

SW Engineering CSC 648-848 Fall 2024

Tutoring Platform: GatorAid

Team 04:

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Milestone 1

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Executive Summary:

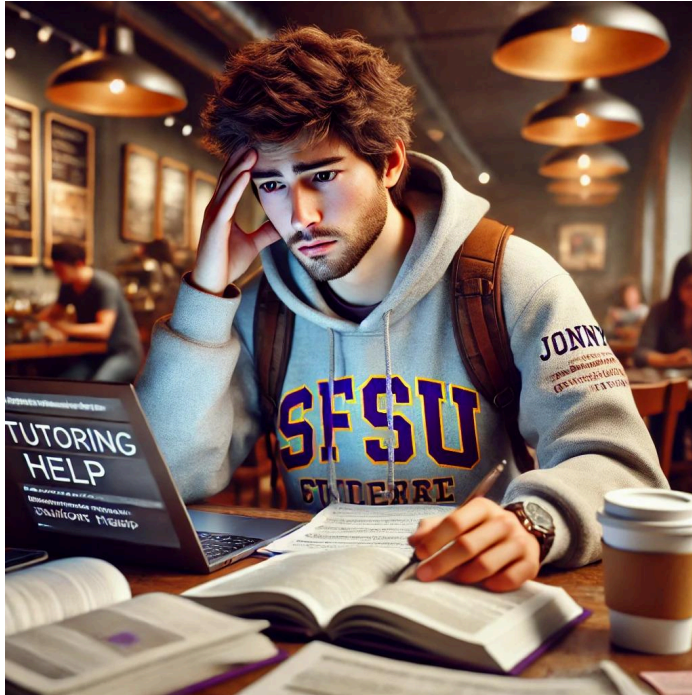
We present GatorAid, a website tutoring platform designed exclusively for the San Francisco State University (SFSU) community. It takes time to look for and connect with tutors specific to certain class material, time that takes away from focusing on a demanding course or even completely bars someone from looking for assistance. This platform aims to provide a streamlined, accessible way for SFSU students to connect with fellow students, recent graduates, or other SFSU-affiliated tutors, ensuring that the tutoring is tailored specifically to SFSU's curriculum. While a generic tutoring platform may have a bigger community, it will not have course-specific tutors for individual universities. GatorAid aims to fill this gap by offering a unique, SFSU-specific resource for academic tutoring.

GatorAid provides an interface where tutees can search for available tutors based on specific courses offered at SFSU in addition to other standard search functions. By ensuring that tutors are knowledgeable about the same course material and expectations, students can receive relevant and precise academic guidance. Upon finding an appropriate tutor, tutees can message the tutor internally through the platform to get in touch. On the tutor side of things, GatorAid provides a platform for tutors to list their ability to help with specific courses and receive messages from interested tutees. Having all the tutors and tutees affiliated with SFSU and the tutors searchable by course, the platform serves to streamline the process of connecting tutors and tutees.

The developers behind GatorAid are a team of five students at SFSU enrolled in Software Engineering CSC 648-848 in Fall 2024 taught by Dr. Draguntin Petkovic and his teaching assistant Anthony Souza. We hope to gain experience building a product end-to-end and collaborating as a team in an imitation of a small startup.

Personas:

Persona 1: The Student - Jonny



- **Characteristics:**
 - A typical undergraduate student at SFSU.
 - Enrolled in multiple classes and may struggle in one or more subjects.
 - Juggles part-time work and academic responsibilities, leading to time management challenges.
- **Goals:**
 - Quickly find an experienced tutor for a specific course they are struggling with.
 - Needs flexible, or last-minute tutor bookings due to a busy schedule.
 - Prefers to browse tutors with the same class experience (previous student).
- **Skills:**
 - Intermediate internet user, comfortable navigating simple websites and using search functions.
 - Has limited experience with online tutoring platforms but can adapt quickly.
- **Pain Points:**

- Struggles to find tutors who have specific course knowledge.
- Feels overwhelmed by too many options and needs a quick way to sort or filter tutors based on SFSU courses.
- Worries about committing to a tutor without first reviewing their profile and qualifications and price against others.

Persona 2: The Peer Tutor - Kevin



- **Characteristics:**
 - A senior student at SFSU who excels in certain subjects and wants to tutor others.
 - Balances tutoring with their academic schedule.
 - Interested in helping fellow students but does not want tutoring to interfere with their own studies.
- **Goals:**
 - Wants an easy way to receive tutoring requests and manage their availability.
 - Seeks to gain tutoring experience and help fellow students succeed.
 - Prefers to tutor students from classes they've excelled in.
 - Make some side income
- **Skills:**

- Strong academic skills in specific subjects from SFSU.
- Basic to advanced internet skills, comfortable managing a profile and receiving inquiries through a dashboard.
- **Pain Points:**
 - Doesn't want to spend too much time managing the logistics of tutoring (e.g. finding students and for his price).
 - Needs clear communication and timely notifications when a student shows interest in their services.
 - Prefers to communicate with students via external messaging but needs to have access to contact information in an organized way.

