CPE 381 Computer Graphics

Lab 4
Ellipse Drawing

Dr. Taweechai Nuntawisuttiwong

Base Code

- Start with the project code from Lab 3 as your foundation.
- Ensure that your application supports pixel-by-pixel plotting using *gl.POINTS* and coordinate mapping from pixel space to clip space.

Midpoint Ellipse Algorithm

- Implement the **Midpoint Ellipse Drawing Algorithm** as described by **Kenneth H. Carpenter**.
- Your implementation should use decision parameters and symmetrical plotting to draw a complete ellipse centered on the canvas or user-defined position.

Fast Ellipse Algorithm

- Implement the **Fast Ellipse Algorithm** proposed by **John Kennedy**.
- Focus on optimizing integer-only calculations and reducing conditional logic for better performance.

Integration

- Allow users to toggle between both algorithms via radio button interface.
- The user should be able to define an ellipse by clicking two points: the center and a boundary point.
- Render the ellipse using the selected algorithm and update the canvas accordingly.