6.170 - Fall 2015
Team Abu Mongoose
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Occasional Thoughts - Design Document

Overview

Motivation

Description of System

We will be building a system that allows a user to create a collage of posts in celebration of a specific occasion. The occasion could be a friend's birthday, a sibling's graduation party, or a baby shower - basically anything worth remembering. A user can create what we will call an *occasion* that is populated with *thoughts.* A thought can be a message to the person whose occasion is being celebrated, a message related to the occasion itself or a picture with a comment. The creator of the occasion shares the link with specific people who can add their thoughts to the occasion. The result is a collage of pictures and messages that can be shared with relevant parties to be cherished by them, forever.

Purposes

1. To celebrate an occasion by inviting friends to share their thoughts about the occasion.
2. To allow people to add their thoughts without physically being at the occasion
3. To regulate who gets to participate in the occasion collage.

Deficiencies of Existing Solutions:

One existing solution is a physical card (a paper card), that can be bought for an occasion, signed by different people and given to the intended person. But it is often hard to get all the needed people to sign it. Some might not be in town. Conversely, sometimes the card might end up being passed around in a large room and people who are not relevant to the occasion may end up signing it too. There is also the added problem of someone feeling uncomfortable with other people reading the message they wrote to the receiver, which they intend to be private. All of these issues are dealt with by our app. It makes things hassle-free, more efficient with the added advantage of having a copy of the messages that will most likely last longer than a piece of paper.

Design Essence

Concepts

Occasion

Definition: A way to consolidate and share occasion-specific thoughts.

Purpose: to hold thoughts specific to an occasion that can be shared with others.

Operational Principle: A user can create an occasion and share the link to the occasion with other people, with which users can view and add content to the occasion.

Thought

Definition: A picture, a wish or a message published on an occasion, the smallest unit of content that can be added to an occasion.

Purpose: to contribute a message or picture to an occasion.

Operational Principle: If a user is invited to contribute to an occasion, they can share their thoughts on the occasion page.

Thought Privacy Setting

Definition: An addendum to a thought indicating who gets to see it.

Purpose: to allow control over who, among the parties the occasion is shared with, gets to see a particular thought.

Operational Principle: When a participant accesses the link and adds a thought, they can control the privacy settings and decide who the can see the thought.

Occasion Privacy Setting

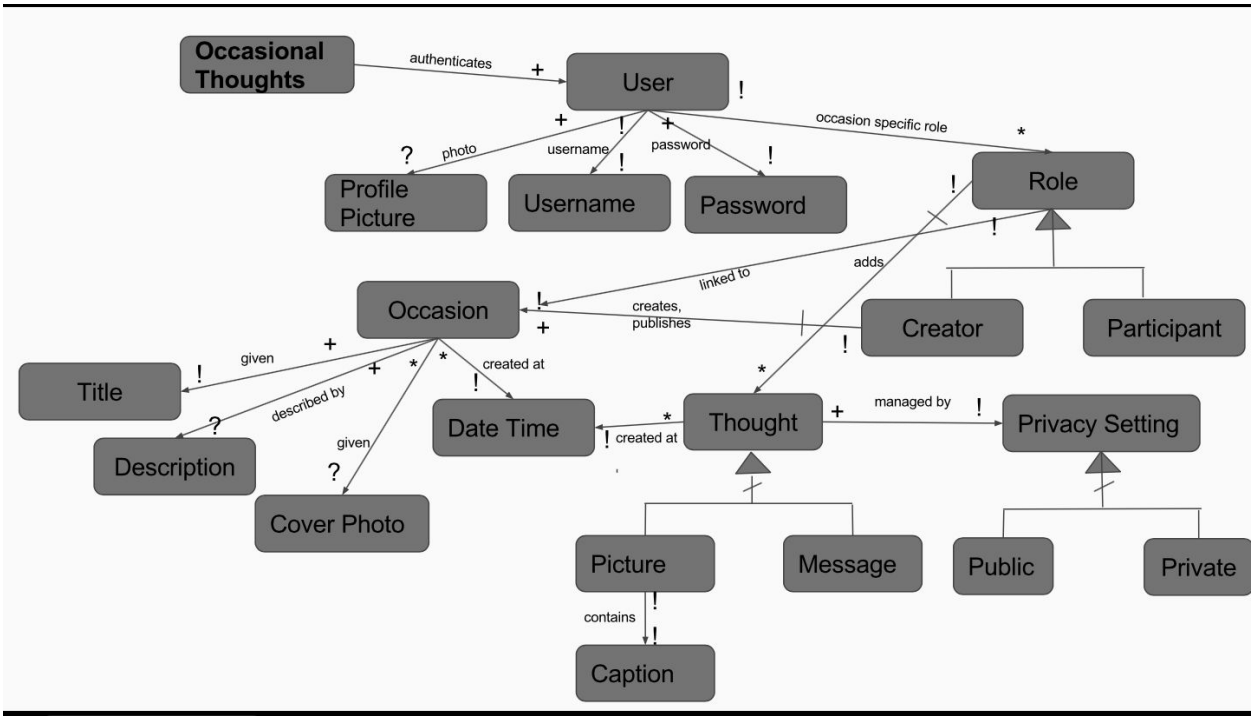
Definition: An addendum to an Occasion indicating who gets to see it.

Purpose: to allow control over who can add thoughts and view an occasion

Operational Principle: When a creator creates and exports an occasion they choose who can access it.

Data model

Diagram



Explanation

Occasional Thoughts authenticates users using facebook login. Afterwards, a user can create an occasion and share its url with other people. These people (participants in this case) on visiting the link will be similarly logged in and then will be able to add thoughts and contribute to the occasion.

Privacy Settings: Public means anybody with the link can see the thought.
Private means a subset of those people can see the thought.

Textual Constraints

1. Role is of the form <Participant/Creator, Occasion> (so that for every occasion, a user could be a creator or a participant or be able to switch between the two).
2. Authentication occurs using the facebook API (so if a user is not a facebook user they won't be able to proceed)
3. Password and Thought must not be empty
4. Message must be a plain string with no media attached
5. A video cannot be uploaded in place of the picture
6. A creator cannot create two occasions with the same title and description.

Insights

We brought in a three way junction, using role, to allow a user to both act as a creator for some occasions and as a participant in all the occasions he/she creates and is invited to.

We used facebook authentication in part so we could fetch a user's profile picture along with their name. This is so that if two participants who have the same name, write messages in the occasion (no pictures), they may be at least be distinguishable by their profile pictures (which we can have appear next to their thought and name in the UI)

Publish Button will close the occasion so that no one can share thoughts on it later. The link will stop being an editable link and become a kind of a collage. The collage (set of thoughts) will look different for each user depending on the privacy settings.
We had the idea to incorporate the above publish functionality, in order to solve a usability problem: Suppose a user creates an occasion and shares the link with other friends. When any of these friends will open the link, they will see a page full of already posted thoughts (depending on which they are permitted to view), in addition to a textbox reading "Add a thought!", in which they can submit their thoughts. But once the page is ready and we share it with the intended recipient, we don't want the textbox to show. So we transform the page to get rid of the textbox.

Comment:
In our model, the situation in which two people create an occasion for the same recipient, with the same title and purpose in mind is not affected. Our model allows any number of users to create an occasion with the same name (and same purpose in mind). This is not a problem because each occasion will be linked to its creator so there won't really be any confusion.

Security concerns

Key Security Requirements

Authentication: All content require authentication. To implement this, we require that all users be authenticated with Facebook login or directly with an email and a password.

Content control: The person who adds the content can control the privacy settings of the content, ie., the person who creates an occasion defines a list of users who can add a thought or make it public through a link. He also defines a list of intended users who can view all thoughts of that occasion (through the export feature). The person who adds a thought can choose whether that thought is visible to only the intended viewers or visible to anyone who has the permission to add a thought.

Mitigating Standard Web Attacks

XSS Code injection: As a rule, we do not trust any content provided from the client side. Therefore, the responsibility for sanitizing all inputs lies with the server. To handle code injection, we will sanitize the inputs through the use of existing libraries.

