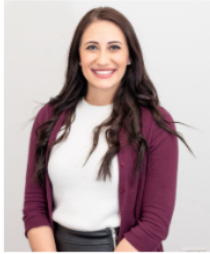
- Help students understand complex courses.
- Earn additional income through tutoring services.
- Enhance his teaching and communication skills.

Pain Points

- Ensuring his tutoring services stand out among other tutors on the platform.
- Adapting to different learning styles of students.
- Ensuring the effectiveness of his tutoring sessions and delivering value to his students is a constant concern.

@Source: <https://www.visme.co/templates/>

Admin - Olivia

**Administrator - Olivia**

AGE
28

Skills

- Proficiency in the platform's administrative tools.
- Strong problem-solving and communication skills.
- Fair judgment and decision-making abilities.

General Characteristics

- Responsibilities: Ensures the platform operates smoothly and maintains quality standards.
- Attention to Detail: Diligent in reviewing user-generated content for compliance with platform guidelines.

Goals

- Maintain a high-quality, secure, and user-friendly platform.
- Uphold platform policies and guidelines.
- Resolve disputes and ensure the platform is a safe learning environment.

Pain Points

- Continuously monitor user-generated content on the platform to ensure it complies with platform guidelines, which can be time-consuming.
- Managing the needs and concerns of both students and tutors while maintaining a fair and secure environment can be challenging.

@Source: <https://www.visme.co/templates/>

Use Case 1: Student seeking assistance

Mia, a **student** at SFSU, needs a **tutor** for her heavy coursework. First, she browses through tutoring services to find tutors who are experts in the subjects she wants to learn. She does this **search** by either using the category dropdown or by typing the class name in the search bar. Mia examines their information to ensure they are qualified and then proceeds to send a message to the tutor. Next, she is prompted to either sign in or sign up on the tutoring website. Once Mia has signed in, she is able to contact the selected tutor through the in-site messaging system. She sends a message to the tutor to discuss her specific challenges and arranges the schedule for tutoring sessions by filling out the message form on the site. After this, Mia is excited and eagerly awaits the tutor contacting them off-site.

Use Case 2: Tutor signs-up to help

Smith, a **tutor** seeking **students** to teach, follows these steps to use our tutoring service effectively. First, he explores the various courses he can offer by selecting from a drop-down subject list or entering specific keywords in a search bar. Then, he creates a comprehensive tutor profile by completing a form with his name, topic, class, description, **resume** and a professional photo on the site. After submitting this information, he is prompted to either sign in or sign up. Following that, he regularly updates his profile with his skills and qualifications. Upon signing up in the **dashboard**, the tutor can check **messages** through the site's message system, sort them by date, and also post on the site.

Use Case 3: User accessing their Dashboard

Mia, a user of our site, wants to check for recent activity. She navigates to her **dashboard** where she sees a list of well-reviewed **tutors** with a short view of their information and a 'send message' button for each tutor. She quickly finds a useful **tutor** without needing to **search** and can click on a button to quickly open a tab and send a message to the **tutor** without needing to use the browse function, greatly increasing her experience with the site's useability.

Use Case 4: Admin moderating the tutors

Olivia is an **admin** responsible for ensuring the seamless operation of our web-based platform, which connects SFSU students with dedicated tutors. Her primary duty is to review and approve tutor profiles, sorting them by new postings in the SQL workbench, and granting approval if they adhere to the platform's rules, allowing them to go live. Additionally, Olivia addresses user issues and maintains the platform's safety and fairness by promptly removing inappropriate items or users when necessary.

3. Data Glossary

Items	
User	An SFSU student who is only interested in using TutorLink to hire a tutor for classes.
Tutor	An experienced SFSU student who uses TutorLink to offer their services to other users. They may also use TutorLink to hire tutors for other classes.
Dashboard	A platform where users can see messages and posts
Message	A text message sent to tutors to connect them with students for outside (off app) communications.
Search	A Segment of the application that allows users to search for tutors by various aspects of their provided data (eg. class taught).
Photos	Tutor-uploaded image files for introducing themselves to users
Videos	A tutor-uploaded video file for introducing themselves to users
Off-site	Not through TutorLink, eg. a tutor contacting a user via the phone number they included in their message.

4. Functional Requirements

1. Unregistered User:

- 1.1. A user shall be able to search for a tutor by subject
- 1.2. A user shall be able to search for a tutor by class
- 1.3. A user shall be able to search for a tutor by name
- 1.4. A user shall be able to view a tutor's photos
- 1.5. A user shall be able to watch a tutor's video
- 1.6. A user shall be able to view a tutor's resume
- 1.7. A user shall be required to register prior to contacting a tutor
- 1.8. A user shall be able to register for one and only one account by using their
"@sfsu.edu" email
- 1.9. A user shall be able to start the application for becoming a tutor without prior
registration

2. Registered User:

- 2.1. A registered user shall be able to login
- 2.2. A registered user shall be able to request a new password
- 2.3. A registered user shall have all of the permissions of an unregistered user
- 2.4. A registered user shall be able to upload one and only one profile picture
- 2.5. A registered user shall be able to remove their profile picture
- 2.6. A registered user shall be able to leave one and only one review on a tutor's
profile
- 2.7. A registered user shall be able to send a message to a tutor

