



DEFECTIVE CHESSBOARD PROBLEM

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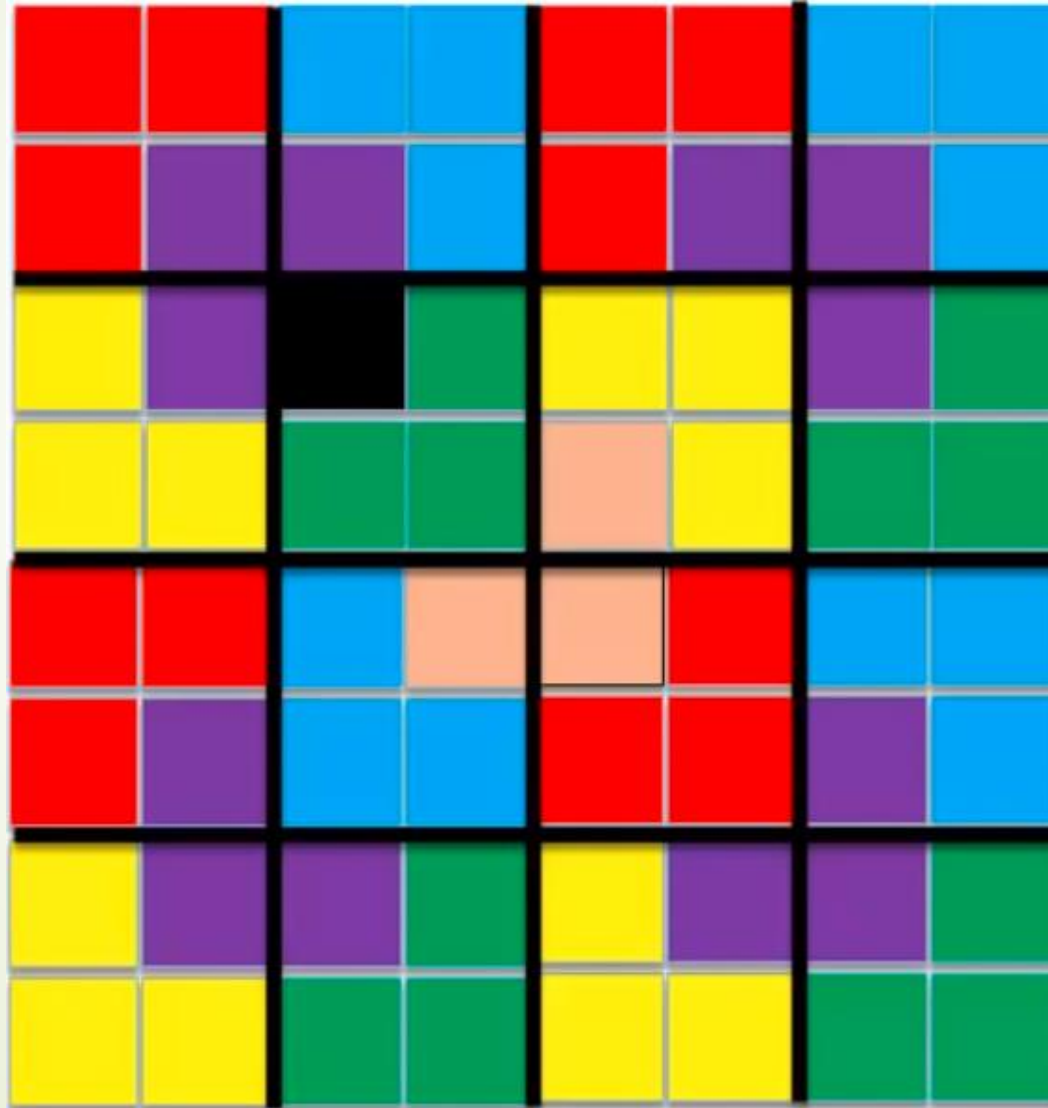


Problem Statement:-


➤ What is Defective chessboard ?

- A defective chessboard is a chessboard that has one unavailable(defective) position.
- Alternate definition:- It is a $2k \times 2k$ board of squares with exactly one defective square(where $k = 1, 2, 4, 6, 8, \dots$).
- A tromino is an L shaped object that can cover 3 squares of a chessboard.
- A tromino has 4 orientations.

Tromino tiling for 8x8 Chessboard:-



Dimensions of
original
Chessboard
Is 8x8



Working of tiling of a Defective Chessboard

- Place $(n^2-1)/3$ trominoes on an $n \times n$ defective chessboard so that all n^2-1 non-defective positions are covered.
- It follows divide and conquer technique.
- It works recursively and divides 8×8 chessboard into smaller ones (up to 2×2).
- Tiling is done for every small chessboard and the solution is conquered into final solution that is for 8×8 chessboard.
- Basically we find out the defective part of the chessboard.

Thank You

