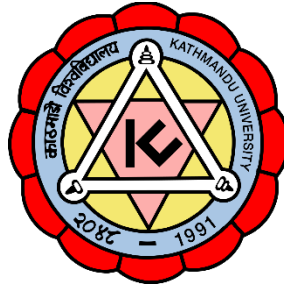


Kathmandu University

Department of Computer Science and Engineering

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Computer Graphics (COMP 342)

Lab 3 Report

Submitted To:

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CE-2019 3rd year/2nd semester

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Write a Program to implement mid- point Circle Drawing Algorithm.

Algorithm:

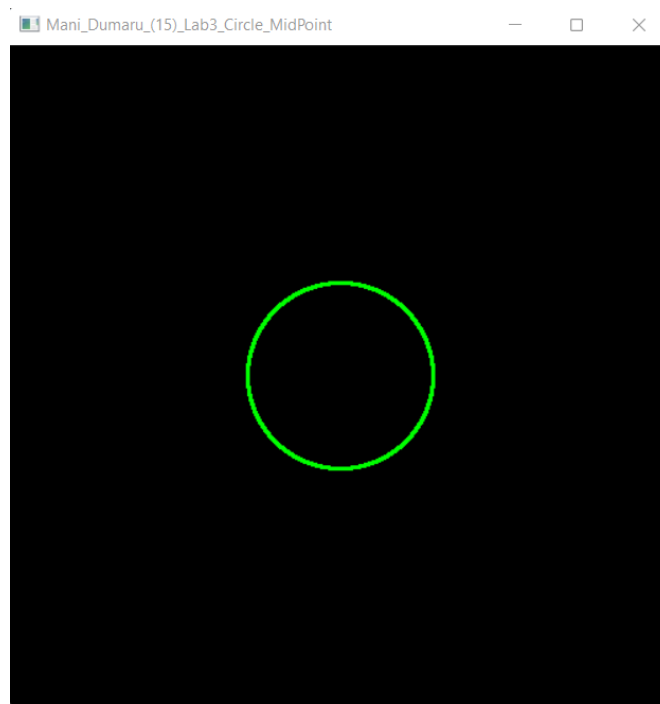
Input: Center and Radius of the circle

Output: A circle with given center and radius

1. $X = 0$, $Y = \text{radius}$
 2. While $X \leq Y$
 - 2.1.PLOT ($X + x_center$, $Y + y_center$) - use eight-point symmetry
 - 2.2. $X = X + 1$
 - 2.3. $d_parameter = x^2 + (y-(1/2))^2 - \text{radius}^2$
 - 2.4.if ($d_parameter > 0$)
 - 2.4.1. $y = y - 1$
- END IF
- END WHILE

Source Code: [circle.py](#)

Output:



Write a Program to implement mid- point Ellipse Drawing Algorithm.

Algorithm:

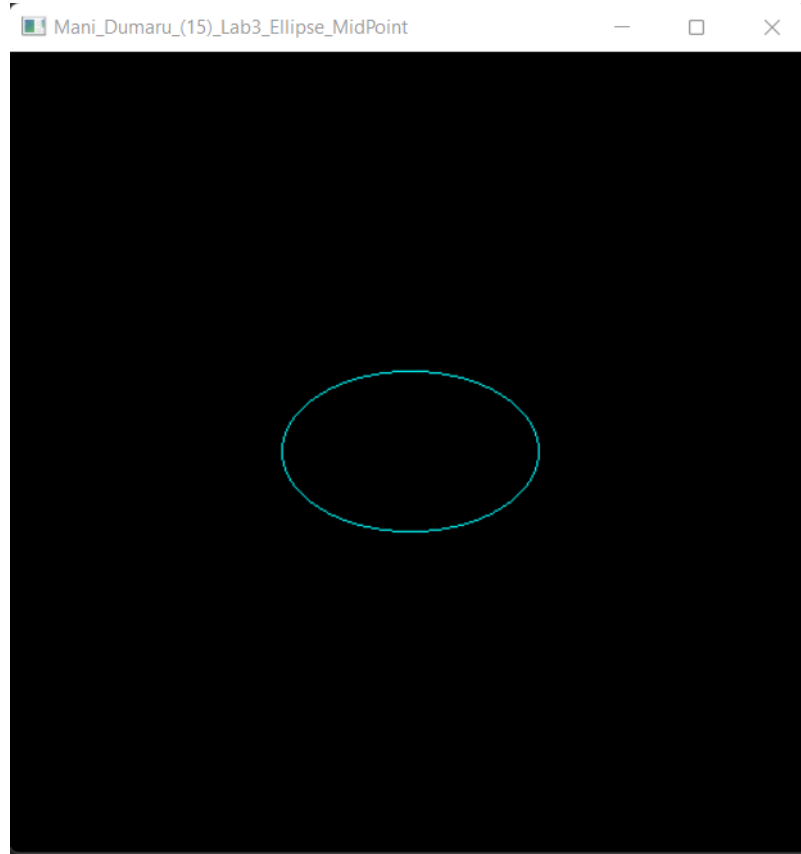
Input: radius x, radius y, center

Output: Ellipse with given data

1. $X = 0, Y = r_y$
 2. While($x \leq r_x$ and $y \geq 0$)
 - 2.1. Plot ($X + x_center, Y + y_center$) Use four-point symmetry
 - 2.2. If ($2 * r_y^2 * x < 2 * r_x^2 * y$)
 - 2.2.1. $X = X + 1$
 - 2.2.2. $d_parameter = r_x^2 * (y - (1/2))^2 + r_y^2 * x^2 - r_x^2 r_y^2$
 - 2.2.3. if $d_parameter > 0$
 - 2.2.3.1. $y = y - 1$
 - 2.3. Else
 - 2.3.1. $Y = Y - 1$
 - 2.3.2. $d_parameter = r_x^2 * y^2 + r_y^2 * (x + (1/2))^2 - r_x^2 r_y^2$
 - 2.3.3. if $d_parameter < 0$
 - 2.3.3.1. $x = x + 1$
 - 2.3.3.2.
- END IF
- END WHILE

Source Code: [Ellipse.py](#)

Output:



Conclusion:

Hence, Circle and Ellipse drawing was implemented using the mid-point algorithm.