

# Generative Artwork: Reflection & Design Thinking

## Debugging & Refinement Reflection

### Starting out

When I started this project, I wanted to create a banner that felt alive. I didn't just want a static image — I wanted something that could respond to real-world changes and let users interact with it. I was really drawn to the idea of mixing nature with code: a tree that grows using recursion, a background that reflects the weather, and the ability to plant flowers by clicking.

I didn't have it all figured out from the start, but I began building one feature at a time — and learning as I went.

### Class exercises that helped me get started

To be honest, I wouldn't have known how to even begin without the exercises we did in class. Seeing how we could use `random()`, `noise()`, and recursion in P5.js really helped me understand the basics of generative visuals. Some of the sketch examples — like drawing patterns, animating shapes, or using functions like `mousePressed()` — made me realise how I could break this down and build my own version step by step.

Those smaller tasks gave me the confidence to start experimenting, and I kept referring back to them when I got stuck. They also helped me get comfortable working inside the P5.js editor, writing and testing functions, and slowly editing them into something more personal.

### Making weather feel dynamic

Originally, I used `wtrr.in` for live weather, but it kept showing “sunny” no matter what — which made the background feel fake. That pushed me to find something better.

I switched to **Open-Meteo**, which gives real weather data using codes. I used `console.log()` to figure out the structure of the response, and then I mapped the codes to simple states like clear, cloudy, and rainy. It took a bit of trial and error, but once it worked, it felt way more authentic.

### Understanding recursion for the tree

The tree is drawn using **recursion**, and at first, I didn't fully get how it worked. The branches were going in weird directions and looked completely off. But after playing around with the angles and scaling, I started to see how each layer fit together.

Renaming the function to `drawFractalTreeRecursive()` helped me understand what it was actually doing, and made it easier to manage. Watching the tree evolve and take shape as I tweaked the values was one of the most satisfying parts of the whole project.

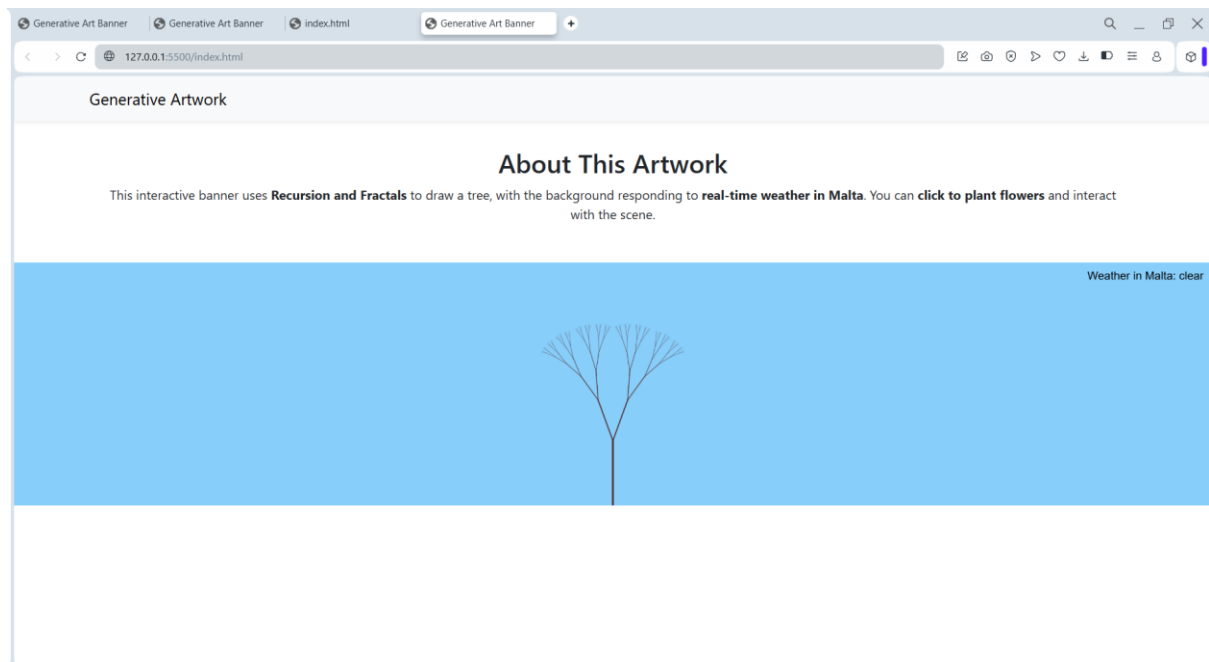
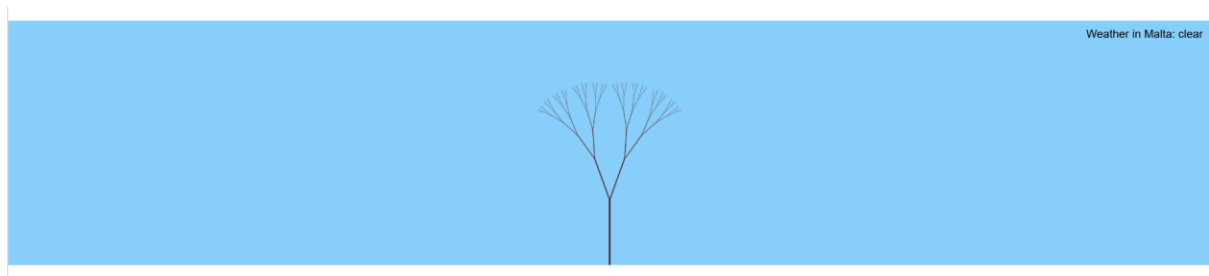
## Making interaction feel meaningful

I wanted users to be able to interact with the banner, so I added a flower-planting feature. At first, it was just small circles with random colours — and they didn't really stand out. I used `map()` to vary the size and adjusted the colour palette to make them more vibrant and noticeable.

I also added `noLoop()` to stop the canvas from constantly redrawing, so now it only updates when a flower is added or the weather loads. That made it run much smoother.

## Cleaning up the layout

Once the artwork worked technically, I realised the page still looked really plain. I added **Bootstrap** to give the layout some structure — a navbar, cleaner spacing, and a proper header section to hold the canvas. That small design update made the whole thing feel more polished and complete.



## Critical Reflection

## Why this kind of work matters

This project made me realise that generative art isn't just about making visuals with code — it's about building systems that react to data and people. That's what I tried to do here: combine recursion (for the tree), real-time weather (for the sky), and mouse interaction (for the flowers) to make something that feels dynamic and alive.

## Where it could go

Even though this is a small project, it could easily be expanded into:

- A **live website banner** that reflects local weather
- A **digital art installation** that shows changing weather from around the world
- A **learning tool** for teaching recursion or environmental data in a more visual, interactive way

It shows that even with basic tools, you can create something personal, interactive, and responsive.

## Looking forward

Generative art is becoming a big part of things like web design, branding, immersive media, and even AI art. This project helped me get a better sense of how all those elements come together. It also showed me that with just some basic coding knowledge and a bit of curiosity, I can make something creative and unique using tools like P5.js.