

# **SW Engineering CSC648/848 Fall 2021**

**Project Title : TutorPal**

**Team Number : 03**

Names of Students:

**Snehal Patil([spatil2@mail.sfsu.edu](mailto:spatil2@mail.sfsu.edu)) – Team Lead**

**Cameron Robinson - Back-End Lead**

**Daniel Elnaggar - Front-End Lead**

**James Pratt - GitHub Master**

**Rollin Kung**

**Saptarshi Roy**

Milestone : 2

Date : 10/28/2021

History Table :

Date	Revision
10/28/2021	1 <sup>st</sup> Version

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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 SFSU students for SFSU 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. Data Items and Entities

### i. User

- Users will be required to have a valid SFSU email.
- 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
- Unregistered users will be able to browse through the courses but have to sign in before registering for them.
- Registered users will have full access to register for the courses and connect to the website for queries.
- Admin will have full access to the system, they will be able to approve or reject the posts based on the content.
- Below are some basic components for each user's registration record
  - Username (unique username in string format)
  - Password (encrypted for safety)
  - Email (email address ended with "@mail.sfsu.edu" in order to be validated as a sfsu user)

### ii. 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.
- Courses will be divided based on subjects, tutors, with easy access to the students.
- Some basic components of each item:
  - Subject (Subject to which topic the tutor/question belongs)
  - 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)

### iii. 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)

iv. **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.

v. **Messages**

- Users will be able to message one another
- There will be a different icon when there are unread/new messages
- Messages will be ordered chronologically with the newest first
- Messages will be in the status bar (always visible regardless of which page the user is on)
  - MessageID
  - Date/Time
  - Text

vi. **Tutoring Record**

- Tutoring Items:
  - CV (Resume)
  - Video Optional
  - Name of Tutor
  - Image of Tutor
- Users will be able to access a Tutor's past record with other students. This includes:
  - Name of Tutor
  - Reviews along with the subject taken with a said tutor
  - Background (what the tutor specializes in)

### **3. Functional requirements**

#### **Unregistered Users**

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.

#### **Registered Users**

1. A student shall register with his/her first and last name and student ID.
2. A student shall declare his/her major when registering.
3. A student shall be able to begin posting a review of a tutor before logging in.
4. A student shall be able to book an appointment with a tutor for a time period
5. A student shall be able to message tutors about potential tutoring.
6. Tutors shall apply to be a tutor after registering.
7. Tutors shall be able create a profile page with their qualifications.
8. Tutors shall be able to select what courses they tutor.
9. Tutors shall post available time slots for tutoring.
10. Tutors shall upload personalized videos to introduce themselves to potential students.
11. Tutors shall be able to message students regarding tutoring sessions.

#### **Admin**

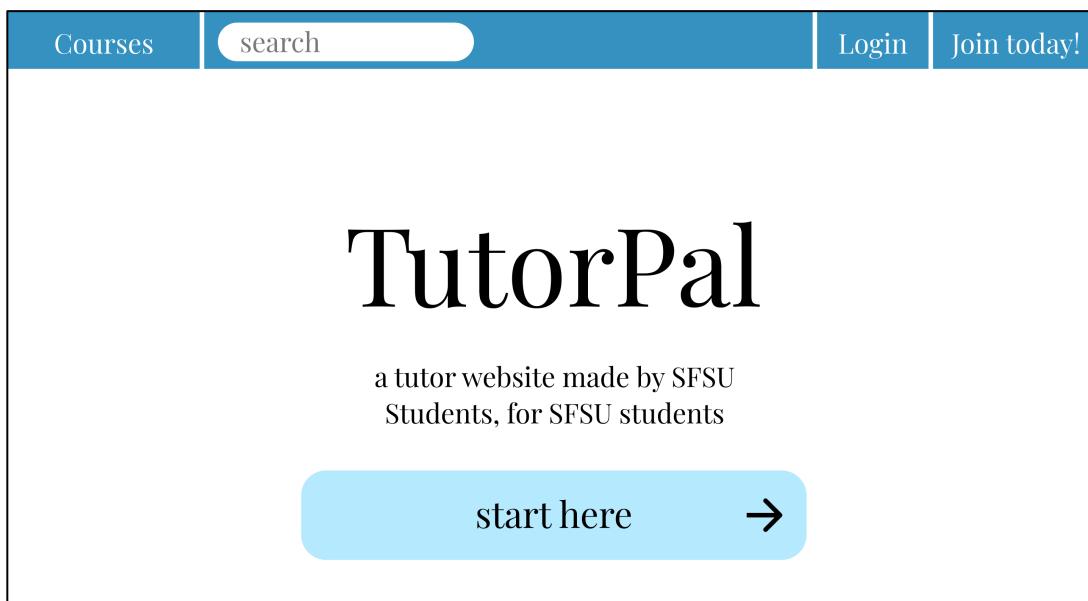
1. Admins shall approve tutor posts before they officially go live on the site.
2. Admins shall approve tutor applications before tutors are added to the website.
3. Admins shall approve student reviews of tutors before they go live on the website.
4. The system shall allow for uploading of many types of multimedia content.
5. The system shall display multimedia content stored within the database when loaded.

## 4. UI Storyboards

### 1) Use Case 1:

(1) 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. (2) Steven goes to the website and looks for tutors that teach the courses he is taking. (3) After finding the tutors, he looks at the reviews of each tutor to help decide which one he wants to hire. (4) However, when he tries to contact the tutor to hire them, he gets a notification telling him to log in before continuing. (5) So, he logs in as a student.

(1)



(2)



(3)

Courses	search	Login	Join today!
<a href="#">← CSC 660 Tutors</a>			
	<h2>Kesha Mourey</h2> <p>Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud</p>	<a href="#">Tutor me!</a>	<ul style="list-style-type: none"><li>• Lorem ipsum dolor</li><li>• sit amet consectetur</li><li>• adipiscing elit sed do</li></ul>
	<h2>Bill Baggins</h2> <p>Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud</p>	<a href="#">Tutor me!</a>	<ul style="list-style-type: none"><li>• Lorem ipsum dolor</li><li>• sit amet consectetur</li><li>• adipiscing elit sed do</li></ul>
	<h2>Joy Pierce</h2> <p>Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud</p>	<a href="#">Tutor me!</a>	<ul style="list-style-type: none"><li>• Lorem ipsum dolor</li><li>• sit amet consectetur</li><li>• adipiscing elit sed do</li></ul>
	<h2>Tamara Noe</h2>	<a href="#">Tutor me!</a>	



Courses

search

Login

Join today!

[Tutor me!](#)

\$60

# Kesha Mourey

Description

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat.