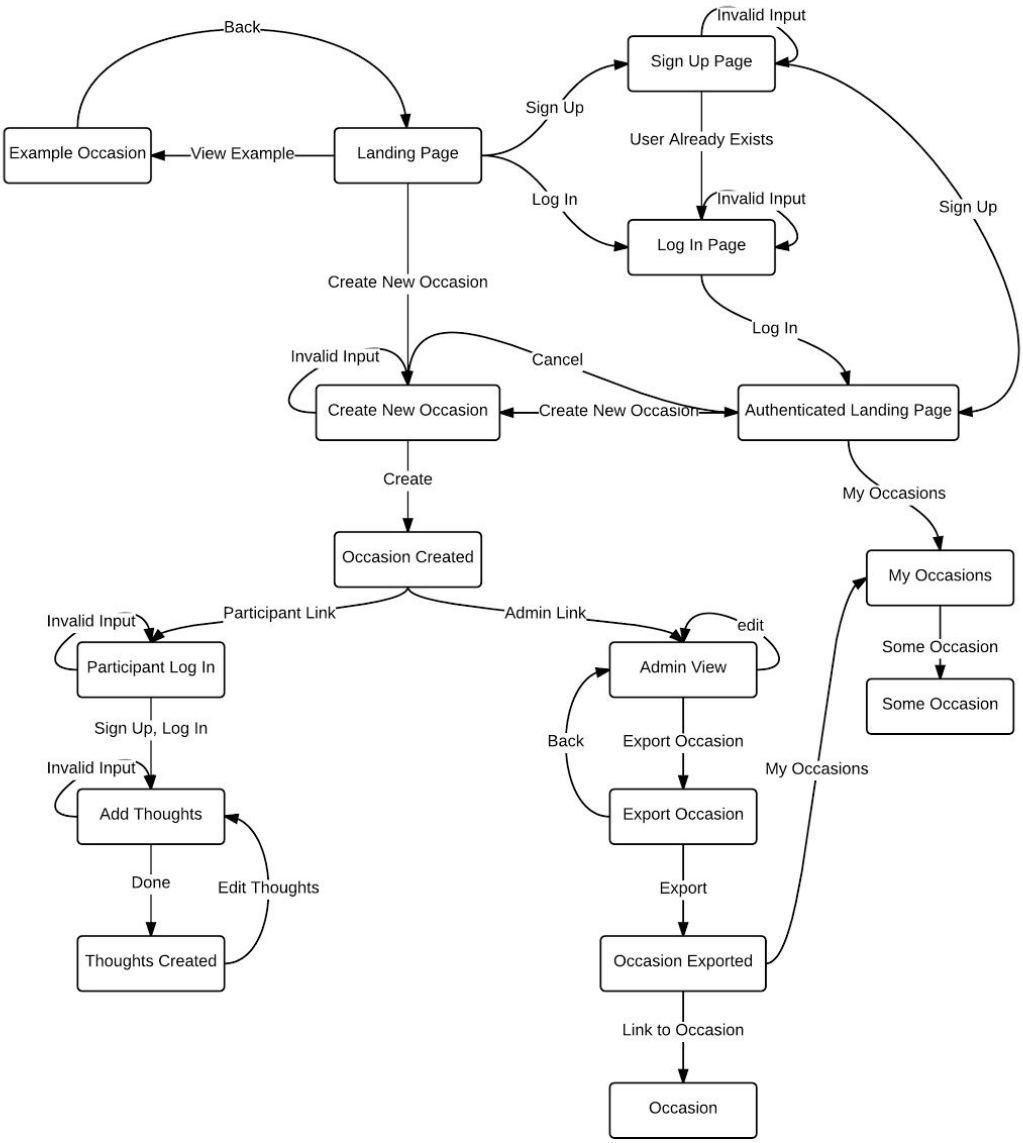
Cross Site Request Forgery: We use session tokens and TSL to defend against CSRF. Whenever we send a form that asks for a user input, we send along a session-specific token, which the user then sends back when they submit the form. To prevent man-in-the-middle attacks, we use TSL. This verifies the authenticity of the content.

Threat Model

- We assume that the attacker has access to all the information sent between the servers and the users.
- We assume that the attacker can send any requests to the servers.
- We assume that attackers do not have access to our servers.
- We assume that users can be attackers.
- We assume that a benign user can be controlled by an attacker.

