

SW Engineering CSC648/848 Fall 2021

Project Title : TutorPal

Team Number : 03

Names of Students:

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Milestone : 1

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History Table :

Date	Revision
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1. Executive Summary

TutorPal aims to solve one of the largest roadblocks that SFSU students face - the inability to learn on demand, at their own pace, on subjects specific to SFSU. This web application is developed by students for students, meaning the developers have an understanding for what SFSU students need that other tutoring websites cannot satisfy.

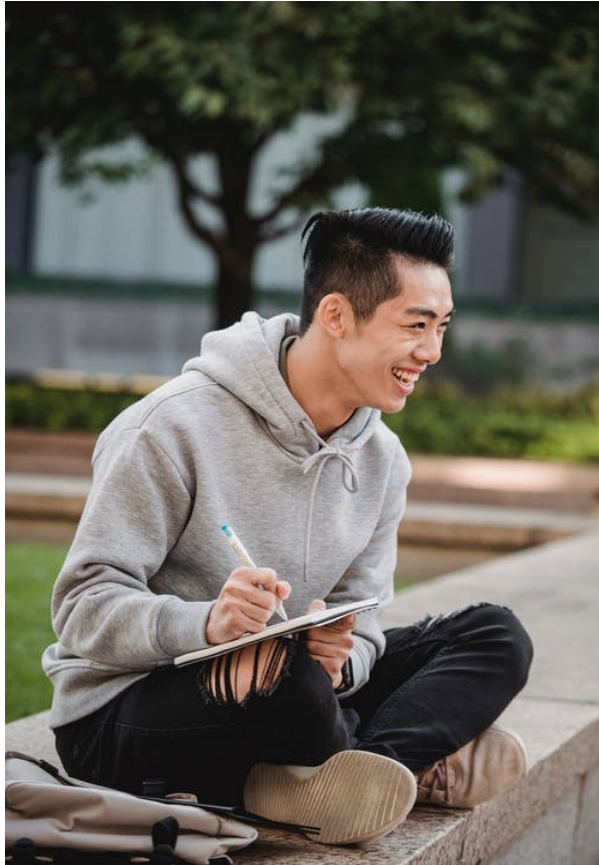
One of the largest advantages TutorPal has over competing tutoring websites is that it is tailored for SFSU students and tutors. The website is laid out so that students can filter by their specific class, discover topics that each class explores and search for tutors based on those topics. Other websites do not know the class listing and specific topics of each class in SFSU, whereas TutorPal does. TutorPal sports a user-friendly experience that allows users to browse tutors and classes before registering, so that they have a reason to register in the first place. The registration screen will not appear until after the user selects on “schedule appointment”, that way they will have already set aside a time and date for their session – which helps retainability. Communication is one of this web application’s strong suits, allowing tutors and students to send messages to each other through its interface. You are also able to upload videos and pictures of each tutoring session.

Our startup team is excited to bring you TutorPal – an immersive web application that focuses on delivering the most concise interface between tutor and those seeking a tutor. We are a group of undergraduates and graduate students who strive to see TutorPal thrive because we share an understanding for those students who also seek assistance on various subjects specific to SFSU.

2. Personas and Use Cases

1) Personas

i. User: Steven Lee



[https://www.pexels.com/photo/asian-](https://www.pexels.com/photo/asian-male-sitting-on-fence-with-notebook-5554286/)

[male-sitting-on-fence-with-notebook-5554286/](https://www.pexels.com/photo/asian-male-sitting-on-fence-with-notebook-5554286/)

- Personal info: 21 years old, college junior majoring in biology, likes to go biking or playing basketball with friends
- Pain points: does not have the focus/patience to read books and prefers to watch videos, attend lectures, or talk to his friends because it is more interactive
- Motivations: wants to find tutors for his upper-division courses because he heard that there was a lot of work and the grading was harsh
- Goals: to pass his upper division classes with high grades

ii. User: Olivia Green



<https://www.pexels.com/photo/woman-in-gray-blazer-holding-book-5915288/>

- Personal info: Age 48, Software Developer(20 years' experience), Senior Professor at SFSU
- Motivations: Giving guidance to students which would help them proceed in their decided path and play a role in shaping the person they will become.
- Pain Points: Lack of discussion between students and teachers.
- Goals: Uploading her lecture notes, recording and clearing students doubts.

