# BCSE-III Odd Sem Graphics Assignments

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## Assignments Attempted:

1. Create a **raster grid** showing 4 quadrants to plot pixels of variable sizes.
2. Implement a **line drawing** algorithm to draw lines between two end points in the raster grid using, **a) DDA b) Bresenham's line drawing algorithm**. Show execution times for each algorithm in ms. Check for all possible line endpoints in 4 quadrants.
3. Implement a **circle drawing** algorithm to draw a circle with a given radius in the raster grid using, **a) Polar b) Bresenham's Midpoint circle** drawing algorithm. Check for execution time in ms.
4. Implement an **ellipse drawing** algorithm to draw a circle with a given radius in the raster grid using **a) Polar, b) Bresenham's Midpoint ellipse** drawing algorithm. Check for execution time in ms.
5. Draw a closed polygon. Implement **scanline fill** algorithm to fill the polygon.
6. Implement the seed-fill algorithms: **a) Boundary fill, b) Flood fill**.
7. Draw a closed polygon and implement different transformation functions (with respect to origin) on it. **a) translation, b) rotation, c) scaling, d) shear, e) reflection with respect to x/y axes**. Extend the algorithm to apply the transformations successively on the same object using homogeneous coordinates and matrix multiplication.
8. Composite Transformation. **a) Rotation and scaling with respect to an arbitrary point, c) reflection with respect to an arbitrary line**.
9. Implement **Line Clipping** with respect to a rectangular clip window, using **Cohen-Sutherland Algorithm**.
10. Implement **Polygon Clipping** with respect to a rectangular clip window, using **Sutherland-Hodgeman Algorithm**.