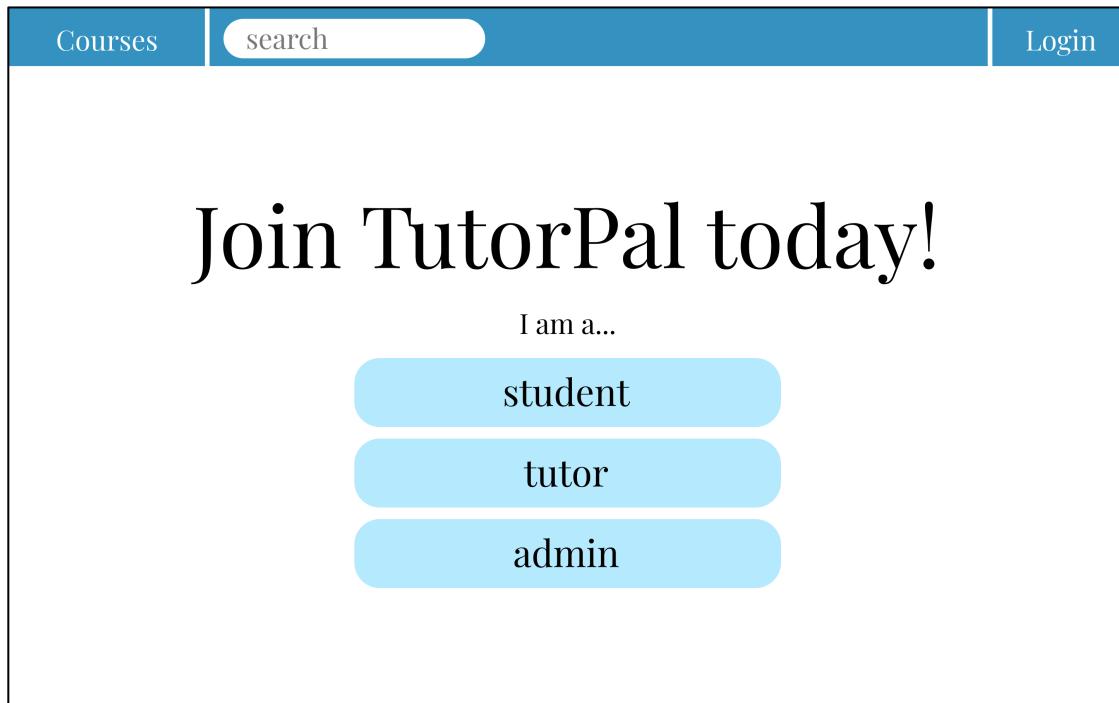
Courses

- CSC 660
- CSC 340

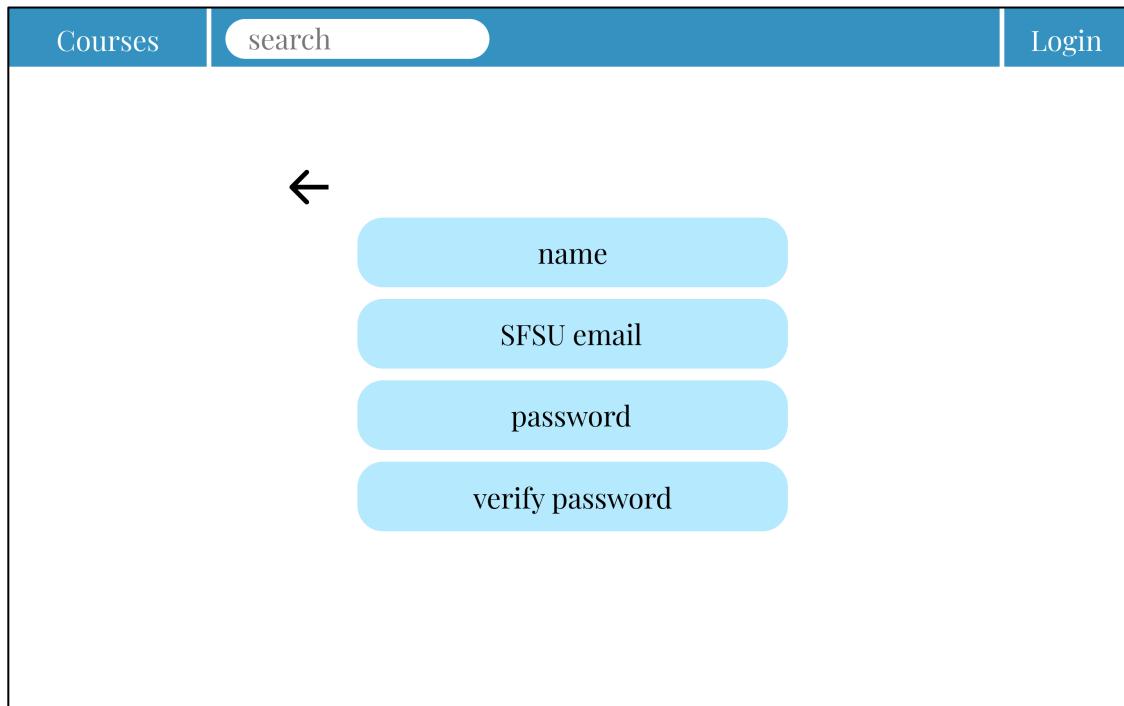
Passions

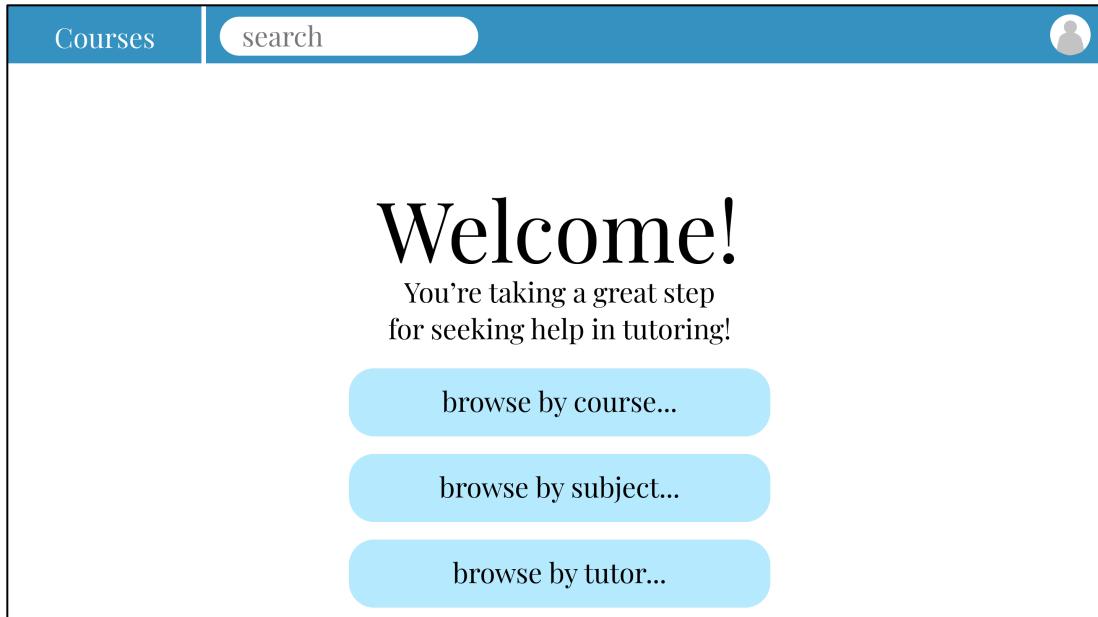
Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad!

