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COS 333 Project – Design Document

Project name:
Mooody (stylized as above)

Project status website:
https://mooody-princeton.github.io/

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Section 1: Overview

Mental health issues on college campuses have been on the rise for the past decade or so, yet flaws in current solutions, as well as persisting societal problems such as stigmatization, have made it difficult to keep up with this increase. After examining some factors that might help remedy this situation, we've decided to work on Mooody, a mental health-focused social web app incorporating three important such factors: accessibility, anonymity, and relatability.

When you're feeling down, you need a place to help make yourself feel better. Anonymous venting or comfort-seeking on the Internet has obvious merits as an easily accessible emotional outlet that allows you to gain popularity with those who agree with you, and support from those who sympathize and relate with your struggles. The core of our project thus provides an online platform for anonymous posting and commenting, with posts sectioned into four tabs: (1) the laughing emoji for humor and generally uplifting messages, (2) the crying emoji for comfort-seeking and expressing your lows, (3) the angry emoji for venting, and (4) an etc. tab for all other posts like miscellaneous questions or the expression of other emotions.

Seeing that you are not alone in your hardships is in itself a reassuring feeling. That's why, in addition to being an anonymous posting platform where you can share your woes while reading about those of others, Mooody also acts as a social mood tracker, where you can input information to track your own mood over time and see the general mood of people around you (a "social mood"). True to its primary goal of providing a supportive community to college campuses, our

app will also let users anonymously reach out to other users who have indicated negative feelings on their mood tracker that day, allowing for random acts of kindness and support that could be just the extra amount of love someone needed.

Section 2: Requirements and Target Audiences

Mooody seeks to expand the range of solutions available to students dealing with mental health issues and/or enormous amounts of stress, hopefully making their lives just a tiny bit easier. It is currently intended for Princeton students, although we hope to expand its use to other campuses as well in the future.

But why do we even need Mooody? How exactly does it differ from existing solutions? In the following discussion, we should keep in mind the three core ideas of our app: accessibility, anonymity, and relatability.

Students in need of psychological support can just go to CPS, can't they?

Yes, but this isn't sufficient to solve the whole problem. Many students have to wait days, if not weeks, to get a chance to see a counselor. This is bad accessibility. Oftentimes, people need an immediate source of support to deal with their daily frustrations. We are obviously not suggesting that Mooody can replace the utility of professional counseling, but simply that having access to an immediate outlet can be beneficial in day-to-day coping, potentially improving outcomes in the long-term.

Additionally, many students feel reluctant in signing up for a CPS session. The unfortunate presence of a stigma around mental health issues makes many people deny their need of professional psychological support. It's much easier for people to reach out when they know they're completely anonymous. Here again, Mooody doesn't hope to be any kind of replacement for professional solutions, but rather a complementary solution that accounts for existing flaws.

Accessibility and anonymity are great, but that's what crisis hotlines are for, no?

Certainly, but hotlines face their own challenges. People often feel more comfortable sharing their struggles with others in similar situations who can more easily empathize with their woes. Hotline counselors are usually neither professionally trained nor students, making it harder for students to connect with them. In this sense, hotlines provide bad relatability. Mooody provides a supportive community within an already-existing student community, making it easier for people to feel that they will be understood.

We are aware of the great news that, starting just this semester, a Princeton University hotline, by students and for students, will be put in place. However, although relatability is achieved, the issue of anonymity resurfaces here: Princeton is a relatively small community, and students might fear that their voice will be recognized on the other end of the line. Furthermore, this hotline will only be operated during nighttime, reducing its accessibility.

Wait, what about Yik Yak and similar social apps?

Yik Yak is a mobile app allowing for anonymous posting and commenting within a user's geographic area. Although hotter than a wildfire last year, the Princeton Yik Yak community has since died following a series of rather controversial changes to the app, like the removal of total anonymity. During its high point, however, Yik Yak was used by many as an effective way of venting and seeking support, something that students are craving now that it's gone. Many students have redirected their anonymous rants to Real Talk Princeton, a Tumblr blog where a dozen anonymous student-contributors answer anonymous questions. Despite its merits, the latter is an ill-fitting platform for the kind of psychological support these students are in need of, and something akin to the old Yik Yak would clearly be very beneficial.

But the worth of Mooody doesn't just come from the death of Yik Yak. Mooody is designed to be mental health-focused in a way that Yik Yak wasn't. Separating posts into different emotion-related categories allows users to use Mooody in the specific way that they want. For instance, those who view Mooody as a platform for mental health will likely spend most of their time in the the crying emoji tab, where they are purposefully seeking comfort, trying to see that they're not alone, and/or hoping to provide support to their peers. They don't have to see humorous or celebratory posts when they're not in the right mood. We believe this could create a stronger sense of a supportive community for those who need it, something Yik Yak wasn't designed to provide. The existence of other categories such as the laughing emoji tab will attract a more general audience without harming our core intent. Finally, Mooody's important mood tracking and supportive messaging features are not implemented in apps like Yik Yak.

