babble

Make Apps Great Again

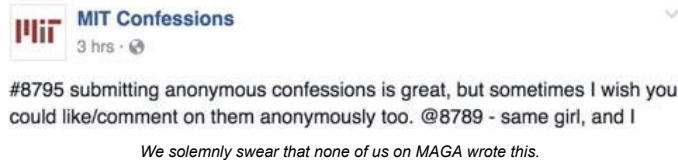Stacy Ho
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Zhaozheng "Alice" Jin

Overview

Existing System

#8795 submitting anonymous confessions is great, but sometimes I wish you could like/comment on them anonymously too. @8789 - same girl, and I

We solemnly swear that none of us on MAGA wrote this.

The MIT Confession page on Facebook has evolved into a receptive space where MIT students can voice their thoughts anonymously and truthfully. It has also become a supportive platform where students can also receive advice and encouragements. While we recognize the benefits of the current system, we have identified two major disadvantages that we aim to resolve with our app:

- The Confession page is currently moderated by a student who filters for spam and safeguards the amenable environment of the page. However, the presence of an intermediate entity deprives the page of timely updates. Students cannot promptly interact with confessions as they are shared and can only comment on issues in retrospect.
- Also, hosting this page on a third party platform - Facebook - restricts behavior of students. After a confession is posted on the Facebook page by the moderator, other students who wish to comment on it are obligated to expose their identity. In order to preserve anonymity in the current system, students have to share a new confession in response to a past confession. The reliance on Facebook's features discourages consistent conversation among those who wish to remain anonymous.

We realize that there are other existing platforms for confessions. Yik Yak, for example, provides live updates and allows users to respond anonymously. However, Yik Yak is a purely anonymous platform more fitting for pithy retorts rather than conversations. While we aim to resolve MIT Confessions page's disadvantages, we also hope to preserve the positive environment that has been built upon it. So, taking these into consideration, we present *babble*.

What is *babble*?

The main purpose of *babble* to be a live, interactive platform where MIT students are encouraged to have candid conversations and can provide instant support to each other. On *babble*, students can respond to and discuss events as they unfold. The confessions do not waste away in incubation and are available to start conversations whether it's at 7pm or 4am. Also, students will have the option to respond anonymously through *anonymous name* or using their real name. This does not inhibit those who don't feel comfortable revealing their identity from participating in the conversations. The app will rely on *vibes* and student *reputation* to uphold the amiable environment that our team aim to develop on *babble*.

Design Essence

We propose these concepts that come together as *babble*.

<u>Concepts</u>

<u>babble</u>

A babble is a confession that an MIT student can share, anonymously or not. Its purpose is to start a live interaction among MIT students. Newly shared babbles are immediately available to the rest of the community, who can comment on them, also anonymously or not. The content of a babble as well as its following comments cannot be edited once shared.

<u>anonymous name</u>

We recognize that while some students have no reservation exposing their identity, others may feel more comfortable sharing anonymously. So, the purpose of an anonymous name is to give a student the option of concealing his identity while posting a new babble or comment. When a student chooses to participate in a babble anonymously, our app will generate an anonymous name (e.g. "rapping Hamilton") that the student will be associated with for the entirely of this babble. No two different, anonymous participants in a babble will be assigned the same anonymous name. By assigning anonymous names, students can still address each other to maintain a conversation. By assigning anonymous names per babble, anonymous contents cannot be linked together throughout the site in an attempt to uncover the student's identity. Otherwise, students can post using their real name. A student's anonymity option for a babble cannot be changed once set.

<u>vibes</u>

While anonymity invites candor, it also exposes a new set of problems, most prominent of which include spam and cyber bullying. The purpose of vibes is to allow students to react to babbles and comments to indicate if the content contributes good or bad vibes to the overall site. Students can give good vibes to babbles and comments that aligns with the purpose of the site: a platform for candid conversations and instant support. On the other hand, students can give bad vibes to babbles and comments that do not contribute to the said purpose. If the ratio of bad vibes to good vibes is significantly skewed (in particular above 0.8), then the babble or comment is redacted. Once redacted, its content is obscured unless a student takes action to reveal the content.

<u>reputation</u>

As we aim to establish a community that celebrates support and candid conversation, we use reputation to recognize the students who contribute good vibes to the site. A student's reputation is incremented when others indicate that his babbles or comments, whether shared

anonymously or not, contribute good vibes to the site. A student's reputation is decremented when others indicate that his babbles or comments contribute bad vibes. The reputation board is updated weekly to acknowledge the ten students with the top reputation.

