Final Project Drawing application

For this final project, I chose the drawing application and extended it with new features like the Editable Shape tool that can create shapes and edit it, an eraser tool that can adjust its size and outline the area that is erasing, a star trail spray tool with size and point configuration and button to upload drawings to the canvas. The codes will be written by creating new constructors or embedded to the existing constructor function if is applicable with useful comments and references if is taken and adapted from others. For example, I will create a new constructor for the eraser tool and embedded the image uploading tool to the sketch.js file as it is part of the "menu" and should be accessible all the time. At last, when a problem arises, I will first make sure I note down what the problems are in my diary. I will check chrome debug tools to spot any obvious syntax errors and to locate the line or file that was causing issues and try to solve it before seeking support from a classroom mate over social media or team then if the problem still can't be resolved I will contact by email teacher or attend CM for supports. I also use google for examples and similar issues that other people have faced example on Stack Overflow and p5 official website.

My initial plan for this project is to try to complete it within 5 weeks, write a weekly summary diary at the end of each week for future planning and plan adjustment according to my progress. This allows me to be more flexible as plans don't always follow smoothly and I did counter numerous challenges where I ended up deleting and mortifying some functions.

For example, my initial plan to complete the eraser tool with 1 week and have 3 major functions: an outline to show the area of the eraser is erasing, adjustable size and a pop-up window to inform the user how to use the eraser tool. The first problem I had was when the eraser area is shown the user press erase, the outline was being drawn to the canvas which is not what I want. After the brainstorm, I realized this problem can be solved easily by simply taking note of the stroke size and subtract the eraser showed the area and fill the area with a slightly bigger size that fills the stroke. (in other words, show eraser shape with size 49 with size 1 stroke to show the area and fill with the area with no stroke size 50 when erasing filled with white colour) I have also removed the pop-up idea to simplify my code keep it as simple and readable as possible with few lines of code because after research a pop up for an eraser is not common. During the coding process, I made sure I always create proper naming conventions to keep it easy for future edits and debugging, converting chunks of code just to do one task into a function then call the function with 1 simple line as well as adding console logs at each step if is possible to gain a better view of the steps the machine is going through to determine whether each step is doing correctly. all of these techniques allow me to spot problems instantly when is going throw a series of actions.

in future I will make sure I do researches, plan and realizing codes in terms of structure and how the codes will look like on paper before I start coding. This allows the process to look more meaningful and deconstruct a complex problem into simple tasks to formulate a solution for each. I will make sure that I test my application with users other than myself because I know that the coder and the user's needs don't always match as something the coder think is cool but the user think is totally useless and meaningless.

Project plan

2.Initial plan: add listed features to the Drawing app

- Editable Shape (1 week)
  - Able to create shapes and edit it
- Square & ellipse eraser tool (1 week)
  - with an outline to show the area of the eraser is erasing
  - Adjustable size
  - Pop up window to inform user how to use it
- Star trail (1week)
  - Size configures
- Uploading image (1week)
  - Drag and drop or Button to upload
  - Limit to only images formats
- finishing up and testing (1 week)

Progress logs

Week 1 :
Features have implemented so far:

*eraserTool: started but very buggy and does not work at all
*editShape : started but very buggy and does not work at all

End of week evaluation:
During week 1, I had a try to code the eraserTool and editShape function right into the file and I failed miserably without
any researches because I felt it should be easy, later on I know I was quite wrong because I coding on top of others code in this case
the example template is difficult without a clear understanding of the code structure. The end result is that none of the function I
Have implemented is buggy and does not work at all.

Plan for next week:
my plan for next week is start over and make sure I get a better view of the structure then restart my coding. If I get stuck and
I can't solve it myself I will ask other people to seek help or ask in the VCH.