(4)



(5)

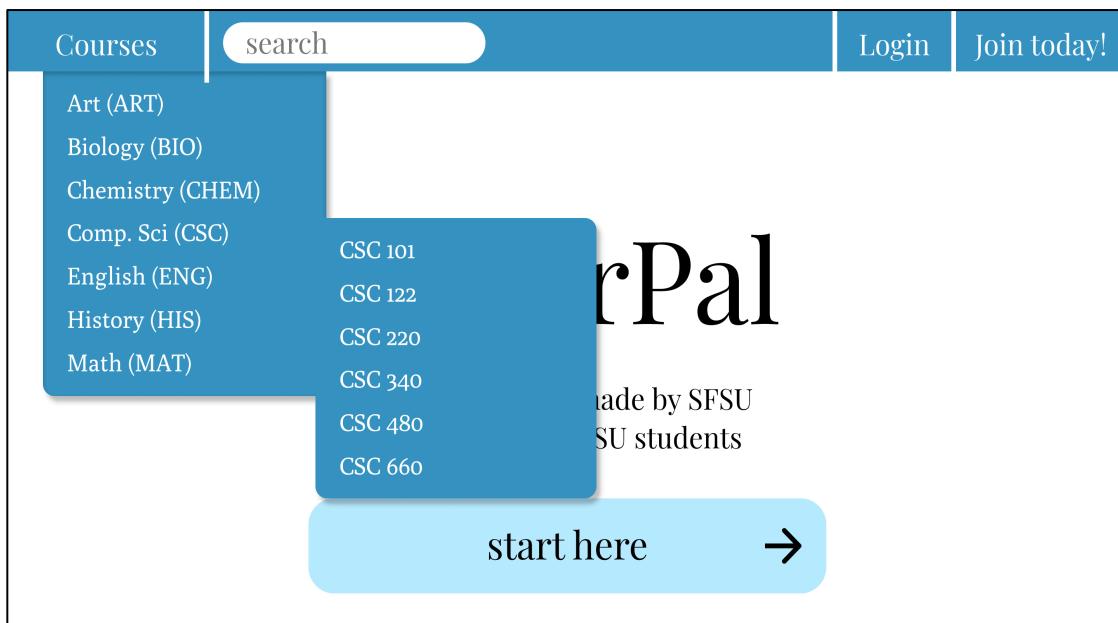




2) Use Case 2:

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. (1) Several months later, Steven passes his classes and (2) wants to write good reviews as thanks to his tutors. (3) When he tries to submit his reviews, (4) he gets a notification to log in before he can post his review. (5) After Steven logs in, he is able to continue and (6) submit his finished review.

(1)



(2)

The screenshot shows a web application interface. At the top, there is a blue header bar with the text "Courses", "search", and "Login". Below the header, a blue navigation bar contains a back arrow and the text "My Tutors". The main content area displays four tutor profiles in a grid format:

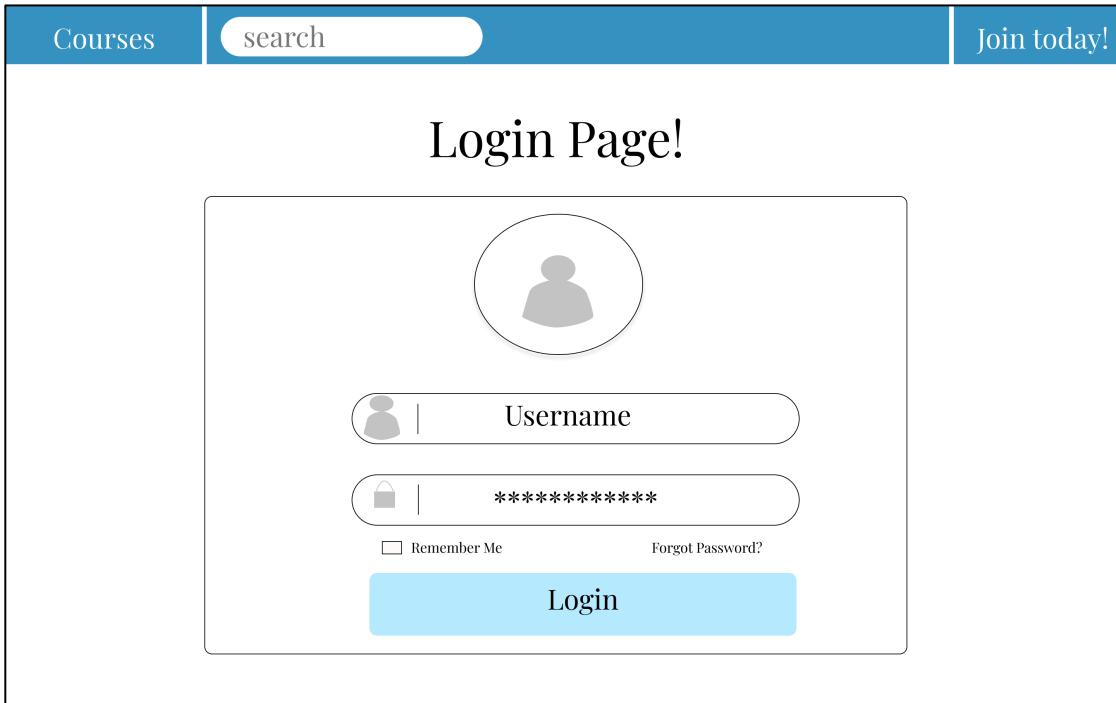
- Kesha Mourey**: Includes a placeholder profile picture, a "Leave a Review" button, and a list of three bullet points: "Lorem ipsum dolor", "sit amet consectetur", and "adipiscing elit sed do". Below the name is a short description of the user.
- Bill Baggins**: Includes a placeholder profile picture, a "Leave a Review" button, and a list of three bullet points: "Lorem ipsum dolor", "sit amet consectetur", and "adipiscing elit sed do". Below the name is a short description of the user.
- Joy Pierce**: Includes a placeholder profile picture, a "Leave a Review" button, and a list of three bullet points: "Lorem ipsum dolor", "sit amet consectetur", and "adipiscing elit sed do". Below the name is a short description of the user.
- Tamara Noe**: Includes a placeholder profile picture, a "Leave a Review" button, and a list of three bullet points: "Lorem ipsum dolor", "sit amet consectetur", and "adipiscing elit sed do". Below the name is a short description of the user.

