**Technical Assignment Solution Document**

This document is to describe the solution presented for “A Piece’s Tour” problem.

**Input Provided**

A 10 X 10 chessboard.

Location of the piece

**Approach**

The solution is maintainable for any size chessboard and will give correct output for all sizes. The developer only needs to modify the rowSize and colSize in the code, or in production environment the configuration file.

1. The input should be a string format with comma separated values, e.g. “2,3”.
2. The input is first split and checked for integer values, thus inputs like “a,2” will throw a checked exception.
3. If the inputs are in integer formats, it is checked for the range, the numbers should be within the board size range, or will throw an output as “Invalid input”
4. On getting the correct inputs, the x coordinate and y coordinate positions are checked for various positions a piece can move onto. Once the position gets validated, the coordinate gets mapped to the 2-Dimensional array created at the start.
5. Once all coordinates are mapped to the board array, this array is printed to give the positions where the piece can move onto.
6. Also, after printing the paths, it gives the number of path possible with the input coordinates given.

***Sample Input****: "4,4"*

***Sample Output****:*

*+--++--++--++--++--++--++--++--++--++--+*

*+--++--++--++--++--++--+ N +--++--++--+*

*+--++--++--++--+ NW +--++--++--+ NE +--+*

*+--++--++--++--++--++--++--++--++--++--+*

*+--++--++--+ W +--++--+ P +--++--+ E*

*+--++--++--++--++--++--++--++--++--++--+*

*+--++--++--++--+ SW +--++--++--+ SE +--+*

*+--++--++--++--++--++--+ S +--++--++--+*

*+--++--++--++--++--++--++--++--++--++--+*

*+--++--++--++--++--++--++--++--++--++--+*

*Number of tour a piece could make from that location : 8*

***Steps to test code:***

*PieceChecker is the main class which calls for validation and prints the total number of paths possible or tells the user if the input is invalid.*

*DataValidation is an object class having all the validations for the inputs and other validations i.e. for other 8 directions.*

BoardFunctions is object class having functions to calculate the total path and draw a chess board with the piece’s and possible directions the piece can move to.