

# Introduction to Programming II

## Project Log

|  |                                    |   |  |   |  |
|--|------------------------------------|---|--|---|--|
| Project title:   | DrawJS – Drawing App               |   |  |   |  |
| Topic:   | Topic 7 Extending the apps, part 3 |   |  |   |  |
| What progress have you made this topic?  |                                    |   |  |   |  |
| <p>This topic, I worked on the scissor tool, brush size selections and an eraser tool..</p> <p>For the scissor tool:</p> <ul style="list-style-type: none"><li>- Implemented the icon and name needed for the toolbox</li><li>- Implemented the selectMode, a selectedArea class, a selectedPixels variable as shown in the lectures.</li><li>- Implemented populateOptions</li><li>- Implemented buttons, mouse dragging as well as mousePressed functions with the help of helper functions to run them as p5js functions.</li></ul> <p>For brushSize selections:</p> <ul style="list-style-type: none"><li>- Since this is an enhancement to lineToTool and freehand tool, I worked on implementing sliders for these tools. I also created helper functions to be able to implement these sliders easily when navigating different pages as well as a global boolean brushController.</li><li>- Since we need to use strokeWeight() function and in the future I will add more brush enhancements such as brush opacity, and will need to work with alpha values, as well as stroke() function, I implemented a mapColorToRGB in the helper functions to map text color values to RGB.</li><li>- I implemented the sliders as well as brushSize variable to lineToTool and freeHand tool and it works to make these tools bigger in their sizes.</li></ul> <p>For the eraser tool:</p> <ul style="list-style-type: none"><li>- Implemented the icon and name needed for the toolbox.</li><li>- Added eraser modes as a variable, which is either square or round and an eraserRadius variable so that user can choose how effective their eraser to be.</li><li>- Since I want a background selection in the future and I want the eraser to always color the canvas to the supposed background, I implemented the variables for this.</li><li>-</li></ul> <tr><td colspan="2">What problems have you faced and were you able to solve them?</td></tr> <tr><td colspan="2"><ul style="list-style-type: none"><li>- I encountered some problems when implementing brushSize. It required a lot of testing for it to work completely. Mainly the problem was with HTML elements in the options div. I needed to make sure I implemented the variables as globals so that I can keep track of these sliders.</li><li>- Scissors tool did not work. I was not able to solve this issue. I followed the lecture example, as well as trying out the lecture example. Currently, lecture example and the example file given in this topic <b>does not work. I implemented a very similar workflow</b>, however, it does not work as well as the lecturer example. I will try to find a way to implement this tool in a different way. If I can not, I may have to find another extension to do.</li></ul></td></tr> |                                    | What problems have you faced and were you able to solve them? |  | <ul style="list-style-type: none"><li>- I encountered some problems when implementing brushSize. It required a lot of testing for it to work completely. Mainly the problem was with HTML elements in the options div. I needed to make sure I implemented the variables as globals so that I can keep track of these sliders.</li><li>- Scissors tool did not work. I was not able to solve this issue. I followed the lecture example, as well as trying out the lecture example. Currently, lecture example and the example file given in this topic <b>does not work. I implemented a very similar workflow</b>, however, it does not work as well as the lecturer example. I will try to find a way to implement this tool in a different way. If I can not, I may have to find another extension to do.</li></ul> |  |
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### What progress have you made this topic?

This topic, I worked on the scissor tool, brush size selections and an eraser tool..

For the scissor tool:

- Implemented the icon and name needed for the toolbox
- Implemented the selectMode, a selectedArea class, a selectedPixels variable as shown in the lectures.
- Implemented populateOptions
- Implemented buttons, mouse dragging as well as mousePressed functions with the help of helper functions to run them as p5js functions.

For brushSize selections:

- Since this is an enhancement to lineToTool and freehand tool, I worked on implementing sliders for these tools. I also created helper functions to be able to implement these sliders easily when navigating different pages as well as a global boolean brushController.
- Since we need to use strokeWeight() function and in the future I will add more brush enhancements such as brush opacity, and will need to work with alpha values, as well as stroke() function, I implemented a mapColorToRGB in the helper functions to map text color values to RGB.
- I implemented the sliders as well as brushSize variable to lineToTool and freeHand tool and it works to make these tools bigger in their sizes.

For the eraser tool:

- Implemented the icon and name needed for the toolbox.
- Added eraser modes as a variable, which is either square or round and an eraserRadius variable so that user can choose how effective their eraser to be.
- Since I want a background selection in the future and I want the eraser to always color the canvas to the supposed background, I implemented the variables for this.
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### What problems have you faced and were you able to solve them?

