

Assignment 1 - Generative Artwork

Aims

- Develop a piece of software that matches the task description.
- Solve problems and design software solutions using a high-level programming language and a range of technologies, protocols, and algorithms.
- Build a program with visual elements.
- Manipulate visual elements within a processing program.

Description

Generative art refers to artwork that has been created with the use of an autonomous system – in general terms, this describes a non-human system that can independently determine features of an artwork that would otherwise require decisions made directly by a human artist. Generative art can take to form of physical installations or digital displays.

In this assignment, you are going to experiment and develop a simple piece of generative artwork. The starting point for this assignment is displayed below and the [starter code can be downloaded here](#)

This pattern is created by repeated drawing lines from the center point outwards at different angles (incremented at 0.3 degrees in this case). The color for each line is updated to a slightly different shade in each iteration and the length of each line is altered using a randomized value, giving the unique shape. As the program progresses, the start length of each line (before adding random noise) is reduced by 0.05 units in each iteration, producing a layered effect.



Sample image of the starting point

Task

You will use this program as a starting point to create your own piece of generative artwork. The specific details on how you implement these items are left to you (e.g. you are free to select your own colours and patterns in your final artwork).

Modify the colour behaviour to produce your own colour pattern:

- Add additional counters to the code to control the additional colour channels. In the initial version, only one colour variable (`color_val`) is used to present a colour gradient across the blue channel. Modify the code to sweep through the red and green channels with separate counters.
- Play with the range of the colour sweep – it currently runs from 0 to 255. Modifying this will adjust the colour range.
- Add transparency to the strokes that are drawn by investigating the use of the *alpha* parameter on the stroke function.

Modify the shape of the pattern:

- The `ang_value`, `radius`, and `radius_noise` control the shape produced. Play around with these values to see the effect they have on the resulting shape.

Do something special:

Implement one additional feature to make your artwork unique. This feature can take any form you want but must add to or modify the visual elements of the program in some way.

Ideas could include:

- Background effects and colours.
- Reactive effects that change elements based on mouse or keyboard input.
- Multiple 'flowers' randomly drawn on the canvas.

You should explain your additional feature in your video reflection (See below) and summarise this in the heading documentation block within your code.