Creative Coding Project Documentation

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Heat waves in the night sky

Assignment

I want to make the wallpaper project something that is unique every single time you load it while keeping customizational to almost every possible parameter. Other wall papers are pictures that are easily tiled, being their own individual tile with padding and their own colour. And usually that tile doesn't change between tiles. I want to change this as I believe its boring. I want a tile able wall paper that connects and reacts to the tiles around itself. I want something that continues throughout the entire wallpaper, not something that is just copy and pasted.

I want to make the stars generation parameters customizable. So like size variation, colours, points and tile positions.

For the background I want to to be possible to change the colour whenever.

For the line I want to change Bezier point number, colour graiant change parameters, amplitude parameters. All of these together will make a designed but yet unique background.

Response

As mentioned in assignment, I want to to make a wallpaper that is generated instead of created then copy and pasted, I want every time you load it to be slightly different across itself. The exciting thing about this is both it takes a lot of work and very little work at the same time. The code has to work flawlessly so that there are no breaks or bugs that can ruin the entire thing procedurally but its very able to optimization.

Precedent Images

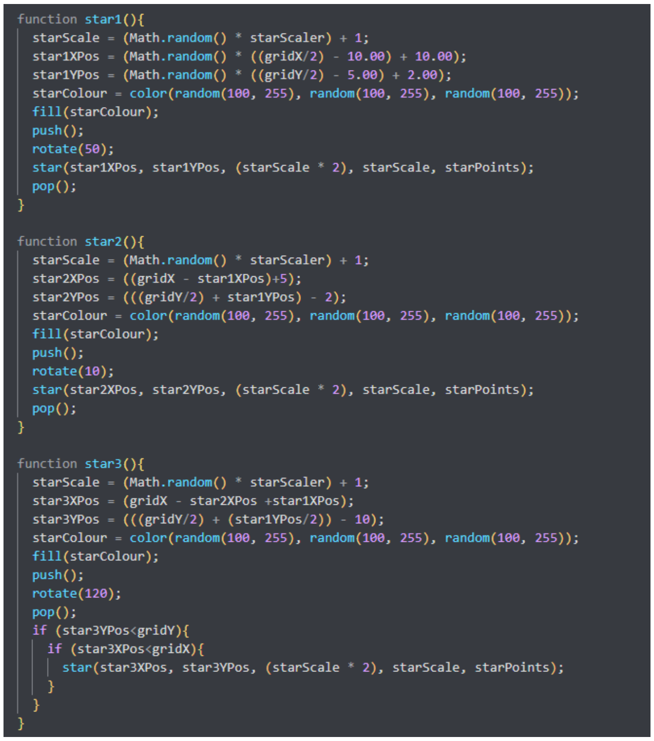
I wanted to base the wall paper off of two things, psychedelics and art that come from them, the randomness yet order of the art. As well as heat waves ribbling the light off hot pavement.

Development

Changes I made as the project went along were:

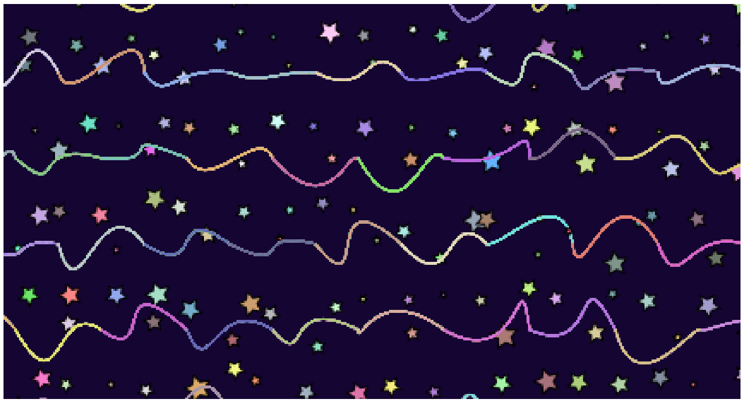
- Changed shape from hexagons to stars.

