

CSE4204 | Section B1 | Computer Graphics Lab | Assignment – 2

[10 marks] Part A: Create a 2D flower based on Rhodonea curve. Use `GL_POINTS` in your draw call. For each click, the arrangement of the petals will keep changing. Also, the color of the points will be alternated between green and red for each click. Note that, you have to send 2D data to the shader from CPU.

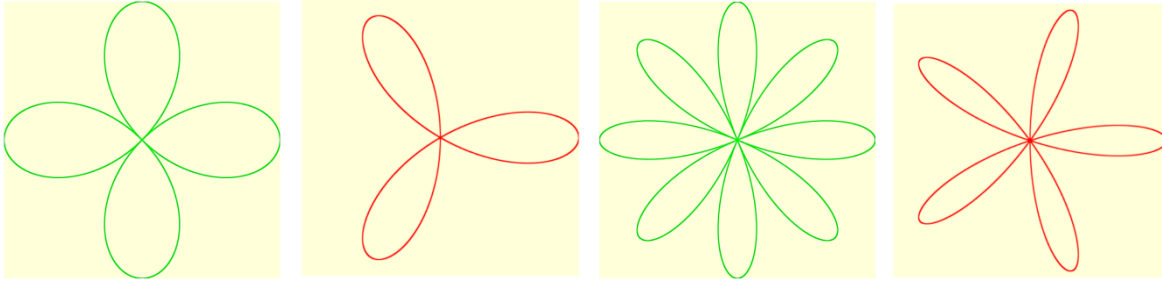


Figure: Situation of the canvas after several mouse clicking (from left to right).

See video: <https://rb.gy/ea0yi9>

Hints:

- Rose in math: [https://en.wikipedia.org/wiki/Rose_\(mathematics\)](https://en.wikipedia.org/wiki/Rose_(mathematics))
- You can track odd/ even clicking in the shader to alternate color.
- 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 spiral using a loop.

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

Note:

- Your mesh must have at least 20 triangles 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: **190204001_PartA.html, 190204001_PartB.html.**