



SUPER HEROES IN TRAINING

My Academic Pyramid

Project Proposal

CECS 491A Sec 05

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Abstract

Students at our campus have a difficult time getting help on assignments outside of the classroom. CSULB offers tutoring on campus but some students are unable to access these programs. Another way students understand assignments better is by forming study groups with their classmates. Unfortunately, not everyone in class has the same schedule. Websites and other web applications are useful to use as a reference for lower-division courses, but upper division courses are tough to understand, and the material may differ based on the professor. With these issues in mind, the project we propose, known as My Academic Pyramid, is to build a social media web application where students can communicate with their peers and ask questions on a discussion board. My Academic Pyramid will also provide an online tutoring service, allowing students to converse with tutors and seek assistance online without the need to travel to campus. The goal for our project is to help students build relationships among each other and include features which can assist students with their assignments.

Problem/Need

Many students who need additional help outside of the classroom have limited resources at our campus. CSULB offers on-campus tutoring, but some students are unable to attend due to time conflicts. As a result, there is a lack of participation among students who need additional help, causing them to fall further behind in their classes.

On-campus tutoring programs are beneficial to the students who use them, but some students are at a disadvantage because they are unable to participate due to time conflicts. Some students either have class all day with no breaks, have a job immediately after class, or live too

far away to come to campus on their free time. These conflicts also prevent them from visiting professors during office hours. Students who are unable to attend tutoring or professors' office hours do not have alternative methods for catching up in class. Seeking for help via email is not always the best option either. Communication via email is often very slow and this makes it harder for students to understand certain concepts.

Another way that students seek help in class is by collaborating with other students. Through BeachBoard, you have access to the names and emails of students in your class, but there is no way to get in touch with other students taking the same class in another section, students who have taken the class before, or even students in the same major. People also use other social media web applications, such as Facebook, to find other classmates, but issues, such as not owning a social media profile or having a generic name, tend to show up, making it harder to search and find the same people from the class. Collaborating with more people brings more diversity of knowledge and ideas, which can result in understanding material better and solving problems more efficiently. Instead of limiting their resources, students should be given the opportunity to maximize their network.

Some students resort to using online tutoring or online forums that are not connected with CSULB. There is a lot of useful information on the internet, but it is difficult to find help specific to one's coursework. These web applications provide anonymity, making it hard to know the identity of the people helping students, which questions the reliability of their knowledge.

Solution

In order to solve the problems students have, we offer an online social media web application where students will be able to seek out assistance wherever they are. This will only be available to students who are currently enrolled at our school, controlling the amount of people that access, ask and answer questions, and talk to on our web application. Students will also be able to converse with each other, collaborate on assignments and make plans to meet on campus. This gives students the chance to work with others who have similar questions on assignments.

Students at our school use the web in order to access information in order to complete assignments. However, information can be misunderstood or differ based on the professor teaching the class, confusing students who may not know what their professor wants. Our web application will fix these issues, as the questions students ask will be based on the courses and the professors that teach in this school. A database will also be built in order for new students to search and study previous discussions. These discussions will be organized by professors, course number, and the subject it falls under, organizing large amounts of data in order for new students to access with ease.

There are other web applications that already have features that we plan to implement, some which are already popular and commonly used by students. The reason why the project we are building is different from our competitors is because we are making this a school based social media, which only allows students from CSULB to create an account. This will limit the amount of unrelated information found online and provide precise information to students. Though there

is the risk of students giving others incorrect information, there will be a strict policy for those who do not contribute correctly, banning their access and not letting them rejoin without permission.

Target Audience

The target audience for our system are current CSULB students. Students struggling in a subject can seek assistance within the web application. Knowledgeable students on certain subjects can assist others through tutoring. We plan to use it only for CSULB, but we may expand to other schools based on popularity and success the program achieves.