(3)

The screenshot shows a web application interface. At the top, there is a blue header bar with the text "Courses", "search", and "Login". Below the header, a blue navigation bar contains a back arrow and the name "Kesha Mourey" in large, bold letters. To the left of the name is a large placeholder profile picture. The main content area is divided into sections:

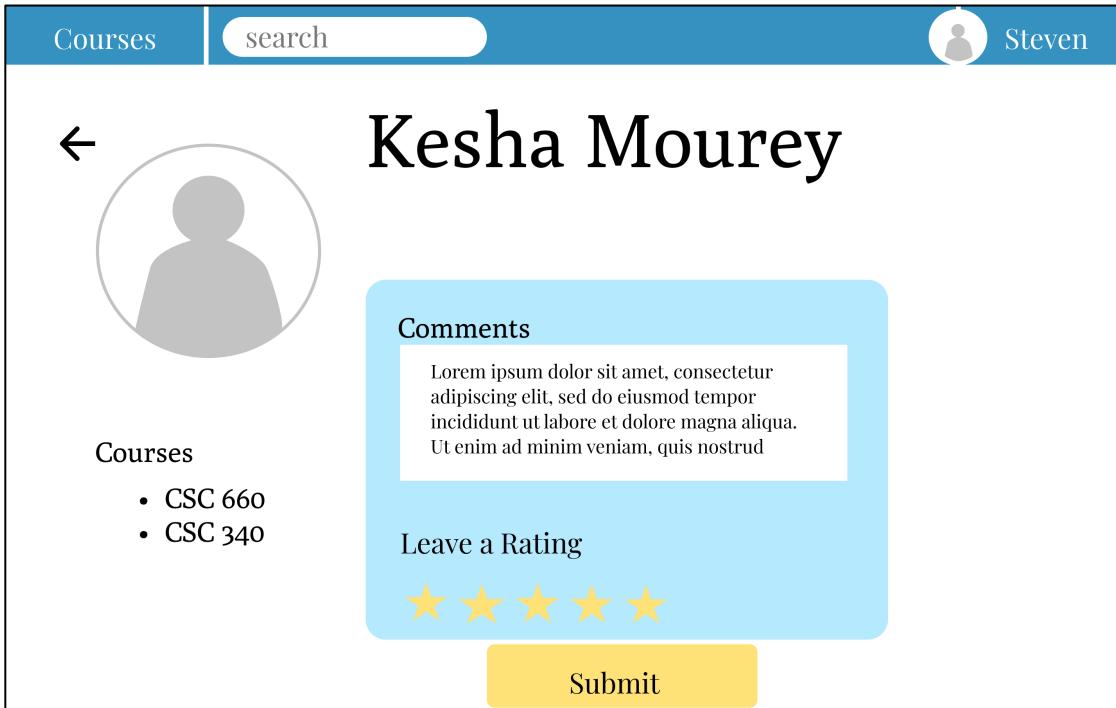
- Courses**: A list of courses taught by the tutor, including "CSC 660" and "CSC 340".
- Comments**: A large, empty text input field for leaving comments.
- Leave a Rating**: A section containing a five-star rating scale and a yellow "Submit" button.

(4)



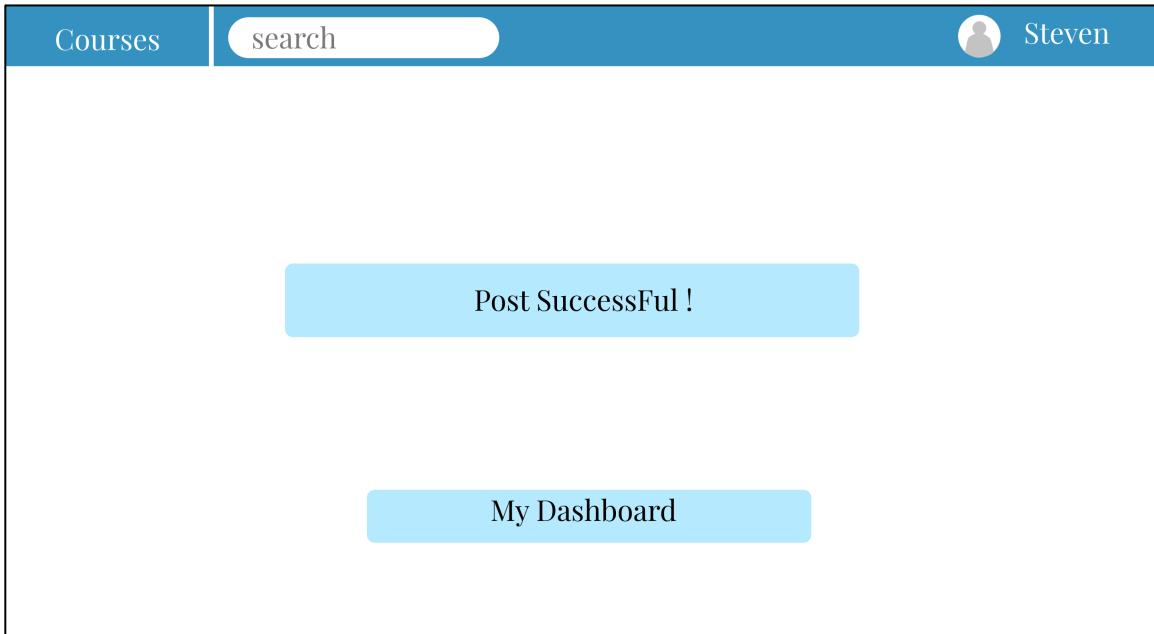
A wireframe of a login page. At the top, there is a blue header bar with the word "Courses" on the left, a search bar in the center, and a "Join today!" button on the right. Below the header is a large title "Login Page!". Underneath the title is a circular user icon. Below the icon are two input fields: one for "Username" with a user icon and one for "Password" with a lock icon. Under each input field is a small placeholder text. At the bottom of the form are two buttons: "Remember Me" (with a checkbox) and "Forgot Password?", followed by a large blue "Login" button.

