

Aim

To create an animated visualization of a Maurer rose using the p5.js library in a web-based environment.

Objective

- To implement the Maurer rose pattern using p5.js.
- To animate the Maurer rose by varying parameters over time.
- To explore the effects of changing parameters on the visualization.

Summary

This project involves creating an interactive and animated visualization of a Maurer rose using JavaScript and the p5.js library. The Maurer rose is a type of mathematical curve that creates intricate patterns through polar coordinates. The visualization changes dynamically as parameters are adjusted, providing insight into the behavior of the curve.

Tools and Libraries Used

- **p5.js:** A JavaScript library for creative coding that simplifies the process of drawing and animating graphics in a web browser.
- **HTML:** For setting up the web page and including external scripts and styles.
- **CSS:** For styling the web page and canvas.

Procedure

1. Setup HTML File:

- The index.html file includes the p5.js library and the main script (sketch.js), as well as a link to the CSS file for styling.

2. Setup JavaScript File:

- sketch.js initializes the canvas and sets up the drawing environment using p5.js.
- In the setup() function, the canvas is created and the angle mode is set to degrees.
- The draw() function handles the animation:
 - The canvas is cleared each frame with a black background.
 - The center of the canvas is set as the origin.
 - Two shapes are drawn:
 - The first shape represents the Maurer rose pattern.
 - The second shape overlays a Maurer rose pattern with different styling.
 - The parameters n and d are updated continuously to animate the shapes.

3. Styling:

- The style.css file ensures the canvas takes up the full screen and is displayed without margins.

Highlights

- **Dynamic Animation:** The continuous update of parameters (n and d) creates a dynamic and evolving visual pattern.
- **Maurer Rose Pattern:** Demonstrates the mathematical beauty of Maurer rose curves through polar coordinates.
- **Interactive Visuals:** The use of p5.js allows for real-time rendering and smooth animations, making the visualization engaging.

Conclusion

This project successfully demonstrates the use of p5.js for creating complex, animated visual patterns. The Maurer rose visualization not only showcases mathematical curves but also highlights the capabilities of p5.js for creative coding. The animation offers an insightful view into how changing parameters affect the visual output, enhancing the understanding of Maurer rose curves and their aesthetic properties.