- 2.8. A registered user shall have one and only one dashboard
- 2.9. A registered user shall be able to submit an application for becoming a tutor
- 2.10. A tutor shall be required to have one and only one approved application
- 2.11. A tutor shall upload one and only one resume
- 2.12. A tutor shall have many reviews
- 2.13. A tutor shall be able to upload many photos
- 2.14. A tutor shall be able to change their posted photos
- 2.15. A tutor shall be able to upload one and only one video
- 2.16. A tutor shall be able to change their posted video

3. Dashboard:

- 3.1. A dashboard shall display the metadata of many messages
- 3.2. A dashboard shall display a link to read the full message

4. Reviews:

- 4.1. A review shall be written by one and only one registered user
- 4.2. A review shall be associated with one and only one tutor

5. Admin:

- 5.1. Admin shall be required to approve tutor applications prior to going live
- 5.2. Admin shall be required to deny inappropriate tutor applications

6. Message:

- 6.1. A message shall be able to be created by a user
- 6.2. A message shall be able to be received by one and only one user

5. Non-Functional Requirements

1. Application shall be developed, tested and deployed using tools and servers approved by Class CTO and as agreed in M0
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 shall render well on mobile devices
4. Data shall be stored in the database on the team's deployment server.
5. No more than 50 concurrent users shall be accessing the application at any time
6. Privacy of users shall be protected
7. The language used shall be English (no localization needed)
8. Application shall be very easy to use and intuitive
9. Application shall 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 e-mail clients shall be allowed. Interested users can only message to sellers via in-site messaging. One round of messaging (from user to seller) is enough for this application
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. Media formats shall be standard as used in the market today
16. Modern SE processes and tools shall be used as specified in the class, including collaborative and continuous SW development

17. The application UI (WWW and mobile) shall prominently display the following exact text on all pages "SFSU Software Engineering Project CSC 648-848, Fall 2023. For Demonstration Only" at the top of the WWW page nav bar. (Important so as to not confuse this with a real application).

6. Competitive Analysis

	Chegg	Wyzant	Varsity Tutor	Team 02
Search	++	++	++	+
Support	++	++	++	+
Session Format	++	++	++	+
Feedback and Reviews	-	+	+	+
Ease of Use	-	+	+	+
New User Enticement	+	++	-	+
New User Onboarding	--	+	-	+
SFSU Specific Offerings	--	--	--	++

++ superior, + present, - inferior, -- not present

Our planned product shares core features commonly found in existing competitors, creating a sense of familiarity and ease of use for users. These offerings encompass a standard search bar for seamless SFSU tutor discovery, SFSU course-specific offerings, and one-directional on-site messaging to establish a connection between student-to-tutor inquiries. Our app is unique in its SFSU unique offerings. Students can search through their own courses and professors, and are linked with past students of those same courses, who can tailor their classes to the SFSU courses. This foundation enables us to focus our efforts on not only refining and improving these core elements but also innovating and expanding upon them to deliver an exceptional and highly personalized learning journey that sets us apart from the competition.

7. Architecture and Technologies

Server Host	AWS EC2, t2.micro <ul style="list-style-type: none">• 1 CPU Core• 1 GB RAM
Operating System	Ubuntu 20.04.3 LTS
Server Database	MySQL v8.0.34
Web Server	Apache2 2.4.52
Server-Side Language	Python 3.10.12
Web Framework	Flask
Additional Technologies	<ul style="list-style-type: none">• SQLAlchemy• Flask-login• Auth0 (possibly, may extend scope of project)
IDE	PyCharm, VSCode, Webstorm Web
Analytics	Google Analytics
SSL Cert	Lets Encrypt (Cert Bot)

8. Use of ChatGPT

We have used the September 25th version.

We did review the policy and found it useful to go through some requirements text and as a spell checking tool for our executive summary. In addition to this, the team lead will be using ChatGPT for email fluff as it is effective with some minor editing.

We would say it definitely is helpful (Does a bit more in depth grammar checking than google docs word directory matching). It would be classified towards medium usefulness.

We did draft our assignment first, as mentioned it was used for spell checking and more general grammar adjustments, but our contents and ideas were already laid out.

9. Team and Roles

Name	Role
Jeremy Woodling	Team Lead
Abel Seyoum	Github Manager, Document Manager
Brandon Watanabe	Frontend Lead
Ankita Mukherjee	Backend Lead
Guillermo Villar	Frontend Member
Lars Severson	Backend Member

10. Checklist

Task	Status
Team members attending and engaged	ISSUE There have been some issues with attendance to both class and meeting as we are all busy college students. However, there have been no new unreported absences.
Time slot for meeting outside of class	DONE
Team roles selected	DONE
Team is ready (or learning) to use back and front end frameworks	DONE
Team reviewed slides about requirements and uses cases prior to drafting milestone 1	DONE
Team lead ensured final document was reviewed by all members	DONE
Github is organized	DONE

DONE/OK, ON TRACK - on time, no issues perceived

ISSUE - have some problems, define the problem with 1-3 lines