(5)



A wireframe of a user profile page. At the top, there is a blue header bar with the word "Courses" on the left, a search bar in the center, and a user icon with the name "Steven" on the right. The main content area features a large profile picture of "Kesha Mourey" with a back arrow icon to its left. To the left of the profile picture is a section titled "Courses" with a bulleted list: "CSC 660" and "CSC 340". To the right of the profile picture is a light blue callout box containing a "Comments" section with placeholder text and a "Leave a Rating" section with a five-star rating icon and a yellow "Submit" button.

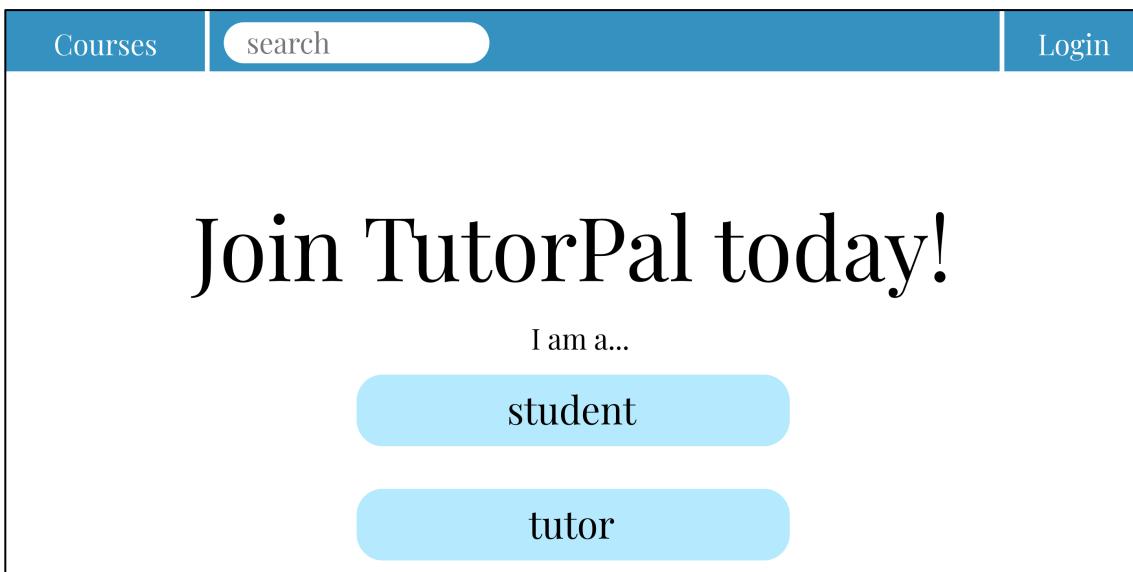
(6)



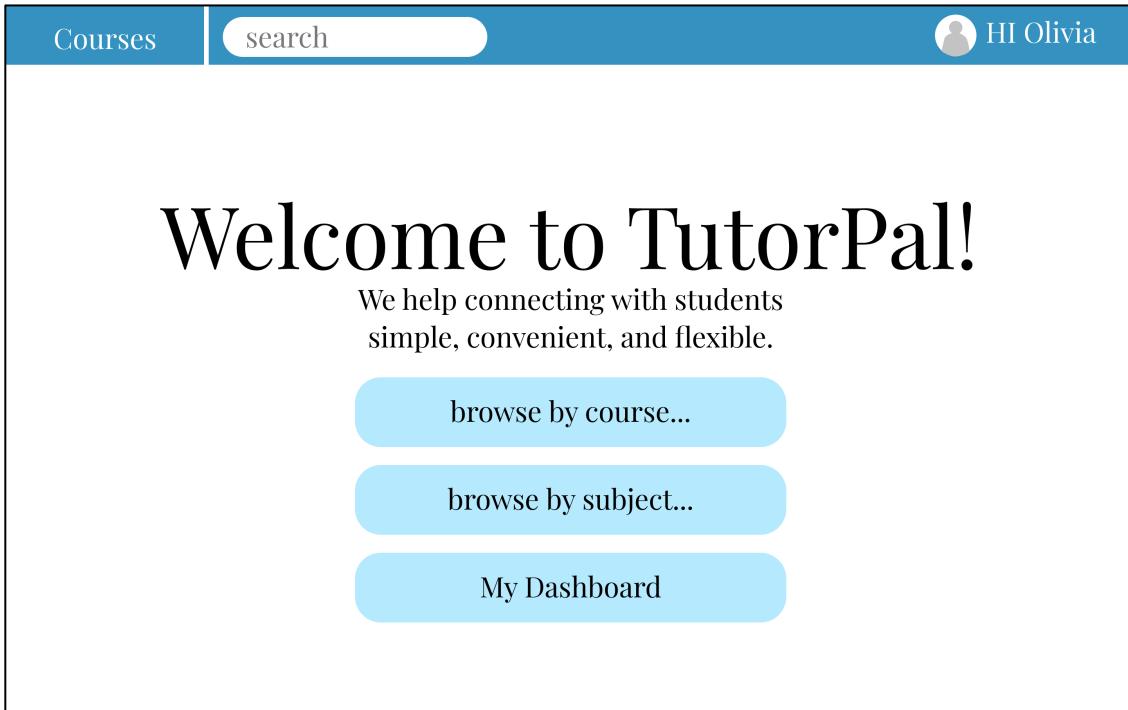
3) Use Case 3:

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. (1)Since she is new she will be prompted to register as a tutor.(2) She creates her profile and (3)searches for upload option and (4)starts uploading her sessions on the website. (5)Her request for further uploading the documents is sent to the website admin.

(1)

