Experiment 7

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Aim: Implement convex hull using graham scan

Theory: A convex hull is the smallest convex polygon that contains a given set of points. It is a useful concept in computational geometry and has application in various fields, such as computer graphics image processing and collission detection.

A convex polygon is a polygon in which all interior angles are less than 180°. A convex hull can be constructed for any set of points, regardless of their arrangement.

The Graham Scan Algorithm is a simple and efficient algorithm for computing the convex hull of a set of points. It works by iteratively adding points to the convex hull until all points have been added.

The algorithm starts by finding the point with the smallest y-coordinate, this point is always on the convex hull. The algorithm then sorts the remaining points by their polar angle with respect to starting point

The algorithm then iteratively adds point to the convex hull. At each step, the algorithm checks whether the last two points is removed from the convex hull. Otherwise, the next point in the sorted list is added to the convex hull.

The algorithm terminates when all points have been added to the convex hull.

Conclusion: Hence we implemented convex hull using graham scan.