Data Model
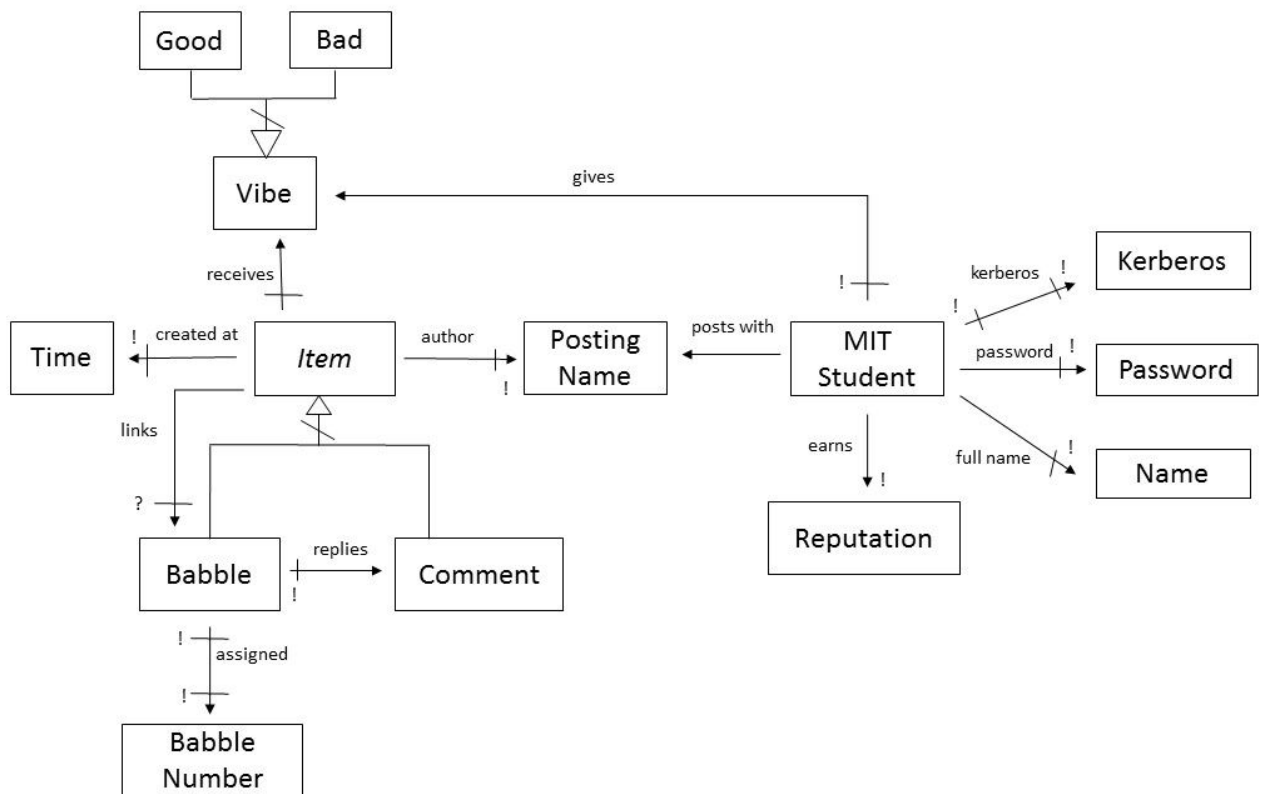
Textual Constraints

- A student can only give one vibe per babble/comment.
- Each student has a unique posting name for a particular babble and its comments.

Explanations

- An item is anything posted by a user.
- A babble number is used to identify a babble and to allow for users to easily reference babbles. It is not the same as the babble's database ID.
- A vibe is an expression towards a babble/comment. Users cannot see who the vibes were given by, just the total count.
- A student's reputation is directly related to the vibes towards his babbles/comments and how active a student is.

- A posting name is the name displayed with a babble/comment. It can either be a user's real name or a randomly generated name if the user wants to remain anonymous.

Insights

- The same anonymous name might be generated for different people in different babble threads. However, within the same babble, the user keeps his unique anonymous name for the entirety of the thread.
- At first, we tried to separate babble and comment completely, but then we realized these two objects shared many similar properties, so we decided to combine them under one superset *"Item"*.
- We thought about including anonymous name in the data model, but doing so would have resulted in some *"Items"* mapping to anonymous names and others to users' real names under the same posting name relation. This would have made our data model repetitive so we settled on the solution of combining them into "*Posting name*".