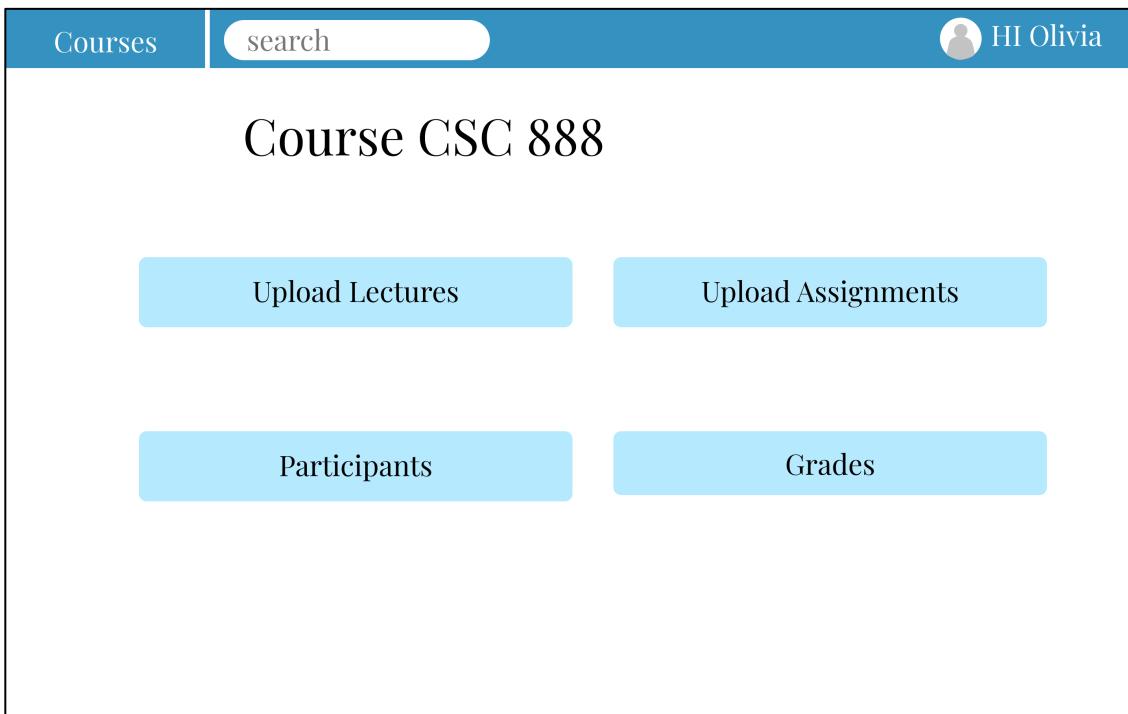


(2)



The screenshot shows the homepage of TutorPal. At the top, there is a blue header bar with the word "Courses" on the left, a search bar in the center containing the word "search", and a user profile icon on the right labeled "HI Olivia". Below the header, the main content area features a large, bold heading "Welcome to TutorPal!". Underneath it, a subtext reads "We help connecting with students simple, convenient, and flexible." Three blue, rounded rectangular buttons are centered below the subtext: "browse by course...", "browse by subject...", and "My Dashboard".

(3)



The screenshot shows a course page for "Course CSC 888". The top navigation bar is identical to the one in screenshot (2), with "Courses", a search bar, and the user profile "HI Olivia". The main title "Course CSC 888" is displayed prominently. Below the title, there are four blue, rounded rectangular buttons arranged in a 2x2 grid: "Upload Lectures" (top-left), "Upload Assignments" (top-right), "Participants" (bottom-left), and "Grades" (bottom-right).

(4)

The screenshot shows a user interface for uploading files. At the top, there is a blue header bar with the word "Courses" on the left, a search bar in the center, and a user profile icon "HI Olivia" on the right. Below the header, the main content area has a title "Start Uploading Lectures". On the left, there is a dashed rectangular area with an upward arrow icon and the text "Drag file to upload". On the right, there is a file upload progress bar showing "Uploading" followed by a plus sign icon, the file name "Lecture\_1.mp3", a progress bar at 90% done, and a close "X" button. Below these elements is a blue button labeled "Choose File".

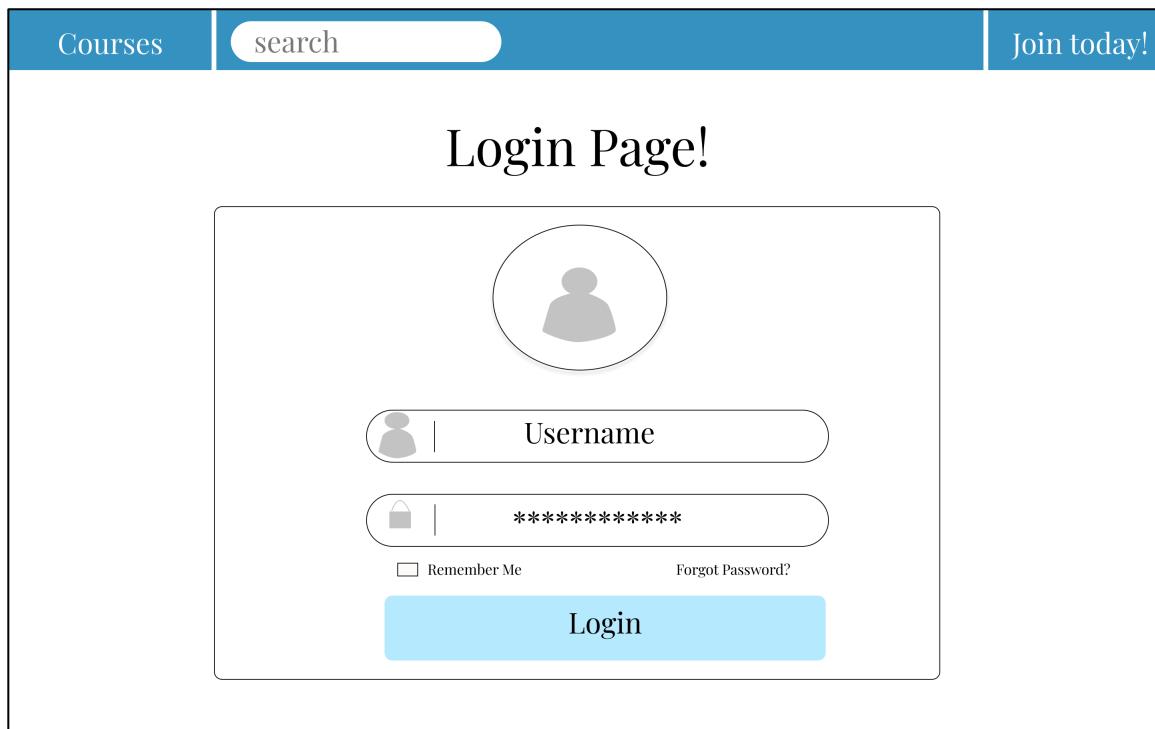
(5)

The screenshot shows a confirmation page. At the top, there is a blue header bar with the word "Courses" on the left, a search bar in the center, and a user profile icon "HI Olivia" on the right. Below the header, the main content area has a title "Confirmation Page...". In the center, there is a blue button with the text "Post SuccessFul !". At the bottom, there is another blue button labeled "My Dashboard".