- I encountered some problems when implementing brushSize. It required a lot of testing for it to work completely. Mainly the problem was with HTML elements in the options div. I needed to make sure I implemented the variables as globals so that I can keep track of these sliders.
- Scissors tool did not work. I was not able to solve this issue. I followed the lecture example, as well as trying out the lecture example. Currently, lecture example and the example file given in this topic **does not work. I implemented a very similar workflow**, however, it does not work as well as the lecturer example. I will try to find a way to implement this tool in a different way. If I can not, I may have to find another extension to do.

- I needed to find out how to make the eraser tool work but I quickly realized just coloring the pixel in the same color as the background is a fake but solid way to make this tool work.

### **What are you planning to do over the next few weeks?**

- I am planning to pursue other ways to make the scissor tool work. If not, I will give up this tool.
- I will start the bucket tool implementation as well as backgroundColor selection for drawing the whole canvas to a certain color.
- I will start spray effects.
- I will work on the brush opacity choices.

### **Are you on target to successfully complete your project? If you aren't on target, how will you address the issue?**

Yes, but I will need to make modifications to my final plan if I am not able to solve the problem with scissorTool.

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|  |                       |
|--|-----------------------|
| <b>Project title:</b>  | Draw JS – Drawing App |
| <b>Topic:</b>  | Topic 8 - Callbacks   |
| <b>What progress have you made this topic?</b>   |                       |
| <p>Background Color:</p> <ul style="list-style-type: none"><li>- In addition to the mentioned tools, I also implemented background color customization. A button labeled "Set Background Color" was added, which allows users to easily change the canvas background color. When the button is clicked, the canvas background is set to the current selected color, ensuring a seamless and user-friendly experience.</li></ul> <p>Bucket Tool:</p> <ul style="list-style-type: none"><li>- For the bucket tool, I made several key implementations. I created an icon and assigned a name for this tool within the toolbox. The bucket tool serves as a flood fill tool, which allows users to click on the canvas to fill areas with the currently selected color. When the mouse is pressed on the canvas, the tool checks if the mouse press occurred within the canvas boundaries and performs a flood fill operation accordingly. This operation recursively fills an area with the replacement color, ensuring that the user's desired changes are applied consistently.</li></ul> <p>Spray Customization:</p> <ul style="list-style-type: none"><li>- Regarding the spray customization feature, I extended the SprayCanTool. Users can:</li><li>- adjust the number of points and the spread of the spray,</li><li>- Two spray modes, "square" and "round," are available, allowing users to switch between different spray patterns. While using the "square" mode, the tool generates a square-shaped spray pattern when the mouse is pressed, and in the "round" mode, it simulates a round-shaped spray pattern</li><li>- I also kept the brush controllers for the size and plan to implement brushOpacity to this tool as well.</li></ul> <p>Scissor Tool:</p> <ul style="list-style-type: none"><li>- From previous log, I did not manage to solve the issue with my tool. I will keep my code but remove the functionality to show the work I did. I will try to work towards another extension to replace scissor tool and possibly bucket tool.</li></ul> |                       |
| <b>What problems have you faced and were you able to solve them?</b>   |                       |
| <ul style="list-style-type: none"><li>- Background color functionality broke eraser tool multiple times, I needed some global variables to keep track of the current background color.</li><li>- Bucket tool does not work currently. I tried every possible solution with set() and get() functions. This does not work. In its current stage of the code, I am hitting a max stack size error which I can not go past. I will try to research other solutions. If not, I will try to find another extension to do.</li><li>- I needed a simple algorithm to solve how to do square spray mode. I solved this easily.</li></ul>   |                       |
| <b>What are you planning to do over the next few weeks?</b>  |                       |

Work on a new tool called TextTool where the user will be able to write text, delete it, change its size and color. I will also add brush opacity.

**Are you on target to successfully complete your project? If you aren't on target, how will you address the issue?**

I may not have time for some final polish when doing the project. I was planning on changing my UI as well as some styling. I do not think I will have time for this. I will have enough time for my functionality.

# Introduction to Programming II

## Project Log

Project title:

DrawJS – Drawing App

Topic:

