CSE4204 | Section B2 | Computer Graphics Lab | Assignment – 2

[10 marks] Part A: Create a 2D Epicycloid. Use `GL_POINTS` in your draw call. For each click, the cusp of the Epicycloid will keep increasing. Also, the color will change arbitrarily for each click. Note that, you have to send 2D data to the shader from the CPU.

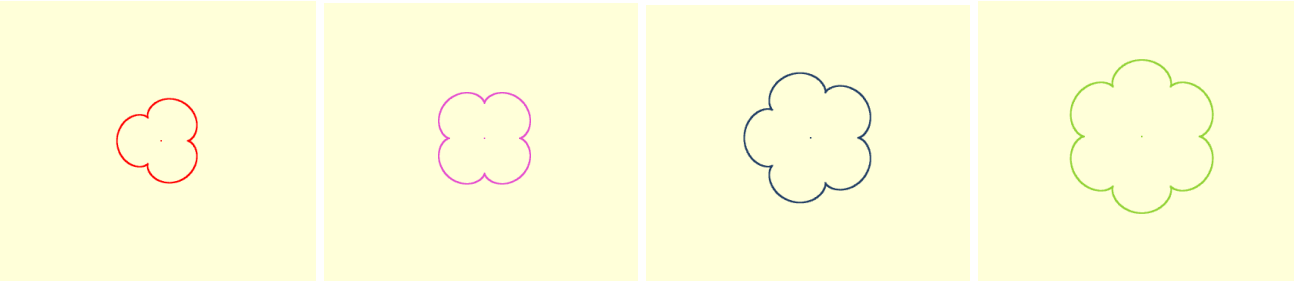

Figure: Situation of the canvas after several mouse clicking (from left to right).
See video: https://rb.gy/v0djxi

Hints:

- Epicycloid in math: https://en.wikipedia.org/wiki/Epicycloid
- You can use Math.random() function to generate random colors
- To generate the vertices for a 2D spiral in CPU, you can use JavaScript's `Math` library to apply the formula, e.g. `Math.cos()`. Use `push()` function to build up an array of vertices of the epicycloid using a loop.
- Appy optimistically while using/ reusing vertex buffer.

[10 marks] Part B: Create a 2D scenario (model) using your creativity. The model has to be created using 2D triangle mesh. Apply per-vertex color on your model. Integrate a keyboard interaction having at least one GLSL control statement (and/or built-in function) inside the shader.

Note:

- Your mesh must have at least 45 vertices in total.
- You can use `gl.TRIANGLES` and/or `gl.TRIANGLE_STRIP` and/or `gl.TRIANGLE_FAN`.

Submission Process: You have to follow the coding skeleton provided during the sessional class. Rename your file like this: **`180104001_PartA.html`**. Submission is open until the day before the next sessional class.