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Batch : G-4 Assignment - 7

classmate

Date

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• Problem statement :-

Write a C++ program to draw 4x4 chessboard rotated  $45^\circ$  with horizontal axis. Use Bresenham's algorithm to draw all the lines. Use seed fill algorithm to fill the black squares.

• Objectives :-

To understand basic rotation transformation & seed fill algorithm for the chessboard.

• Outcome :-

He will be able to do rotation & fill the chessboard with seed fill algorithm.

• H/W & S/W :- Linux, Qt, creator.

• Theory :-

4x4 chessboard, we draw 5 horizontal & 5 vertical lines forming 16 small squares & are big square. Alternatively filled white & black.

• Algorithm :-

Rotation

{

Float A[max], B[max], C[max], D[max]

Float t1 =  $\pi/180$ ;

for i = 0 to 10 do

A[i] = (x1[i] - 200) \* cos45 -

(y1[i] - 200) \* sin45

B[i] = (x2[i] - 200) \* sin45 -

(y2[i] - 200) \* cos45

C[i] = (x2[i] - 200) \* cos45 -

(y2[i] - 200) \* sin45

D[i] = (x2[i] - 200) \* sin45 -

(y2[i] - 200) \* cos45

for i = 0 to 10 do

A[i] + = 200;

B[i] + = 200;

C[i] + = 200;

D[i] + = 200;

for i = 0 to 10 do

break (A[i], B[i], C[i], D[i])



• Test Cases :

i/p

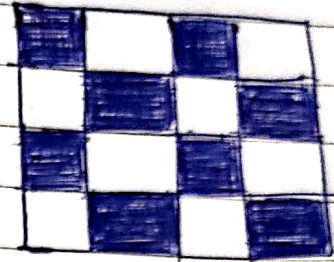
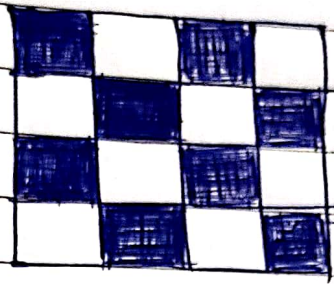
o/p

expected o/p

Result

①

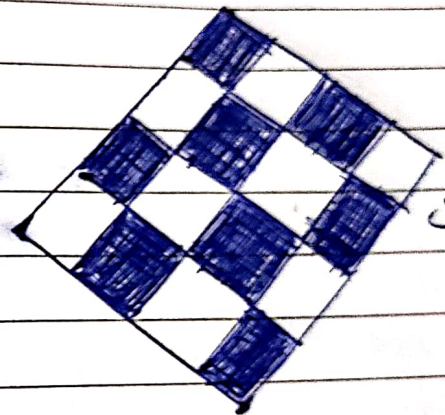
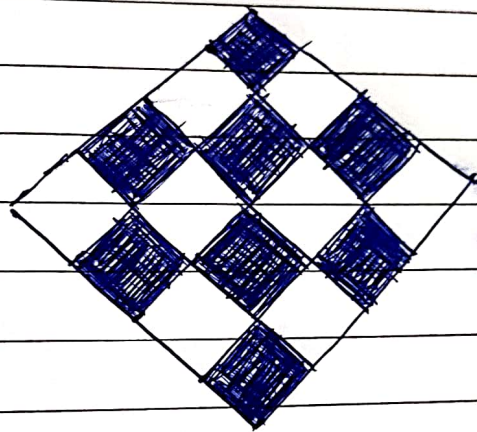
Draw chessboard & fill



Success

②

Rotating by  $45^\circ$  & fill alternates squares



Success

• Conclusion :-

Successfully implemented the algorithm to draw the chessboard and rotated it and filled it by seedfill.