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# SFSU-BASED TUTORING WEBSITE - MILESTONE 1

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SW ENGINEERING CSC 648-848 FALL 2024 Team 7



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# Table of Contents

<b>Executive Summary</b>	<b>2</b>
Overview	2
<b>Personas</b>	<b>3</b>
Category 1 User: Searching for product	3
Category 2 User: Service Product Provider	4
Category 3 User: Service Product Provider Overseer	5
<b>User Case</b>	<b>6</b>
1. Looking for Service Providers before signing up	6
2. User Contacting Service Provider	6
3. Service Provider Overseer looking at service providers videos	6
4. User Writing A Review about Site	6
<b>List of Main Data Items and Entities - Data Glossary/Description</b>	<b>7</b>
List of Main Entities	7
Users	7
<b>High Level Functional Requirements</b>	<b>8</b>
<b>Non-Functional Requirements</b>	<b>9</b>
<b>Competitive Analysis</b>	<b>11</b>
Key Features for Comparison	11
Comparison Table	12
Incorporating SFSU-specific Functions	13
<b>High-Level System Architecture and Technology</b>	<b>14</b>
<b>Use of GenAI Tools</b>	<b>15</b>
<b>Team and Roles</b>	<b>16</b>
<b>Team Lead Checklist</b>	<b>17</b>

# Executive Summary

## Overview

This website is designed to help SFSU students find tutors that can help them with whatever subject they are studying.

The tutoring website allows students to search for tutors either by subject they teach or by a generic, basic text search. The student can then browse through the selection of tutors and see whatever information they have posted and find one they feel will best fit their needs. Then, if a student finds a tutor they would like to study with, they can make an account on the website and message that tutor to let them know they are interested in working with them. Then for those looking to become tutors there will be a separate page where one can apply to become a tutor. This application will be manually approved, and their information will be added to the database of tutors available on the website. Students using services and tutors providing services are SFSU students.

This project is needed to provide students the ability to network with tutors and receive the help they need in a timely manner. Additionally this website will provide a platform for tutors who are knowledgeable in their respective subjects to find students/clients to teach more effectively than they could by word of mouth. Overall, the tutoring website is created for the benefit of the SFSU students looking to better their academic outcomes. As well as student tutors and tutors looking to expand their outreach in the SFSU community.

# Personas

## Category 1 User: Searching for product

**Name:** Lisa Patel



### About Lisa:

- Very busy
- Proficient technology skills
- Not very patient with technology
- Likes to use a personal email for tutoring services

### Goals:

- To grasp complex statistical concepts to succeed in her courses
- To find a tutor who can provide targeted help and study strategies

### Skills:

- Frequently uses her laptop and smartphone for classes, online research, and communication
- Comfortable with various online learning platforms and video conferencing tools

### Pain Points:

- stressed
- short on money

## Category 2 User: Service Product Provider

**Name:** Sarah Mitchell



### About:

- Holds master degree in mathematics
- Enjoys helping others
- Patient with technology
- More comfortable with in-person meetings rather than online

### Goals:

- To connect with more category 1 users through the tutoring site to expand her tutoring business.
- To provide personalized, effective tutoring sessions that cater to individual learning styles.
- To receive feedback from category 1 users to improve her services and build her reputation.

### Skills:

- Familiar with SFSU math classes
- Familiar with video conferencing tools, online whiteboards, and educational resources

### Pain Points:

- Short on money

## Category 3 User: Admin

**Name:** Dean Manchester



### **About:**

- Been a teacher/professor for about 4 years
- Taught biology for 3 years
- Patient and approachable; enjoys building rapport with students

### **Goals:**

- To have his students pass his class
- Make sure SFSU tutors are tutoring materials correctly

### **Skills:**

- Highly tech-savvy; uses Canvas to post and grade teaching materials
- Familiar with video conferencing tools, online whiteboards, and educational resources

### **Pain Points:**

- Busy

# User Case

## **1. Looking for Service Providers before signing up**

John is a sophomore at SFSU taking a GE class. He wants to search for tutors that teach his class. He goes on our site and searches by class name then goes through the names of tutors that show up. John chooses an appropriate tutor from our site, after viewing the tutor's detailed information, and he decides to message that tutor. After attempting to submit a message, if John is not logged in, he will be prompted to login or register.

## **2. User Contacting Service Provider**

Mary needs to find a tutor to help her in English. She searches by the subject English and then goes through the names of tutors that show up. As she tries to send her message to the selected tutor, she is then prompted to either sign in or register. She signs in and sends the message. The tutor responds within a reasonable time and the two of them discuss payment on a separate platform.

## **3. Admin Approving Tutor's Posting**

Mark is a teacher at SFSU. He is concerned about the amount of postings on the subject he is teaching: Statistics. He logs into his admin account and starts looking at tutor posting applications. He goes through the postings and green lights, the ones that provide significant materials for the students.