Core Components

1. Registration

- Students are required to use their CSULB student email in order to create an account for the web application. Therefore, non-students who don't have CSULB school email account cannot create an account on the My Academic Pyramid web application.
- Value: Students gain an access to the features and contents of the web application. We make sure that only CSULB students have access to the web application. We can keep track of user information and users can keep track of the features they have accessed.
- Preventing abuse: Unique student email restricts students from making more than one account.
 - System makes sure an email used to make an account ends with @student.csulb.edu. In order to prevent script injections, we will add our own

@student.csulb.edu on user email address confirmations to verify the destination.

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2. User Management

- Creating an Admin account for an administrator: it is required to manage the web application. It provides an admin the following features:
 1. Ban a user. Admin must type a reason for banning the user to prevent misuse.
 2. Review an appeal ban and unban a user if necessary.
 3. Delete a post that contains inappropriate information or goes against our posting rules.
- Value: Help manage user activity.
- Preventing abuse: All reasonings for bans will be saved in order to review if necessary. Any consequences by admin account will be saved in the logs. Also, it will be posted on the main page of the web application with the adequate explanation.

3. Login/Logout

- Students must log in to the web application with their CSULB school email and password that they have created.
- Students logout of web application after their session.
- Forgotten password: Students can have system send them a link to their emails to help them reset their password.
- Value: Allow users to access their account on different systems. It protect users' account by allowing them to log out when they are done.

- Preventing abuse: Force users to create complex passwords.(At least 8 characters, including at least 1 uppercase, 1 special character). Only allow 5 attempts per login.

4. User Access Control

- Students gain access to the features and contents for students with their accounts.
 1. Discussion: Users can ask and answer questions, vote on answers, and report on violations.
 2. User Profile: Users are able to view information on their own profile and on other users' profiles. Users are only allowed to edit information from their own profile.
 3. Tutoring: Users can view tutors and schedule sessions.
 4. Users can temporarily lose ability to post and answer questions when banned.
- Tutors
 - Can schedule their own tutoring sessions.
 - Can see which students are scheduled for their sessions.
- Admins gain access to the features and contents for admins with their accounts.
 1. UI that contains admin features (features in the User Management).
- Value: Users have access to different views and features based on their identity and intended use of the web application.
- Preventing abuse: N/A

5. Usage Analysis Dashboard

We plan to track these metrics and and organize the data into visual graphs.

- Number of total users at any time
- Number of active users at any time
- Number of questions per day, week, month

- Number of users who are tutors at any time
- Number of new users per day, week, month
- Number of answers per day, week and month
- Value: Analyze user actions within our web application to determine how we can improve user engagement.
- Preventing abuse: N/A

6. Logging / Archiving

- Logs will be made for every action of the user
- Logs will be made for errors and successful requests
- Logs will be saved in a text file.

When are logs created:

1. Registration: Whenever a student creates an account, or makes an incorrect attempt.
2. User management: Whenever a user is banned or unbanned. Whenever a post is deleted.
3. Discussion: Whenever a user asks a question and answers a question.
4. Logging in/Logging out: Whenever a user logs in and out.

- Value: It will help to track the users' flow of actions and troubleshoot the cause of any errors that might occur.
- Preventing abuse: N/A

7. Error Handling

When an error occurs, we will keep the application functional so that users can continue using the application. When an error in the system occurs, the user will be shown a message with a simple and understandable explanation. When the user makes an error, they will be shown a simple message of how to overcome it.

