

Project Proposal

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Elevator Pitch

Our project is a virtual whiteboard where people can write text and draw on a common canvas, save their work and return to it. Users can create canvases which they can then share with other users to collaborate. Each user can choose the colour and size of their brush which they can use to draw on the canvas. Users can save the state of the canvas to work on it later, upload a pre-existing canvas to edit, and download the canvas as a JSON or PNG.

Introduction

For our project we intend to create and implement a virtual whiteboard space called a canvas in which various users may come together in order to digitally collaborate by using the space to visually represent ideas and processes. Our canvas will achieve digital collaboration by allowing users to create a canvas space and invite team members onto the canvas. Users may then make use of the canvas tools such as free drawing or writing to note down ideas, drag and drop items such as sticky notes to promote organization, and the implemented live chat for members to utilize in order to communicate with each other. Members of the canvas will be provided the options to save the current state of the canvas, download the canvas as a JSON or PNG file, upload a pre-existing canvas, and view previous edits or versions of the canvas. Each user will have a unique account which will allow them to refer back to the canvas' they have been added to.

The project consists of three main states: Login, Canvas View, and Active Canvas Session. The Login stage is where users login to their account. The Canvas View is where users can see all previous canvas' they have been invited to, and upload Canvas JSONs as a new Canvas. The Active Canvas Session is a real time system which allows for collaborative features and downloading the JSON or PNG version of the canvas.

User Requirements

We will have two main users for our application. They will have different levels of permission and will be differentiated based on their login information.

- Admin Superuser:
 - Access to all the canvases created by all users in the system
 - Plus, all functionalities of a 'Regular User'
- Regular User:

- Access to all canvases created by them
- Access to all canvases shared with them
- Can invite other users to their canvases
- Can create and delete their own canvases

Functional and Implementational Requirements

These are all of the functional and implementational requirements:

- Login to application (regular user)
- Login to application (admin superuser)
- Create canvas
- Add sticky note to canvas
- Add title to canvas
- Add canvas name to canvas object
- Invite other users to canvas
- Freehand drawing
- See other users' edits in real-time
- Save state of canvas
- Choose colour of brush/pen
- Choose size of brush/pen
- Live chat
- View saved canvas
- Download canvas as JSON
- Download canvas as PNG
- Upload canvas

Please refer to [the appendix](#) for details on each of these functionalities.

Proposed Technologies

React: We will use this JavaScript framework to create the user interface for our application.

Bootstrap: We will use this CSS framework to style the user interface to be mobile friendly and responsive for our application.

Socket.io: We will use this library to create client-side and server-side sockets for real-time communication for our application. This will make sure the canvas and live chat will be real-time for all the users.

Node JS: We will use Node JS for backend socket connections and user management. Additionally this backend will be responsible for connecting with the database.

MySQL: A MySQL database will be used to store login information and canvas data

Appendix

This Appendix contains the details of the functional and implementation requirements, each include a priority, estimate and Acceptance Criteria.

Title: Login to Application	ID: 1	Priority: High	Estimate: 3 hours
<p>As a regular user</p> <p>I want to provide a username and password</p> <p>so that I can access my account and previous canvas' I've been a part of</p>			
<p>Acceptance criteria</p> <p>Given <i>The webpage is set up</i></p> <p>When <i>correct login information is provided</i></p> <p>Then <i>the user is taken to their previous canvas view.</i></p>			

Title: Login to Application (Superuser)	ID: 2	Priority: High	Estimate: 5 hours
<p>As a Super User</p> <p>I want to provide a username and password</p> <p>so that I can access my account and view all canvas' within my organization</p>			
<p>Acceptance criteria</p> <p>Given <i>The webpage is set up</i></p> <p>When <i>correct login information is provided</i></p> <p>Then <i>the user is taken to the all canvas view.</i></p>			
Title: Create Canvas	ID: 3	Priority: High	Estimate: 4 hours
<p>As a regular user</p> <p>I want to create a new canvas</p> <p>so that I can write my ideas collaboratively with others.</p>			
<p>Acceptance criteria</p> <p>Given <i>The user is logged in</i></p> <p>When <i>the new canvas button is pressed</i></p> <p>Then <i>a new canvas session is created with a unique id for others to join.</i></p>			

Title: Add Sticky Note To Canvas	ID: 4	Priority: High	Estimate: 1 hour
<p>As a regular user</p> <p>I want to add a sticky note that I can type on</p> <p>so that I can add my idea to the canvas</p>			
<p>Acceptance criteria</p> <p>Given <i>The user is in an active canvas session</i></p> <p>When <i>the add sticky note button is pressed</i></p> <p>Then <i>a sticky note appears at a random point on the page that's text can be edited.</i></p>			
Title: Add Title to Canvas	ID: 5	Priority: High	Estimate: 1 hour
<p>As a regular user</p> <p>I want to add a title to the top of my canvas</p> <p>so that I can summarize what the canvas is about.</p>			
<p>Acceptance criteria</p> <p>Given <i>The user is in an active canvas session</i></p> <p>When <i>the add title button</i></p> <p>Then <i>a title box appears at the top of the page that's text can be edited.</i></p>			

