**Computer Graphics Project (To be Submitted on the 18th November, 2024)- 20 Marks**

1. Basic Implementation and Comparison **[ All comparisons should be done with the same input value**s]

a. Implement DDA, Bresenham and Mid point line algorithm. Compare the results based on the quality of the lines accuracy, and computational efficiency. Which algorithm performs better and why?

b. Implement Bresenham and Mid point circle algorithm. Compare the results based on the quality of the circle accuracy, and computational efficiency. Which algorithm performs better and why?

All the graphics algorithms should be implemented as one program with graphical user interface that can prompt a user to input different values and display the corresponding output based on the algorithm chosen

1. For DDA and Bresenham's line algorithms, explore and report how the slope of the line affects the performance and output.
2. Test the algorithms **with slopes greater than 1, less than 1, zero, and undefined** (vertical line).
3. Does one algorithm perform better with certain slopes?
4. Compare the visual differences and accuracy. Which algorithm has an easier time achieving precise results with sub-pixel positioning?
5. Measure and compare the real-time performance **(in milliseconds)** of each algorithm when rendering a high-density grid of lines or circles. Which algorithm scales better as the number of shapes increases, and why?

Make sure you include the snapshot of the results  
Make sure it is a spiral bound document  
include your name and matriculation number