- Made the stars not randomly choose positions but choose positions around themselves;

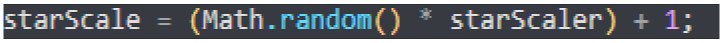


```
function star1(){
  starScale = (Math.random() * starScaler) + 1;
  star1XPos = (Math.random() * ((gridX/2) - 10.00) + 10.00);
  star1YPos = (Math.random() * ((gridY/2) - 5.00) + 2.00);
  starColour = color(random(100, 255), random(100, 255), random(100, 255));
  fill(starColour);
  push();
  rotate(50);
  star(star1XPos, star1YPos, (starScale * 2), starScale, starPoints);
  pop();
}

function star2(){
  starScale = (Math.random() * starScaler) + 1;
  star2XPos = ((gridX - star1XPos)+5);
  star2YPos = (((gridY/2) + star1YPos) - 2);
  starColour = color(random(100, 255), random(100, 255), random(100, 255));
  fill(starColour);
  push();
  rotate(10);
  star(star2XPos, star2YPos, (starScale * 2), starScale, starPoints);
  pop();
}

function star3(){
  starScale = (Math.random() * starScaler) + 1;
  star3XPos = (gridX - star2XPos +star1XPos);
  star3YPos = (((gridY/2) + (star1YPos/2)) - 10);
  starColour = color(random(100, 255), random(100, 255), random(100, 255));
  fill(starColour);
  push();
  rotate(120);
  pop();
  if (star3YPos<gridY){
    if (star3XPos<gridX){
      star(star3XPos, star3YPos, (starScale * 2), starScale, starPoints);
    }
  }
}
```

- Made it so that the line used to connect multiple tiles was cycling randomized colours;

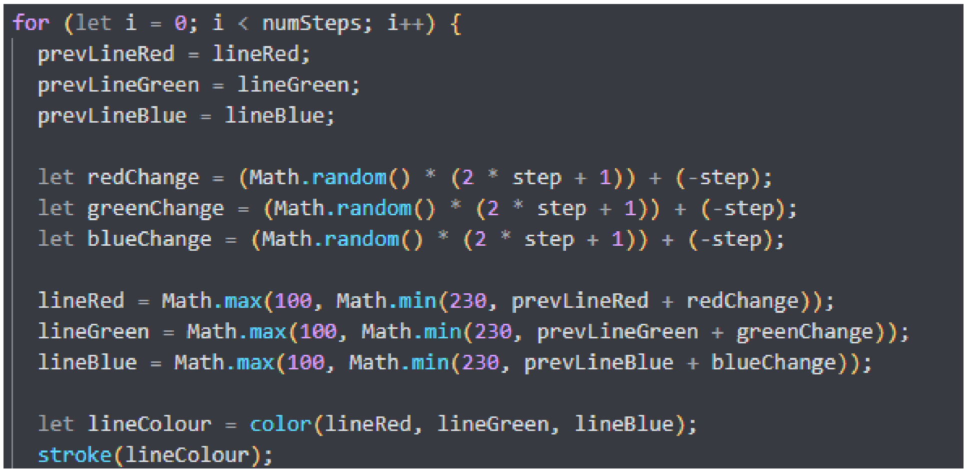


- Made it so that the stars randomize their size dependent on a scaling factor variable;

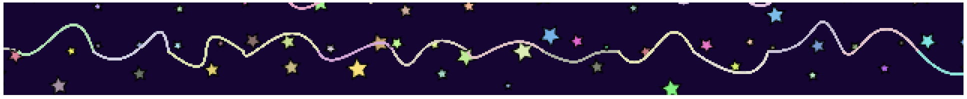


```
starScale = (Math.random() * starScaler) + 1;
```

