Assignment - 8 (B3)

Problem definition:

Write a C++ program to implement cohen-sutherland clipping algorithm for a given window. Draw lines using Mouse interface.

Objective:

To implement clipping algorithm for a polygon using any given window.

Outcome:

To understand the cohen-sutherland clipping Method.

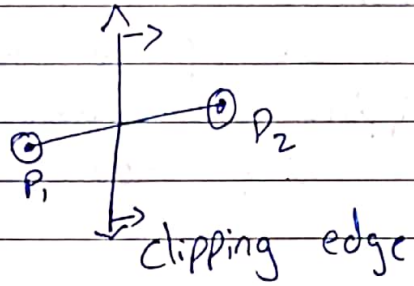
H/w & S/w requirements:

- 64 bit OS
- Qt creator

Theory:

- Cohen-Sutherland is clipping algorithm which clips a polygon with reference to the boundaries of the clipping window
- Considering a rectangular window, we clip the polygon w.r.t 4 edges of the rectangle
- This algorithm can be extended for clipping w.r.t any polygon by applying the same principles each boundary.

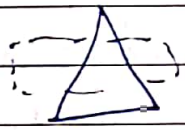
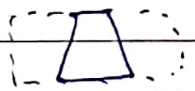
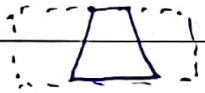
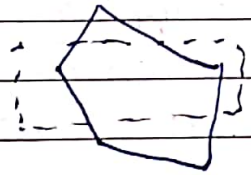
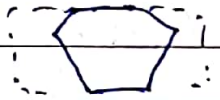
→ Each edge of the shape is checked w.r.t the clipping edge as follows.



let P_1 be the starting vertex of the edge & P_2 be the next vertex of the polygon.

i) If P_1 & P_2 lie outside the line-discard P_1
ii) If P_1 = outside, P_2 = inside, take intersection of P_1 with boundary
iii) If P_1 is inside, consider P_1

Test Case :

Input	expected o/p	Actual o/p	result
			Pass
			Pass

Conclusion :

Thus, using cohen-sutherland clipping, were able to clip our polygon with any rectangular window