Section 3: Functionality

Our web app consists of a home page where users will see, on the left side, the anonymous posting area with four tabs on top allowing for selection of post category, and on the right side, visual information on how other people are feeling as well as the user's own information, such as personal mood tracking features. Each user's mood is reset daily, and each user will be asked to indicate his or her mood upon daily access. The user can then change his or her mood throughout the day.

Users are able to create a new post by clicking on a button in the corner of the posting area, and can expand a post by clicking on it to see its comments and/or write a new one. We will use AJAX to avoid constant page reloads, allowing for a smooth user experience. Each post and comment can be upvoted or downvoted by any user. Any post or comment reaching a sufficiently negative vote count will be hidden, only visible if a user chooses to expand it, and will result in negative points for the user who wrote it (this can be undone if the post or comment is later upvoted back beyond the censoring threshold). Users reaching a sufficiently negative amount of points will be banned, which can be similarly undone.

A button called "I want to help someone feel better" in the corner of the user information side of the screen will allow a user to send private messages to a randomly selected user who has indicated negative feelings on his or her personal mood tracker for that day. Given the complete anonymity

of our platform, private messages can't be sent in any other way. A user can access his or her private messages by clicking on a button on the top of the screen.

If someone without an account accesses the web app, he or she will be allowed to read all posts and comments as well as the general mood of people around them (the "social mood"), but will not be able to write anything, vote on anything, or use any other feature. The user information side of the screen will instead display a welcome screen for login or signup.

Below, we will outline several typical scenarios for using Mooody. Note that these use cases are not exhaustive.

Scenario 1: McDonald the Average Student

McDonald is a freshman at Princeton University who just learned of Mooody. Having heard of its features, McDonald promptly signs up for an account by providing either his phone number or email address and then verifying his account. In the process, his laziness causes him to input a password so weak it should be illegal, causing a pop-up error message on the screen forcing him to choose a stronger password.

A typical millennial, McDonald is a big fan of memes. He spends most of his time in the laughing emoji section, cracking up at jokes and sharing his dankest memes in the posting area, raking up upvotes and developing a strong sense of attachment to the Mooody community. A fervent anti-Trump supporter, McDonald also makes use of the angry emoji section. After the announcement of yet another controversial immigration plan, McDonald takes his rage to the appropriate section, where he finds other users to rant with and discuss "Day of Action" movements that can be used to protest and resist the new administration. They deal with the inevitable troll by downvoting him or her out of oblivion.

A laid-back and generally happy student, McDonald never made any use of the mood tracking feature and the crying emoji section… until he was hit by the horror of Princeton midterms. Recovering from an unreasonably difficult math exam, he takes to the crying emoji section. He writes a post expressing his worries and receives encouragement and advice for finals preparation. He reads about other peers' academic struggles during this hellish week. He even receives a random private message telling him to not give up. McDonald is taken aback by how supportive a community he's found in Mooody, and from then on has used the app to its full potential.

Scenario 2: Sally the Struggling Student

Sally is a sophomore at Princeton University who, despite stellar grades and a healthy social circle, is struggling with depression and is on the verge of academic burn out. Raised in a household where anything less than stellar mental health was depicted as a lack of willpower and a weakness in character, Sally is reluctant in reaching out to either friends or CPS counselors for help. Despite understanding that this stigma is wrong and unfounded, she can't shake off the feelings that prevent her from doing what's best for her. She can't ruin her perfect image!

Sally hears of Mooody and immediately starts making use of it. By writing posts and reading others' struggles in the crying emoji section, she finds a supportive community that provides her with a much needed outlet. One night, however, after the death of a relative, Sally cracks and tearfully takes to the crying emoji section in Mooody to write, using words like "giving up" and "can't do this anymore". Mooody's keyword detection feature displays an automated pop-up message with encouraging words about reaching out for professional help, and other users urge her to do the same. Sally confesses her reluctance to do so, but, partially thanks to the support from others on Mooody, she finally decides it's time to face her problems.

Scenario 3: Wendy the Good Samaritan

Wendy is a student determined to make a positive difference in the world. Acutely sensitive to issues of mental health, she made an account on Mooody for the principal purpose of helping out her peers in need. Every day, Wendy takes pride in making use of the "I want to help someone feel better" button on the right of her screen. Upon clicking the button, a pop-up box appears, allowing her to send a private message to a randomly selected student who has indicated negative feelings for that day. The recipients of her kindness usually reply with a simple thank you, which Wendy can see when the inbox button on the top of her screen shows the presence of a new incoming message. Sometimes, a conversation is kicked off. Wendy sometimes clicks on her inbox button, which takes her to another page displaying all her messages, to browse through all her correspondences, taking pride in the number of people she's helped, even if just a little bit.