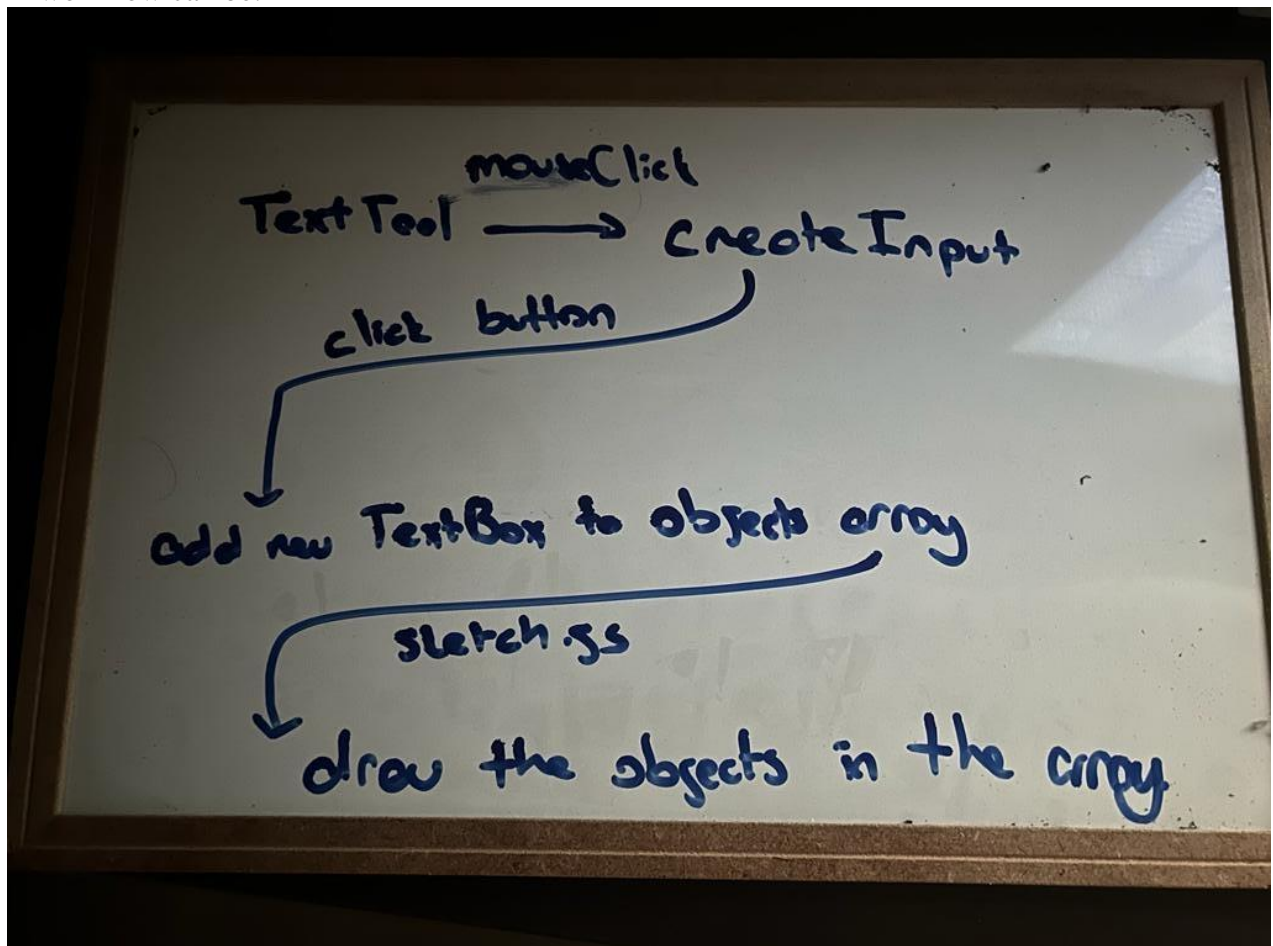
Topic 9 Testing for stability

What progress have you made this topic?

For the Text Tool I implemented functionalities for:

- Icon and name to fit with the toolbox
- Open up an input field when the user clicks
- When the user clicks on the finish writing button, a new TextBox object to get created
- Draw and erase methods inside the textbox
- A method to the toolbox, to add objects in to an array in the toolbox called addObject
- In sketch.js file, this array gets drawn if the object's text value is not empty.

A workflow can be:



For Brush Opacity:

- I implemented a currentAlpha global variable to keep track of the variable between different tools
- I added a brush opacity slider
- I added the brush opacity html code to my helper functions.

- I added the currentAlpha code to my mapColortoRGB function so that alpha values can be read to different colors.

### **What problems have you faced and were you able to solve them?**

- I figured out that I needed to add my alpha colors too late which made me lose time.
- I had a problem with the text tool adding new texts to each position on each new textbox creation. I found out that I was creating the variable for the input too early in the constructor.
- I had a problem with each text getting super cloudy with strokes. I added a noStrokes() function to the end of my draw method in the textboxes.
- All the colors were changed when one of the textboxes were created with a different color. I realized I was passing a variable to create a textbox, rather than a constant color RGB value. I fixed the issue by temporarily storing my value and then passing that to my text box object.
- I had a problem with my input field getting buggy. I fixed it as to the best of my capability.

### **What are you planning to do over the next few weeks?**

- I plan to solve as much bugs as possible before submitting.

### **Are you on target to successfully complete your project? If you aren't on target, how will you address the issue?**

- Yes, I changed my plans a bit but I have finished the project on time. All I can do now is polish for UX and UI.