Assignment-7 (B2)

Problem definition -
Write a C++ program to draw a convex polygon & fill it using desired colored with seed fill algorithm. Use Mouse to create polygon.

Objective :- To draw polygon using Mouse & fill it using a seed fill algorithms
- Understand concept of neighbours in fill algorithm.

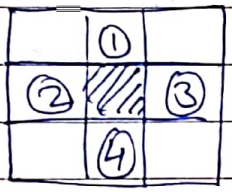
Outcome :
Understanding of seed fill algorithms will help to choose the right method in the correct situation.

H/w & s/w requirements :
- 64 bit OS
- Qt creator

Theory :
- Filling algorithms which need a point known inside the polygon are known as seed fill algorithms.
- Using the concept of neighbours, filling algorithms can be classified as.
  i) 4 neighbours
  ii) 8 neighbours

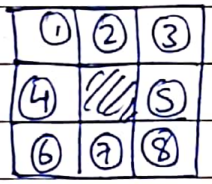
- We can decide the method to use

i) In 4 neighbours, each pixel filled looks at 4 neighbouring pixel, as shown here



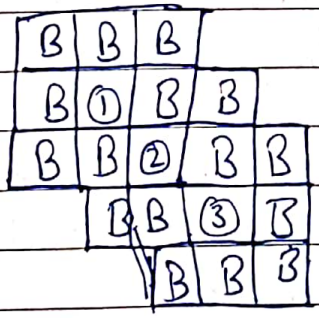
seed fill is applied recursively to the 4 neighbours.

ii) For more complex objects, 8 neighbours method is used which is as follows:



seed fill is applied recursively to these 8 neighbours.

Consider the following use. Let 'B' be the boundary are numbers be pixel to be filled



If we fill pixel ①, then by using 4 neighbour method, we cannot fill ② & ③

Since the problem contains convex polygon we will use 4 ~~polygons~~ neighbours.

Test cases:

	Input	expected o/p	Actual o/p	result
i)	filling of square with red colour	red colored square	red colored square	pass
ii)	filling pentagon with blue color	Blue colored square	Blue colored square	pass

Conclusion:

Thus using the concept of neighbours, we were able to create a polygon and fill it with desired color.