Section 4: Design

Our platform will be a responsive web application that can be accessed from both a computer and a mobile device. The three tiers of our project will be encompassed by the MEAN stack technology, comprising of MongoDB, Express, Angular, and Node:

1. **Database tier:** We will be using MongoDB with the Node driver, using Mongoose to model our application objects as schema. We will store our "users", "messages", "comments", and "posts" as schema. Social mood data, which includes the counts of users' feelings, will also be stored as a schema in the Mongo database.

2. **Business logic tier:** We will be using Node to build our server-side with JavaScript. In particular, we will be using the Express framework, opening routes for the client tier to interact with. Users will be able to view posts, log in and contribute to the social mood counter, upvote and downvote posts, comment on posts, and upvote and downvote comments. These actions map directly to REST routes such as GET posts, PUT upvotes for a post, GET comments associated with a post, etc. We plan on handling user authentication with Passport.js.

3. **Client tier:** Our client-side code will be written using Angular. We plan on using Twitter Bootstrap and CSS adjustments for responsive layouts. We plan on displaying the results of the social mood tracking as a graph, rendered using the D3.js library.

While the development of our web application will run on a local Node server and Mongo database, we will eventually host our application on Heroku.

Section 5: Timeline

The good thing about our project is that it can very easily be broken down into pieces that we can then work on successively, such that we can have a functional, testable product at every stage of the timeline. What features end up being in the final product will depend on the time we have. The order of importance of features can be seen in the timeline.

- **Sun. March 19: Design Document due**
- Mon. March 27:
  - Project status website online
  - Basic server template coded, server running locally
  - Very simple user system implemented (no banning/points system yet, no phone/email verification system yet)
- Mon. April 3:
  - Basic functionality on server, running locally: ability to write posts, upvote/downvote posts, expand posts, comment on posts, upvote/downvote comments (on each of the different tabs)
  - Social mood and personal mood tracking features implemented (just the basics for now, will add more if time allows)
  - Front-end will be minimalistic, more important to get server-side stuff working first
- Mon. April 10:
  - Complete user system
  - Polish front-end
  - Make sure all code so far is tested on real users so that we have a functional prototype
- **Fri. April 14: Project Prototype**
- Mon. April 17:
  - Implement private messaging system for supportive messaging
- Mon. April 24:
  - Host on Heroku server in preparation for alpha test
  - Continue testing with real users
- **Fri. April 28: Alpha Test**
- Mon. May 1:
  - Refine interface and functionality based on feedback from alpha tests and external users
  - Extra time to deal with overhead (documentation) and unexpected turns of events
  - If more time: additional features (but that would require even more testing, so doubtful at this point)
- **Thu. May 4 - Fri. May 5: Beta Test**
- **Mon. May 8 - Wed. May 10: Demo Days**
- **Sun. May 14: Final Project due**

Section 7: Risks and Outcomes

There are several risks that we are aware of as we move forward with our project. The first concerns the technology we will need to learn. As a group, we are experienced with Java and C and have some experience with Python. While we are considerably less knowledgeable in JavaScript and the MEAN stack, which might hinder our progress if we run into major bugs, we have been diligently learning the relevant technology with online tutorials. We also anticipate some possible difficulty installing the software needed for the MEAN stack, particularly MongoDB. We have also heard that Angular has a tough learning curve for first-timers, so we have been exploring React as an alternative for the front-end. React works with MongoDB, Express and Node just as well, so going from MEAN to MERN shouldn't be too big a hurdle, while giving us a way out of Angular should that provide unfeasible. We have designed our project so that the worst-case scenario would just involve dropping some features that we would've wanted for our app, so we will have enough time and flexibility to make sure we get a functional product at the end. We also expect that there will be enough resources out there to help us through whatever hurdle we run into, as the JavaScript technologies are crammed full of libraries, documentation and Stack Overflow help.

We also anticipate some risk from the user's side, particularly in how the application is received. There will be difficulty in getting a lot of students to shift from the social apps they're currently using to Mooody, and it will be hard to tell how useful our app will be without a large user base. Users might also complain that there is no mobile (iOS/Android) version of the app. There is also some concern about users trolling on our application, or using it as a substitute for much needed professional help for mental health issues, which would be detrimental. Although we have thought of solutions to these issues (namely, the downvoting and banning system, and the keyword-detection for automated pop-up messages system for certain kinds of posts), we are unsure of whether they will be sufficient. A large user base for testing and feedback will be required to move forward from here.

Finally, issues with complete anonymity will certainly come up. What kind of user information should we store? Should any user information at all be made public? Should users have the option of making such information public (by making non-anonymous posts with their usernames, for instance)? Would providing a personal email address make users feel less anonymous even if no other user can see it? Should two users private messaging each other be allowed to see each other's usernames, and if not, how will we implement it? We are currently leaning towards forcing as much anonymity as we can, but we are prepared to sacrifice a small part of it if implementing it proves too difficult at some point.