Mobile System for Stress Management of College Students

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Goal

Help students manage stress without interfering with their day-to-day lives, using a **mobile social chat app** and a **heart wrist sensor**.

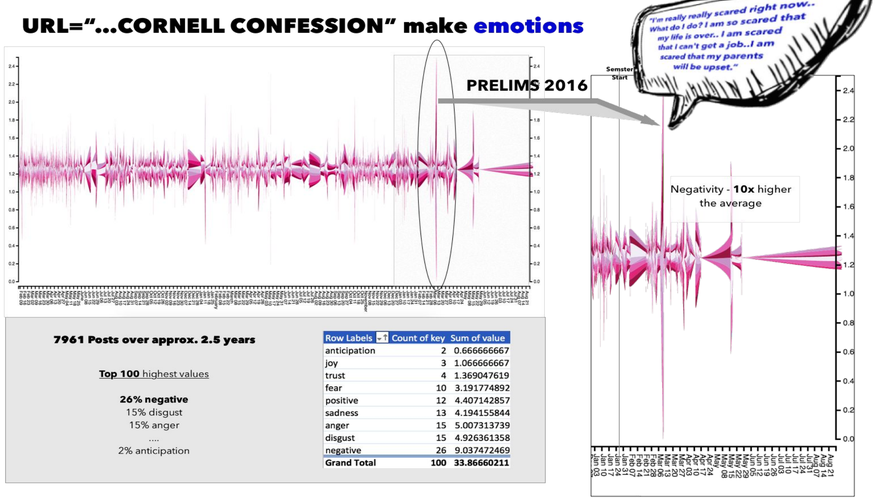
"Happy, relaxed Cornell students"

Approach

We developed a social chat app using React Native and Node.js that:

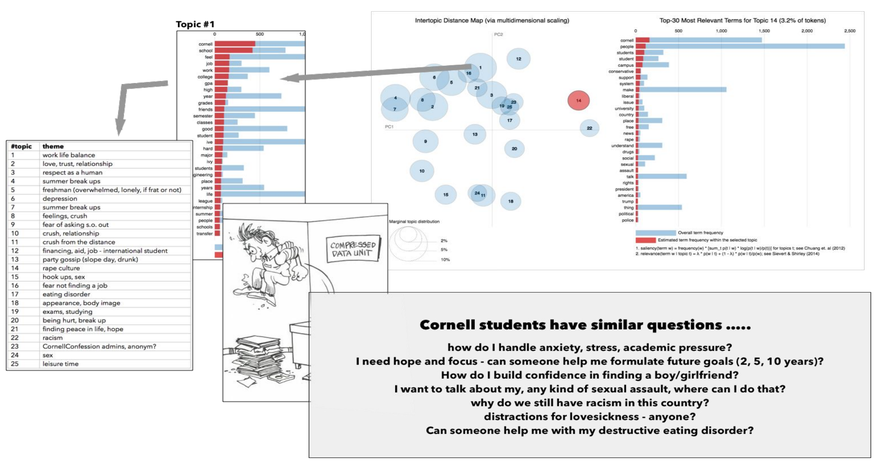
- Automatically **detects** if students are stressed through a wrist heart beat sensor and notifies students via push-notification
- Algorithmically **connects** students dealing with similar issues
- Provides anonymous peer chat groups and **supports** overall well-being.

Onboarding



Row Labels	Count of key	Sum of value
anticipation	2	0.666666667
joy	3	1.066666667
trust	4	1.369047619
fear	10	3.191774892
positive	12	4.407142857
sadness	13	4.194155844
anger	15	5.007313739
disgust	15	4.926361358
negative	26	9.037472469
Grand Total	100	33.86660211