## **4. User Writing A Review about Site**

Leona has had a couple of tutors on the site and she wants to let other students know what is in store. She signs into her student account and heads over to the review tutor tab. She leaves a review and fills out a form on what subject and class this tutor tutored her in.

# List of Main Data Items and Entities - Data Glossary/Description

- **List of Main Entities**

- **Users**

- **Unregistered User**

- A user who can just browse for tutors

- **Registered User**

- Shall be an SFSU student
- Shall inherit unregistered user's privileges.
- Can seek tutor help and/or become a tutor.

- **Admin**

- A user who moderates what content goes live on the site .

- **Items**

- **Tutor: Registered User that has been approved to be a tutor.**

- Image: Photo of tutor
- Video: Video of tutor
- Bio: Short description of tutor
- Courses: List of SFSU courses tutor's have taken.
- Subjects

- SFSU subjects offered that tutors and students are familiar or seeking for help with

- **Messages**

- Communication between reg. user and tutor about academic assistance.



# List of High Level Functional Requirements

1. Unregistered Users shall be able to search for tutors by SFSU subject and/or SFSU course, tutor's bio and name of tutor.
2. Unregistered Users shall be able to search from any page.
3. Unregistered users shall be able to view the profile of a tutor which will include relevant information like what SFSU subject and SFSU courses they teach.
4. Unregistered Users shall be able to view tutor's videos.
5. Unregistered Users shall be able to view tutor's images.
6. Unregistered Users shall be prompted to log in to message tutors.
7. Unregistered Users shall be prompted to log in to view the dashboard.
8. Unregistered Users shall be prompted to log in to apply as a tutor.
9. Unregistered Users shall be able to create an account to become a registered user.
10. Registered Users shall inherit all features of Unregistered Users.
11. Registered Users shall be able to reset their password.
12. Registered Users shall be able to apply as a tutor.
13. Registered Users shall be able to message a tutor.
14. Registered Users shall be able to review a tutor.
15. Registered Users shall have a dashboard listing all received messages.
16. Registered Users shall be able to add a description on their tutor application.
17. Registered Users shall be able to add an image on their tutor application.
18. Registered Users shall be able to add a video on their tutor application.
19. Admin shall approve/deny all tutor applications and messages.
20. Admin shall not have full control over the entire DB just access to necessary approval\_status.

# List of Non-Functional Requirements

1. Application shall be developed, tested, and developed using tools and servers approved by Class CTO and as agreed in Mo
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 (no native app to be developed)
4. Posting of tutor information and messaging to tutors shall be limited only to SFSU students
5. Critical data shall be stored in the database on the team's deployment server.
6. No more than 50 concurrent users shall be accessing the application at the same time
7. Privacy of users shall be protected.
8. The language used shall be in English (no localization needed)
9. Application shall be easy to use and initialize
10. Application shall follow established architecture patterns
11. Application code and its repository shall be easy to inspect and maintain
12. Google Analytics shall be used
13. No email clients shall be allowed. Interested users shall only be able to message sellers via in-site messaging. One round of messaging (from user to seller) is enough for this application.
14. Pay functionality, if any (e.g. paying for goods) shall not be implemented nor simulated in UI.

15. Site security: basic best practices shall be applied (as covered in class) for main data items
16. Media formats shall be standard as used in the market today
17. Modern SE processes and tools shall be used as specified in the class, including collaborative and continuous SW development and GenAI tools
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 2024. For Demonstration Only" at the top of the WWW page Nav bar. (Important so as to not confuse this with a real application).

# Competitive Analysis

We have identified the following primary competitors for our online tutoring platform:

1. **Tutor.com**
2. **Chegg.com**
3. **Wyzant.com**
4. **Skooli.com**

## Key Features for Comparison

Based on the functionalities offered by the competitors and the requirements of our project, we have selected the following key features for comparison:

1. **User Authentication**
2. **Tutor Matching System**
3. **Interactive Learning Tools (e.g., Virtual Whiteboard, Video Sessions)**
4. **Mobile Accessibility**
5. **Session Scheduling and Management**
6. **SFSU-specific Integration**
7. **Registration Process**
8. **Payment Methods**

