

**Technical Specifications**

**USC** CSCI 201

**1. Overview**

**1.1 Abstract**

This document describes a proposed detailed design and implementation of *Whiteboard*, an academic collaboration tool for students.

**2. Architecture**

**2.1 System Architecture**

• *Whiteboard* shall run on a hardened and updated cloud server running Ubuntu 14.04 x64.

• The system shall use NGINX for request routing and for serving static content.

**2.2 Application Architecture**

• *Whiteboard* shall be served by a Java application that will handle requests delivered from the frontend and interact with the database backend.

• The application frontend shall be compatible and optimised for modern supported desktop and mobile browsers.

**2.3 Hardware Requirements**

• The minimum hardware requirements shall be 512MB memory and 20GB storage.

**2.4 Software Requirements**

• The Java application shall run on Java 8 and later.

• The database backend shall utilize an InnoDB instance of MySQL.

• The application frontend shall employ the use of JavaScript EMCA 5, CSS 3, and HTML 5.

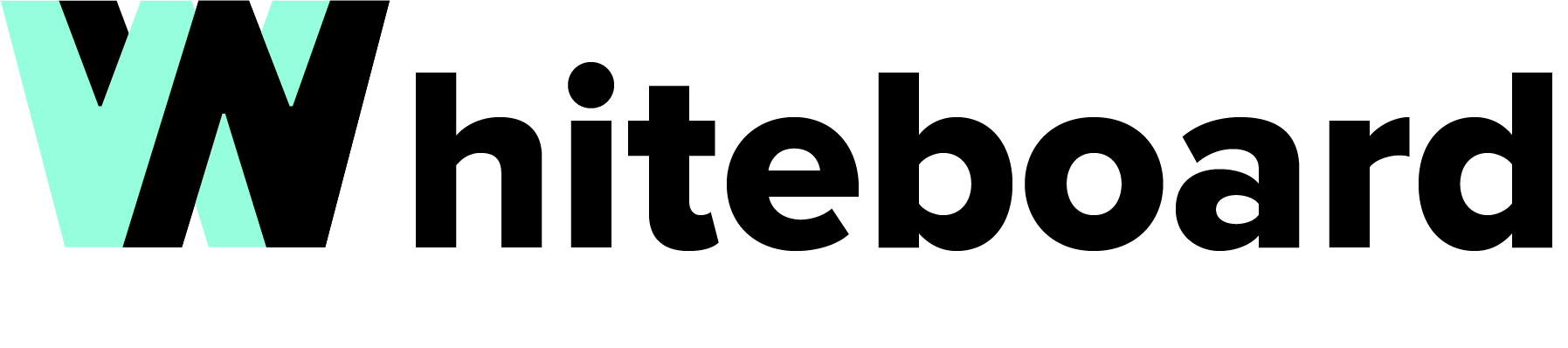
**3. Design Details**

**3.1 User Interface Style Guide**

*Whiteboard* strives for a clean, focused design that utilizes neutral colors that contrast with the *Whiteboard* Green accent for key interactive elements. Page elements shall be flat with conservative use of stylistic contrivances such as drop shadows and gradients. Likewise, floating elements shall be kept at a minimum.

Typographically, *Whiteboard* uses Proxima Nova for its brand font. If Proxima Nova cannot be licensed, the preferred fallback fonts of San Francisco, Helvetica Neue, Arial, and the system-defined sans serif font should be used instead.

Interactive elements such as buttons shall be fully rounded for a distinctive *Whiteboard* brand appearance and highlight on hover or tap.

Use of the *Whiteboard* logo and its variants shall be done depending on the contrasting background color. The *Whiteboard* Green logo is the primary logo colorway and should only be used with Black, White, and non-duotone photography. The logo shall never be rotated, recolored, or obscured in the application.

The *Whiteboard* logo shall have a minimum size of 70px horizontally. The *Whiteboard* icon shall have a minimum size of 24px horizontally. These constraints are to ensure legibility and preserve recognizability of the *Whiteboard* brand.

**4. Pages**

**4.1 Landing Page**

• Allows the user to both register a new account and login to an existing one

• If the a new user is created, they will be prompted to add their course IDs and profile information.

• If an existing user is logged in, they will be redirected to the homepage.

• Allows the user to login as a guest with read-only permissions.

• Provides a visually appealing introduction to *Whiteboard*.

• Includes links to informational pages that do not utilize login credentials:

• About: a page that describes the features and purpose of our application.

**4.2 Homepage**

• The page should have a sidebar consisting of the different channels the user has previously joined.

• Each channel icon should be clickable and should allow the user to navigate to respective course channel.

• Each channel icon should have a course ID as its heading to indicate which course it represents.

• The page should have a toolbar at the top consisting of:

• A “my profile” icon which allows the user to navigate to their profile page.

• A “settings” icon which allows the user to configure personal settings.

• A “my courses” icon which, upon click, displays a dropdown list of courses the user is currently registered with. Each item on the list should be clickable and navigate to the given course page.

• A search bar which allows the user to search for other users and other classes.

~~• A “messages” icon which allows the user to navigates to their private message page. A red number at the top of this icon should display the current count of unread messages.~~

~~• A “notification” icon which, upon click, displays a dropdown list of notifications. A red number at the top of this icon should display the current count of unread notifications.~~

• The main section of the page should serve as a personalized news feed consisting of:

• Notifications from site friends (i.e. ~~current study location,~~ newly uploaded documents, new post, etc.)