Week 2 :
Features have implemented so far:

* eraserTool
  completed:
    1. functional ellipse eraser
       //it's working but it's still buggy and could be improved where ellipse outliner is also drawing to the canvas
  incomplete:
    1. Add a rectangle eraser

2. make eraser size Adjustable
//after research and experience with Photoshop I am thinking adding a slider to adjust the size
//However, I am having problem with adding a slider to the toolbox section
//I am gonna use the VCH to seek helps and supports in next week

3. fix bug of setting the fill and stroke colour back to what was selected (at the moment I manually set it back to black)

4. Adding pop up window when the tool is first selected for better user experience. e.g. how to switch between ellipse and squared eraser and how to adjust the eraser size

* editShape
completed:
1. functional editShape

incomplete:
1. Adding pop up window when the tool is first selected for better user experience.

Function that I have implemented to the sketch file
1. Check for weather the mouse is in the canvas
2. check and load toolSelected function to load any tool that's been selected with its default configure settings

End of week evaluation:
During week 2, I manage to have a basic working eraser tool and editshape tool working but is still incomplete. I was having problem
To find a way to add tool specific menus to the canvas because I was having problem to add multiple buttons. The edishape is functional but I
wasn't able to find a way to finish the shape.

Plan for next week: I am going to attend the VCH again to seek help and continue with my coding and make sure I follow my schedule to start coding a new function
Startracks.

Week 3 :
Features have implemented so far:
* eraserTool
completed:

1. ellipse eraser
//there are still bugs causing weird issues to leave shape outlines when erasing areas
//I am going to make sure ellipse eraser is fine before adding rectangle eraser as it shares almost the same code

incomplete:
1. Add a rectangle eraser
2. add a slider to change size of the eraser

* editShape
completed:
1. functional editShape

incomplete:
1. Adding pop up window when the tool is first selected for
better user experience.

* sprayStars
completed:
1. basic star trails
//its functional but its very basic and i am consider to improve it with more features to add to my incomplete list for next week

End of week evaluation:
During week 3, I manage to add buttons and tool menu and started the spraystars function but I felt i could improve it by adding more functions.
However, by adding buttons the edit shape and eraser tool somehow, I created new bugs which completely make the tools unusable again.

Plan for next week:
My plan for next week is to make the tool usable again and fix as much bugs as possible and complete erasertool, edishape and spraystar tools.

Week 4 :
Features have implemented so far:

* eraserTool
1. Add a rectangle eraser
2. add a slider to change size of the eraser

* editShape
1. Adding pop up window when the tool is first selected for better user experience.

* sprayStars
  *size,side and spary area configure tools

End of week evaluation:
I spend a week fixing bugs and testing and i manage to get the tools working again. I have all so added the rectangel eraser,
slider to change the size of eraser. It did take me sometime research how to implemented sliders and grabbing the value from the slider to change to size.
I was still having problem with edishape finish button but i manage to overcome this problem without having the button as when switching tools or click the
editshape tool icon again will automatically finish the button. in reality i didnt acctually fix this bug but I find a way of overcome to avoid the bug and
achieve the same result. I added a pop-up window when the tool is first selected to notify the user how to finish the shape to improves user experience by over
come confusions. I also spend time adding comments to help for easy readability and convert parts codes to functions so when i reuse to create and call other functions.
It is much easier to debug and understanding what the code is doing. However, I was having problem with changing the sparystar size.

Plan for next week:
My plan for next week is to add a file import tool to upload image/drawings to the canvas and try fix the sparystar size issue.

Week 5 :(last week)
Features have implemented so far:

* eraserTool

* editShape

* sprayStars

* uploadimage
  Code is implemented in the sketch.js and index.html file

End of week evaluation:
In week 5, I spend all week trying to figguring out how to add a upload image function to allow the user to upload their drawings or image to the canvas.
It took me hours doing research and watching tutorial on YouTube I manage to successfully add and complete this function. before when i upload the image, it drawing will appear
at the button page of the drawing canvas, now the image will appear in the drawing canvas.
However, I am still having problem with the sparystar size configuration, I had to remove it.

//reference tutorial and code adopted base on for the uploading image
https://medium.com/front-end-weekly/draw-an-image-in-canvas-using-javascript-%EF%B8%8F-2f75b7232c63