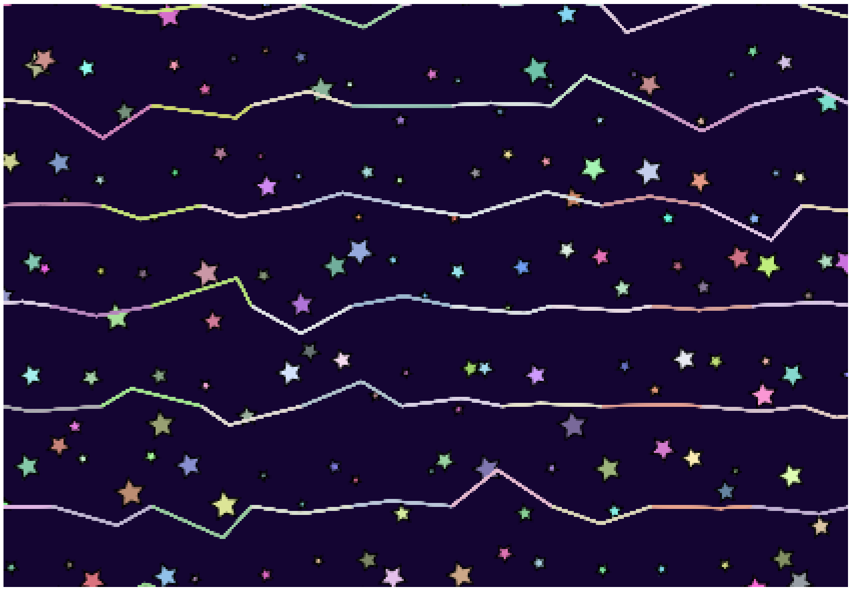
- Made it so that the line has a gradient variable that can be altered that influences what colour the next line segment will be instead of it being completely randomized;



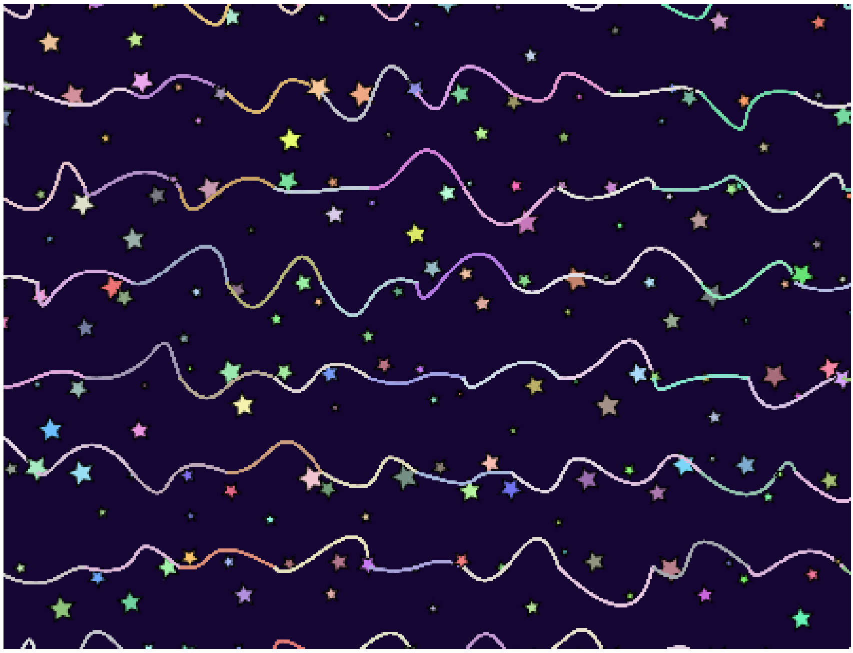
```
for (let i = 0; i < numSteps; i++) {
  prevLineRed = lineRed;
  prevLineGreen = lineGreen;
  prevLineBlue = lineBlue;

  let redChange = (Math.random() * (2 * step + 1)) + (-step);
  let greenChange = (Math.random() * (2 * step + 1)) + (-step);
  let blueChange = (Math.random() * (2 * step + 1)) + (-step);

  lineRed = Math.max(100, Math.min(230, prevLineRed + redChange));
  lineGreen = Math.max(100, Math.min(230, prevLineGreen + greenChange));
  lineBlue = Math.max(100, Math.min(230, prevLineBlue + blueChange));

  let lineColour = color(lineRed, lineGreen, lineBlue);
  stroke(lineColour);
```



- Made a variable that sets how many point of the bezier curve there are per tile;



(2)