Persona 3: The Returning Adult Learner - Charles



- **Characteristics:**
 - A non-traditional student, potentially balancing a career and family while pursuing education at SFSU.
 - Often feels out of touch with younger students and may have anxiety about keeping up with coursework, especially in tech-related subjects.
 - Prefers personal, tailored support over generic solutions.
- **Goals:**
 - Needs personalized assistance from tutors who can empathize with their situation and offer flexible scheduling.

- Wants to feel supported and guided through subjects that may have changed or evolved since they were last in school.
- Values tutors who are patient and experienced
- Learn and excel in classes
- **Skills:**
 - Basic tech skills, capable of using websites but may struggle with newer technologies or apps.
 - Hesitant to ask for help online, preferring personal connections or one-on-one communication.
- **Pain Points:**
 - Intimidated by faster-paced learning environments needs help but not sure how.
 - Frustrated with overly technical or complex platforms; prefers a straightforward, easy-to-navigate experience.
 - Feels stressed if the platform is not accommodating to less tech savvy people and needs a simple way to search for his class and get help fast.
 - No time for accommodations

Persona 4: The Graduate student/assistant - George



- **Characteristics:**

- A Graduate student at SFSU who occasionally has time for tutoring
- Busy with research, grading, and other academic duties with little time.
- May have experience with academic tools but little time for additional work outside their core responsibilities.
- **Goals:**
 - Wants an efficient platform to gain tutoring sessions with minimal setup and effort.
 - Interested in tutoring students who are serious about improving their grades or gaining subject mastery.
 - Prefers a simple system that allows them to assist students who need help and easily contact students when needed.
 - Make money.
- **Skills:**
 - Advanced user of academic and administrative tools; proficient in managing workflows.
 - Capable of using dashboards, tracking notifications, and navigating more complex systems.
- **Pain Points:**
 - Time-constrained, so they need a system that allows them to minimize administrative tasks.
 - Finds it frustrating if they are unable to view clear, concise information about tutoring requests.
 - Prefers a well-organized, intuitive platform to avoid spending unnecessary time managing student communications and just get contact information to use when you are able.

Persona 5: The Admin - Beerman



- **Characteristics:**

- An SFSU staff member or content moderator for the tutoring website company responsible for overseeing tutor profiles and content approval.
- Juggles multiple responsibilities and spends limited time on the platform, so efficiency is critical.
- Reviews tutor profiles, pictures, and videos to ensure content is appropriate and meets the platform's guidelines.

- **Goals:**

- Needs a fast, streamlined process for approving or rejecting tutor submissions (profiles, pictures, videos) before they go live.
- Requires a clear and simple interface to quickly assess if content aligns with platform policies.
- Aims to keep the platform's content high-quality and safe for all users.

- **Skills:**

- Intermediate to advanced tech user, experienced with content moderation systems and approval workflows.
- Comfortable with web dashboards and reviewing content, but prefers minimal clicks and rapid decision-making tools.

- **Pain Points:**

- Time-constrained; finds it frustrating if the platform requires multiple steps to approve content or has a slow approval process.
- Overwhelmed by large volumes of submissions if the system doesn't provide easy sorting or filtering mechanisms.
- Needs the ability to swiftly approve or reject submissions without manual intervention for every detail, such as minor formatting or profile adjustments.

High-Level Use Cases:

Use Case 1: Looking for Tutor

Jonny is struggling in his Abstract Algebra class and needs to pass it as a requirement for his math major. The professor includes a more advanced unit on group theory than a typical Abstract Algebra course and Jonny wants to find a tutor that can help him with Abstract Algebra as well as the advanced group theory portion. He goes online to look for a tutor and finds the GatorAid site. On the site he finds he can search tutors not only by subject, but also by specific SFSU courses. He searches for his specific Abstract Algebra class and proceeds to browse the profiles of tutors that have completed the exact course he is taking. Jonny then writes a message to send to one of the tutors through the GatorAid site and is prompted to make an account before sending the message.

