Team 1 - Product Backlog

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Problem Statement :

Currently there is no focused platform to address specific academic concerns in the university setting [Academic concerns include but are not limited to : grade estimation, schedule feedback, course review, course recommendation]. Other sources (such as Reddit/r/Purdue and numerous discord groups) are not always appropriate, because they do not strictly serve the purpose of answering academic queries. Through our product we intend to assist students in finding solutions to the above mentioned problems via a unified platform.

Background Information :

Target Audience

Our target audience would include prospective and current college students as well as recent graduates. It is a software that will serve as a platform for students to help each other with detailed information regarding courses, professors and their overall schedules.

Similar Platforms

There are several existing platforms like Reddit, Piazza, Slack, GroupMe, and Discord but none of them provide an integrated solution to all of the academic concerns which students face. Reddit is a "social news aggregation, web content rating, and discussion website"*, not focused on any particular topic or issue, while Piazza works as a tool for students to get answers to queries which they might have, about their ongoing classes. Lastly, other group chat platforms only allow you to chat with a specific group of people who you invite. Thus our purpose is to integrate these varied features as well as provide some new attributes which will assist students as they address their academic issues.

Limitations

- **Reddit** is a platform that allows the community members to hold discussions and post memes on various subreddits. One limitation of this is that memes would be distracting for those who want information regarding academics and vice versa. Our solution is focused on academics so that such disruption will not happen.
- **Piazza** is a place to post course specific questions and is only visible to students enrolled in that class. Furthermore, not all professors use this platform, limiting the number of students who can benefit from it. And some professors who use it, delete it as soon as the semester ends which leads to the loss of all the previous semesters' questions and discussions. Our solution aims to be accessible to everyone and for all courses, all the time.
- **RateMyProfessor** is similar to our product but it is focused only on the professors rather than the individual courses. It also does not provide the users with additional features. We aim to provide helpful information for individual courses and introduce more features such as schedule discussion and grade estimation.

Functional Requirements:

No.	Backlog Item
1	As a user, I want to be able to create an account
2	As a registered user, I want to be able to login to my account
3	As a registered user, I want to be able to change my email
4	As a registered user, I want to be able to change my password
5	As a registered user, I want to be able to recover my password
6	As a registered user, I want to be able to logout of my account
7	As a registered user, I want to be able to delete my account
8	As a user I want to be able to remove my like, upvote, downvote on a post.
9	As a user, I want to be able to report inappropriate content
10	As a registered user, I want to be able to rate the course based on difficulty and professor and view the cumulative rating for a course.
11	As a user I should be able to view basic course information about the courses on their respective course page.
12	As a user I want to be able to view the curve, grade graph, documents and ratings of the course on the course page.
13	As an unregistered/registered user, I want to be able to view a graphical representation of the estimated curve
14	As an unregistered/registered user, I want to be able to view the plan of studies on the calendar interactively / semester schedules
15	As a registered user, I want to be able to follow topics
16	As a registered user, I want to be able to view posts on the feed based on the topics I follow
17	As a user, I want to be able to select between the various options of the post when creating a new post
18	As a registered user, I want to be able to post images
19	As a registered user, I want to be able to post text
20	As a registered user, I want to be able to post schedule in a calendar asking for feedback
21	As a registered user, I want to be able to comment on posts

22	As a registered user, I want to be able to like the posts, I want to be able to upvote/downvote the posts, I also want to be able to like/upvote/downvote comments.
23	As a registered user, I want to be able to share the posts as embeddable links
24	As an unregistered/registered user, I want to be able to search for tags, and have the posts with that tag show up on a separate page.
25	As a registered user, I want to be able to input my scores and past semester curves for a course
26	If time allows, as a registered user, I want to be able to view top posts (trending posts) on my account.
27	As a registered user, I want to be able to select a tags for the post using a tag box
28	As an unregistered/registered user, I want to be able to filter the main feed page based on the tags (CS 252).
29	As a registered user, I want to be able to edit a post
30	As a registered user, I want to be able to edit/delete a comment
31	As a registered user, I want to be able to upload documents relating to a course on its course page.
32	As a user, I want to be able to view a responsive web app with a user friendly interface.
33	As a user, I want to be able to download documents from the course page.
34	As a registered user, I want to be able to post Links and see the content of that url's metadata.
35	As an unregistered/registered user, I want to be able to search based on title, and have the posts with related titles show up on a separate page.
36	As a user I should be able to view the post separately when on another page

Non-Functional Requirements:

Architecture and Performance
We plan to develop the application primarily for desktop web browsers but if time allows, modify the website to be compatible with mobile web browsers so that we can deploy it in mobile applications. To be more specific, the frontend will be developed using a CSS framework (Bootstrap) along with HTML, React, and will pull data from the backend by sending requests to the Node.js server. The backend will be a RESTful API using Node.js with various other modules such as express, request, and mongoose. Alongside with Node.js, we plan to use MongoDB to manage user credentials and website contents. In addition, as we will be using MongoDB locally, we do not have to worry about restrictions on the number of API calls. Also, Heroku can handle over 500 simultaneous requests, and upon optimization, we can have up to 1000 requests, which should be enough for the project. Performance wise, the response time from the server to the user will be less than 500 ms, the server will be online and operating 24 hours everyday.

Security
For our project: University Discourse, we plan to get as little personal information from the users as possible, as those pieces of information are not required by us for providing the majority of our services. The only information we need is a unique username to display on posts and comments, an email address for password recovery, and a password for authentication of the user. Although there are only three pieces of information we take from the user, they are all crucial credentials that are related to the user. Therefore, every piece of information that is being delivered from the front end to the backend should be encrypted from both sides and the user credentials that are in the database should be encrypted too. In addition, we will be using JWT for authorization and information exchange.

Usability
The layout and design of the UI should be simple without bloat, and intuitive so that users can utilize the exact features that they want from the website with ease. Since both registered users and unregistered users can access the three major features (searching for courses, getting a grade estimation, and view discussions about the curriculum) equally, we plan to make the UI as similar to both groups of users. This will ensure the users will not be overwhelmed by the difference after registering. After registration the difference will be in the feed users will view, as they will see content on topics they follow before the content which is recommended to them based on their previous activity.

Hosting/Scalability/Development

As mentioned above, we plan to deploy it on Heroku and use MongoDB as our database. Since the frontend and the backend is clearly separated, both can be deployed and updated separately as we progress. The free version of Heroku does not allow horizontal scaling (automatic scaling), therefore, we are limited to only one instance. However, as mentioned above, we can optimize Heroku to take twice the number of simultaneous requests thereby scaling it from 500 to 1000.

Citation

* ("Reddit", n.d.)
en.wikipedia.org › wiki › RedditReddit - Wikipedia