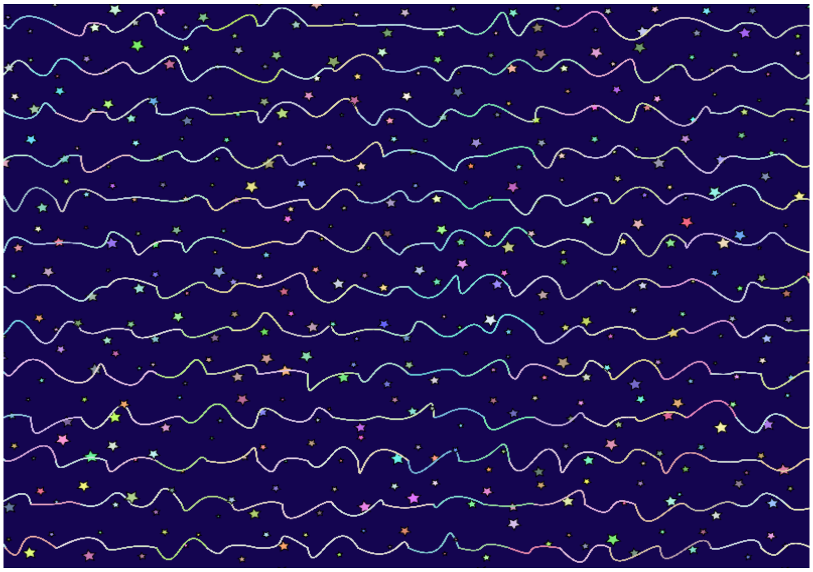


(50 Default)

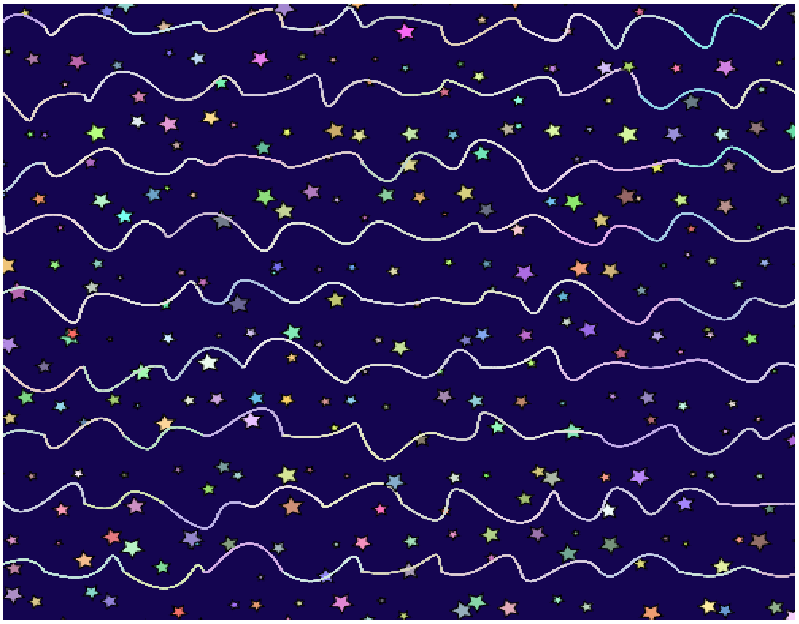
Experimentation/Reflection

As the project went along it became smoother and smoother to understand. I initially wanted overlaying hexagons with a line going in between them, however it ended up looking too messy. Instead the 2-3 stars with line through them was chosen. At one point in the code, a big debate I had with myself was how many stars should be present. I had it designed so that there were only ever 2 stars per tile.

