Drawing Circles

Using the `rectangle` function

This project demonstrates the use of MATLAB's `rectangle` function to draw a perfect circle by leveraging its curvature property. By defining the radius and center of the circle, I calculated the position vector required to place the rectangle accurately. Setting the curvature to `[1, 1]` transformed the rectangle into a circle with smooth, rounded edges. The visualization ensures precision by applying equal scaling to the axes, maintaining the circular shape. This approach highlights the versatility of the `rectangle` function for creating geometric shapes beyond its conventional use.

```
% Drawing a Circle using the Rectangle Function
% I want to draw a circle by using the rectangle function and setting its curvature to 1.

% Define the radius and center of the circle
r = 2; % Circle radius
c = [3 3]; % Circle center [x, y]

% Define the position vector for the rectangle
pos = [c - r, 2 * r, 2 * r]; % [x, y, width, height]

% Plot the rectangle with curvature
figure;
rectangle('Position', pos, 'Curvature', [1, 1], 'EdgeColor', 'b', 'LineWidth', 2);
axis equal; % Make the axes equal to ensure the circle looks correct
title('Circle Using Rectangle Function');
```