The Canvas App

**Overview**

The Canvas App (pending better name) is a messenger app with the primary medium being a canvas, where users have the freedom to sketch, type, and embed objects.

**Canvas Mechanics**

The canvas is analogous to a canvas roll in the physical world. Users can freely scroll up and down, to view and edit different parts of the canvas roll. Users can view and edit any parts of the canvas at anytime, although naturally, new additions to the canvas would occur in a downward direction. Since the entire canvas is dynamic, the app keeps track of when additions occur, and users can view what the canvas looked like at different times.

In other words, the canvas has two dimensions: the z-dimension (the location on the canvas roll), and the t-dimension (the time).

**Drawing Mechanics**

Users have the option to sketch, type, or embed objects.

* In sketching, users can customize the color and brush size while making additions to the canvas. Users can also erase, which reverts area being erased back to a blank canvas. Erasing affects sketches, types, and embedded objects the same.
* In typing, users can customize the font and color. Once something is typed, a text box is created, which can be resized and rotated.
* In embedding objects, users can add pictures and emojis (and possibly videos/gifs/etc later). A box is created which can be used to resize and rotate the objects.

Both types and embedded objects retain a box that can be used to resize and rotate the objects, until an erasing operation is done within the box. The canvas is dynamically updated as soon as operations are done, so all users will always see the exact same canvas. Users can also undo their operations.

**User Navigation**

A sidebar exists which marks unseen additions, and the users who have contributed to the area of the canvas. In addition, a canvas overview can be shown, which shows the entire canvas and makes it easy for users to navigate quickly to different areas of the canvas. When users enter a chat room, they will be prompted to view the new additions, if applicable.