1. Registration: Do not create an account if user enters an invalid CSULB student email or invalid password.
2. Discussion: When a user leaves a discussion topic or body blank , the page will not accept and give out a warning .
3. Navigation: When searching for students, teachers, or discussion topics that do not exist, a message will inform the student to change their search input.
4. Logging/Logging out: When a user logs in without inputting a username or password, the login page won't accept it nor send the login attempt to server. Usernames or password combinations that aren't found in database will be met with invalid login attempt message.
 - a. When a user uses up all their login attempts, they must reset their password.
5. User Management : Administrators must choose a reason from a list to ban someone or a warning will be given.
 - Value: Can deal with errors without needing to take down the application for a large amount of time. Can explain to a user why a feature does not work.
 - Preventing abuse: N/A

8. Data Store Access

- Users and Administrators will be given access to different kinds of data.
 - Users would only be able to access information such as the forums and user profiles.
 - Administrators could access any information such as logs and personal information from users.
- Files and personal information will be encrypted or password protected which will then be stored in multiple databases in order to easily remove, change, or add information. The questions from the forums will be stored into 1 database, making it easier to access.
- Value: Storing data in multiple databases will make it easier to access information for students. It also wastes less time ensuring that the search is correct inside a database as information will only access one. Because most information in the forums will be public, having 1 database is easier to maintain compared to multiple databases.
- Preventing abuse: A secondary authentication system can be used when logging in with other computers, ensuring other users or students do not access information of other users. In addition, collecting logs will also ensure whether an user is accessing files from a different user, banning him in the process depending on how long he stays.

9. Security

- Files and personal information will be encrypted or password protected.
- Security vulnerability such as Cross-site request forgery (CSRF). We will apply the proper mechanism to prevent common network attacks such as Cross-site request forgery

(CSRF), SQL injection, and DDOS. The use of plugins such as No-Script makes POST based CSRF vulnerabilities difficult to exploit.

- Value: It protects the user information and the web application from malicious attacks.
- Preventing abuse: N/A

10. Network Communication

The web application uses the Internet. The users and server talk back and forth with each other.

- Value: Users can communicate from anywhere as long as they have access to the Internet.
- Preventing abuse: Security (Core Component)

11. Documentation

- Business Requirements Document(BRD)
- Technical Specification Document(TSD)
- Source Code and comments
- Value: Organization, planning, managing, sharing and explaining ideas, analyzing data
- Preventing abuse: N/A

Application Features

1. Discussion Forum

- Section of topics to help students find the information they are looking for faster.
- Asking a question: Users can post a question in the forum for other users to answer.
The question can only be edited until an answer has been posted.

- Answering a question: Users can reply solutions to other users' questions.
- Posts cannot be deleted once posted. Only questions can be edited.
- Search topics: Users will be able to type what they are searching for into a search bar. Existing topics will appear if their search matches an existing topic.
- Point system: Users can gain points by answering questions and spend points to ask questions. Replying correct solutions to questions will result in gaining more points. Users also have the option to mark other user's questions and answers as "helpful" and "unhelpful", which will also affect the other user's point count.
- Value: Allows students to get help with questions and answer questions to show their knowledge and gain EXP. The point system will encourage students to log in every day.
- Preventing abuse: We created a point system to limit the amount of questions a user can post so they do not spam multiple questions in a short period of time.

2. Organize navigation by subject → course → professor

- Users can filter through the discussion forum, students, and tutors based on subject, course or professor.
- Users can search for other students, tutors, and discussion topics within each view.
- When navigating through a specific course, students will be able to find other students who are taking the same course. They can connect with each other, expanding their network as they assist each other with assignments and questions based on their class. They would also be able to find tutors who specialize in that course.

- When navigating through a specific professor, students will be able to see topics specific to that class. This will assist students in finding previous topics already answered and topics related to the professor that taught them.
- Value: Make it easier for users to navigate our web application. This will help students find topics and tutors more specific to their needs.
- Preventing abuse: N/A

3. Tutoring

- This feature allows student to get help from a tutor when needed. We decided to include this feature to provide students who live far from school to have an alternative way of getting help. Also, the tutoring center in the school sometimes gets overcrowded so a virtual tutoring center can help handle a considerable amount of demand for student tutors.
- Here are some main points for tutoring implementation :
 - Courses: Displays courses that the tutor is teaching and may display under timetable format. Hence, students could know and join the classes that their favorite tutors are carrying. Four different type of courses: Face to face, online, group, individual sessions will be provided to the users.
 - In order to validate courses, tutors must upload their unofficial transcript.
 - Calendar: displays tutor's schedule. Students are able to choose an open session. When too many students want a certain session, tutors are required to schedule one group session a week if not they get kicked out. Tutors will mark if a student attended the session or not.