Title: Add Canvas Name to Canvas Object	ID: 6	Priority: High	Estimate: 1 hour
<p>As a regular user</p> <p>I want to Give my canvas a unique canvas name</p> <p>so that I can access it again later.</p>			
<p>Acceptance criteria</p> <p>Given <i>The user is in an active canvas session</i></p> <p>When <i>the save as button is selected</i></p> <p>Then <i>a save as dialog window appears allowing for changing the name and saving as a new canvas</i></p>			
Title: Invite other users to Canvas	ID: 7	Priority: High	Estimate: 5 hours
<p>As a regular user</p> <p>I want to Give others access to my canvas</p> <p>so that I can work with others in real time.</p>			
<p>Acceptance criteria</p> <p>Given <i>The user is in an active canvas session</i></p> <p>When <i>the add people to canvas button is pushed</i></p> <p>Then <i>a list of registered users appears and can be added to the canvas</i></p>			

Title: Freehand drawing	ID: 8	Priority: High	Estimate: 5 hours
<p>As a regular user</p> <p>I want to draw on the canvas with a brush</p> <p>so that I can draw on the canvas...</p>			
<p>Acceptance criteria</p> <p>Given <i>The user is in an active canvas session</i></p> <p>When <i>the user clicks on the screen with the brush tool selected</i></p> <p>Then <i>and brush stroke appears on the screen with the colour and size of the brush that was selected</i></p>			
Title: See other users' edits in real-time	ID: 9	Priority: High	Estimate: 10 hours
<p>As a regular user</p> <p>I want to see other users' edits in real-time</p> <p>so that I can keep track of all updates to the canvas</p>			
<p>Acceptance criteria</p> <p>Given <i>The user is in an active canvas session</i></p> <p>When <i>another user is working on the canvas at the same time and makes an edit</i></p> <p>Then <i>the user can see the other user's edits to the canvas</i></p>			

Title: Save state of canvas	ID: 10	Priority: High	Estimate: 5 hours
<p>As a regular user</p> <p>I want to save the state of the canvas so that I can work on the canvas later</p>			
<p>Acceptance criteria</p> <p>Given <i>The user is in an active canvas session</i></p> <p>When <i>the user clicks the save button</i></p> <p>Then <i>the canvas object is saved and can be accessed again later</i></p>			
Title: Choose colour of brush/pen	ID: 11	Priority: High	Estimate: 1 hour
<p>As a regular user</p> <p>I want to choose the colour of my brush/pen so that I can customize how I want to draw on the canvas</p>			
<p>Acceptance criteria</p> <p>Given <i>The user is in an active canvas session</i></p> <p>When <i>the user clicks the colour wheel</i></p> <p>Then <i>the colour of the brush is changed to whatever the user chooses</i></p>			

Title: Live Chat	ID: 12	Priority: High	Estimate: 8 hours
<p>As a regular user</p> <p>I want to chat with other users working on the same canvas</p> <p>so that I can coordinate with the other users</p>			
<p>Acceptance criteria</p> <p>Given <i>The user is in an active canvas session</i></p> <p>When <i>another user is working on the same canvas</i></p> <p>Then <i>the two users can communicate with each other through a live chat</i></p>			
Title: View saved canvas	ID: 13	Priority: High	Estimate: 3 hours
<p>As a regular user</p> <p>I want to view a canvas that I saved previously</p> <p>so that I can continue working on it</p>			
<p>Acceptance criteria</p> <p>Given <i>The user is in the main menu that lists all of their canvases</i></p> <p>When <i>the user clicks on one of the canvases</i></p> <p>Then <i>the canvas opens as it was saved and the user can continue working on it</i></p>			

Title: Download Canvas as JSON	ID: 14	Priority: Low	Estimate: 3 hours
<p>As a regular user</p> <p>I want to download a JSON object structure</p> <p>so that I can upload it later as a copy</p>			
<p>Acceptance criteria</p> <p>Given <i>The user is in an active canvas session</i></p> <p>When <i>the user clicks the download button</i></p> <p>Then <i>the canvas JSON object is downloaded to the users device.</i></p>			
Title: Download Canvas as PNG	ID: 15	Priority: Low	Estimate: 3 hours
<p>As a regular user</p> <p>I want to download a PNG of my canvas</p> <p>so that I can view it outside of the application</p>			
<p>Acceptance criteria</p> <p>Given <i>The user is in an active canvas session</i></p> <p>When <i>the user clicks the download PNG button</i></p> <p>Then <i>the canvas PNG is downloaded to the users device.</i></p>			

Title: Upload Canvas	ID: 16	Priority: Low	Estimate: 10 hours
<p>As a regular user</p> <p>I want to upload a previous canvas</p> <p>so that I can view it in the application</p>			
<p>Acceptance criteria</p> <p>Given <i>The user is on their canvas view page and has a canvas JSON structure</i></p> <p>When <i>the user clicks the upload file button and selects the JSON</i></p> <p>Then <i>the canvas is loaded with all objects.</i></p>			