4) Use Case4:

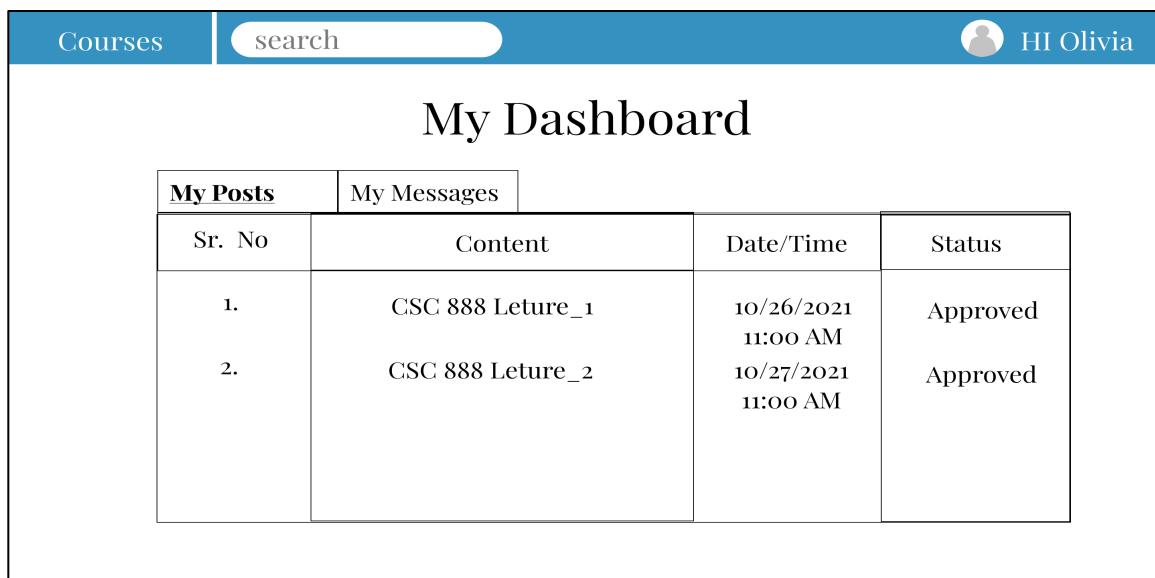
Olivia has uploaded many sessions and notes on the website. (1)When she logged in to the website to see her uploading status, (2) she observed that all her materials and sessions were approved and uploaded for the students. (3)There is a section on the website for the students to ask her queries and 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. (4)She also starts exploring various features of the website which she could use to give students better experience.

(1)



The image shows a login page interface. At the top, there is a blue header bar with the text "Courses" on the left, a search bar in the center, and "Join today!" on the right. Below the header, the text "Login Page!" is centered. A large rectangular form is centered on the page. It contains a circular profile icon at the top. Below it is a "Username" field with a user icon and a "Forgot Password?" link. Below the "Username" field is a "Password" field with a lock icon and masked text. At the bottom of the form is a "Remember Me" checkbox and a "Login" button.

(2)



The image shows a dashboard interface. At the top, there is a blue header bar with the text "Courses" on the left, a search bar in the center, and a user profile icon with the name "HI Olivia" on the right. Below the header, the text "My Dashboard" is centered. A table titled "My Posts" is displayed. The table has two tabs at the top: "My Posts" and "My Messages". The "My Posts" tab is selected. The table has four columns: "Sr. No", "Content", "Date/Time", and "Status". There are two rows of data in the table.

My Posts	My Messages		
Sr. No	Content	Date/Time	Status
1.	CSC 888 Leture_1	10/26/2021 11:00 AM	Approved
2.	CSC 888 Leture_2	10/27/2021 11:00 AM	Approved

(3)

Courses | search

HI Olivia

## My Dashboard

My Posts		My Messages	
Student Name	Message	Date/Time	Status
Steven Pierce	Can you please send send the notes	10/27/2021 10:00 AM	<a href="#">Reply</a>
Stefen Noe	I have below doubt...	10/27/2021 11:00 AM	<a href="#">Reply</a>

(4)

Courses | search

HI Olivia

## Course CSC 888 Reviews

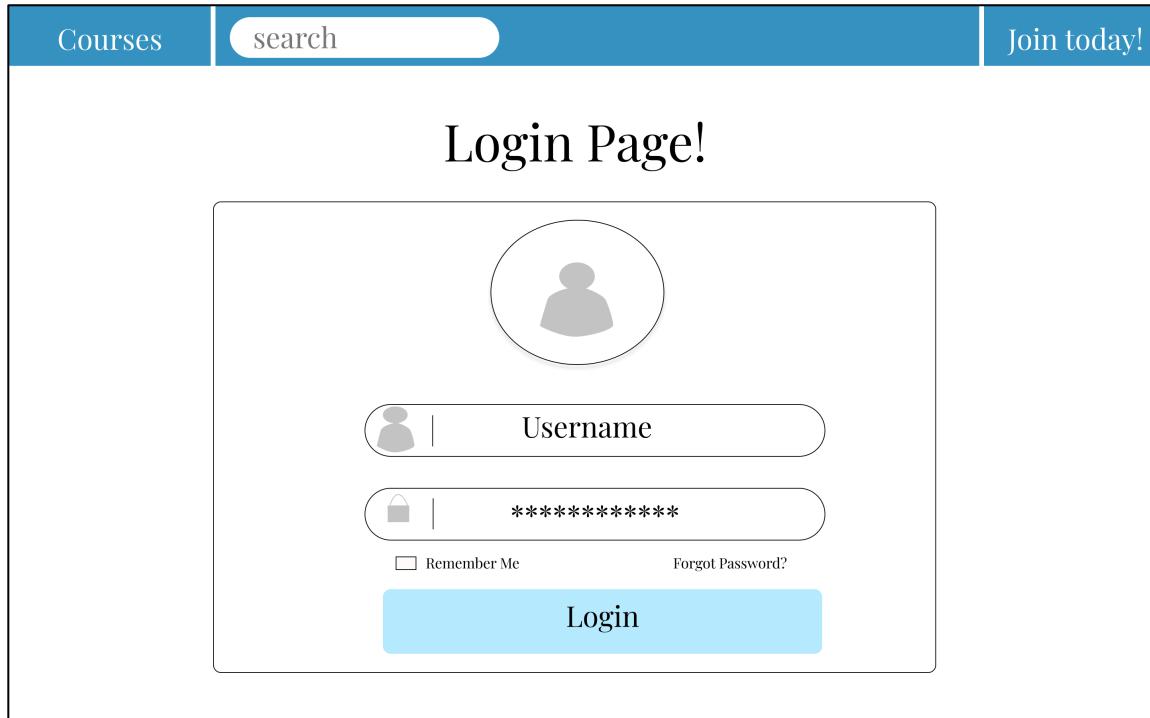
← My Reviews

	Daisy Mourey	★★	★★
Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud			
	Steven Pierce	★★★	★
• Lorem ipsum dolor • sit amet consectetur • adipiscing elit sed do			

##### 5) Use Case 5:

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, (1)he logs on to the tutoring app and approves each user. (2)The users are separated based on tutor / those seeking tutoring, (3)so he gives approval based on status.

