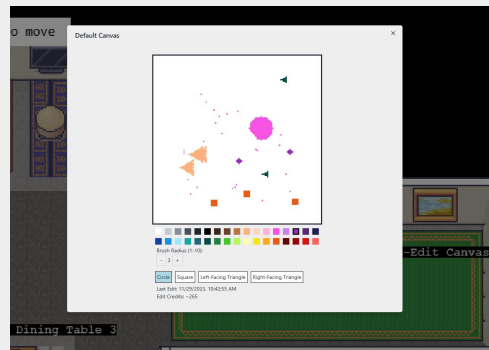


# CS4530 Final Project: Art Canvas Area

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## Our Feature

Our project introduces the Art Studio, a collaborative space within the game where players can collectively contribute to an interactive canvas. Simply walk to the interactable area, and press space to open the canvas. Users can choose from various colors and brush types/shapes to draw on the canvas. It costs "edit credits" to paint on the canvas. The player is given 64 edit credits initially, and these regenerate over time. This way, one person can't take complete control of the canvas, and the work becomes more shared between users. We believe that the Canvas Area will give players an interesting way to interact and collaborate within the town and leave their mark for other players to see.



## Technology Stack and Design

We introduced a new *CanvasArea* which extends the existing *InteractableArea* component. A *CanvasArea* is represented as a 2D array of pixels in the backend, and each player's credits and permissions are controlled by the *PlayerProperties* component. When a canvas update is made using a 'paintPixels' interactable command, an 'interactableUpdate' call is emitted to all users in the canvas, refreshing the canvas for users to see updates in real-time.

## Future Work

Some features that we were unable to include due to lack of time, but would like to implement if we had more time in the future, was the implementation of per-user private canvases, where a user could draw on their own, and share this work with others if they so choose. Another feature was the implementation of permission levels, where there would be admins who can draw without restriction in order to moderate any unsavory activity on the canvas. These are both features that would allow for more flexibility in the ways that people can draw on the canvas, adding a personal aspect to the feature as an alternative to the default public canvases, as well as users who can oversee the feature without restriction. Additionally, a custom update system that provides incremental updates (rather than whole-area 'interactableUpdate's) would help to improve performance and reliability.

## Demo

Demo site is available on [Render](#) and source code is available on [GitHub](#).