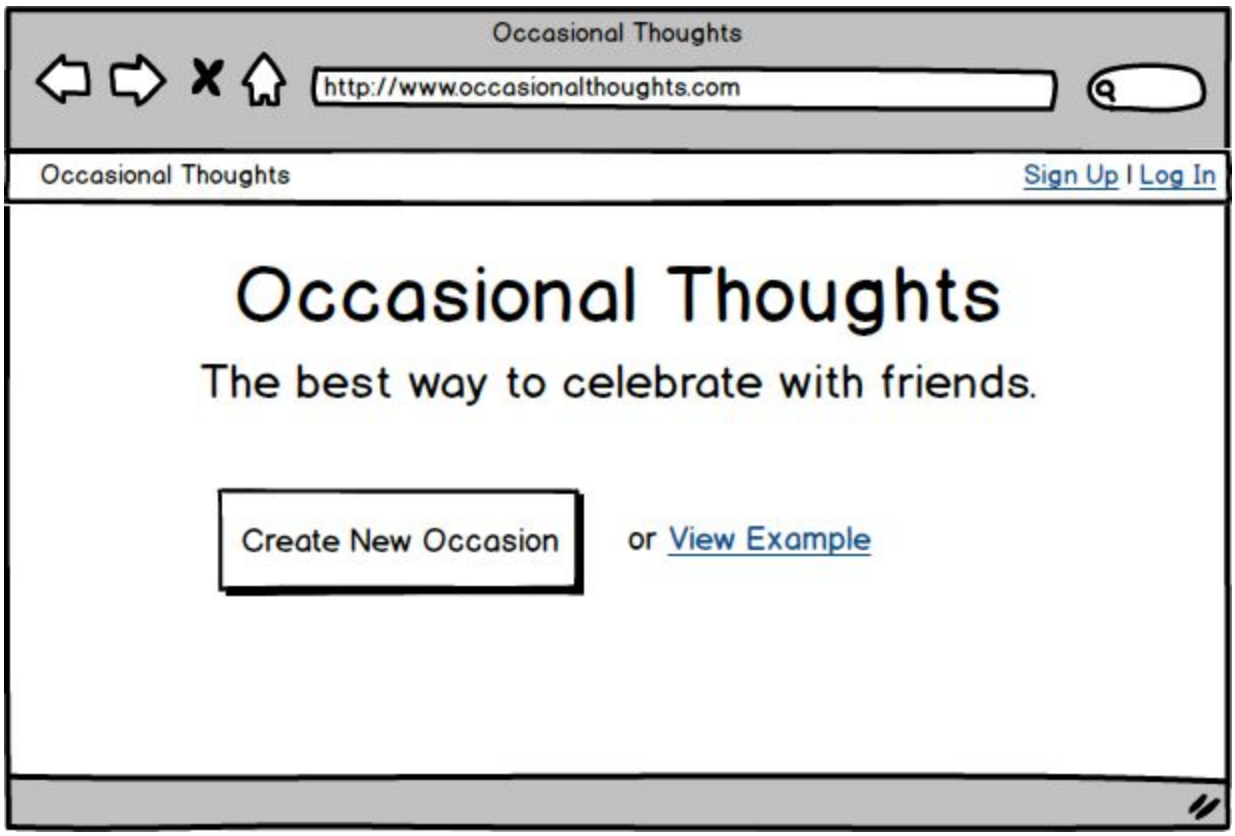
User Interface

Transition Diagram

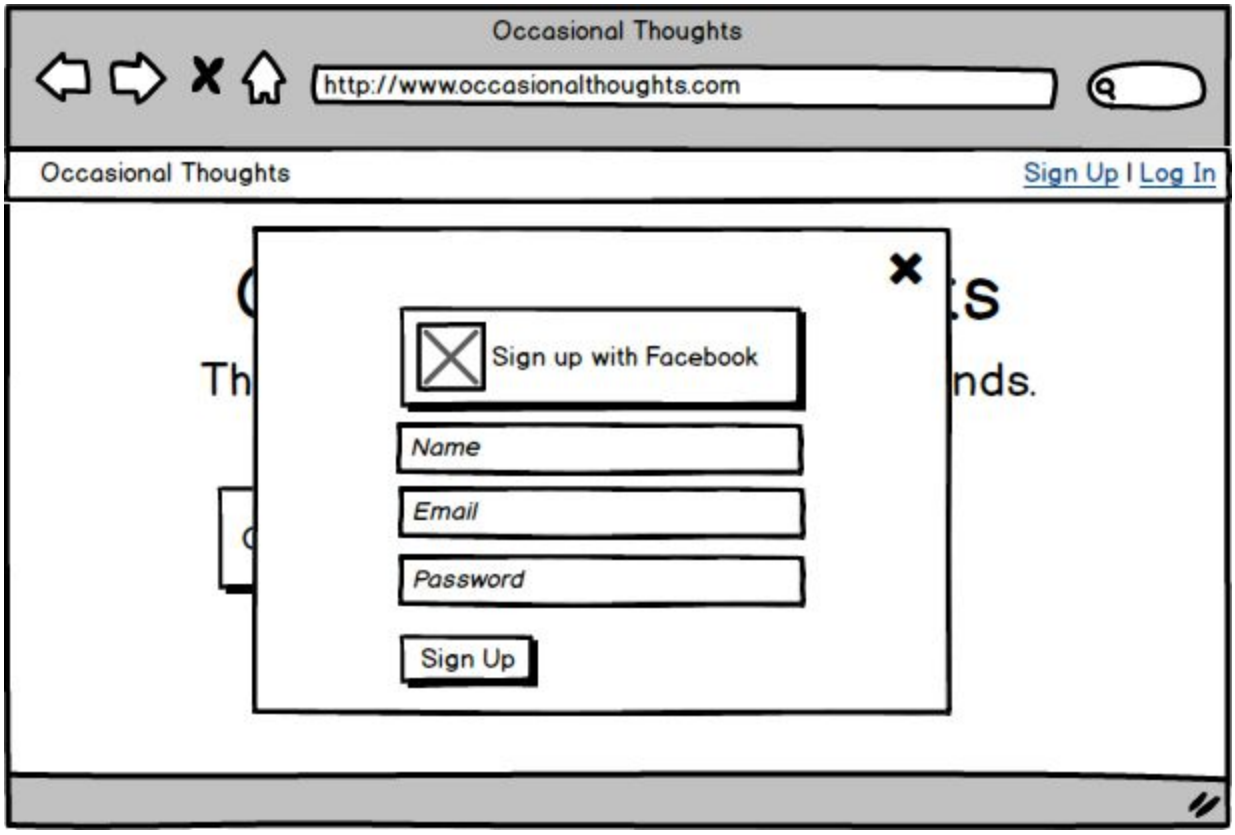


Wire Frames

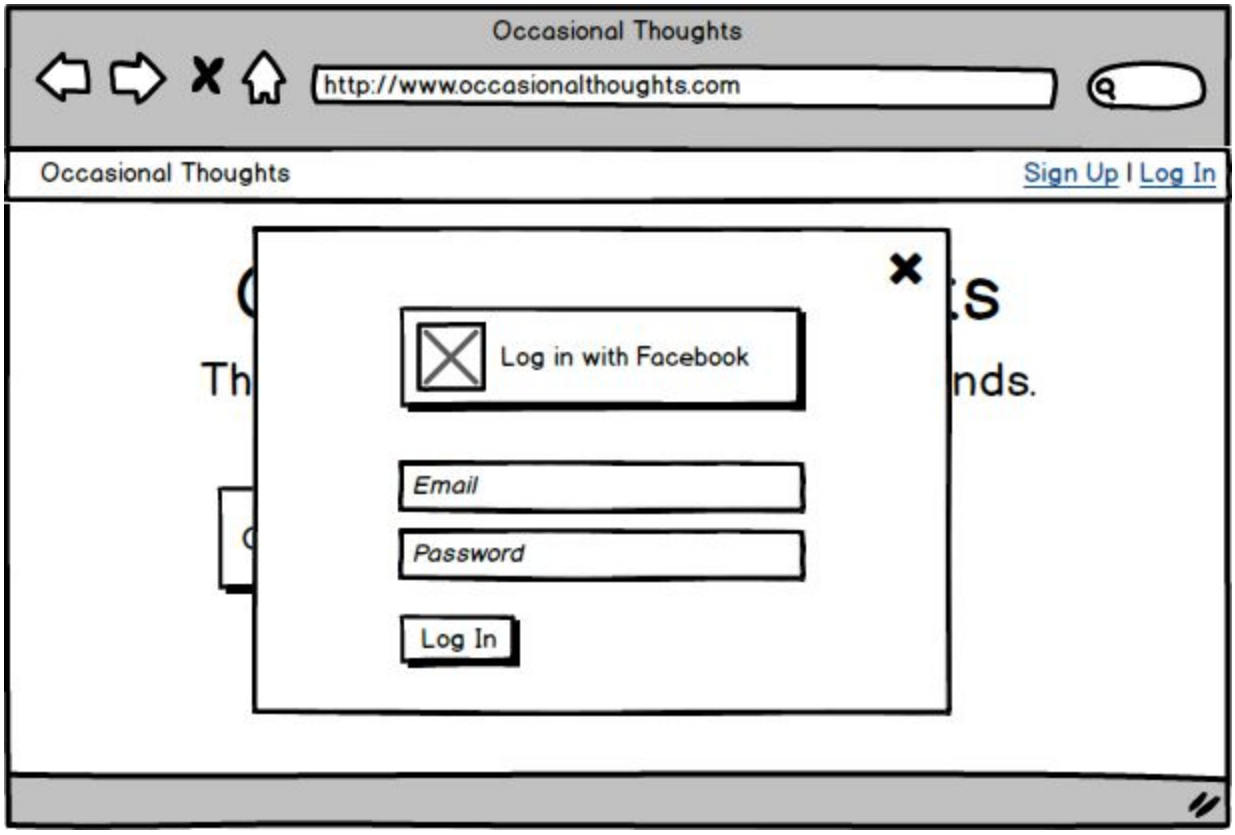
Landing Page:



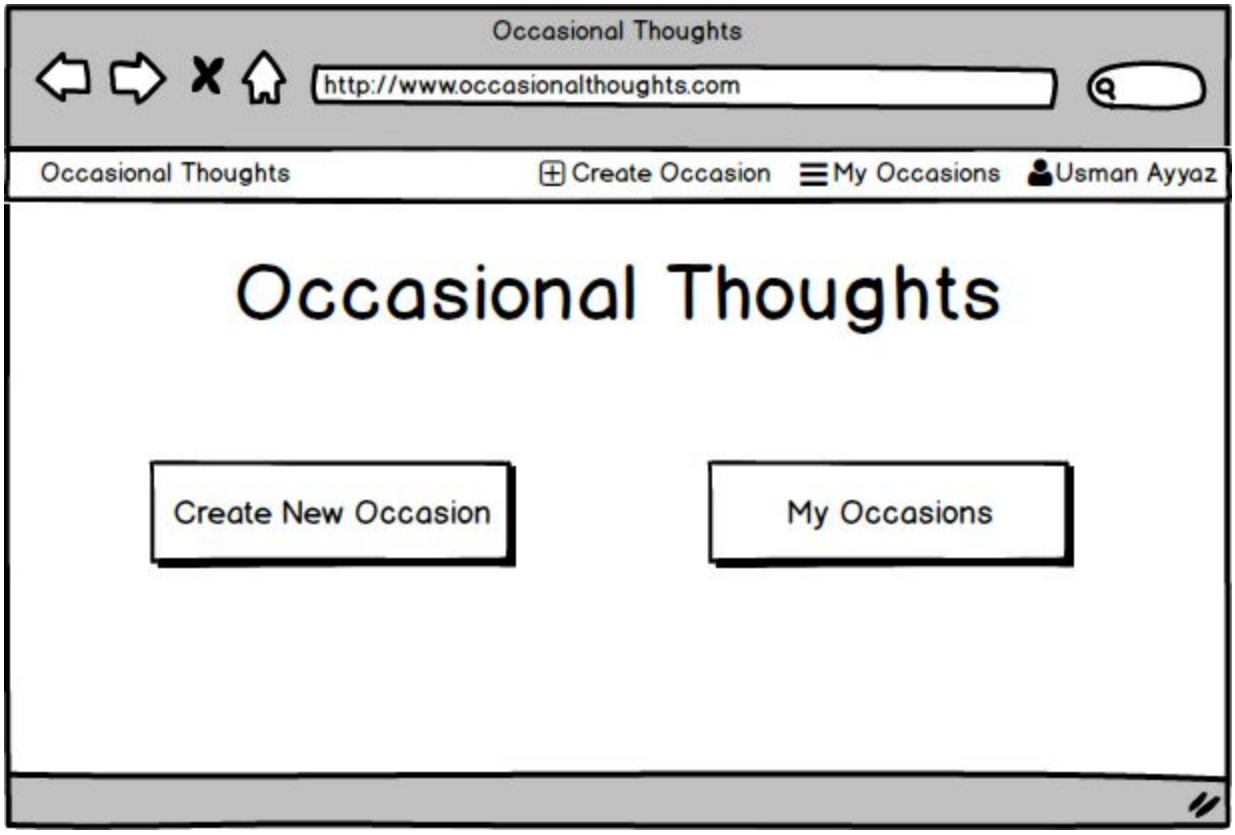
Sign Up Page:


Occasional Thoughts
http://www.occasionalthoughts.com
Occasional Thoughts
Sign Up | Log In
Sign up with Facebook
Name
Email
Password
Sign Up

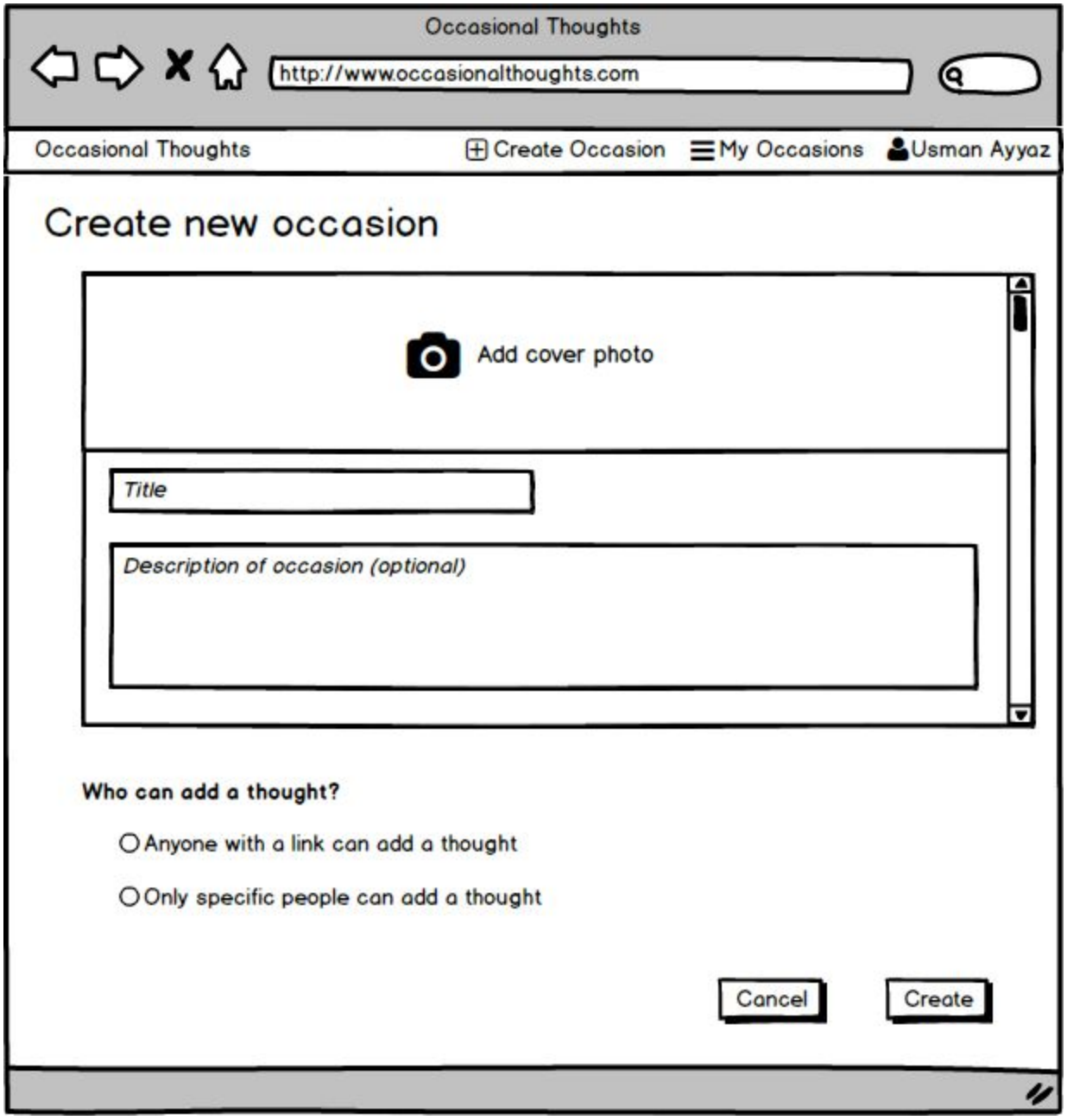
Log In Page:


Occasional Thoughts
http://www.occasionalthoughts.com
Occasional Thoughts
Sign Up | Log In
Log in with Facebook
Email
Password
Log In

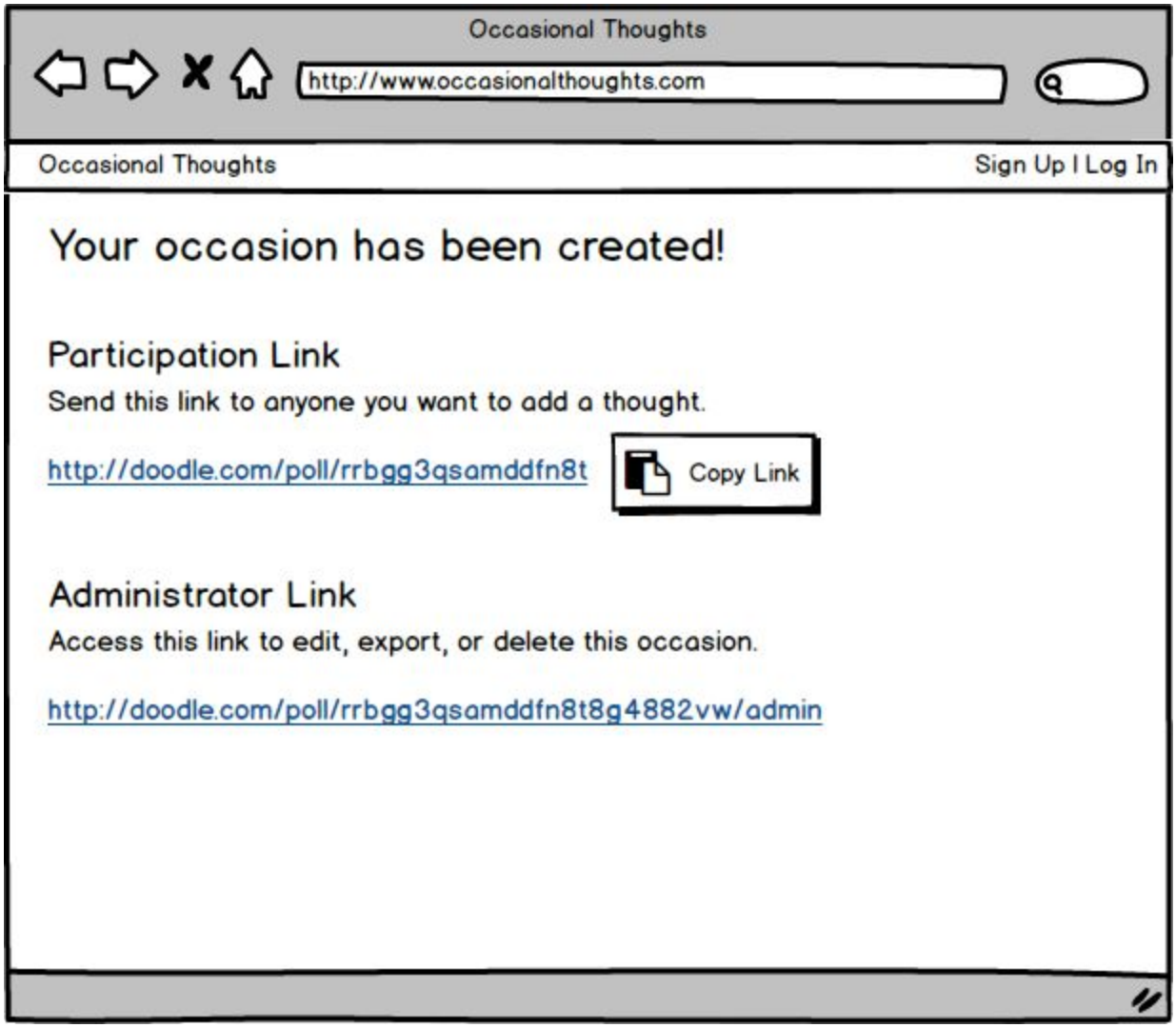
Authenticated Landing Page:



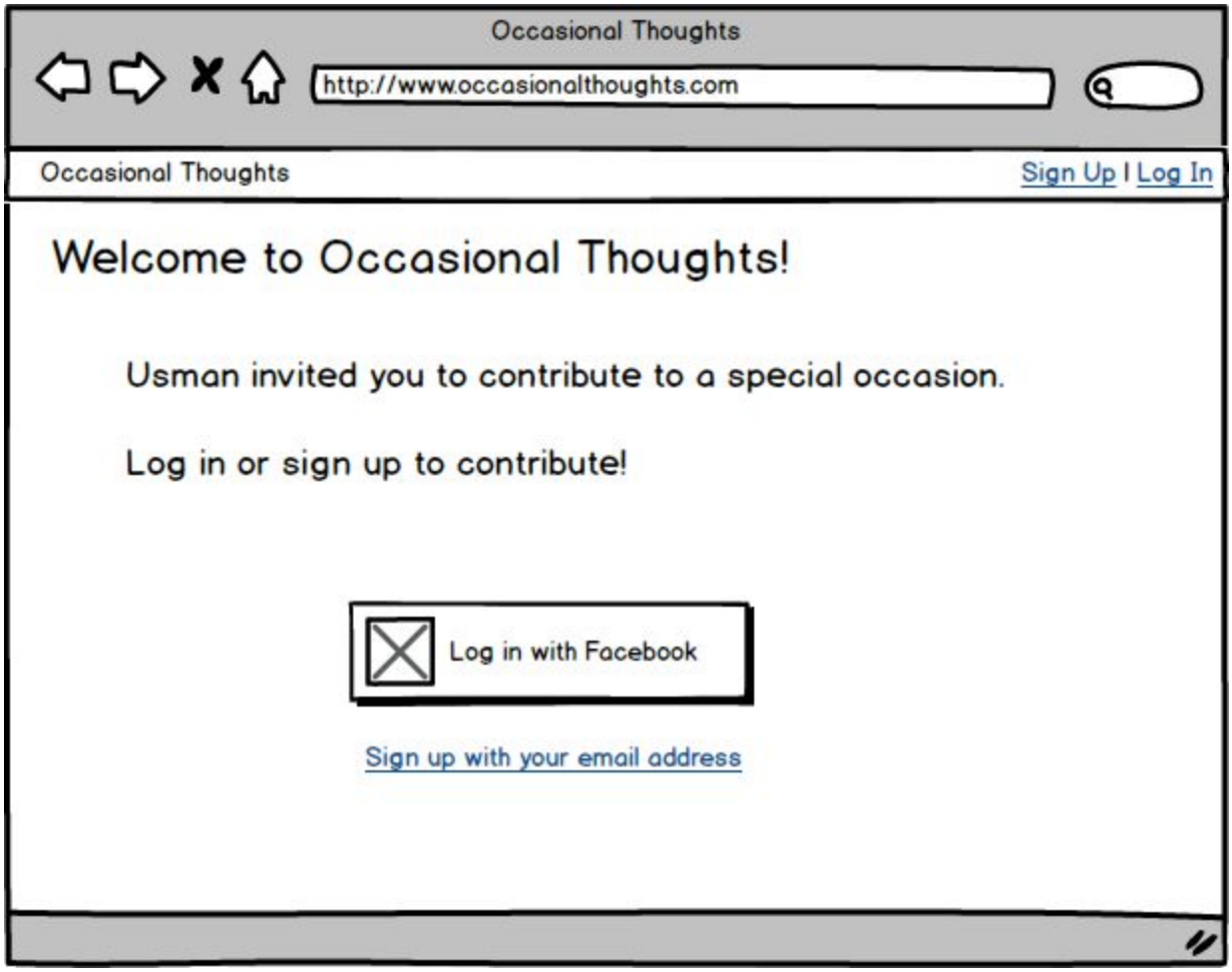
Create New Occasion:



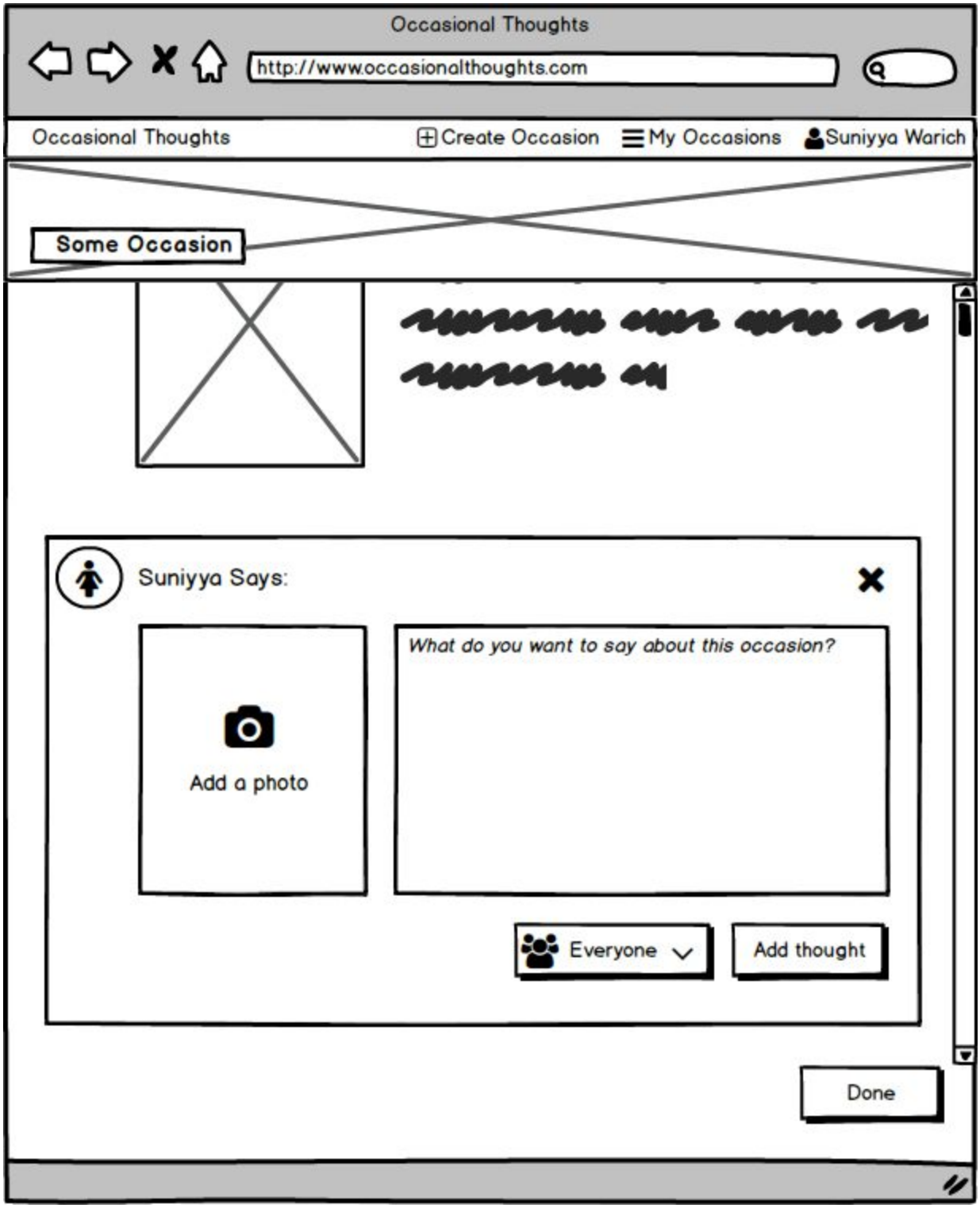
Occasion Created:



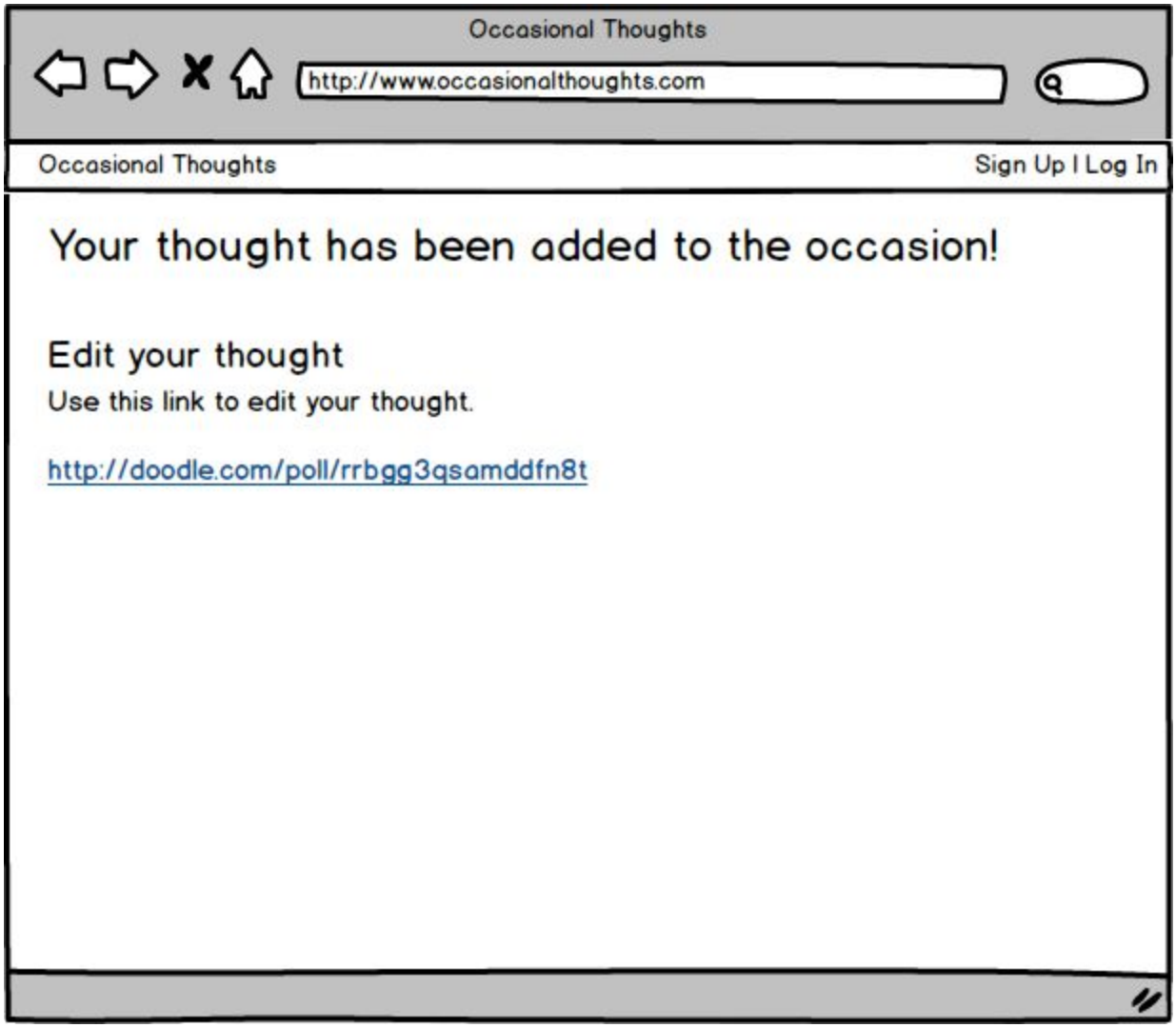
Participant Log In:



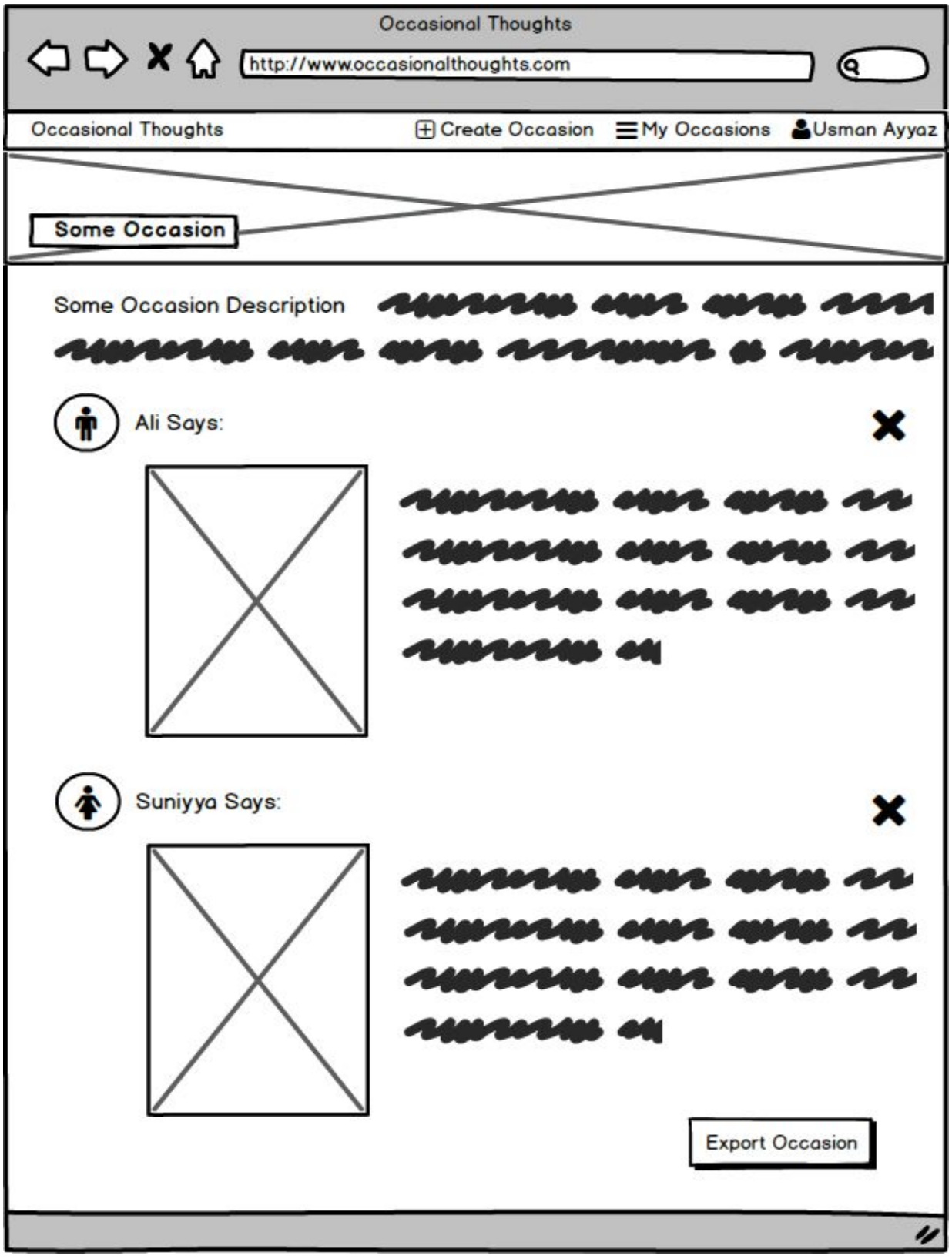
Add Thoughts:



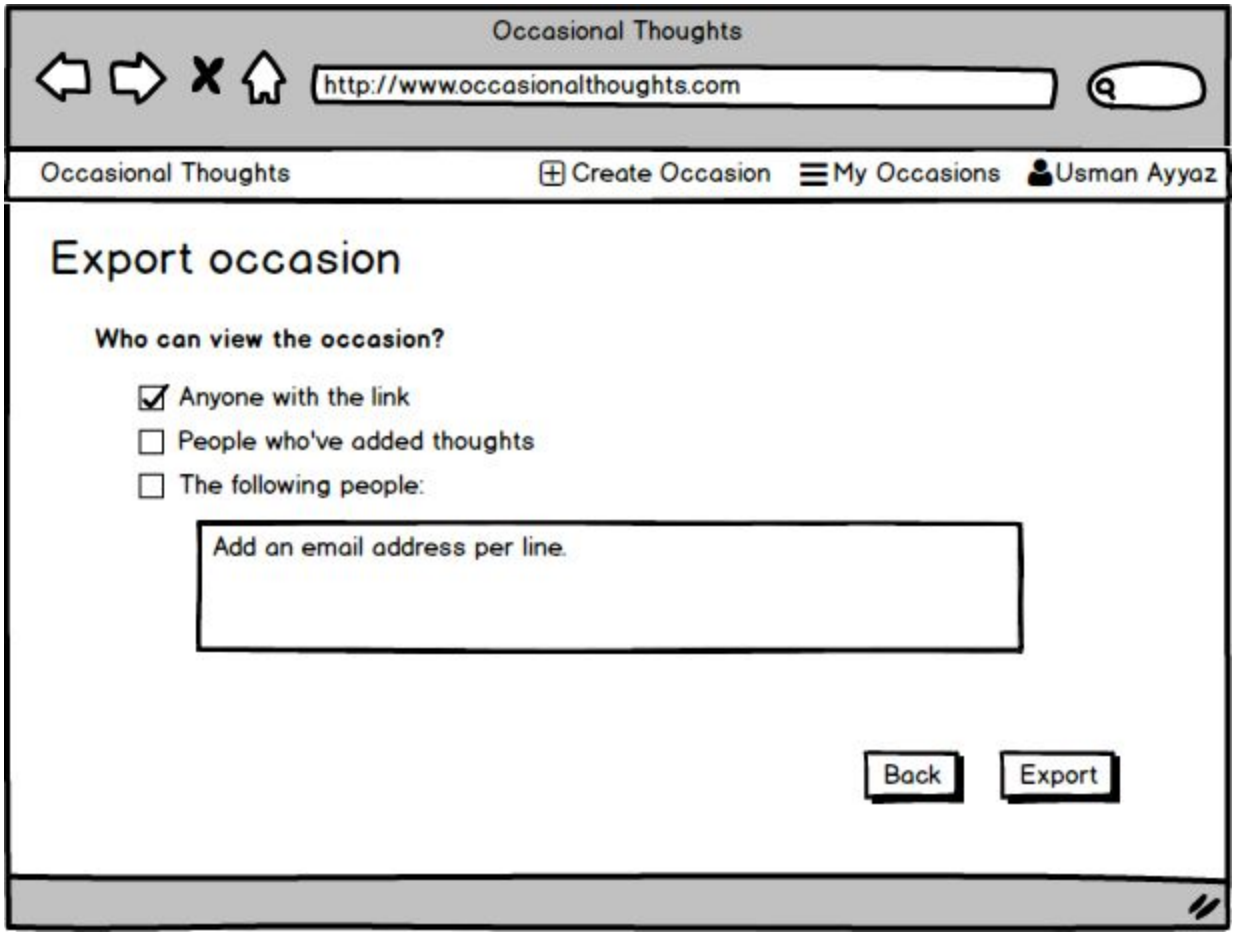
Thoughts Created:



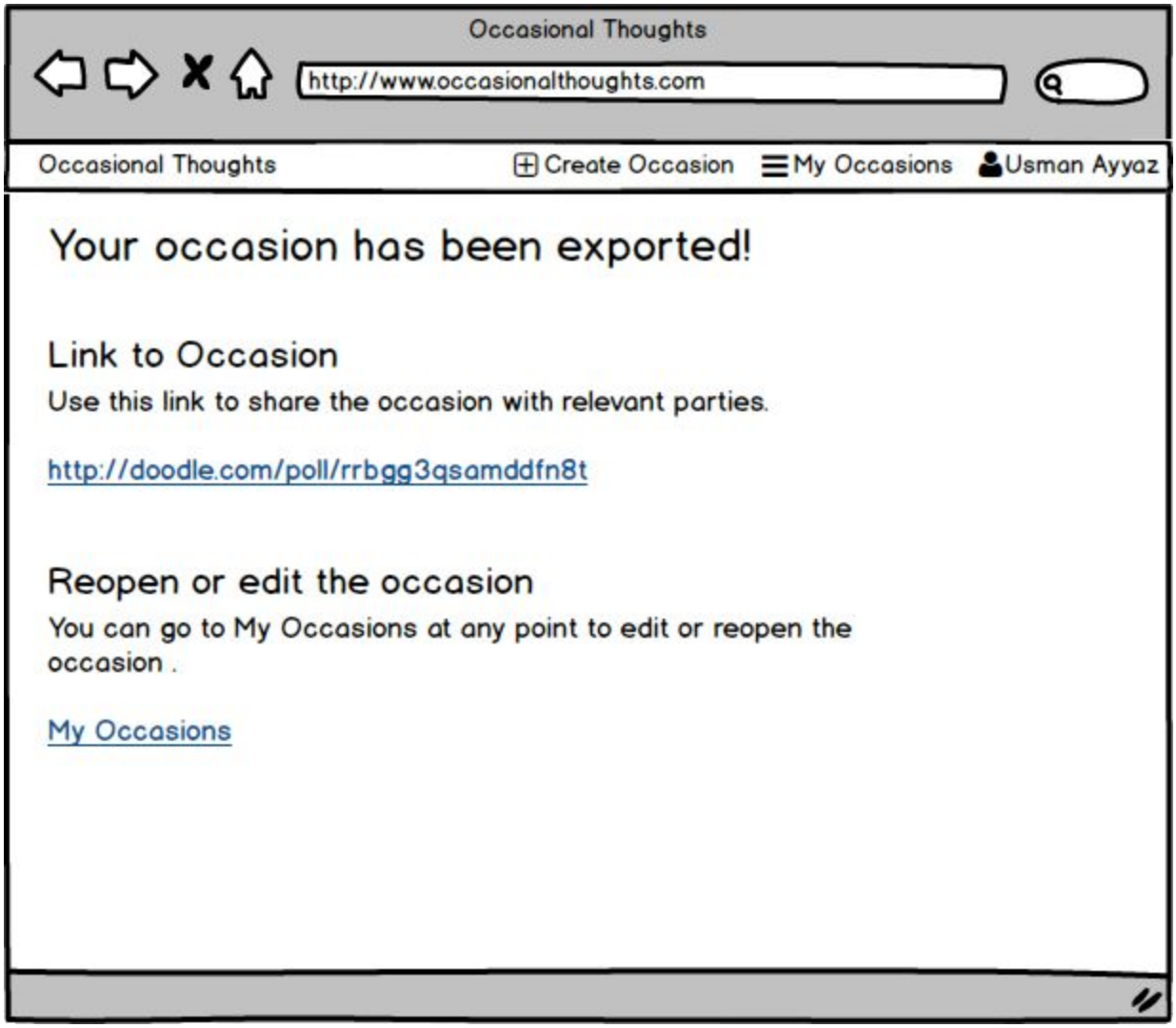
Admin View:


Occasional Thoughts
http://www.occasionalthoughts.com
Occasional Thoughts
Create Occasion
My Occasions
Usman Ayyaz
Some Occasion
Some Occasion Description
Ali Says:
Suniyya Says:
Export Occasion