## Comparison Table

Feature	Tutor.com	Chegg.com	Wyzant.com	Skooli.com	Our Product (Team 7)
<b>User Login</b>	Yes (Email, Password)	Yes (Email, Password)	Yes (Email, Password)	Yes (Email, Password)	Yes (Email, Password)
<b>Tutor Matching System</b>	Algorithm-based matching	AI-driven recommendations	Manual selection and matching	AI and manual hybrid system	Manual selection and matching
<b>Interactive Learning Tools</b>	Virtual Whiteboard, Video Sessions	Video Sessions, Q&A Forums	Virtual Classroom, Interactive Tools	Virtual Whiteboard, Screen Sharing	Video hosting for lecture with messaging system
<b>Mobile Accessibility</b>	Yes (iOS, Android Apps)	Yes (iOS, Android Apps)	Yes (iOS, Android Apps)	Yes (iOS, Android Apps)	Yes (Mobile Browser)
<b>Session Scheduling and Management</b>	Integrated Calendar, Reminders	Flexible Scheduling, Calendar Sync	Comprehensive Scheduling Tools	Session Booking, Calendar Integration	message notification reminder
<b>Registration Process</b>	Multi-step form  Email/SMS verification	Streamlined with minimal steps  Email verification	Detailed profile creation  Background checks for tutors	Quick sign-up for students  Detailed profiles for tutors	Required SFSU Email  Quick sign-up for students and tutors
<b>Payment Methods</b>	Credit/Debit Cards  PayPal	Credit/Debit Cards  PayPal	Credit/Debit Cards  PayPal	Credit/Debit Cards  PayPal	N/A

## **Summary**

Our application offers a robust and tailored online tutoring platform that competes effectively with industry leaders such as Tutor.com, Chegg.com, Wyzant.com, and Skooli.com. SFSU-specific integration ensures a personalized and cohesive user experience for SFSU students, enabling streamlined access to tutoring services based on the user's classes being taken at the university.

Additionally, our selection-based tutor matching system leverages SFSU student data to provide more personal and relevant tutor pairings, enhancing the effectiveness of each tutoring session. Unlike Chegg.com, which relies heavily on a random-based tutor selection, our platform offers a hybrid approach that combines selection efficiency with personalized matching. These unique features not only align with SFSU's academic environment but also provide added value that sets our application apart from existing competitors.

## **Incorporating SFSU-specific Functions**

To further emphasize our unique positioning, our platform includes SFSU-specific functionalities such as:

- Ability to search classes by course number (CSC 340, MATH 227, ENGR 100, etc.)

- Tutor matching system: allows users to select the tutor of their choice based on criteria such as subject and course catalog number.

- Interactive learning tools: Help students receive tutoring support by allowing tutors to post educational content to their profiles.

These SFSU-specific features ensure that our platform is not only competitive with existing tutoring services but also uniquely suited to meet the needs of SFSU students.

# **High-Level System Architecture and Technology**

**Amazon EC-2 Cloud Computing**

**Server Operating System: Ubuntu Server v24.04.1**

**Database: MySQL v8.0.39**

**Web Server: Node.js v20.17**

**Browser Support for Firefox (Desktop) and Google Chrome (Mobile)**

**Figma Interface Design Tool**

**Trello Project Planning App**

# Use of GenAI Tools

## Suzanna - Creating Personas and Use Cases

For GenAI, I used ChatGPT for the personas. It helped us with creating a base of a personae. It was about Medium usefulness because I could build off of the personae that the AI created for me. I used the tool by asking the AI to help me generate a personae of a student, tutor, and teacher who is in college.

### College Student Prompt:

can you create a college student personae that needs help with their school course

### ChatGPT response:



**Name:** Emily Reyes

**Age:** 19

**Major:** Biology (Pre-Med)

**Year:** Sophomore

**Personality:** Hardworking, introverted, and determined, but easily stressed by heavy coursework. Enjoys reading and nature walks for relaxation.

#### Challenges:

- Struggles with time management and juggling tough courses like Organic Chemistry and Physics.
- Unsure of her study methods, often feeling like she's putting in the time but not seeing results.
- Hesitant to seek help from professors, though open to tutoring or study groups.

**Goal:** Maintain a high GPA to get into medical school and improve her study habits and time management.





## Team and Roles

<b>Name</b>	<b>Email</b>	<b>Role</b>
Thomas Bercasio	tbercasio@sfsu.edu	Team Lead
Zarko Cosovic	zcosovic@sfsu.edu	Backend Lead
Jaylin Jack	jjack1@mail.sfsu.edu	Team Member Backend
Suzanna Li	sli47@sfsu.edu	Frontend Lead
Ken Chika	kchika@sfsu.edu	Github Master QA Assurance

# **Team Lead Checklist**

**So far all team members are fully engaged and attending team sessions when required.**

**Done**

**Team found a time slot to meet outside of the class**

**Done**

**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**

**Done**

**Team reviewed class slides on requirements and use cases before drafting Milestone 1**

**Done**

**Team reviewed non-functional requirements from “How to start...” document and developed Milestone 1 consistently**

**Done**

**Team lead checked Milestone 1 document for quality, completeness, formatting and compliance with instructions before the submission**

**Done**

**Team lead ensured that all team members read the final M1 and agree/understand it before submission.**

**Done**

**Team shared and discussed experience with genAI tools among themselves**

**Done**

**Github is organized as discussed in class (e.g. master branch, development branch, folder for milestone documents etc.)**

**Done**