(1)



The image shows a wireframe of a login page. At the top, there is a blue header bar with the text "Courses" on the left, a search bar in the center, and "Join today!" on the right. Below the header, the text "Login Page!" is centered. In the middle of the page is a large rectangular form. It features a circular profile picture placeholder at the top. Below it are two input fields: one for "Username" with a user icon and one for "Password" with a lock icon. Underneath these fields are two small links: "Remember Me" and "Forgot Password?". At the bottom of the form is a large blue "Login" button.

(2)



The image shows a wireframe of a dashboard page. At the top, there is a blue header bar with the text "Courses" on the left, a search bar in the center, and a user profile icon with the name "HI Mark" on the right. Below the header, the text "My Dashboard" is centered. In the middle of the page is a table with four columns: "User Type", "Content", "Date/Time", and "Status". There are two rows of data in the table. The first row is for a "Student" who has sent a message saying "Hello,.....". The second row is for a "Tutor" who has sent a message saying "Have you tried....". The "Date/Time" column shows the messages were sent on 10/26/2021 at 11:00 PM and 10/27/2021 at 11:00 AM respectively. The "Status" column shows both messages are "Pending".

User Type	Content	Date/Time	Status
Student	Hello,.....	10/26/2021 11:00 PM	Pending
Tutor	Have you tried....	10/27/2021 11:00 AM	Pending

(3)

The screenshot shows a mobile application interface. At the top, there is a blue header bar with the word "Courses" on the left, a search bar in the center containing the word "search", and a user profile icon with the name "HI Mark" on the right. Below the header, the word "Message" is centered in a large, bold, black font. A light blue rectangular box contains the following text:  
From: Steven Pierce  
User: Student  
  
-Automated Message -  
  
Student wishes to schedule tutoring appointment with Dave on:  
  
**10/29/2021 at 12:30 PM**

At the bottom of the blue box, there are two light blue buttons with white text: "Approve" on the left and "Reject" on the right.

(4)

The screenshot shows a mobile application interface. At the top, there is a blue header bar with the word "Courses" on the left, a search bar in the center containing the word "search", and a user profile icon with the name "HI Mark" on the right. Below the header, the word "Message" is centered in a large, bold, black font. A light blue rectangular box contains the following text:  
**Tutoring appointment with  
Dave has been approved for  
Steven Pierce on 10/29/2021  
at 12:30 PM**

At the bottom of the blue box, there is a light blue button with white text: "Okay".

## 5. High-level system architecture and Database Organization

### A. DB Organization:

#### i. Users

- user\_id (Primary Key)
- username
- email
- password\_hashed
- password\_salt
- first\_name
- last\_name
- major (Foreign Key)

#### ii. Tutors

- tutor\_id (Primary Key)
- user\_id (Foreign Key)
- image
- rating
- tutor\_cv

#### iii. Admin

- admin\_id (Primary Key)
- admin\_user\_id (Foreign Key)

#### iv. Reviews

- review\_id (Primary Key)
- review\_of\_tutor\_id (Foreign Key)
- review\_by\_user\_id (Foreign Key)
- review\_text
- review\_rating

#### v. Courses

- course\_id (Primary Key)
- major (Foreign Key)
- course\_number
- title
- description
- image

vi. Major

- major\_id (Primary Key)
- major\_short\_name
- major\_long\_name

vii. Message\_Thread

- message\_thread\_id (Primary Key)
- from\_user\_id (Foreign Key)
- to\_user\_id (Foreign Key)
- last\_message (Foreign Key)

viii. Messages

- message\_id (Primary Key)
- date\_sent
- message
- prev\_message (Foreign Key)
- to\_user (Foreign Key)
- is\_unread

ix. tutors\_tutoring\_courses

- tutor\_id (Foreign Key)
- course\_id (Foreign Key)

## B. Media Storage

All non-standard data will be stored in the database using the BLOB format.

## C. Search/Filter architecture and Implementation

The user will use search terms that will use the %LIKE implementation to search the necessary columns. Filters will be defined in the database and rendered to the web page. When the user selects a filter the database will only return the results in the proper category using the WHERE modifier.

## D. High Level API

### i. validateUser

This function will use the supplied username and password and attempt to authenticate the user in the database. Only returning a valid login attempt when the user supplies the proper password for the username.

### ii. registerUser

registerUser will be used when a user creates a new account and will properly handle storing the new user into the database and logging the user into the site after returning.

## 6. Key Risks

- **Skills risks**

One potential skill risk is that our group is not familiar or comfortable with the tools needed for our project such as Bootstrap, MySQL, and so on. In order to minimize this risk, we have split the group into front-end and back-end teams with the team lead and GitHub master helping whichever team needs help at the time. This makes it easier for people to learn because they can focus on the tools relevant to their work rather than needing to understand how to create the whole project.

- **Schedule risks**

One potential schedule risk is our group members being too busy and unable to complete their work. We have taken steps to solve this problem by splitting up the work and people who finish early can help those who are still working on their parts.

- **Technical risks**

One technical risk is figuring out what to do for the vertical prototype. Most of the members in our group have limited experience with databases which meant having to find tutorials to learn from. In order to create the vertical prototype, our backend lead looked up guides on how to set it up.

- **Teamwork risks**

One potential teamwork risk that could occur during this time is lack of communication. In order to prevent communication issues, we have set time periods when everyone can meet on Wednesday and Friday. Because we have fixed time periods to meet, people can plan their schedules around our meeting times. If they cannot, they can let the group know ahead of time and ask for a summary of our meeting.

Another teamwork risk is people becoming stressed and frustrated due to their workload or other real-life issues. To solve this problem, we have reached an understanding where people can feel comfortable asking for help if they are struggling. People can also let the group know that they need to take a break for a couple of days so they take their break after finishing their portion of work.

- **Legal/content risks**

One potential legal risk is using images that are copyrighted without permission. This may result in us being forced to pay the owner of the images. In order to solve this issue, we used images from a website called Pexels which contains millions of free stock photos.

## 7. Project Management

To complete Milestone 2, our team had scheduled to meet every Friday and Wednesday with updates on the tasks assigned to everyone. We discuss the milestone progress and plan on how to finish our milestone and take the required steps. We have created a Discord server where connect with each other to discuss our queries and share the content created by the team. Also, we are using trello.com which has made it easier for us to track our task list and work progress. The team is available whenever anyone has issues helping us to maintain consistent progress towards the completion of Milestone 2.