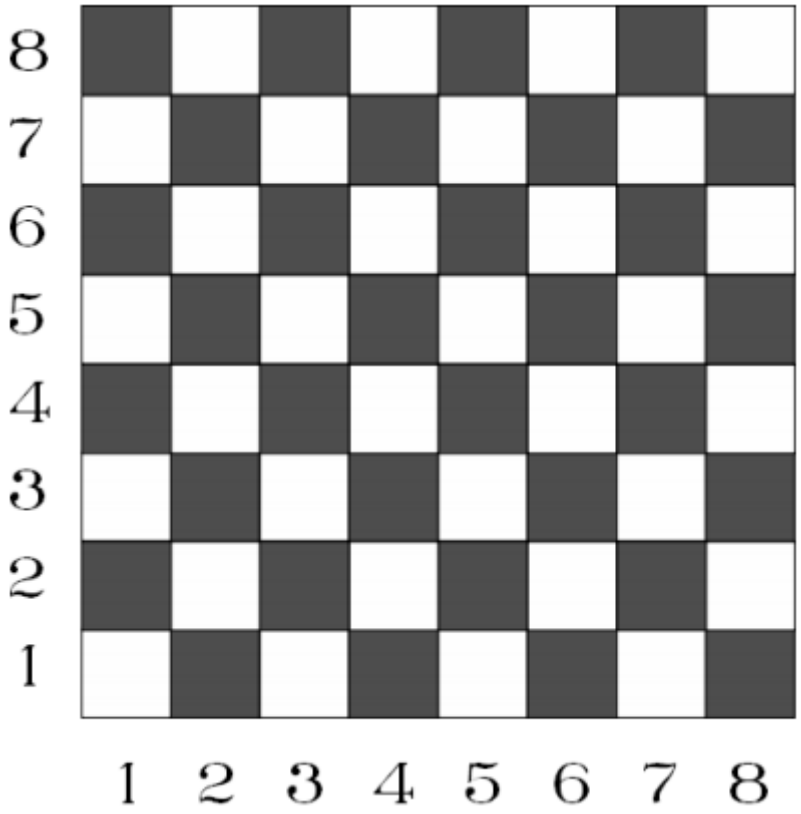
Black Squares of the Chessboard

Description

In this exercise our pawn is limited to move from one black square to a neighboring black square.



- **Exercise 1**: Write a program, which through a nice print shows a way (column and row number) the way our pawn chooses to walk from the upper left corner to another given black square
- **Exercise 2**: Extend the answer from Exercise 1, so the pawn can begin at the upper left corner of the board and through exactly 13 moves reach the lower right corner. I.e. it must touch exactly 14 squares. It is not allowed for the pawn to enter the same square more than once.

Classes

- *BlackSq* - Contains the main method to run the program.
- *Chessboard* - Responsible for handling the chessboard.
- *Menu* - Handles user input from the console.
- *Pawn* - Responsible for the pawns movement.

Problem solving notes

Pawn movement

In order to determine the path for each move made, each axis is looked at individually. Because the pawn can only move to a neighboring black square (diagonally), it means that every move is a change on the x-axis and the y-axis, which means the pawn will either move further up or down each axis.
This move is then determined by whether or not the pawn is standing on a square at the edge (1 or 8 at either x- or y-axis). It then moves further away from the edge, otherwise it moves closer to the selected square the pawn has been ordered to move at. This order of determination is to prevent the pawn from accidently moving outside the bounds of the chessboard.

Internal representation of the chessboard

The chessboard is represented as an array of integer arrays (Integer[][]). Each row is an array, and each of these arrays contains an element representing one square on the chessboard. *0* is considered a white square, and *1* is considered a black square. This is useful for printing the board and also checking whether a specific square is in fact a black square, whenever the program is instructed to move the pawn.

Path saving

To print the board, each row is printed as a line, and every square is printed as a set of characters:

- White square: [ ]
- Black square: [o]
- Square pawn has moved on: [x]