Security Concerns

Within the app
- Threat: attackers mess with database by injecting code into forms, resulting in breach of confidentiality and integrity
  - Threat type: injection attack
  - Mitigation: use a template engine that scrubs the input contents of forms, build commands with expression objects rather than strings, use parameterized queries
- Threat: script is posted in a babble/comment to manipulate client-side behavior or obtain server-side data
  - Threat type: persistent XSS
  - Mitigation: blacklist <script> tag to reject entry of script into database
- Threat: script is posted in a babble/comment that logs a victim out of all websites, then attacker logs into some site (e.g. Google) using attacker's credentials to obtain victim's search history
  - Threat type: persistent XSS + login CSRF
  - Mitigation: blacklist <script> tag to reject entry of script into databases
- Threat: a student's session cookies are obtained by an evil attacker, who shares babbles/comments under the victim's name
  - Threat type: XSS + CSRF
  - Mitigation: do not let students stay logged in, attach secret session token in hidden form field to send token in cookie and form during POST requests

Outside the app
- The app will be deployed on a third party server, Heroku. Therefore, we rely on Heroku's safety and prevention against attacks such as denial of service, malicious access of

server, and the above mentioned types of attacks on its site. As a client, we accept the risks of Heroku.

User Interface

Landing page

Sign up page

Login page

Home page

-Best Babblers of the Week: Each week, the ten users with the highest reputation will be displayed on the leaderboard. It will remain the same throughout the week until we update it the following week. A users' reputation is calculated by the number of good vibes given to the babbles/comments he posted and the quantity of his posts.

Censored Babble

Post a babble!...

Post

| Most Recent | Most Popular |

#30 Anonymous Durian
Dec. 1 at 4:43 p.m.

(!) This post might contain inappropriate content.

See anyways

12 👍   50 👎

#29 Real Person's Name
Dec. 1 at 4:42 p.m.
........(content of post)

Best Babblers of the Week	
▼ Rank	▼ User
1	alice
2	rachel
3	candice
4	stacy
5	daniel jackson
6	susan
7	francisca
8	alexander halmilton
9	harry potter
10	voldemort

Popup for posting a babble

(content of babble)

⦿ Anonymously
◯ Not anonymously
☑ Link to other babble
Babble Number

Post

(Comments)
Anonymous Panda
.... (comment)

Post a comment! ...   Comment

#29 Real Person's Name
Dec. 1 at 4:42 p.m.
........(content of post)

Best Babblers of the Week	
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Popup for commenting

Post a babble!...

Post

Most Recent   Most Popular

Best Babblers of the Week

▼ Rank	▼ User
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2	rachel
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(content of comment)

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Comment

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Challenges

<u>Design Risks</u>

<u>Spam/cyberbullying: due to need of live updating and absence of filtering by a moderator</u>
- Limit the number of babbles each user can post per day, and increase the limit for users with higher reputation. This guarantees no user can flood the babbles feed with their infinite number of babbles
- Redact the content of the babble that gives off too much bad vibes. If the comment or the babble receives bad vibes as a certain percentage (e.g. 80%) of total number of vibes, then the content is collapsed or taken out to reduce spam. The reasoning behind this option is that the redaction is based on the decisions of other users, and in general the decision made the majority (in this case, especially since the community is made up by MIT students) tends to be correct or better than the one made by the minority. the babble or comment is not taken out entirely since the first few vibes may skew the percentage before enough input is gathered.

<u>Design Choices</u>

<u>The scope of anonymity</u>
- Options: complete anonymity, full exposure of identity, optional anonymity
- Choice: option of anonymity or exposure of identity, chosen by user when posting. We chose to give the users the option to choosing to post anonymously, or with their real name. Complete anonymity might induce a lot more spam/cyberbullying. It might also make this online community too unreal because everyone can just hide after anonymity. We want a vibrant, supporting community. Full exposure of identity discourages people from posting on the site because a lot of the times users are more likely to express their thoughts honestly when they post anonymously so they would not get judged. So we give the users the option/ability to choose how they want to post/comment so they can do whatever they feel the most comfortable.

<u>How to represent anonymous users</u>
- Options: random strings, random animals (similar to unregistered visitors to Google docs), "Anonymous User"
- Choice: random animals (or other some categories). Giving an anonymous user a temporary identity to allow the users to be distinguished by others when commenting/posting. So even though users are anonymous, other visitors on the site can still tell they are different users.

<u>What to do when a babble/comment gives off too much bad vibes</u>

- Options: leave it be, delete it, keep it but replace with "this babble/comment is hidden because it gives too much bad vibes", keep it replace with the previous statement but gives the option of "show more" so users can choose to see the content of the babble/comment
- Choice: keep it replace with the notification statement but gives the option of "show more" so users can choose to see the content of the babble/comment if the babble/comment gets at least 80% bad vibes out of all vibes. This way, if other users want to skim through the feed, they can focus on the better content and ignore the worse content collectively decided by the previous readers. If any user has more time and wishes to read the hidden content, s/he will not be prevented from doing so, and s/he can click on "read more". We decided to do this so that the content of a babble/comment is not lost and can be read by interested users. Then, if the user decides the content is actually ok/good from his or her point of view, then the user can give the babble/comment a good vibe to change the status of the babble/comment if the ratio of bad vibes to good vibes is changed. So, we allows a babble/comment to be redacted or shown as more users give more inputs about the quality of the content.