Use Cases 2: Viewing prospective tutees

Kevin is a junior student at SFSU. Since San Francisco is a bit much expensive, he needs a part-time job to help out with expenses and has previously applied to become a tutor on GatorAid and was accepted. He logs into his GatorAid account and navigates to his dashboard where he sees he has two new messages from prospective tutees. The messages both contain a preferred contact method for the tutees and he uses the respective method to get in touch with each of the tutees.

Use Case 3: Rating a tutor

Charles wanted to explore some basics of computer science so he is taking a data structures course which is proving to be quite difficult for him. He had previously made an account on the GatorAid account and sent a message to a tutor. He was later contacted by the tutor and successfully set up a tutoring arrangement with them (externally from the GatorAid site). After several great tutoring sessions, he logs back onto the GatorAid platform, searches for his tutor by name and subject, and upon finding them, gives them a five out of five rating.

Use Cases 4: Applying to be a tutor

George is a SFSU graduate student who could not find a job in the real world. So, he decided to come back to school and apply to be a tutor for this time being. He navigates to the GatorAid site. He browses on the platform and sees that he can apply to become a tutor. He navigates to the application and has to fill out the application with his information and which subjects he is comfortable to work with and submit it. Upon the submission, it asks him to create an account. George creates an account, the application is sent, and George receives a notification that his application is pending review.

Use case 5: Reviewing tutor profile application

Beerman is responsible for managing the overall operation of the tutoring platform. Their role involves overseeing tutor profiles, approving new tutor applications, and ensuring that tutor profiles (e.g., pictures, bios, and videos) do not contain inappropriate content. He looks at any tutor profiles that are pending review and approves or rejects them.

Data Glossary/Description:

User Types

- **UnregisteredUsers:**
 - **Description:** Visitors who are browsing the platform but have not registered.
 - **Privileges:**
 - Browse available tutors.

- View tutor information (e.g., profiles, ratings).
 - Search tutors by SFSU course name/number or subject.
- **Limitations:**
 - Cannot message tutors
- **RegisteredUsers:**
 - **Description:** Users who have registered (SFSU students, graduate students, and alumni)
 - **Privileges:**
 - All capabilities of unregistered users.
 - Able to send a message to tutors/students.
 - Access to a personal dashboard where sent messages and potential tutee messages are visible.
 - Able to apply to become a tutor.
 - **Limitations:**
 - No direct method to contact tutors outside of the platform's initial message.
 - Must have any tutor profile approved by an admin before being searchable by students.
- **Admins:**
 - **Description:** Platform staff or authorized individuals responsible for overseeing the tutor approval process and content moderation.
 - **Privileges:**
 - Review and approve/reject all tutor profiles and associated content (e.g., pictures, bios) before they go live.
 - Remove tutor profiles from the platform
 - Remove registered users from the platform
 - **Limitations:**
 - Admins do not have direct interaction with student-tutor communications, beyond reviewing and ensuring compliance.

Main Data Entities

- **RegisteredUsers:**
 - **Description:** Contains essential information for registered users
 - **Attributes:**
 - User ID
 - Name
 - Username
 - Password
 - **Usage:** Will be used to check login credentials
- **TutorProfiles**
 - **Description:** Contains specific information for tutors that any user can view
 - **Attributes:**
 - Profile ID
 - Name
 - Subject
 - Courses (SFSU Course Expertise, course name, course number, and abbreviation, e.g., CSC 415 - Operating Systems).
 - Profile picture
 - Bio
 - Video
 - Rating (out of 5 stars)
 - Number of ratings
 - Application status (approved or pending review)
 - **Usage:** Contains searchable info for tutor profiles and the info to be displayed for tutor profiles
- **Messages**
 - **Description:** Stores messages sent by registered user (tutee) to registered user with associated tutor profile (tutor).
 - **Attributes:**
 - Message ID
 - Tutee (Registered user ID of message sender)
 - Tutor (Registered user ID of message receiver)

- Timestamp
 - **Usage:** Record of messages, can be used to display to registered user's dashboards.
- **Subjects**
 - **Description:** Database of subjects
 - **Attributes:**
 - Subject Name
 - **Usage:** Will be used as a possible filter for the search and as an attribute for tutor profiles

Functional Requirements:

UnregisteredUsers

1. Users shall be able to register
2. Users shall be able to browse the tutors
3. Users shall be able to view tutor info
4. Users shall be able to search the tutors by SFSU class name/number
5. Users shall be able to search the tutors by subject and tutor name
6. Users shall be able to view "About Us/Me" pages
7. Users shall be able to filter tutors by price range

RegisteredUsers

8. RegisteredUsers shall inherit all the capabilities of unregistered users
9. RegisteredUsers shall be able to apply to become a tutor
10. RegisteredUsers shall be able to send messages to tutors
11. RegisteredUsers shall be capable of uploading videos to the site
12. The RegisteredUsers' dashboard shall display messages sent to tutors
13. The RegisteredUsers' dashboard shall display messages received from tutees
14. The RegisteredUsers' dashboard shall display any of the user's tutor profiles
15. RegisteredUsers shall be able to rate tutors

16. RegisteredUsers shall be able to update any of their tutor profiles
17. RegisteredUsers shall be able to report problems to Admins.

