We first construct a corresponding flow network with rows, named for row , as the sources and columns, named for column , as the sinks. Since each row and column can exist only one rook, form a super source for rows with edges of capacity one and a super sink for columns with edges of capacity one. For every cell in row and column , if it is not under any bishop’s attack, which means there is no bishops in diagonal cells, connect vertex and with a directed edge of capacity 1, meaning a rook can be placed in cell . We now run the Edmons-Karp algorithm to find the maximal flow through such a network. The max flow is the largest number of black rooks we can place on the board.

Time complexity: Constructing a network and running the Edmons-Karp algorithm