URL="...CORNELL CONFESSION" make topic_model

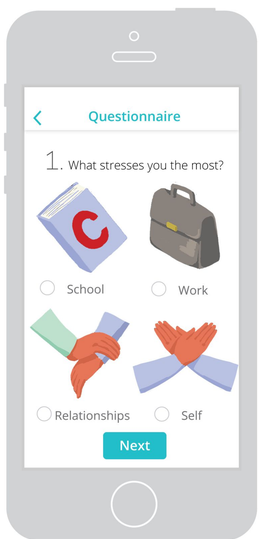


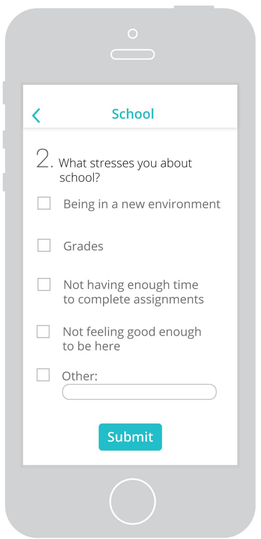
#topic	theme
1	work life balance
2	love, trust, relationship
3	respect as a human
4	summer break ups
5	freshman (overwhelmed, lonely, if frat or not)
6	depression
7	summer break ups
8	feelings, crush
9	fear of asking s.o. out
10	crush, relationship
11	crush from the distance
12	financing, aid, job - international student
13	party gossip (slope day, drunk)
14	rape culture
15	hook ups, sex
16	fear not finding a job
17	eating disorder
18	appearance, body image
19	exams, studying
20	being hurt, break up
21	finding peace in life, hope
22	racism
23	CornellConfession admins, anonym?
24	sex
25	leisure time

Cornell students have similar questions .....

how do I handle anxiety, stress, academic pressure?
I need hope and focus - can someone help me formulate future goals (2, 5, 10 years)?
How do I build confidence in finding a boy/girlfriend?
I want to talk about my, any kind of sexual assault, where can I do that?
why do we still have racism in this country?
distractions for lovesickness - anyone?
Can someone help me with my destructive eating disorder?

By extracting topics from Facebook groups such as "Cornell Confession" we found a set of possible topics for our onboarding process and **self-assessment**. Upon the onboarding input from users we will match students with similar issues.





Font-End: passing topic tags to back-end

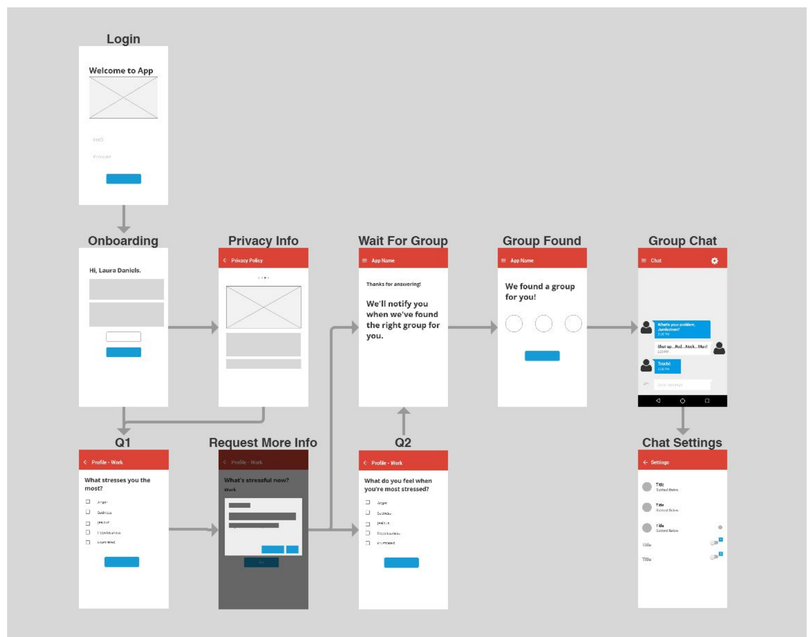
Back-end: group matching via kNN

Components

Back-end: provide core functionality of forwarding the incoming message to all the other members in the group. Utilizing Socket.io Node.js library to finish the message dispatching workflow. **Token-based** authentication features are added to enable the system to verify the authenticity of the request sender. **kNN-based** group matching algorithm is implemented to cluster users with similar experiences together. Backend code is deployed on Heroku, a cloud-based server, and connected with MongoLab, the database server that hosts the MongoDB instance.

Front-end: native mobile app written in **React-Native**. Visualizes and syncs up with back-end for login, onboarding and group chat functionality. Renders last 15 messages of chat history.

App Flow & Functionality



Future Work

- content analysis of chat messages (Python) to match students more efficiently
- push notification (React Native)