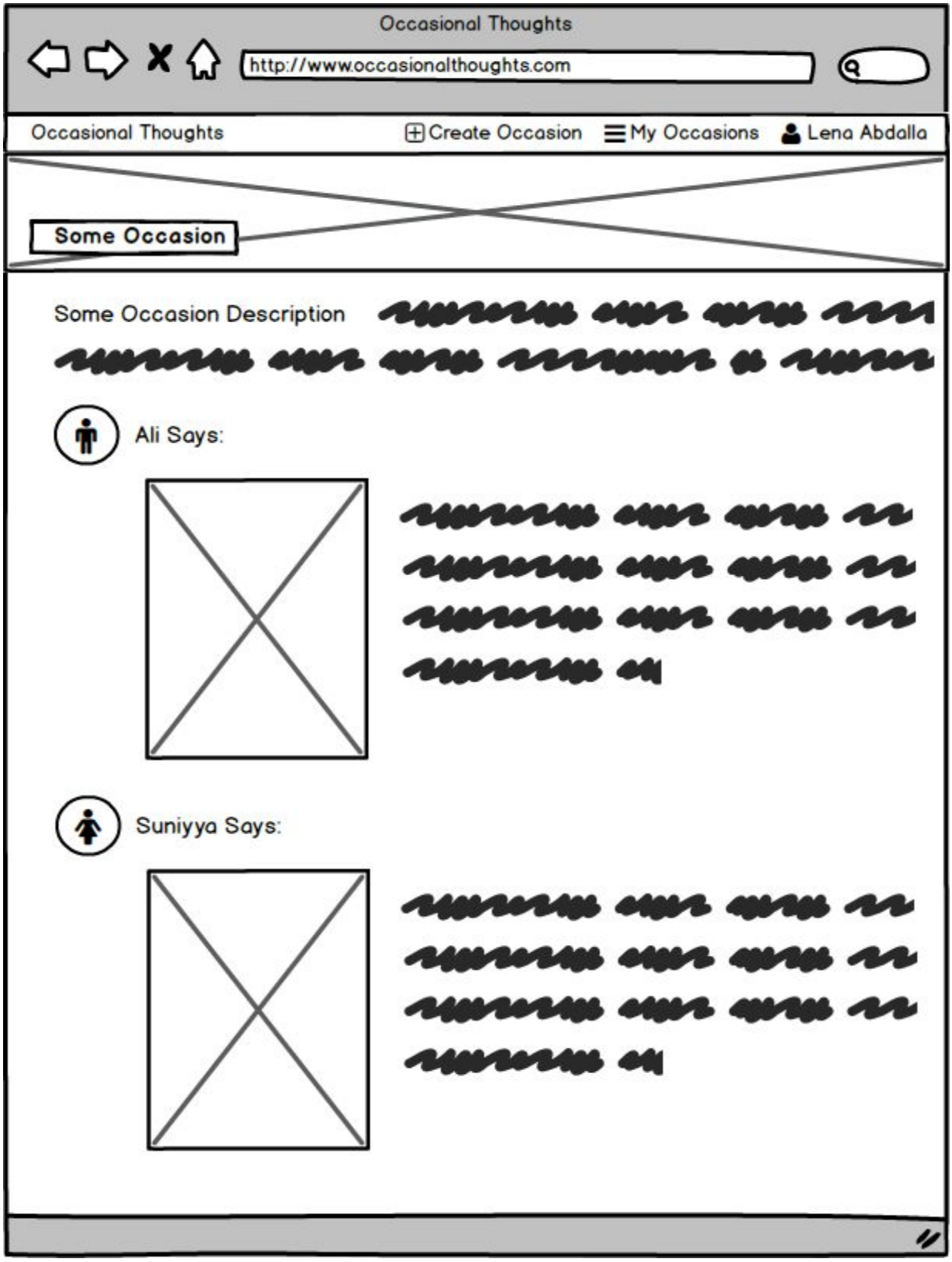
Export Occasion:



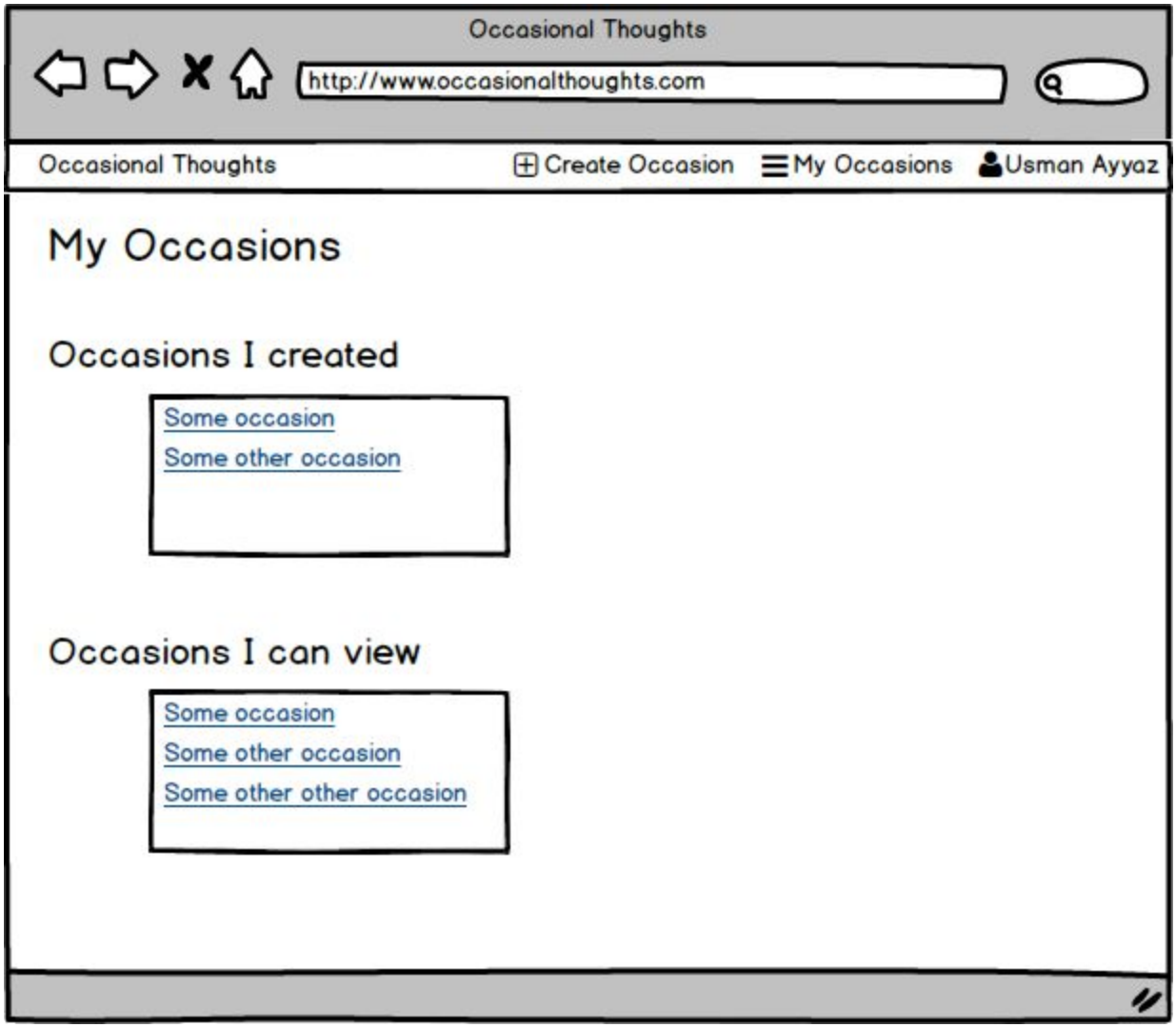
Occasion Exported:



Occasion | Example Occasion | Some Occasion:



My Occasions:



Challenges

Design challenges

User Authentication

Problem: Since this app is largely link based, the idea of a user account may not be present in the user model of occasional thoughts. In other words, users don't expect to have a profile like they would in facebook or twitter.

Potential Solution: To solve this problem we have made the following design choices:

- Use the email address as each user's username. That way users will not have to worry about remembering passwords.
- Allow for facebook login. This way users will not have to worry about remembering passwords either.
- Allow users to create an occasion directly before logging in. While creating the occasion, the user will be asked for an email and a password and that would be used for authentication (not shown in the Create New Occasion wireframe but alluded to in the Landing Page).

Unwanted Thoughts

Problem: Some participants may add thoughts that are unwanted. The viewers of the occasion may not want to see thoughts containing vulgar, insensitive or negative thoughts.

Potential Solution: To solve this problem we have made the following design choices:

- The creator of the event will act as a moderator of the content of the occasion. Before exporting the occasion she will have the option of removing any unwanted thoughts.
- One caveat is that if another participant views the page before the creator edits it and they have permission to view the content of unwanted thoughts, they will see that content. A potential solution and a trade-of with populating the collage instantaneously is to require the creators approval before adding any content. We wanted to avoid this to make the app more real time.

Privacy Concerns

Problem: The content that the users produce may be embarrassing, personal or sensitive. In all of these cases, participants may want such content to only be visible to certain users and not others. For a similar reason, the creator may not want anyone with the link to be able to access the collage.

Potential Solutions: To solve this problem we have made the following design choices:

- The creator of the event can see all the thoughts added by participants. This fits with the user model since they are clearly invited by the creator to add a thought. This also has the added advantage of using the creator as a moderator and a filter of any unwanted thoughts.
- The creator also controls who can access the occasion. This will solve the problem of who can access the occasion.
- Participants can further choose who will be able to view the thoughts they added. That way participants will feel comfortable sharing personal thoughts.