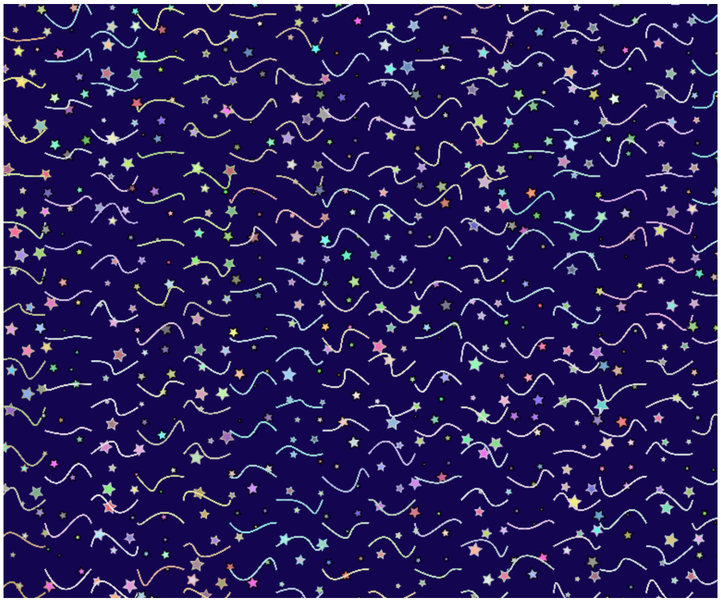
However, it looked moderately baron:



Thus, I opted for 3 stars. However, stars then began to overlap consistently, I needed parameters so that the 3 stars would look less cluttered, however they still did. I then figured out a constraint where the 3rd star could be anywhere that the 1st and 2nd star weren't but if it chose an area outside fo the tile, it wouldn’t appear. This made it so that tiles either had 2 or 3 stars, which made a significant difference as the space looked full but not crowded:

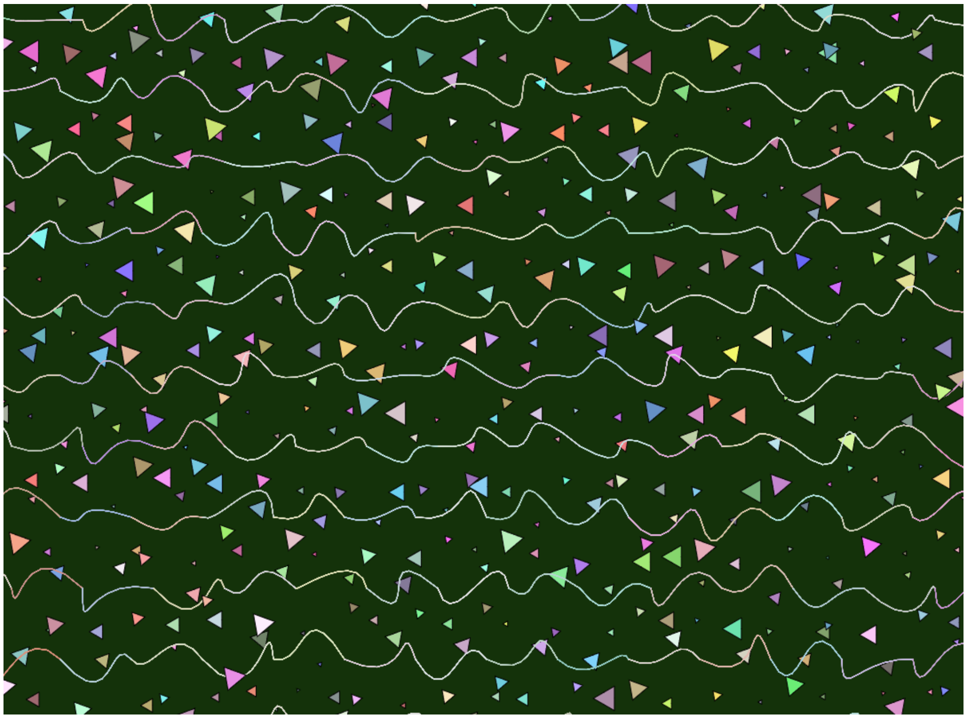


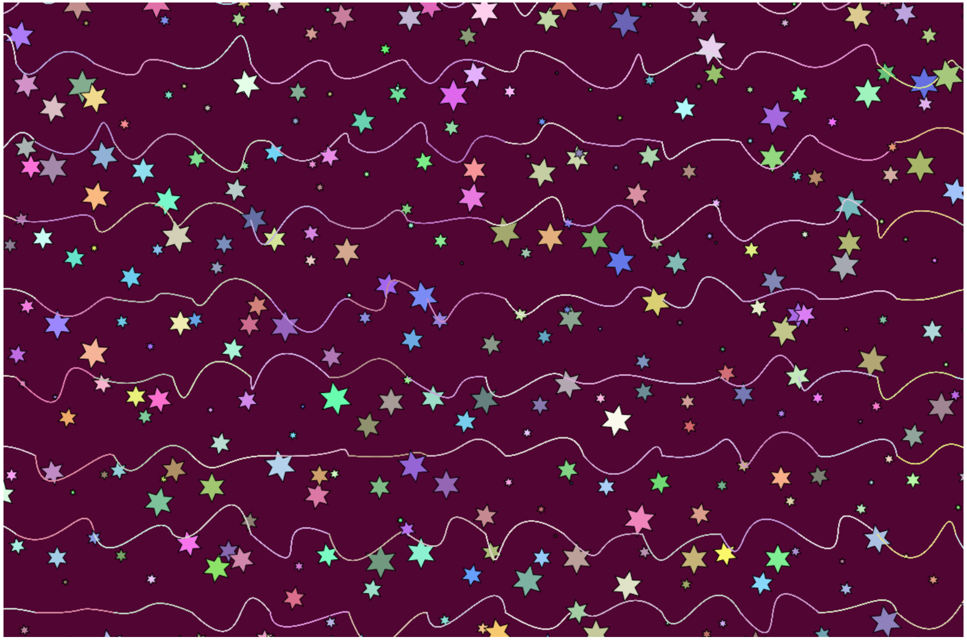
I feel like the project was a complete success. I achieved and made the wallpaper look exactly as I wanted it to look and generate. An idea that I had that had to be scrapped due to time constants was I couldn’t get a way to rotate the entire image. So the lines cannot be vertical for the other style of wallpaper unfortunately, it still looks good and freaky but it wasn’t what I wanted:

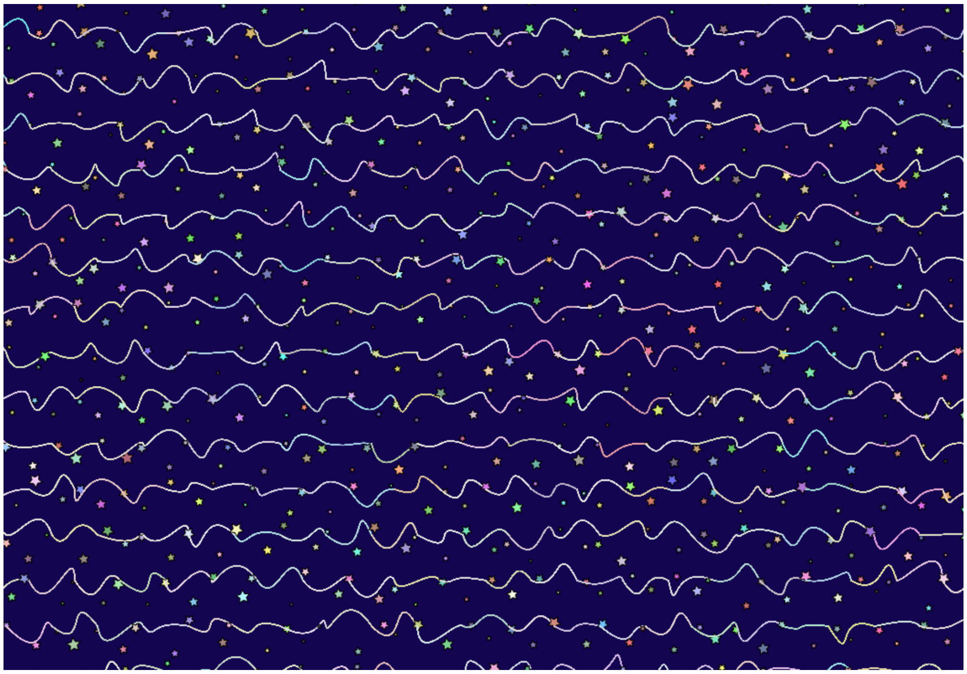


I believe that the line concept for the wallpaper was executed beautifully, there's nothing that I would change with it. I love it so much.

A few variations:







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