Admins

18. Admins shall inherit all the capabilities of registered users
19. Admins shall be required to approve or reject tutor postings before they go live
20. Admins shall be able to remove postings
21. Admins shall be able to remove users
22. Admins shall be able to reset user's ratings

Non-Functional Specifications:

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 (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 any time
7. Privacy of users shall be protected
8. The language used shall be English (no localization needed)
9. Application shall be very easy to use and intuitive
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 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

14. Pay functionality, if any (e.g. paying for goods and services) shall not be implemented nor simulated in UI.
15. Site security: basic best practices shall be applied (as covered in the 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:

FEATURE	VARSITY TUTOR	TUTOR.COM	WYZANT	GatorAid
Matching tutor	✓	✓	✓	✗
Tutor rating	✓	✓	✓	✓
SFSU course search	✗	✗	✗	✓
Browse tutor	✓	✓	✓	✓
Apply to become tutor	✓	✓	✓	✓

GatorAid will facilitate student progress through tutoring. Our focus is on SFSU students and alumni. According to the above table, our proposed product possesses distinct qualities in comparison to competitors. Competitors such as Varsity Tutor, Tutor.com, and Wyzant offer features including tutor matching, rating systems, and the capability to browse and apply for tutoring positions; however, they do not include SFSU-specific functionalities. The principal advantage of our product is its emphasis on serving the SFSU community with a specialized SFSU course search that can search for tutors based on SFSU courses. This SFSU-focused strategy not only distinguishes our platform but also increases its pertinence and attractiveness to students seeking academic assistance especially aligned with their university's curriculum. By integrating SFSU-specific resources, our product addresses a deficiency overlooked by existing big platforms, hence enhancing the probability of attracting users from the SFSU student population and garnering management interest for project funding.

High-level System Architecture and Technologies:

- Server host: Amazon EC2, T2.micro instance (up to 3.3 GHz Intel Xeon Scalable processor and 1 GiB of memory)
- Operating System: Ubuntu 24.04
- Database: mySQL 8.0.37
- Web Server: NGINX 1.26.2
- Front end framework: Handlebars 4.7.8
- Server-Side Language: JavaScript (Node.js v20.18.0)
 - Express.js 4.21.0
- Supported Browsers: Chrome 128 and 129 and Firefox 130 and 131
- Additional Technologies: Google Analytics

Usage of GenAI:

- **ChatGPT(GPT-4o)**
 - Used to write the executive summary: getting started with initial thoughts and rough drafts
 - Used in writing Personas: image generating (fed the AI certain descriptions of SFSU-themed clothes and background items for accuracy)
 - Used in Use Case scenarios: initially putting descriptive bullet points of certain scenarios we wanted to generate and then telling ChatGPT to reformat the bullet points to the required format.

Overall Usefulness: Very High

Drawbacks: Generated use-case scenarios that didn't match with what we were trying to accomplish in our application (made either overly complicated functions that would not be implemented on launch or redundant functions that would serve no purpose towards making the application user-rich, efficient, or productive.

Team and Roles:

Name	Email	Role
André Shannon	ashannon1@sfsu.edu	Team Lead
Anh Tran	ntran24@sfsu.edu	Front-End Lead
Fernando Malca	fmalcaluque@sfsu.edu	Back-End Lead
Geetarth Meduri	gmeduri@sfsu.edu	GitHub Master
Aditya Sharma	asharma15@mail.sfsu.com	Full-Stack Member

Team Lead Checklist:

- So far all team members are fully engaged and attending team sessions when required:
 - **ISSUE** - one member has had significant less contributions and communications and missed a team meeting
- Team found a time slot to meet outside of the class
 - **ISSUE** - couldn't find a time outside of class that we were all available for
- 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**
- Team reviewed class slides on requirements and use-cases before drafting Milestone 1
 - **ISSUE** - unfortunately we were not all on the same page, had significant revisions to do with Milestone 1
- Team reviewed non-functional requirements from "How to start..." document and developed Milestone 1 consistently
 - **ISSUE** - minor issue of misunderstanding of the one round of messaging

- 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
 - **ISSUE** - one team member MIA, all others read and agree/understand it
- 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**