iii. Admin User: Mark Andrews



(picture is free license

[here](#))

- Personal info: Age 36, Software Developer, an avid book reader and has three dogs.
- Motivations: Interested in seeing this application gain more traffic. Will work long hours to maintain the application and patch user interface to suit consumer needs.
- Goals: Clear up the many emails coming to his inbox about any issues users are having with the application - through a feedback box located at the bottom of the website.
- Frustrations: How impersonal web applications can be. Lack of communication.
- Bio: Mark likes to delegate work and make life for himself as smooth as possible. This means that for the teams he works in he aims for balanced workloads and frequent communication. He has a temper though, and doesn't like to get kept in the dark when it comes to communication.

2) Use Cases

i. Steven is looking for tutors and deciding which one to apply for

Steven heard that there was a new tutoring service for SFSU students. He is worried about whether he can handle his upper division courses and decides to hire a tutor. Steven goes to the website and looks for tutors that teach the courses he is taking. After finding the tutors, he looks at the reviews of each tutor to help decide which one he wants to hire. However, when he tries to contact the tutor to hire them, he gets a notification telling him to log in before continuing.

ii. Steven is registering, meeting with tutor, and leaving reviews

Steven decides to register so he can hire his tutor. When filling out the forms, he sees that he needs to provide some personal information to verify his identity. After he finishes registering, Steven is able to continue and discuss with the tutor about potential tutoring. Fortunately, Steven is able to reach an agreement with the tutor and

book an appointment to meet with the tutor on another day. Several months later, Steven passes his classes and wants to write good reviews as thanks to his tutors. When he tries to submit his reviews, he gets a notification to log in before he can post his review. After Steven logs in, he is able to continue and submit his finished review.

iii. Olivia Uploading Lectures and Notes

Olivia is a senior Professor working at San Francisco State University. She has 20 years of experience in the IT industry and now has joined the university to teach students Computer science related courses and tell them her experience in Industry. Due to limited seats, many students are not able to join her course and have requested her lectures to be posted online on the tutoring website created for the students of San Francisco State University. As a result she decided to upload the lecture recording, class course work and materials to all the students who want to enroll in her course. She then decided to upload it on the tutoring website designed for the students of SFSU. Since she is new she will be prompted to register as a tutor. She creates her profile and starts uploading her sessions on the website. Her request for further uploading the documents is sent to the website admin.

iv. Checking Website for the response

Olivia has uploaded many sessions and notes on the website. When she logged in to the website to see her uploading status, she observed that all her materials and sessions were approved and uploaded for the students. There is a section on the website for the students to ask her queries and clear their doubts. She saw many students had seen the recording and posted their doubts in the question and answer section. And she starts replying to those queries to solve the students' doubts. She also starts exploring various features of the website which she could use to give students better experience.

v. Admin

Mark likes quick and active communication, so he turns on notifications in his email regarding this tutoring application and its activity. He knows that once the semester starts he will get an influx of applicants, the first being tutors and the next being those seeking tutoring. Once receiving such emails, he logs on to the tutoring app and approves each user. The users are separated based on tutor / those seeking tutoring, so he gives approval based on status.

3. Data Items and Entities

i. User

- Users will be able to utilize the web application to purchase courses they need or post questions they wish to ask on the website. The three types of users include:
 - Unregistered (Students/Tutors)
 - Registered (Students/Tutors)
 - Admin Users
- Below are some basic components for each user
 - Username (unique username in string format)
 - Password (encrypted for safety)
 - Email (email address ended with “@mail.sfsu.edu” in order to be validated as an sfsu user)

ii. Priority

- Priority describes the permission level for users. There will be three levels of permissions.
 - Unregistered User - Unregistered users will be able to view/search the courses available for tutoring
 - Registered User - Registered users will have all of the privileges of an unregistered user plus the ability to contact the tutor (the link will only be available for registered users)
 - Admin User - Admin Users will have the ability to approve tutors and students, and to remove inappropriate content from the site.