- Review: We would like to build a feedback system. Following that, students may leave feedback to the tutor that they have experience with. Other students may read about it and decide whether they should take the tutors' course.
- Value: Students are able to get help from the tutor through the individual or group session.
- Preventing abuse: Students will not be able to schedule tutoring sessions for the rest of the month if they have two no-shows for tutoring sessions. Students are limited to book one session at a time. They can book a new session after finishing their current session.

4. Ranking System

- EXP: A numerical representation of how accurately a user answers questions.
- Users have the option to mark other user's questions and answers as "helpful" and "unhelpful", and these points will be calculated into a user's EXP.
- Value: Encourages users to build their reputation and help other students.
- Preventing abuse: Together with the point system, the system limits the amount of questions they can ask by requiring points to ask a question. There's a limit on the amount of points they can gain per day for answering questions. Users can also report spam. When a user gains five reports, they lose the privilege to ask or answer questions for 1 day. After three privilege revocations, they get banned.

5. Text Messenger

- Communication between the users.
- Supports chat in text message.

- Value: allows the users to introduce themselves and communicate.
- Preventing abuse: A user can block another user to prevent unwanted messaging, spamming, and advertisements.

6. Creating a User Profile

- Personal Information: Students can optionally put their private information into their account such as their phone number and interests/ hobbies. Additionally, students may upload their schedule to find their class section.
- Uploading a profile picture: Students can upload a content friendly picture for their user profile.
- Social Media: Connect to their social media accounts such as Facebook
- Adding a friend: Users will have the option to friend another user using the application.
- Display history of questions and answers user has made. Also the number of “helpful” answers, “unhelpful” answers and ranking experience is displayed.
- Value: Providing more information about yourself helps to connect with other users.
- Preventing abuse: User is able to deny a friend request and block the other user from making anymore request until the receiving user unblocks them. Users can also report other users who input inappropriate information into their profile.

7. Notification System

- Users will be notified by email when another user answers their questions or sends them a chat message.

- Value: It will notify the users. Therefore, users don't need to check their posts frequently while waiting for someone to answer their questions.
- Preventing abuse: N/A

Point/Ranking System

Action	Point	EXP
Creating an Account	+50	
Asking a question.	-10	
Answering a question.	+2 (10 point daily cap)	
Answering the correct answer.	+10	+5
Getting a "helpful" on your answer (other than correct answer).	+5	+1
Log-in	+20 per day	

Timeline

Description	Sprint
Design Logging/Archive Error Handling	All sprints
Documentation	Sprint 1-2
Registration User Management Login/Logout User Access Control	Sprint 3

Usage Analysis Dashboard Data Store Access Security Network Communication	Sprint 4
Discussion Forum Organize navigation by subject → course → professor ... Tutoring	Sprint 5
Ranking System Text Messenger	Sprint 6
Creating User Profile Notification System	Sprint 7

Competition

	Slack	Stack Overflow	Google Hangouts	Facebook	BeachBoard	My Academic Pyramid
Individual group and messaging	Yes	Yes	Yes	Yes	No	Yes
Is a social network ?	No	No	No	Yes	No	Yes
Has a private chat system?	Yes	No	Yes	Yes	No	Yes
Is there list of people I can call to get help for school work ?	No	No	No	No, unless you search and find other students yourself.	Yes, but it's limited to just people from your class.	Yes, there is a list of students also taking the same courses.
Is it School Oriented?	No	No	No	No	Yes	Yes

Is there an Online Tutoring Service?	No	No	No	No	No	Yes
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Contact

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