

### **Elements I chose to implement for points:**

- 1) The user should be able to create up to 200 vertices on the screen by clicking their mouse. (10 points)
- 2) The user should be able to color each vertex independently with a choice of at least 5 colors. (10 points)
- 3) Allowing the user to change the background color of the canvas. (5 points)
- 4) The user should be able to choose how the vertices are drawn with a choice of at least three modes. One must be gl.POINTS. (10 points)
  - I used gl.POINTS, gl.LINES, and gl.TRIANGLE\_FAN
- 5) Use two of the following forms of input: (20 points)
  - Color Picker
  - Slider
  - Radio Buttons
- 6) The initial state of the HTML page (colors, type of drawing) should match the state of the WebGL canvas. (5 points)
- 7) Use the unused input from above of: (10 points)
  - Color Picker
  - Slider
  - Radio Buttons
- 8) Use up to two additional modes of drawing. (10 points each)
  - I added gl.LINE\_STRIP & gl.TRIANGLE\_STRIP
- 9) Providing the user an option to clear the canvas and start from scratch. (5 points)
- 10) Allow the user to change the size of the vertices drawn as points (all vertices are the same size). (10 points)

Total Points Attempted: **105 Points**

## **How to use the program:**

- 1) Firstly, choose a color for your vertex (the color of the point you wish to draw). The user may choose between a fixed set of colors (Black, Red, Yellow, Green, Blue, Magenta & Cyan)
- 2) Choose your background color (May leave as the default gray if you choose to do so will not affect the drawing aspect)
- 3) Once vertex and background color are chosen, choose the size of the points you wish to draw (note that the point size will truly only affect the point size if the “Point” Button is clicked after placing each individual point) Every point placed before finalizing the shape drawn will be the same size.
- 4) After choosing point size, choose the type of shape that wish to be drawn on the canvas.  
User may choose from the following:
  - Point: Keeps every point drawn on the canvas as a simple square
  - Line: Will connect two points in a straight line, and only two points. If 3 points are place, the final points will be excluded. If 4 points are place, two lines will drawn.  
One line between points 1 and 2, and another between points 3 and 4
  - Triangle Fan: Will draw a triangle fan between all points placed on the canvas after the previous finalization
  - Line Strip: Will connect all the points place on the canvas in the order they were place in
  - Trangle Strip: Will create a triangle strip between all points placed on the canvas after the previous finalization
- 5) Once a vertex type button has been clicked and the shape created is saved on the canvas, a user may repeat any of the previous necessary steps to continue drawing. If at any point the user wishes to clear the canvas, they may do so by clicking the button labeled “Clear Canvas”