iii. Courses

- Courses will refer to the topics/subjects that users will purchase on the website. Each course will have a list of tutors, along with a description of the tutor and their experience with the course.
- Some basic components of each item:
 - Subject (Subject to which topic the tutor/question belongs to)
 - Title (title of the topic/subject posted on the website)
 - Description (short introduction and related details to the topic)
 - Banner_img (picture/image to visualize the course)

iv. Category

- There will be multiple courses/tutors to select from .
- Users may browse the list of all tutors at first and then narrow down the results by using different subjects/years of experience/year. Below are some basic components for each tutor.
 - id (unique numeric value for each category)
 - title (title)
 - Subject/Major (tag of the category)
 - Year (Freshman/Sophomore/Junior/Senior)
 - Instructor (who is teaching the courses)

v. Image

- This will be used to give any users on the website the impression of the tutor they have selected.
- If the user clicks on the title image, they will be redirected to another webpage which will include other details that will feature other images displayed along with that tutor.

4. Initial list of functional requirements

- 1) Unregistered students shall be able to browse available tutors on the site by course or major.
- 2) Unregistered students shall be able to search for tutors by keywords.
- 3) Unregistered students shall be able to view tutor details, pricing and read reviews without registering.
- 4) A student shall register with his/her first and last name and student ID.
- 5) A student shall declare his/her major when registering.
- 6) A student shall be able to begin posting a review of a tutor before logging in.
- 7) A student shall be able to book an appointment with a tutor for a time period
- 8) A student shall be able to message tutors about potential tutoring.
- 9) Tutors shall apply to be a tutor after registering.
- 10) Tutors shall be a student or not.
- 11) Tutors shall be able to select what courses they tutor.
- 12) Tutors shall be able create a profile page with their qualifications.
- 13) Tutors shall post available time slots for tutoring.
- 14) Tutors shall upload personalized videos to introduce themselves to potential students.
- 15) Tutors shall be able to message students regarding tutoring sessions.
- 16) Admins shall approve tutor posts before they officially go live on the site.
- 17) Admins shall approve tutor applications before tutors are added to the website.
- 18) Admins shall approve student reviews of tutors before they go live on the website.
- 19) The system shall allow for uploading of many types of multimedia content.
- 20) The system shall display multimedia content stored within the database when loaded.

5. Initial list of non-functional requirements

- 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 e-mail 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 so as to not confuse this with a real application).

6. Competitive analysis

Features	KhanAcademy	Chegg	Tutor.com	Tutorme.com	TutorPal
Academic Focus	+	+	+	+	++
UI Browsing	+	+	++	++	++
Text Search	+	+	+	++	++
Target Audience - College	-	++	++	++	++
Free to SFSU students	-	-	-	-	+
Browsing before signup	++	-	-	-	++
Demo Lecture	+	-	+	+	+
User friendly	+	+	+	++	++

Superior : ++

The same : +

Does not exists: -

TutorPal's main focus is to give better tutoring experience to the students and tutor of SFSU. Students will be able to search courses which they want to enroll in way easier than it is on other sites. TutorPal will provide an UI which will have text searching features, user friendly, easy access to anyone who wants to enroll for courses or join tutoring. SFSU students who are facing issues coping up with the coursework, can learn at their pace and get free access to all the coursework after registering to the courses.

7. High-level system architecture and technologies used

Server Host: Amazon AWS

Operating System: Ubuntu 20.04 Server

Database: MySQL

Web Server: Apache 2.4

Server-Side Language: JavaScript

Additional Technologies:

Web Framework: Node.JS/Express

IDE: JetBrains WebStorm

Web Analytics: Google Analytics

SSL Cert: Encrypt (Cert Bot)

8. Team and roles

Snehal Patil - Team Lead, Document Editor

Cameron Robinson - Backend Lead

Rollin Kung - Backend Team Member

Daniel Elnaggar - Frontend Lead

Saptarshi Roy - Frontend Team Member

James Pratt - GitHub Master, Document Master

9. Checklist

Checklist	Status
So far all team members are engaged and attending ZOOM sessions when required.	Done
Team found a time slot to meet outside of the class.	Done
Back end, Front end leads and GitHub master chosen.	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 lead ensured that all team members read the final M1 and agree/understand it before submission.	Done
GitHub organized as discussed in class (e.g. master branch, development branch, folder for milestone documents etc.)	Done