• Important or starred notifications from each class channel will also be displayed here.

**4.3 Course Pages**

• Maintains the sidebar with the all course channels from the home page.

• Indicates which course is currently being viewed by highlighting the selected course.

**4.3.1 Course Channel Chat**

~~• Displays the chat channel of a course under its course heading.~~

• A floating chat channel that will persist on the different tabs of the course page.

• Displays each message in chronological order with the associated user and icon.

• Serves as a place to ask quick questions and have casual discussion about course material.

• Shall be able to be minimized to the bottom of the current page.

~~• Maintains the toolbar of the home page with the same navigational abilities.~~

~~• Maintains the sidebar with the all chat channels from the home page.~~

~~• Indicates which channel is currently being viewed by highlighting the selected channel.~~

**4.3.2 Course Forum Page**

• Displays each post title as its own item in a list along with its associated number of upvotes.

• Allows the user to vote the post down or up.

• Displays the body text of each post below and slightly indented of the post title.

• This allows the user to determine if the question is relevant to their interests without navigating away from the forum page.

~~• Displays the body text of the top comment below and indented of the post.~~

~~• Allows the user to view the comment that is most relevant to the post without clicking away from the forum navigation.~~

• Allows the user to click on a post to go to the post’s page and view all comments as well as add their own.

**4.3. Forum Post Page**

• Displays the post’s title, number of upvotes, and body.

• Displays each comment in descending order based on its number of upvotes.

• Allows the user to vote on the post and each comment.

• Allows the user to reply to the post or to a particular comment.

• Clicking the reply button on the post or any comment will expand a text input below the item in which the user can enter their reply.

**4.3.4 Course Documents Page**

• Displays documents in a grid format with the document title and its file extension and file size.

• ~~Includes a search bar and a “filter by” dropdown menu at the top of the page that allows the user to search for a specific document or sort either by the time it was added, the number of views it has, or alphabetically.~~

• Has an “Upload a Document” button that allows a user to select a file from their local machine to upload to the documents page that they are on.

• Clicking a document either starts a download of the file, ~~or opens it if it is a supported file type.~~

**4.3.5 Course Whiteboard**

• Each course shall have a virtual whiteboard that the users can draw or type on.

• Users shall have the ability to select a drawing tool and drawing color from a panel.

• Changes made to the whiteboard shall be automatically included and saved to the overall whiteboard upon interaction with the page ~~expire after a certain period of time unless made permanent by the user through an option menu on the drawn element.~~

• Whiteboard will serve as the default homepage when a user clicks on a course channel icon.

**~~4.4 Private Messages Page~~**

~~• The message page shall have a sidebar of current and past message threads.~~

~~• Clicking on a thread opens the chat content into the main body of this page.~~

~~• Message elements shall display the message sender and a snippet of the message body contents.~~

**4.5 User Settings Page**

• Settings for the user shall be listed in a page-based navigational hierarchy allowing the user to select a category and view the relevant preferences.

• Changes to preferences shall be made immediately, but the page shall also display a button allowing the user to manually “save” their changes.

**4.6 User Profile Page**

~~• Displays the number of hours the user has studied for the current week, per class.~~

• Displays the user’s current enrollment of classes.

• Displays a feed of their recent actions (i.e. enrolling in a new course on the site, uploading a new document, etc.)

**5. User Types**

**5.1 Guest**

• Shall have read-only access to *Whiteboard* but can view courses not marked as “private.”

**5.1 Base User**

• Inherits all read-only privileges from *Guest*.

• Is able to view all content associated with a course, as well as post content in the classes that the user has registered for.

• This is the user type associated with an account by default.

• Actions of a *Base User* will only notify friends of the user.

**5.2 Teacher’s Assistant**

• Inherits all read-only privileges from *Base User*.

• Is course-specific, meaning additional privileges do not carry over into other courses.

• Is able to delete chat messages, forum posts or replies, documents, as well as whiteboard items.

• Is able to add or remove users from the class the user is a *Teacher’s Assistant* for.

• Actions of the *Teacher’s Assistant* will notify all members of the class unless the action is replying to a forum post in which case it will only notify users who have replied to the post.

**5.3 Instructor**

• Is course-specific, meaning additional privileges do not carry over into other courses.

• Inherits all privileges of the *Teacher’s Assistant*.

• Is able to grant existing users *Teacher’s Assistant* status.

• Actions of the *Instructor* notify all members of the class.

**5.4 Moderator**

• Inherits all privileges of the *Teacher’s Assistant* type but across all courses.

• Has additional abilities to suspend or ban accounts from the site.

• Is able to grant existing users *Teacher’s Assistant* and *Instructor* status.

• Actions of the *Moderator* notify users on the same basis of the *Base User* as well as being added to a log of all *Moderator* actions that is viewable by other *Moderators* and by *Admins*.

**5.5 Admin**

• Inherits all privileges from *Moderator*.

• Is able to grant existing users any new type.

• Is able to create and delete courses and users.

• Has access to an admin panel with application logs and site analytics.

• Actions of the *Admin* notify and are logged on the same basis as those of the *Moderator*.